

P.O. Box 6176
FAIRFIELD GARDENS
Q. 4103

PHONE: (07) 3274 3922

70 Flanders Street
SALISBURY
Q. 4107

FAX: (07) 3274 3929

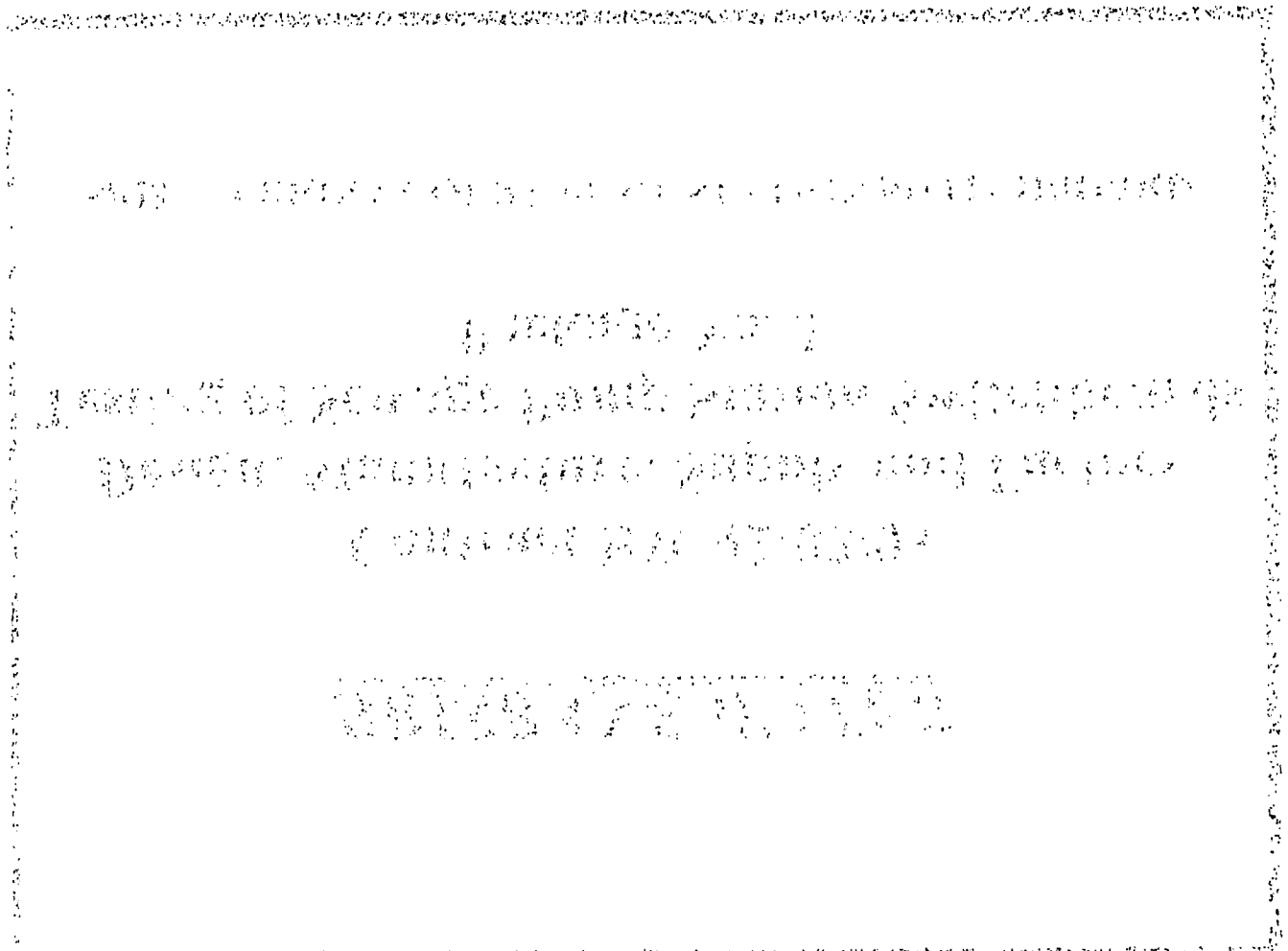
Manufacturers of Engineered Switchboards for Mining, Industrial and Commercial Projects

BRISBANE WATER

Contract BW.42-02/03

**Design, Manufacture, Supply and Factory
Testing of Sewage Pump Station Switchboards
Package No. 3**

SP287 NERRINA COURT PUMP STATION SWITCHBOARD





P.O. Box 6176
FAIRFIELD GARDENS
Q. 4103

PHONE: (07) 3274 3922

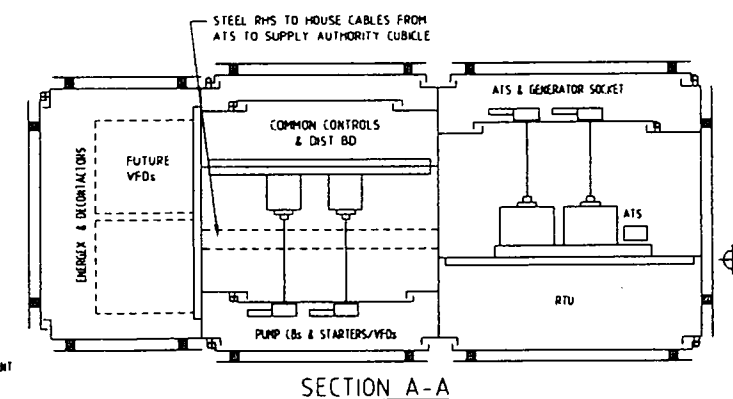
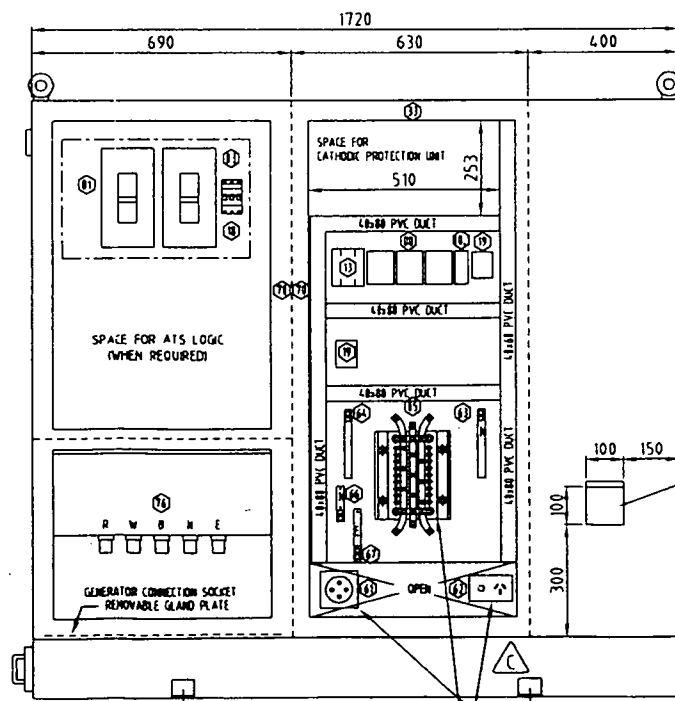
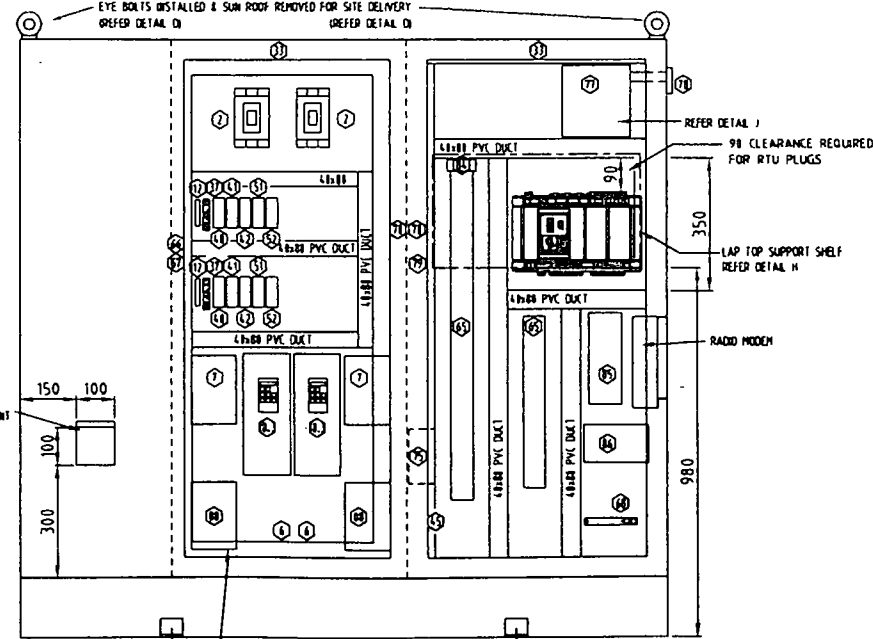
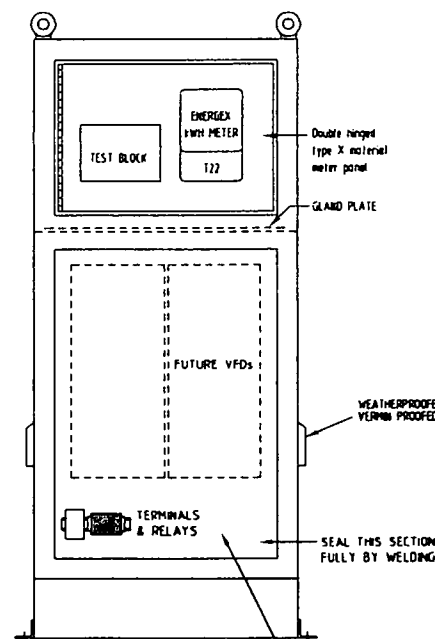
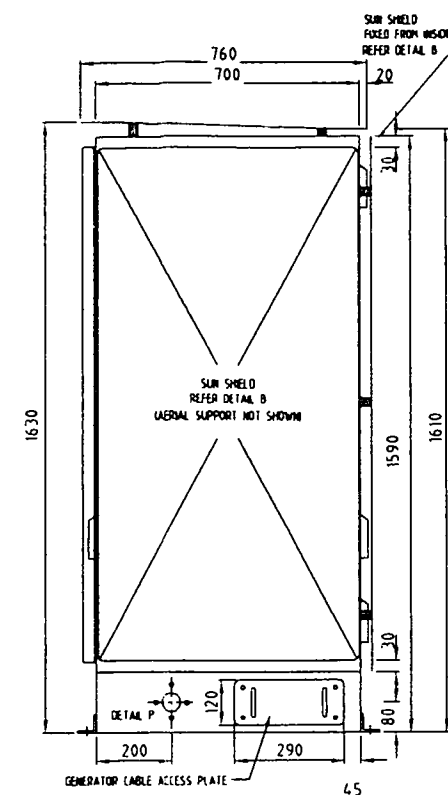
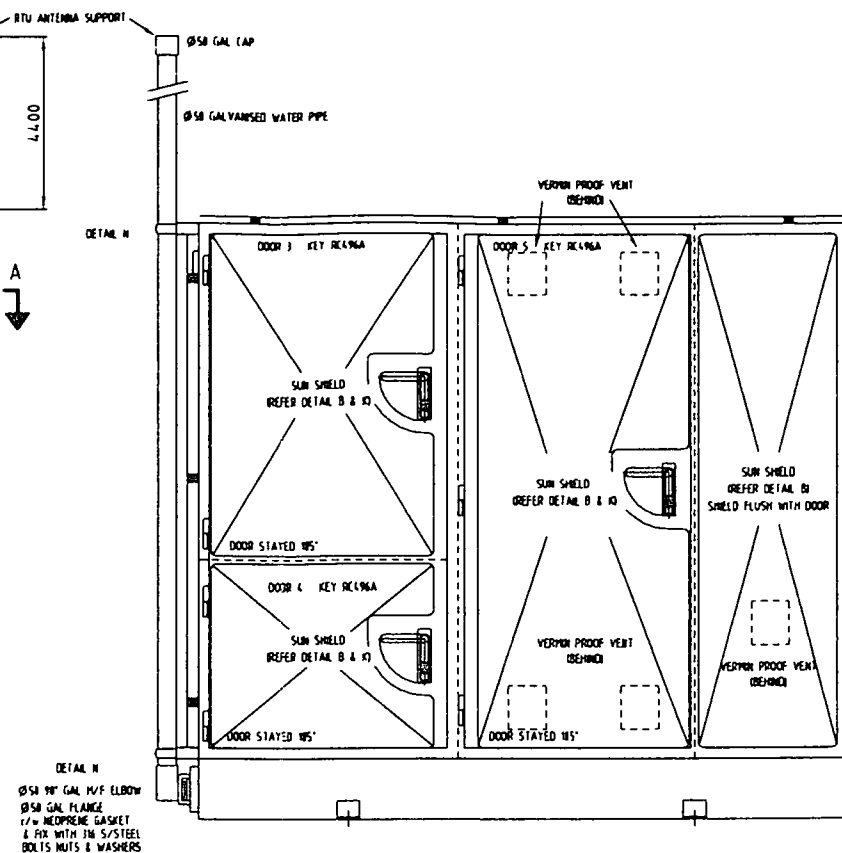
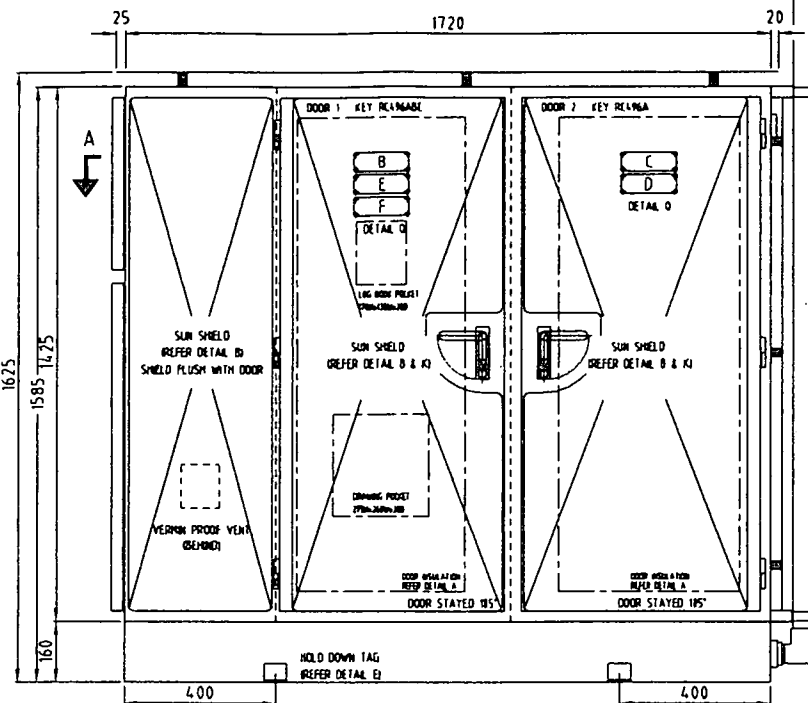
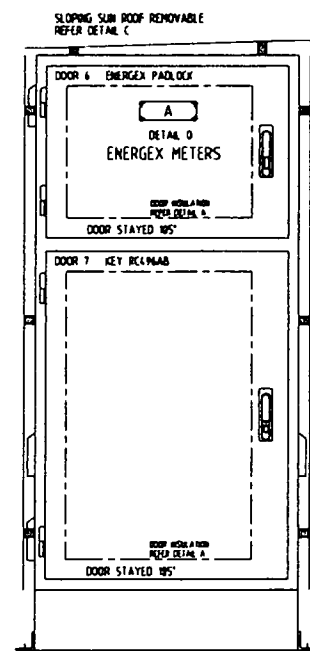
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Manufacturers of Engineered Switchboards for Mining, Industrial and Commercial Projects



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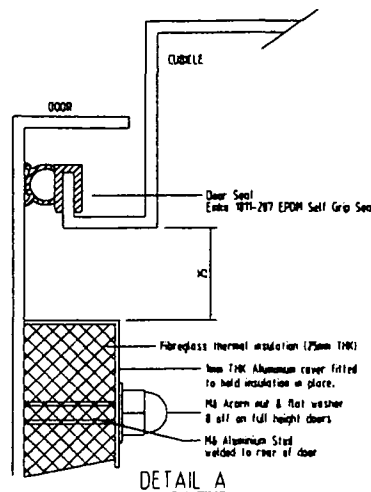
Section 1:	Drawings
Section 2:	Test Results
Section 3:	Inspection, Checking and Maintenance Procedures
Section 4:	Manufacturers Literature



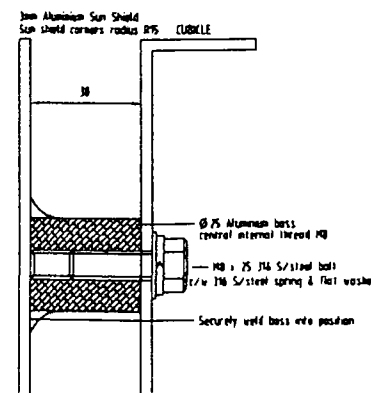
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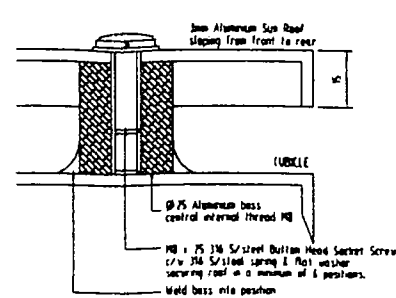
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1 5/9/81 TEST CAB. LAYOUT REVISED			LI	MANAGER ENGINEERING								DRAWN	H.T.	11-3-03		SURVEY No.		FIELD BOOK					DRAWING N° 486/5/7-FK210	AMEND. D
2 21-4-81 LAYOUT REVISED			LI									CHECKED	A. PL	4/83				A.H. DATUM						
3 27-3-81 ISSUED FOR CONSTRUCTION			AM	PRODUCTION / NETWORK DELEGATE																				
NO. DATE AMENDMENT			INITIALS								Brisbane City		SURVEYED											



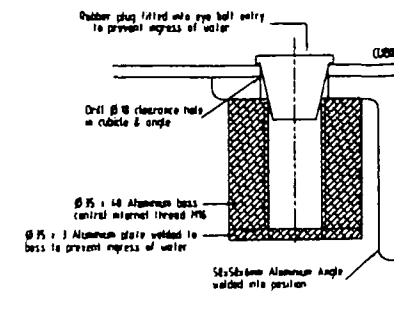
DETAIL A
(THERMAL INSULATION & DOOR SEAL)



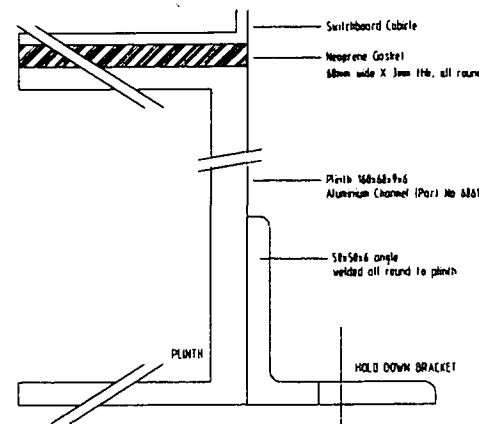
DETAIL B
(ISUN SHIELD MOUNTING TO SIDES, REAR AND DOORS)



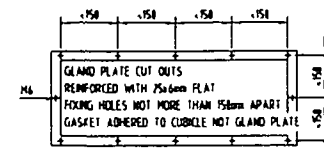
DETAIL C
(ISUN ROOF FIXING DETAIL)



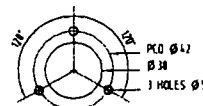
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(EYE BOLT FIXING DETAIL)



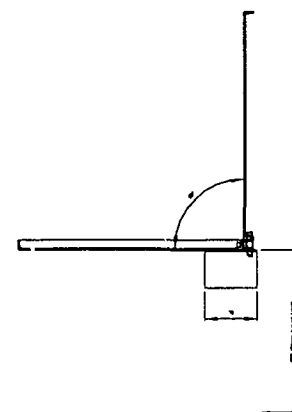
DETAIL E
(BOLTING DOWN FACILITIES DETAIL)



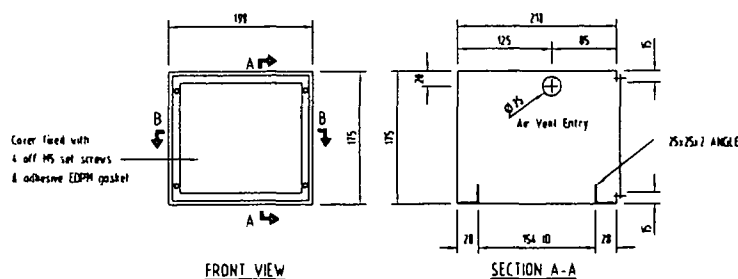
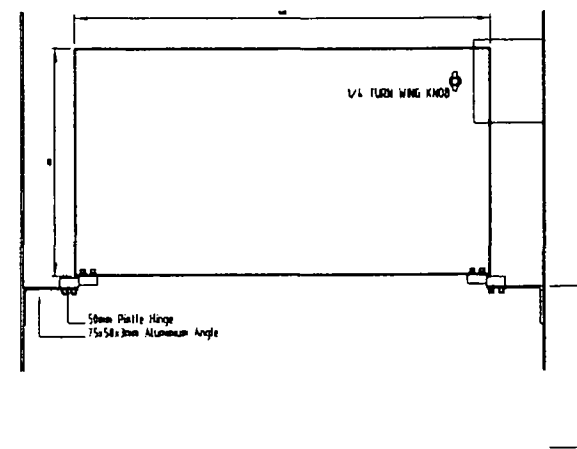
DETAIL F
(GLAND PLATE FIXING DETAIL)



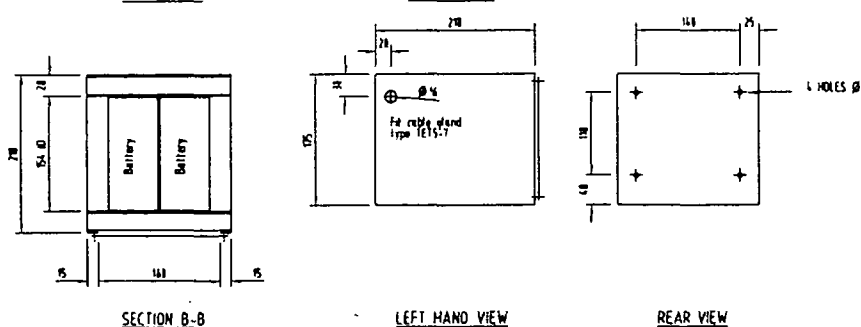
DETAIL G
(BATTERY VENT FIXING DETAIL)



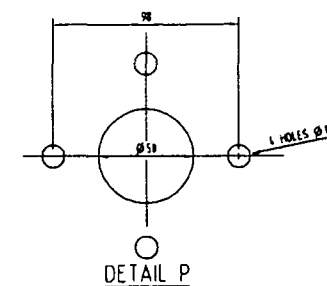
DETAIL H
(RTU LAPTOP SUPPORT SHELF)



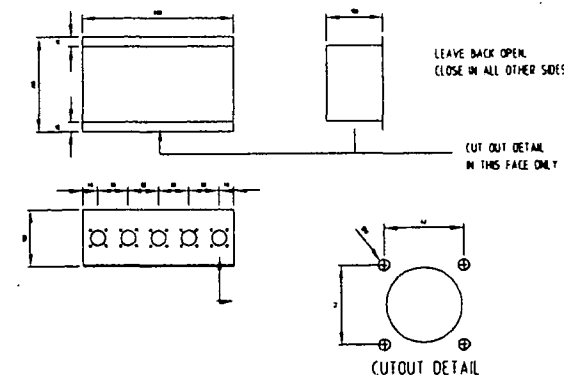
DETAIL J
(BATTERY ENCLOSURE DETAIL)



DETAIL K
(AERIAL SUPPORT BRACKET DETAIL)



DETAIL L
(AERIAL FLANGE MOUNTING DETAIL)



DETAIL M
(GENERATOR PLUG BOX)

Sheet 12

ISSUED FOR
CONSTRUCTION

<p>NO. DATE</p> <p>1 27-3-03</p> <p>2 27-3-03</p> <p>3 27-3-03</p> <p>4 27-3-03</p> <p>5 27-3-03</p> <p>6 27-3-03</p> <p>7 27-3-03</p> <p>8 27-3-03</p> <p>9 27-3-03</p> <p>10 27-3-03</p> <p>11 27-3-03</p> <p>12 27-3-03</p> <p>13 27-3-03</p> <p>14 27-3-03</p> <p>15 27-3-03</p> <p>16 27-3-03</p> <p>17 27-3-03</p> <p>18 27-3-03</p> <p>19 27-3-03</p> <p>20 27-3-03</p> <p>21 27-3-03</p> <p>22 27-3-03</p> <p>23 27-3-03</p> <p>24 27-3-03</p> <p>25 27-3-03</p> <p>26 27-3-03</p> <p>27 27-3-03</p> <p>28 27-3-03</p> <p>29 27-3-03</p> <p>30 27-3-03</p> <p>31 27-3-03</p> <p>32 27-3-03</p> <p>33 27-3-03</p> <p>34 27-3-03</p> <p>35 27-3-03</p> <p>36 27-3-03</p> <p>37 27-3-03</p> <p>38 27-3-03</p> <p>39 27-3-03</p> <p>40 27-3-03</p> <p>41 27-3-03</p> <p>42 27-3-03</p> <p>43 27-3-03</p> <p>44 27-3-03</p> <p>45 27-3-03</p> <p>46 27-3-03</p> <p>47 27-3-03</p> <p>48 27-3-03</p> <p>49 27-3-03</p> <p>50 27-3-03</p> <p>51 27-3-03</p> <p>52 27-3-03</p> <p>53 27-3-03</p> <p>54 27-3-03</p> <p>55 27-3-03</p> <p>56 27-3-03</p> <p>57 27-3-03</p> <p>58 27-3-03</p> <p>59 27-3-03</p> <p>60 27-3-03</p> <p>61 27-3-03</p> <p>62 27-3-03</p> <p>63 27-3-03</p> <p>64 27-3-03</p> <p>65 27-3-03</p> <p>66 27-3-03</p> <p>67 27-3-03</p> <p>68 27-3-03</p> <p>69 27-3-03</p> <p>70 27-3-03</p> <p>71 27-3-03</p> <p>72 27-3-03</p> <p>73 27-3-03</p> <p>74 27-3-03</p> <p>75 27-3-03</p> <p>76 27-3-03</p> <p>77 27-3-03</p> <p>78 27-3-03</p> <p>79 27-3-03</p> <p>80 27-3-03</p> <p>81 27-3-03</p> <p>82 27-3-03</p> <p>83 27-3-03</p> <p>84 27-3-03</p> <p>85 27-3-03</p> <p>86 27-3-03</p> <p>87 27-3-03</p> <p>88 27-3-03</p> <p>89 27-3-03</p> <p>90 27-3-03</p> <p>91 27-3-03</p> <p>92 27-3-03</p> <p>93 27-3-03</p> <p>94 27-3-03</p> <p>95 27-3-03</p> <p>96 27-3-03</p> <p>97 27-3-03</p> <p>98 27-3-03</p> <p>99 27-3-03</p> <p>100 27-3-03</p>	<p>PRINCIPAL ENGINEER</p> <p>MANAGER ENGINEERING</p> <p>PRODUCTION / NETWORK DELEGATE</p>	<p>R.P.E.O. NO. DATE</p> <p>DESIGN C.J. 11-3-03</p> <p>DRAWN H.T. 11-3-03</p> <p>CHECKED</p>	<p>NAME DATE</p> <p>C.J. 11-3-03</p> <p>H.T. 11-3-03</p>	<p>JOB FILE</p> <p>ACAD FILE</p> <p>SURVEY No.</p> <p>SURVEYED</p>	<p>PROJECT</p> <p>KARARA DOWNS</p> <p>NERRINA COURT - SP287</p> <p>SEWAGE PUMP STATION</p>	<p>TITLE</p> <p>SWITCHBOARD</p> <p>CONSTRUCTION DETAILS</p>	<p>SCALE NTS</p> <p>N° 13 OF 15 SHEETS</p> <p>DRAWING N°</p> <p>486/5/7-FK212</p> <p>AMEND.</p> <p>B</p>
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CONSTRUCTION
 Cable construction: Low Voltage grade Aluminium (LSV).
 Conduit construction: Mild steel channel 60x17.5 Grade Aluminium.
 Fittings: "Pulse MC" & "TIG" welded with all visible joints and joints fully welded.
 External doors and covers fitted with Eterna 1000 self seal gaskets.
 "D" Handles fitted where indicated on the drawings.
 24 Earth studs fitted to the interior of all doors and hinged enclosures and on adjacent cable tray surfaces.
 Door stiffeners, door stops, cable straps, and document holders etc fitted where shown on the drawings.
 All off-covers and mounting panels fixed with M6 studs & chrome screw nuts.
 Gland plates manufactured from low density polyethylene.
 Gland plate openings reinforced with 25mm dia aluminium bar.
 Gland plate units attached to cable tray gland plate.
 Gland plate flange are not more than 50mm apart (refer Detail F).
 Hinges: Selectra M-BASE.
 Star washers fitted under all hinge screws.
Locks: Doors 1, 2 & 3
 Selectra 100 - PSCB handle
 Selectra 100-1000 1000mm
 Eterna 1000 roller lock
 Eterna 1000 roller lock
 Key Locks: 1000, 1000, 1000 refer to each door for identification.
Locks: Doors 4, 5 & 6
 Selectra 100 - PSCB handle
 Selectra 100-1000 1000mm
 Eterna 1000 roller lock
 Eterna 1000 roller lock
 Key Locks: 1000, 1000, 1000 refer to each door for identification.
SEALING SYSTEM:
 Sealing strips, door nuts & washers fitted to accept SECB seal.
 Hinged enclosures fixed with Eterna 1000 1000mm.

OPERATING PARAMETERS
 Standard AS 3499.1
 Current & Frequency AC 50Hz
 Rated Operational Voltage (kV) 4.5 VAC
 Rated Insulation Voltage (kV) 6.6 VAC
 Rated Assembly Voltage 24 VDC / 240 VAC
 Rated Current (Amps) 100 A
 Short Circuit Current (kA) 100 kA
 Duration of test 1 sec
 Degree of Protection IP 55 to AS 1936
 Measure of Protection by barriers and enclosures
 Service Conditions Outdoors
 Mass Not exceeding 2700kg
 Form of Segregation Form 1
 Earthing System TN-S

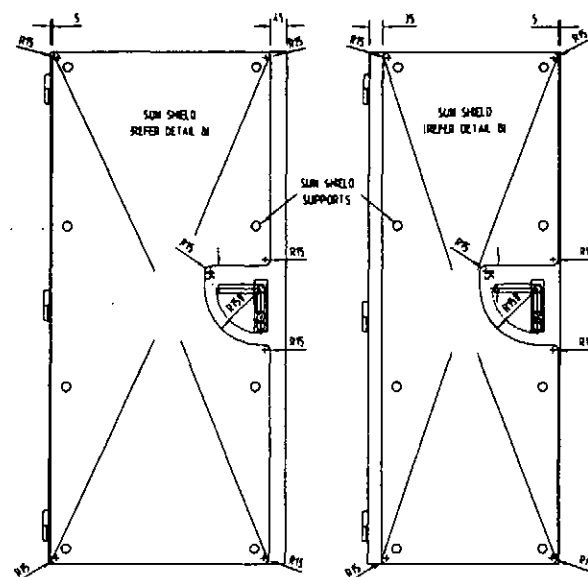
PAINTING
 Aluminium Surface Preparation:
 Finish smooth all exposed surfaces, clean, descale, and degrease all surfaces.
 Surfaces pre-treated in accordance with AS 1580 & AS 375 using Mowat LE and ethyl cleaner, Mowat 12 conversion coating, & clear water rinses.
 Apply DULUX ALPHATECH 3000 primer coat to manufacturer's recommendations.
 EXTERIOR: EXTERIOR COMPONENTS - DULUX M40 Green (13440) matt finish.
 INTERIOR: INTERIOR COMPONENTS - DULUX M40 White (13440) matt finish.
 Minimum Dry Film Thickness all surfaces 80 microns.

WIRING
 All wiring to be PVC 90°C HT 85/90 Grade with insulated conductors.
 Control and instrumentation wiring has flexible copper conductors, and is colour coded as detailed below, numbered both end, and terminated by the use of appropriate pre-insulated crimp lugs.
 Power wiring to be minimum 2.5sqmm stranded copper conductors, phase colour coded as detailed below.
 Low level instrumentation signals & 4-20mA signals wired in shielded pair minimum size 0.5sqmm. Conduit at one end only.
 Earth cables minimum 2.5sqmm flexible.
 Doors and hinged enclosures bonded with 1sqmm flexible earth strap.
 Wire numbering will be equal to Groltag TRASP system.
 Wire numbers are readable left to right, top to bottom as shown.

CABLE CODE
 Phase wiring (A, B, C) Red, White, Blue 2.5sqmm (min)
 Potential Metering (240/415 VAC) Red, White, Blue, Black 1.5sqmm
 Current Metering (Secondary) Red, White, Blue, Grey 2.5sqmm
 240 VAC Control Active White 1.5sqmm (24/0.25mm)
 240 VAC Neutral Black 1.5sqmm (24/0.25mm)
 240 VAC Active Grey 1.5sqmm (24/0.25mm)
 240 VAC Neutral Brown 1.5sqmm (24/0.25mm)
 24 V DC Positive Orange 1.5sqmm (24/0.25mm)
 24 V DC Negative Orange 1.5sqmm (24/0.25mm)
 24 V RTD Positive Orange 1.5sqmm (24/0.25mm)
 24 V RTD Negative Orange 1.5sqmm (24/0.25mm)
 Intrinsically safe wiring Blue 1.5sqmm
 Earth Green/Yellow 2.5sqmm (min)
 Door & Enclosure Earth Bonds Green/Yellow 1.5sqmm

Labels
 Internal labels M/B/W engraved metalplate to label schedule.
 Warning labels R/W/B engraved metalplate.
 Main switch labels: MAIN SWITCH 100A Material M/B/W
 Component labels: RTU 100A Material M/B/W
 Warning labels: DANGER CIVIL ISOLATE ELSE WHERE 100A Material R/W/B
 Other labels: PUMP STATUS ON - RUNNING 100A Material M/B/W
 ON - RUNNING 100A
 STOP FLASH - FAULT 100A
 FAST FLASH - START REQUIRED 100A

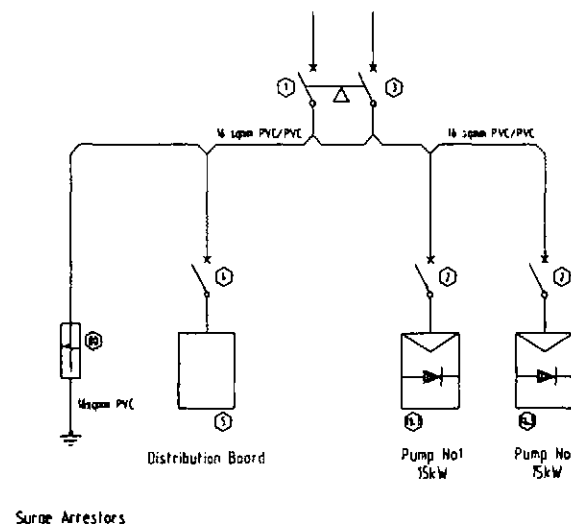
Internal labels secured by M3 chrome plated metal threads.
 Labels obstructed by switchboard wiring are referred to adjacent duct lid.
 The duct lid is secured by a single cable tie at one corner.
 External labels secured by M3 316 stainless steel metal threads.



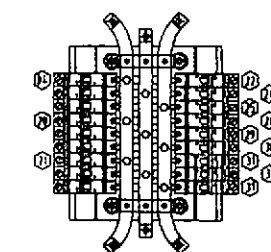
DETAIL K
 (DOOR SUN SHIELD DETAIL)

LABEL	TEXT	TEXT HEIGHT	PARTIAL LETTERING	OPERATIONS	QUANTITY
A	SUPPLY AUTHORITY METER PANEL	20mm	Black	200x75	1
B	SP287	20mm	Black	50x75	1
C	WARNING THIS SITE IS MONITORED BY THE NEWSTEAD OPERATOR PLEASE INFORM THE OPERATOR BEFORE ISOLATING PUMPS OR STATION	20mm	Black	75x100	1
D	PLEASE CHECK THAT THE STATION IS IN REMOTE MODE BEFORE LEAVING SITE	20mm	Black	200x40	1
E	DANGER CIVIL	20mm	Red	120x75	1
F	ELECTROME SOFT STARTERS NOT A NO.1	20mm	Black	200x75	1

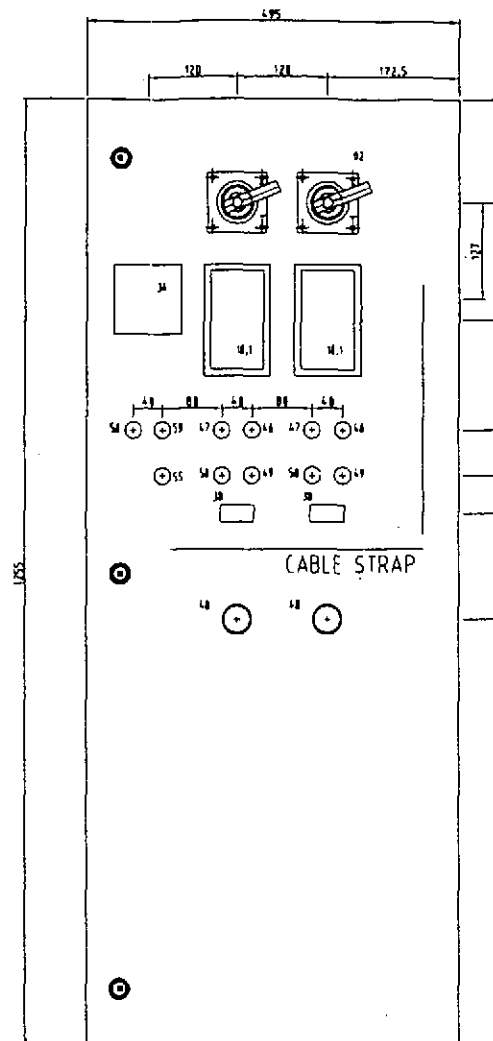
DETAIL D
 (EXTERNAL STAINLESS STEEL LABEL DETAIL)



POWER WIRING DETAIL



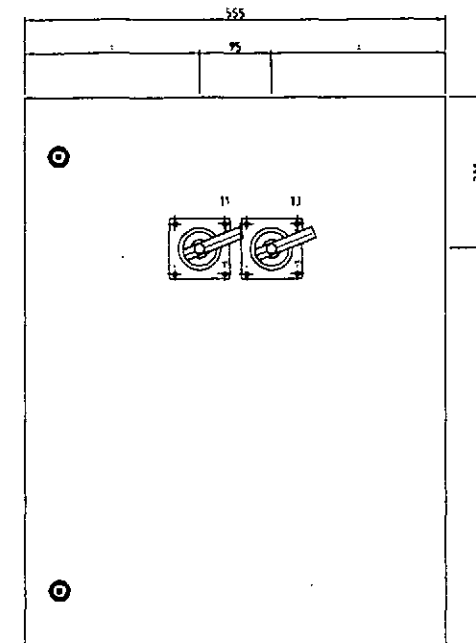
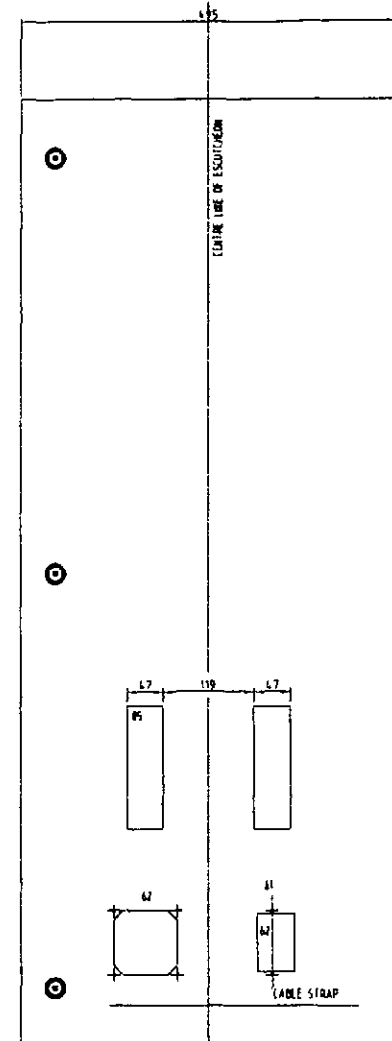
DETAIL M
 SUB-DISTRIBUTION BOARD ARRANGEMENT



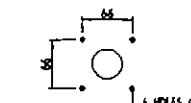
CABLE STRAP

ITEM	DESCRIPTION	CUT OUT
01	New / Generator Circuit Breaker	Detail No1
02	Pump Control Breakers	Detail No1
03	Soft Starter Control Module	Detail No2
04	Soft Starter Control Module	Detail No2
05	Soft Starter Control Module	Detail No2
06	Soft Starter Control Module	Detail No2
07	Soft Starter Control Module	Detail No2
08	Soft Starter Control Module	Detail No2
09	Soft Starter Control Module	Detail No2
10	Soft Starter Control Module	Detail No2
11	Soft Starter Control Module	Detail No2
12	Soft Starter Control Module	Detail No2
13	Soft Starter Control Module	Detail No2
14	Soft Starter Control Module	Detail No2
15	Soft Starter Control Module	Detail No2
16	Soft Starter Control Module	Detail No2
17	Soft Starter Control Module	Detail No2
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23	Soft Starter Control Module	Detail No2
24	Soft Starter Control Module	Detail No2
25	Soft Starter Control Module	Detail No2
26	Soft Starter Control Module	Detail No2
27	Soft Starter Control Module	Detail No2
28	Soft Starter Control Module	Detail No2
29	Soft Starter Control Module	Detail No2
30	Soft Starter Control Module	Detail No2
31	Soft Starter Control Module	Detail No2
32	Soft Starter Control Module	Detail No2

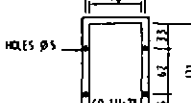
ESCUTCHEON CUTOUTS
 (ESCUTCHEON CUTOUT DETAIL)



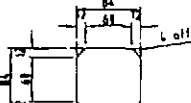
Sheet 11



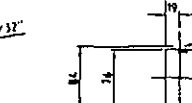
DETAIL No1
 (CIRCUIT BREAKER HANDLE)



DETAIL No2
 (SOFT START CONTROLLER)



DETAIL No3
 (3 PHASE OUTLET)



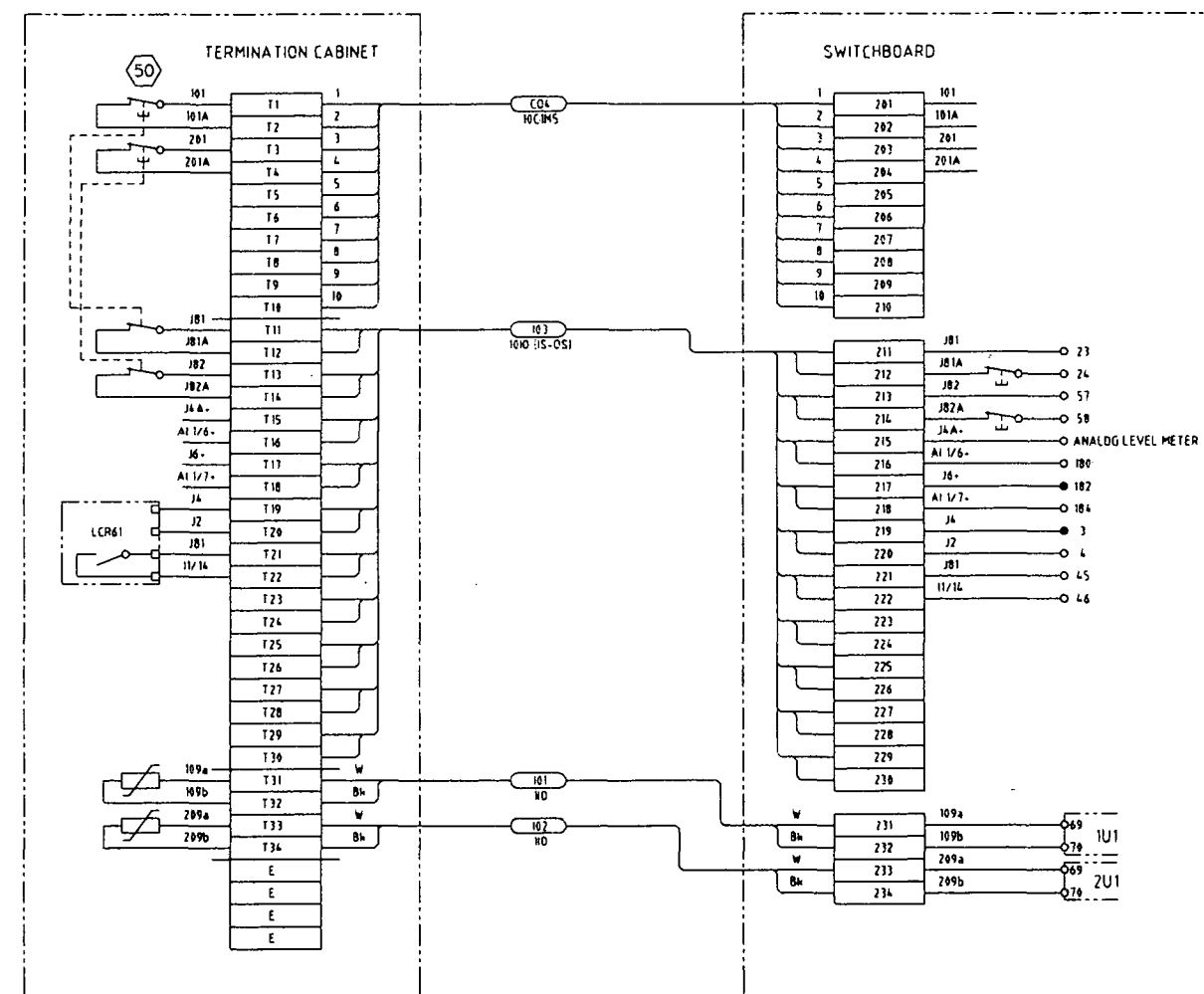
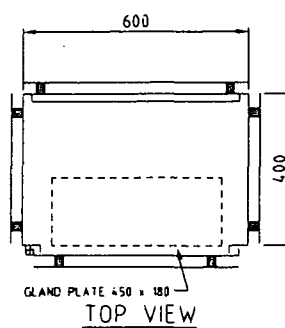
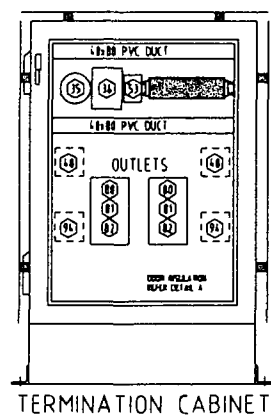
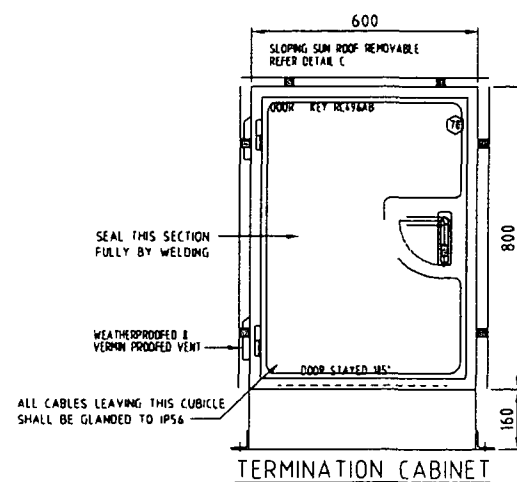
DETAIL No4
 (240VAC GPO)

ISSUED FOR CONSTRUCTION

NO.	DATE	AMENDMENT	INITIALS	PRINCIPAL ENGINEER	ORIGINAL SIGNED BY	R.P.E.D. NO.	DATE	NAME	DATE	JOB FILE	ACAD FILE	SURVEY NO.	FIELD BOOK	PROJECT	TITLE	SCALE	NTS	N° 12 OF 15 SHEETS	DRAWING N°	AMEND.
1	11-01-01	AS BUILT		ON	ENGINEER	5598	4/03	C.J.	11-03-03		STW21101WG			KARANA DOWNS NERRINA COURT - SP287 SEWAGE PUMP STATION	SWITCHBOARD CONSTRUCTION NOTES				486/5/7-FK211	D
2	11-01-01	ITEM 21 DELETED			MANAGER			H.T.	11-03-03											
3	11-01-01	ESCUTCHEON LAYOUT REVERSED			ENGINEER															
4	11-01-01	ISSUED FOR CONSTRUCTION			PRODUCTION / NETWORK															
5	11-01-01	ISSUED FOR CONSTRUCTION			DELEGATE															

NOTES

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: 486/5/7-FK200 TO 486/5/7-FK214





POWER ELECTRIC Switchboards PTY LTD

ABN 73 052 204 118

Manufacturers of Engineered Switchboards for Mining, Industrial and Commercial Projects

FINAL CHECKING PROCEDURE FOR ALL SWITCHBOARDS

SWITCHBOARD TITLE: SP287

JOB NUMBER: M0371

✓ SMc	1.	Check switchboard has been built as per the approved drawing. (KA Rating, IP Rating, Form of Segregation)
✓ SMc	2.	Check all control functions.
✓ SMc	3.	Check all connections.
✓ SMc	4.	Check all clearances.
✓ SMc	5.	Check hinges, locks, keys, handles etc, to ensure that they are secure and function properly
✓ SMc	6.	Check operations of all CFS units, circuit breakers, isolators, contactors, etc.
✓ SMc	7.	Check main earth connections and continuity.
✓ SMc	8.	Check that all the neutrals are accessible.
✓ SMc	9.	Check that all labeling and schedules are in place.
✓ SMc	10.	Check general condition of switchboard (paintwork, etc)
✓ SMc	11.	Check switchboard has been cleaned out.
✓ GD	12.	Megger switchboard

CIRCUIT	RESULT-1000V MEGGER	AFTER H.V TEST 1000V MEGGER	COMMENTS
R-E	200+M Ω	200+M Ω	Comments:
W-E	200+M Ω	200+M Ω	
B-E	200+M Ω	200+M Ω	
R-W	200+M Ω	200+M Ω	Date: 25/09/03
R-B	200+M Ω	200+M Ω	Checked By: Steve McLachlan Gary Dadson
W-B	200+M Ω	200+M Ω	
NEUT-E	200+M Ω	200+M Ω	
CIRCUIT	DURATION	APPLIED VOLTAGE	LEAKAGE TO EARTH
R-W + B+E+N	1 MIN	2500V	1.0mA
W-B + R+E+N	1 MIN	2500V	1.0mA
B-R + W+E+N	1 MIN	2500V	1.0mA
N-R + W+B+E	1 MIN	2500V	0.2mA

Telephone: (07) 3274 3922 * Facsimile: (07) 3274 3929

Email: POWERELECTRICSWBD@BIGPOND.COM

PO Box 6176, Fairfield Gardens, BRISBANE, QUEENSLAND 4103, Australia
70 Flanders Street, SALISBURY, QUEENSLAND 4107

2.5 SWITCHBOARD ASSEMBLY

WARNING

When inspecting or cleaning any of the equipment mentioned below, all due care must be taken to de-energise the circuits associated with the location being serviced.

In order for the safe and continued working order of all parts and components within the Switchboard a full maintenance inspection should be carried out annually.

1. First, remove all access panels of the Switchboard being careful of any earth wires attached (if applicable).
2. Brush or wipe clean, all accumulated dust out of the enclosure.
3. Check that all bolted connections are tight and free from corrosion
4. Inspect all incoming and outgoing terminations are firmly secure.
5. Make sure all C.F.S. units, isolators, contactors, relays, etc. and controls are fully operational.
6. Ensure that all instruments are functioning correctly and that their connections and fixings are securely held.
7. Ensure that all hinges locks, keys, handles, etc. are secure and functioning properly.
8. Check gaskets are intact and providing a suitable seal.
9. Make sure that the main earth connections have not come loose and remain secure. Test the Switchboard for continuity.
10. Carry out a test to ensure full automatic operation of control circuits.
11. Follow manufactures maintenance and inspection procedures on essential equipment. Eg. VFD's, ACB's etc.

REPAIRS

Immediately replace all damaged or missing parts found during inspection by personnel who are qualified to carry out the repairs. If you find that a component, such as a relay, is not working properly due to the fact that there is dirt on any of its contacts or moving parts, an immediate replacement of that part is highly recommended. Also double-check all other components in the general vicinity, as it is highly probable that if one component is affected with dirt others will be also. Since replacements of components are simple, refer to equipment schedule and equipment specification.

SWITCHBOARD ASSEMBLY CONT:**CLEANING OF EQUIPMENT**

All equipment enclosed inside the motor control centre should be cleaned with either a dry soft brush, a feather duster or an equivalent device depending upon the circumstances. If possible, clean with a jet of dry clean air taking care to avoid any damage to components.

In the case of grommets, connectors, contactors, etc., cleaning of the contact area can be done in its place using a lint-free cloth moistened with a solvent such as **CRC LECTRA-CLEAN** or an approved electrical cleaning solvent. Removal of corrosion should be with a cleaning solvent and dry thoroughly with a lint-free cloth.

NOTE: -

Take particular care when using industrial solvents, as some of these can be both injurious and flammable. Before using any solvent, establish whether it has been approved for use in the electrical industry and for the particular task.

Warning: - Be sure to follow all safety data sheet instructions on solvent.

If volatile solvents are used for cleaning switchboards, all traces of solvent must be completely evaporated and blown away before the switchboard is re-energised.

SAFETY DIRECTIONS FOR CRC LECTRA-CLEAN

Vapour is harmful to health on prolonged exposure, avoid breathing vapour, use with adequate ventilation. Avoid contact with skin. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. Possible risk of irreversible effects. Use only as directed.

First Aid.

If poisoning occurs contact a doctor or poisons information centre.

If swallowed do not induce vomiting – give a glass of water.

PREVENTATIVE MAINTENANCE INSTRUCTIONS

2.0 GENERAL

The Switchboard requires proper care to ensure normal operation at all times. Periodic inspections must be made to determine the exact condition of the Switchboard equipment.

A regular program of systematic maintenance must be established for proper operation of all Switchboard systems. A periodic maintenance schedule must be followed and an inspection log maintained for ready reference. At a minimum, the log must record:

1. inspection interval
2. inspection procedure performed
3. maintenance performed, if any, as a result of inspection
4. name of inspector performing task

2.1 PREVENTATIVE MAINTENANCE

Perform preventative maintenance as instructed in Table 1 below

TABLE 1

Preventative Maintenance Schedule

SCHEDULE REQUIREMENT	PARAGRAPH	Reference:
Monthly	Visual inspection	2.2
Six Monthly	Paintwork Maintenance	2.3
Yearly	Mains connections	2.4
Yearly	Switchboard assembly	2.5

2.2 VISUAL INSPECTION

In conjunction with the annual maintenance test, frequent visual inspection should be carried out. To verify the perfect functioning of the signalling system is to guarantee the immediate indication of any abnormal occurrence in the equipment or its components.

1. Check that all labelling and schedules are complete, up to date and in their correct places
2. Inspect paintwork for signs of corrosion and for any blemishes, which might be susceptible to corrosion in the near future. If inspection indicates areas of rust or corrosion are present, immediately clean and repaint the area. (See section 2.3)
3. Check that the load balance on final subcircuits and incomer corresponds to the specifications

2.3 PAINTWORK CARE AND MAINTENANCE

As a general rule, cleaning of externally located powder coating surfaces must take place every six months. Where salts/pollutants are more prevalent such as seaside or industrial areas, a cleaning program should be carried out more frequently. ie. every three months.

THREE STEPS TO CLEANING POWDER COATED SURFACES

1. Remove loose deposits with a wet sponge (avoid scratching the surface by dry dusting).
2. Using a soft cloth and mild detergent in warm water, clean the powder coating to remove any dust, salt or other deposits.
3. Always rinse after cleaning with fresh water to remove any remaining detergent.

Warning: -

In some cases strong solvents recommended for thinning various types of paints and also for cleaning up mastic's/sealants are harmful to the extended life of the powder coated surface. These solvents should not be used for cleaning purposes. If paint splashes and sealants/mastic's need to be removed than the following solvents can be used safely. Methylated Sprits, Turpentine, White Spirits, Ethyl Alcohol, Isopropanol.

2.4 MAINS CONNECTIONS

WARNING

When inspecting or cleaning any of the equipment mentioned below, all due care must be taken to de-energise the circuits associated with the location being serviced.

All mains connections must be thoroughly inspected on an annual basis.

1. Inspect the tightness of all bolted connections making sure they are firmly secure so that they cannot work themselves loose;
2. Ensure all connections and fixings remain free from dust and dirt build ups and that there is no sign of corrosion;
3. Check that all cable supports and their corresponding fixings are in good working order and are firmly secure;

REPAIRS

Immediately replace all damaged or missing parts found during inspection by personnel who are qualified to carry out the repairs.

CLEANING OF EQUIPMENT

All equipment should be cleaned either with a dry soft brush, a feather duster or an equivalent device depending upon the circumstances. If possible, clean with a jet of dry clean air taking care to avoid any damage to components.

START-UP & COMMISSIONING PROCEDURES

1.0 GENERAL

Suitably qualified personnel must install the Switchboard assembly. The following check procedures as a minimum, are recommended after installation and prior to initial power-up.

A thorough visual inspection should be made to every aspect of the Switchboard on arrival. This includes checking the Switchboard for any obvious external damages, loose wire connections, loose cabling, loose equipment (relays, contactors, meters etc.), panels damage in transit etc.

All problems must be rectified immediately as they could cause incorrect operation or permanent damage to the equipment.

1.1 INITIAL POWER-UP CHECKLIST

Only authorised and appropriately trained personnel should carry out the inspection and testing tasks specified, included below but not limited to.

1. Check all cable connections are firmly fastened and secured.
2. Check cable entries are adequately sealed and glanded.
3. Check all clearances.
4. Check main incoming cables are correctly terminated.
5. Check main earth connection for continuity.
6. Check switchboard is free from any impurities (dust, filings etc.).
7. Check all doors and covers are secure and functioning properly.
8. Perform an insulation resistance test on the Switchboard ensuring the results complied with the relevant requirements.

If all inspection and checks have been made, you are now ready to power-up the Switchboard.

1.2 POWER-UP PROCEDURE

Suitably qualified personnel should perform these procedures. These are suggested procedures only, and if specific procedures are available or issued, they **MUST** prevail.

WARNING

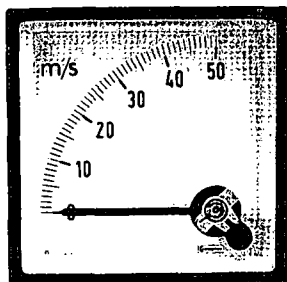
Fatalities have been caused by incorrect connection of Mains services. Correct polarity must be ensured as the wrong connection will energise the earthing system of the installation and create a hazardous situation.

Do not connect or re-connect supply to an installation unless correct polarity has been proven by recognised tests.

1. Ensure the main incoming isolator or circuit breaker is isolated.
2. Ensure starter modules are isolated.
3. Energised mains cabling.
4. Turn main circuit breaker on.
5. Ensure that all phase voltages are present and correct.
6. Individual starter modules can now be energised.

240 Series DIN Panel Meters

Moving Coil D.C. Ammeters and Voltmeters



Accuracy: Class 1.5

Ratings:

Ammeters: 100 μ A to 25A,
(200 μ A for 05 model)
4/20mA suppressed
zero
40A for model
243/244-01A

Voltmeters: 50mV to 600V
1/5V suppressed
zero
50, 60, 75, 100,
150mV for use with
shunts

Impedance:

Ammeters: 75mV internal shunt
above 60mA

Voltmeters: 1000 Ω /V above 1V

Further details on our T-Sheet T118
available on request.

Model

Bezel Size mm	48	72	96	144
Scale length mm	42	65	94	145

Product Code

Ammeters	242-89A	243-01A	244-01A	246-10A
Ammeters				
suppressed zero	242-89R	243-01R	244-01R	246-10R
Voltmeters	242-89V	243-01V	244-01V	246-10V
Voltmeters				
suppressed zero	242-89S	243-01S	244-01S	246-10S

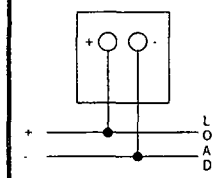
Model

Bezel Size mm	48	72	96	144
Scale length mm	72	112	150	230

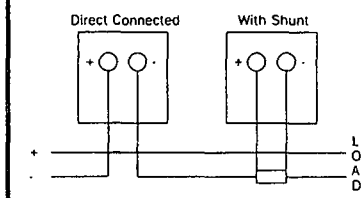
Product Code

Ammeter	242-05A	243-05A	244-05A	246-05A
Ammeters				
suppressed zero	242-05R	243-05R	244-05R	246-05R
Voltmeters	242-05V	243-05V	244-05V	246-05V
Voltmeters				
suppressed zero	242-05S	243-05S	244-05S	246-05S

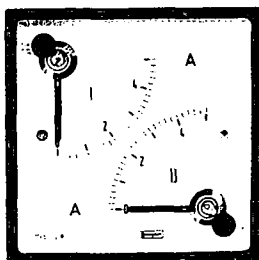
D.C. Voltmeter



D.C. Ammeter



Moving Coil Dual D.C. Ammeters and Voltmeters



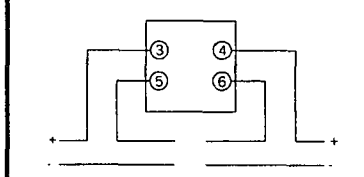
Model

Bezel Size mm	96
Scale length mm	94

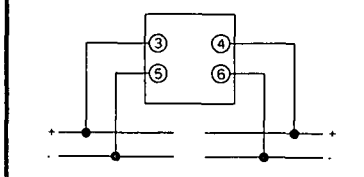
Product Code

Ammeters	244-80M
Voltmeters	244-80E

Dual D.C. Ammeter



Dual D.C. Voltmeter



Accuracy: Class 1.5

Ratings:

D.C. Current: 100 μ A to 25A direct connected
4/20mA suppressed zero.

D.C. Volts: 50mV to 600V
1/5 volt suppressed zero
50, 60, 75, 150mV for use with shunts.



Features

- Moving Coil Meters are suitable for all D.C. systems
- The linear scale is calibrated down to zero and the accuracy maintained down to 10%
- High currents are measured with separate shunts and suitably scaled indicators
- Suppressed, centre and offset zero models are available

Features

- Two instruments can be used to measure a wide range of currents and voltages

Benefits

- Dual instruments save both space and time by requiring only one panel cut-out

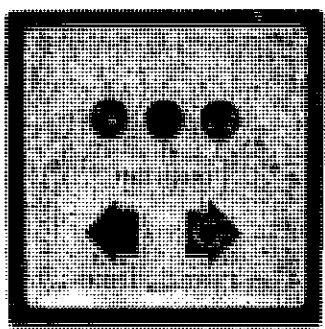
Application

- The 244-80M allows for independent measurement of two D.C. currents in one case
- The 244-80E allows for independent measurement of two D.C. voltages in one case

Crompton**INSTRUMENTS****INTERNATIONAL****Application:**

- » Motor protection
- » Motors - Single Phasing
- » Gensets - correct engine rotation
- » All portable equipment
- » All rotating machines

We also manufacture front of panel mounting phase sequence indicators

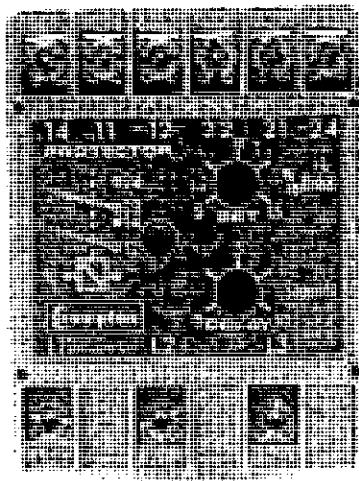


Protector Relays

32

Protector Trip Relays

250 Series DIN Rail and Wall Mounted - Phase Balance



The Crompton Protector Phase Balance module provides continuous surveillance of a 3 phase, 3 or 4 wire system and protects against:

- Phase Loss, Reversal or Sequence
- Phase Unbalance
- System Under Voltage

Introduction

This Crompton Protector is designed to comprehensively monitor the three phase supply. It monitors the correct phase rotation or sequence of three phase supply systems. Rotating machines are particularly vulnerable to incorrect phase sequence. Three phase motors can rotate in the wrong direction, potentially leading to physical damage or the risk of injury to personnel, yet voltage and current readings may appear normal. If one phase is lost because of a blown fuse, electric motors can continue to operate (single phasing) which can result in severe electrical or mechanical damage.

This relay has the added advantage that it will detect the phantom or regenerated phase that can be caused by a single phase failure on some equipment or when running motors at low load levels.

An unbalanced supply voltage can lead to temperature rises in motors. An unbalance voltage as little as 10% can increase operating temperature to 150% of normal.

For permanent installations, this relay should be used to monitor the incoming supply, protecting all equipment against incorrect connection at initial installation or after maintenance work. Rotating machines that cannot tolerate reverse rotation or pose significant risk to personnel under this condition should be individually protected with this relay. The possibility of incorrect supply connection is much more likely in portable equipment or marine applications.

Product Function

The protector continuously monitors the three phase supply. With the correct phase sequence applied and all three voltages are balanced within the required limits, the front panel LED will illuminate and the output relay will be energized. An incorrect sequence, missing phase, out of balance or under voltage condition will de-energize the relay, and the LED will be extinguished.

The setpoint control allows adjustment of the voltage matching between 5% and 15%.

The time delay function operates only for the voltage unbalance condition. The delay can be used to prevent nuisance tripping due to short term unbalance situations. Incorrect phase rotation, a missing phase or an under voltage condition trip the relay immediately.

Protection against:

- Incorrect phase sequence
- Loss of one phase
- Under voltage
- Unbalanced voltage
- A phantom or regenerated phase voltage

Protector Trip Relays

250 Series DIN Rail and Wall Mounted - Phase Balance

Specification

Approvals:	U.L. recognised CSA approved up to 480V.	Set Points:	Unbalance: Adjustable 5% to 15%
System:	3 phase, 3 or 4 wire Frequency: 50 or 60Hz	Time Delay:	Up to 10 seconds adjustable
Nominal Voltage:	100, 110, 120, 208, 277, 220, 230, 240, 380, 400, 415, 440 & 480V	Under Voltage (Type 252-PSG only):	Internally preset at 15% of nominal voltage (other values between 10% and 30% available on request) (not operative if voltage falls below 70% of the nominal voltage or set point on type 252-PSG)
Burden:	3VA approx.		
Voltage Withstand:	1.2 x continuously 1.5 x for 10 x 10 seconds		

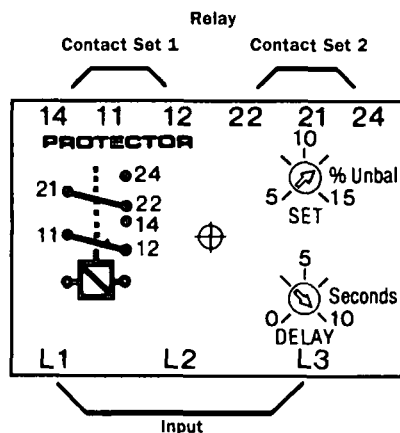
Product Code Examples

Relay	Input	Protection	ANSI No.	Catalogue No.
3 Phase 3 or 4 Wire	120V L-L 60Hz	Phase loss & unbalance	47	252-PSFU-PQBX-C6
	480V L-L 60Hz	Phase loss & unbalance	47	252-PSFU-SEBX-C6
	120V L-L 60Hz	Phase loss, unbalance, under voltage	47/27	252-PSGU-PQBX-C6-T1-1A
	480V L-L 60Hz	Phase loss, unbalance, under voltage	47/27	252-PSGU-SEBX-C6-T1-1A

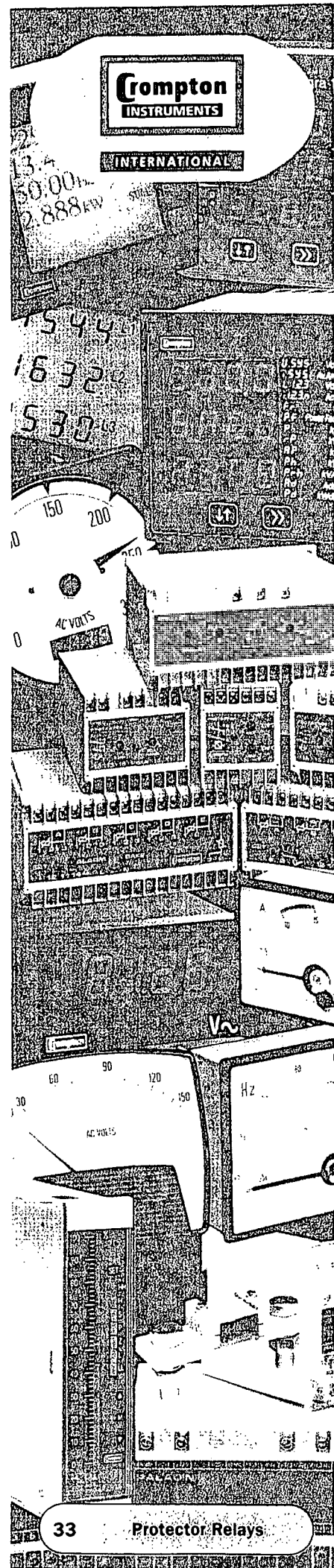
Connection Diagrams

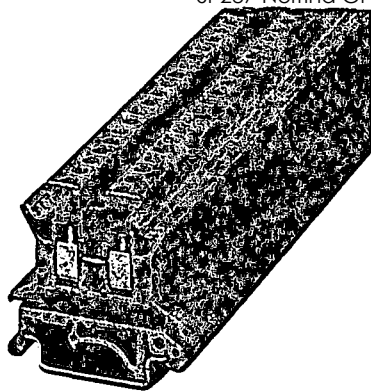
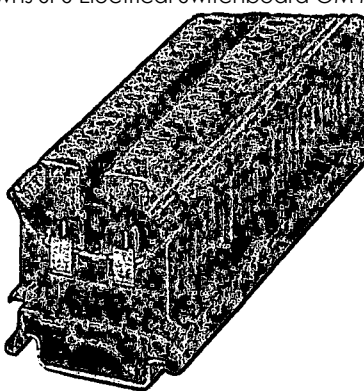
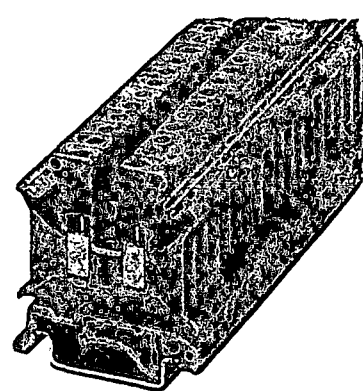
252-PSF

252-PSG



Note: No neutral connection is required



**UK 2,5 N****UK 3 N****UK 5 N**

Terminal width 5.2

(IEC) [mm²]	rigid solid	flexible stranded	AWG	I [A]	U [V]
IEC 60 947-7-1	0.2-4	0.2-2.5	24-14	24	800
EN 50 019*	0.2-4	0.2-2.5	24-14	28/22	550

* EC Prototype certificate no.: KEMA 98ATEX1651U ?)

Terminal width 5.2

(IEC) [mm²]	rigid solid	flexible stranded	AWG	I [A]	U [V]
IEC 60 947-7-1	0.2-4	0.2-2.5	24-12	32	800
EN 50 019*	0.2-4	0.2-2.5	24-12	28/22	750

* EC Prototype certificate no.: KEMA 98ATEX1651U ?)

Terminal width 6.2

(IEC) [mm²]	rigid solid	flexible stranded	AWG	I [A]	U [V]
IEC 60 947-7-1	0.2-6	0.2-4	24-10	41	800
EN 50 019*	0.2-6	0.2-4	24-10	38/30	750

* EC Prototype certificate no.: KEMA 98ATEX1651U ?)

CCA BVL/R/NV/PRS
 FTZU

Type	Order No.	Pcs. Pkt.
UK 2,5 N ³⁾	30 03 34 7	50
UK 2,5 N BU ³⁾	30 03 35 0	50
D-UK 2,5	30 01 02 2	50
D-UK 2,5 BU	30 01 10 3	50
FBRI 10-5 N	$I_{max}: 24 A$ 27 70 64 2	10
EBL 2-5	$I_{max}: 24 A$ 23 03 14 5	100
EBL 3-5	24 A 23 03 15 8	100
EBL 10-5	24 A 23 03 13 2	10
USBR 2-7	$I_{max}: 18 A$ 23 03 23 9	1
TS-KK 3	27 70 21 5	50
ATP-UK	30 03 22 4	50
PSB 3/10/4	06 01 29 2	100
PSBJ 3/13/4	02 01 30 4	100
ZB 5 (for order data, see page 335)		
SZS 0,6 x 3,5	12 05 05 3	10

CCA BVL/R/NV/PRS/RS/INK
 FTZU/KDB

Type	Order No.	Pcs. Pkt.
UK 3 N ³⁾	30 01 50 1	50
UK 3 N BU ³⁾	30 01 51 4	50
D-UK 4/10	30 03 02 0	50
D-UK 4/10 BU	30 03 10 1	50
FBRI 10-5 N	$I_{max}: 30 A$ 27 70 64 2	10
EBL 2-5	$I_{max}: 24 A$ 23 03 14 5	10
EBL 3-5	24 A 23 03 15 8	10
EBL 10-5	24 A 23 03 13 2	10
USBR 2-7	$I_{max}: 34 A$ 23 03 23 9	1
TS-K	13 02 21 5	50
ATP-UK	30 03 22 4	50
PSB 3/10/4	06 01 29 2	100
PSBJ 3/13/4	02 01 30 4	100
ZB 5 (for order data, see page 335)		
SZS 0,6 x 3,5	12 05 05 3	10

CCA BVL/R/NV/PRS/RS/INK
 FTZU/KDB

Type	Order No.	Pcs. Pkt.
UK 5 N ³⁾	30 04 36 2	50
UK 5 N BU ³⁾	30 04 38 8	50
D-UK 4/10	30 03 02 0	50
D-UK 4/10 BU	30 03 10 1	50
FBI 10-6	$I_{max}: 41 A$ 02 03 25 0	10
EB 2-6	$I_{max}: 32 A$ 02 01 15 5	100
EB 3-6	32 A 02 01 14 2	100
EB 10-6	32 A 02 01 13 9	10
ISSBI 10-6	$I_{max}: 30 A$ 03 01 50 5	10
IS-K 4	13 02 33 8	100
USBR 2-7	$I_{max}: 34 A$ 23 03 23 9	1
TS-K	13 02 21 5	50
ATP-UK	30 03 22 4	50
PSB 3/10/4	06 01 29 2	100
PSBJ 3/13/4	02 01 30 4	100
ZB 6 (for order data, see page 335)		
SZS 0,6 x 3,5	12 05 05 3	10

5.2 / 42.5 / 1.5
42 / 49.5 / 47

24 / 2.5
2.5 / 2.5
8 / 3
III / I

0.25 - 2.5 / 0.25 - 1

0.2 - 1 / 0.25 - 1
0.25 - 1
0.5 - 1.5
7
A3
M3
0.6 - 0.8
PA
V2

300 / 20 / 30 - 12
300 / 20 / 28 - 12

5.2 / 42.5 / 1.8
47 / 54.5 / 52

32 / 4
4 / 2.5
8 / 3
III / I

0.25 - 2.5 / 0.25 - 1.5

0.2 - 1.5 / 0.2 - 1.5
0.25 - 1.5
0.5 - 1
8
A3
M3
0.6 - 0.8
PA
V2

600 / 20 / 28 - 12
600 / 20 / 28 - 12

6.2 / 42.5 / 1.8
47 / 54.5 / 52

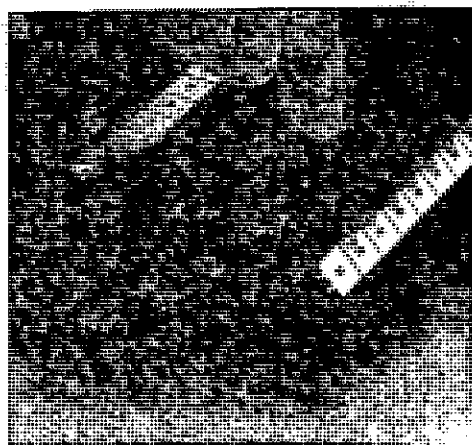
41 / 6
4 / 4
8 / 3
III / I

0.25 - 4 / 0.25 - 2.5

0.2 - 1.5 / 0.2 - 1.5
0.25 - 1.5
0.5 - 2.5
8
A4
M3
0.6 - 0.8
PA
V0

600 / 30 / 30 - 10
600 / 40 / 28 - 10

Fuse Terminal Blocks with Disconnect Lever UK...-HESI



The particular feature of the fuse terminal blocks, UK 5-HESI and UK 6,3-HESI is the hinged disconnect lever with limit stop for fine fuses.

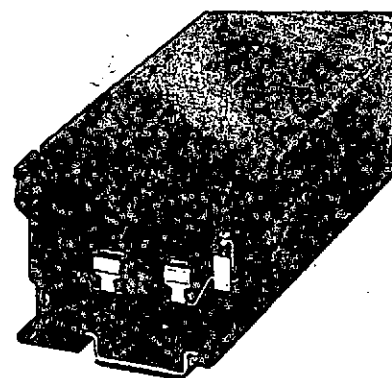
These terminal blocks are available with and without light indicator. The latter signals when the fuse insert has blown. The light indicator in the disconnect lever contains light emitting diodes connected in antiparallel for the voltage range 15-30 V and a glow lamp for the voltage range 110-250 V. Several disconnect levers can be coupled by means of the connection pin VS-UK 10,3-HESI in order to switch a three-phase circuit on or off, for example.

The UK 10,3-HESI is a fuse terminal block with disconnect lever for 10.3 x 38 mm fuses, which are used mainly in the USA. With one swing of the lever, the fuse can be exchanged off load and without any risk.

When selecting and using cartridge fuse terminal blocks and inserts, IEC 127 6/DIN EN 60 127 6 and E DIN VDE 0611 part 6 should be observed.

Cartridge fuse inserts are supplied by:

- Wickmann-Werke GmbH
Postfach 2520
D-58415 Witten
Phone: ++ / 23 02 / 66 20
Fax: ++ / 23 02 / 66 22 19
- ELU
Postfach 101054
D-44010 Dortmund
Phone: ++ / 23 1 / 55 70 30 0
Fax: ++ / 23 1 / 55 70 30 9
- SIBA
Postfach 1940
D-44509 Lünen
Phone: ++ / 23 06 / 70 01-0
Fax: ++ / 23 06 / 70 01-10
- Schurter GmbH
Postfach 1253
D-79343 Endingen
Phone: ++ / 76 42 / 68 2-0
Fax: ++ / 76 42 / 88 20







UK 5-HESI

for cartridge fuse inserts 5 x 20, 5 x 25, 5 x 30 mm
with and without light indicator

Terminal width B.2 (IEC) [mm ²]	rigid solid	flexible stranded	AWG	I [A]	U [V]
DIN VDE 0611 as disconnect l. b. with fuse	0.2-4 0.2-4	0.2-4 0.2-4	24-12 24-12	-6.3 1)	800 1)

Higher ambient temperatures

are an additional strain on fuse inserts. In applications of this kind, the shift of the rated current should be taken into consideration accordingly.

Description	Light indicator: Voltage [V AC/DC]	Current [mA]
Fuse terminal block, for mounting on  or  , for cartridge fuse inserts 5 x 20, 5 x 25, 5 x 30 mm for 5 x 20 mm cartridge fuse inserts		
Fuse terminal block, for mounting on  or  , for cartridge fuse inserts 6.3 x 32 mm (1/4" x 1 1/4") for 10.3 x 38 mm cartridge fuse inserts		
Fuse terminal block ¹⁾ , as above, however with light indicator for:	15 - 30 110 - 250	3.5 - 8.1 0.5 - 1.0

(1) Fixed bridge, for cross connections in the terminal center, screw heads with insulating collar, 10-position, divisible, with 10 screws

(2) Insertion bridge, fully insul., 2-pos. fully insulated, 3-pos. divisible, insulated spine, 10-pos.

(3) Insertion bridge, divisible, insulated spine 56-pos., 1-phase insulated spine 56-pos., 3-phase

(4) Connection pin, for interconnecting three fuse terminal blocks, plastic, orange

(5) Zack marker sheet, flat, 50-section, for labeling the marker groove

(6) Zack strip, 10-section, white

(7) Screwdrivers

Dimensions	
Width / length	[mm]
Height (NS 35:7.5 / NS 35:15 / NS 32)	[mm]
Technical data in accordance with IEC / DIN VDE	
Fuse type / dimensions	- / [mm]
Max. power dissipation at 23°C based on E DIN VDE 0611-6: 2001-04	[W]
Max. cross section with insertion bridge (solid/stranded)	[mm ²]
Rated surge voltage / contamination class	[kV] / -
Surge voltage category / insulation material group	- / -
Connection capacity	
Stranded with ferrule without / with plastic sleeve	[mm ²]
Multi-conductor connection (2 cond. with same cross section)	
Solid / Stranded	[mm ²]
Stranded with ferrule without plastic sleeve	[mm ²]
Stranded with TWIN ferrule with plastic sleeve	[mm ²]
Stripping length	[mm]
Internal cylindrical gauge (IEC 60 947-1)	
Thread / torque	- / [Nm]
Insulation material	
Inflammability class acc. to UL 94	
Approval data (UL and CSA/CUL)	
Nom. voltage / nom. current / conduc. sizes	UL: [V] / [A] / AWG
	CSA/CUL: [V] / [A] / AWG

Note:
Further fuse terminal blocks for other voltage ranges are available on request!

UL K14 B BV/LR/PRS/RS

Type	Order No.	Pcs. Pkt.
UK 5-HESI	30 04 10 0	50
UK 5-HESILED 24	30 04 12 6	50
UK 5-HESILA 250	30 04 14 2	50
EBS 2-8	I _{max} : 32 A	100
EBS 3-8	32 A	50
EBS 10-8	32 A	10
ZB B (for order data, see page 337)		
SZS 0.6 x 3,5	12 05 05 3	10

8.2 / 72.5

56.5 / 64 / 61.5

G / 5 x 20, 5 x 25, 5 x 30

1)

4 / 4

6 / 3

III / I

0.25 - 4 / 0.25 - 4

0.2 - 1.5 / 0.2 - 1.5

0.25 - 1.5

0.5 - 2.5

8

A 4

M 3 / 0.5 - 0.8

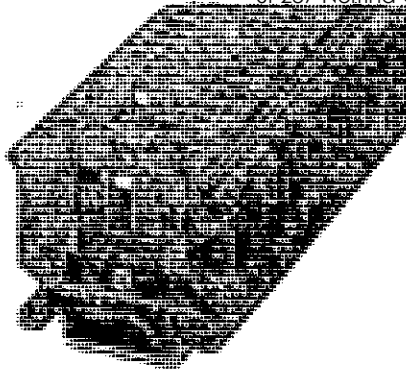
PA

V2

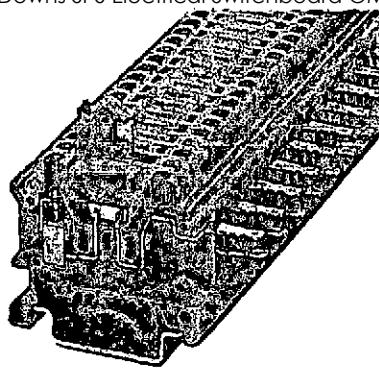
600 / 6.3 / 26 - 10

600 / 6.3 / 28 - 10

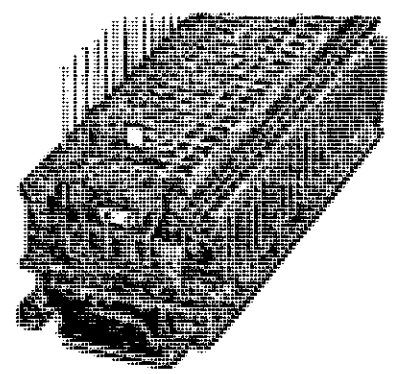
¹⁾ See table page 83 (The current is determined by the fuse used, the voltage by the light indicator).

**UK 5-MTK-P/P**

with female test connector screws

**MTK-LOE**

with screw / solder connection

**MTK-TP**

with screw, WW or TP connection

Terminal width 6.2

(IEC) [mm²]	rigid solid	flexible stranded	AWG	I {A}	U {V}
Connection data	0.2-4	0.2-4	24-12	16	500

Terminal width 5.2

(IEC) [mm²]	rigid solid	flexible stranded	AWG	I {A}	U {V}
Connection data	0.2-4	0.2-2.5	24-12	12	400
Solder connection	0.2-1.5	0.2-1.5	24-16	12	400
Slip-on connection	2.8 x 0.8 mm			?)	?)

Terminal width 5.2

(IEC) [mm²]	rigid solid	flexible stranded	AWG	I {A}	U {V}
Connection data	0.2-4	0.2-2.5	24-12		
WW conn. [mm] 1 x 1			26-20	10	250
TP conn. [mm] 1.6 x 0.8			28-22	10	250
TP conn. [mm] 2.4 x 0.8			24-20	10	125

PRG

Type	Order No.	Pcs. Pkt.
UK 5-MTK-P/P	30 04 03 2	50
Closed housing, without cover		
EB 2-6	I _{max} : 12 A 02 01 15 5	100
EB 3-6	12 A 02 01 14 2	100
EB 10-6	12 A 02 01 13 9	10
ATP-UK 5-MTK 2 mm thick	30 04 21 0	50
SZG 0,6 x 3,5	12 05 12 1	10
ZB 6 (for order data, see page 335)		

PRG

Type	Order No.	Pcs. Pkt.
MTK-LOE ¹⁾ (see illustration) MTK-LOEL ¹⁾	31 05 01 2 31 07 01 0	50 50
MTK-LOE/LOE	31 09 01 8	50
D-MTK D-MTK BU	31 01 02 9 31 01 09 0	50 50
ATS-MTK	31 01 22 3	50
SZS 0,6 x 3,5	12 05 05 3	10
ZB 5 (for order data, see page 335)		

Type	Order No.	Pcs. Pkt.
MTK-WW (1 x 1) 1	31 10 11 7	50
MTK-TP (2,4 x 0,8) 1L MTK-TP (2,4 x 0,8) 1Q	31 10 41 8 31 10 51 5	50 50
D-MTK D-MTK BU	31 01 02 9 31 01 09 0	50 50
EBL 2-5	I _{max} : 11 A 23 03 14 5	10
EBL 3-5	11 A 23 03 15 8	10
EBL 10-5	11 A 23 03 13 2	10
ATS-MTK	31 01 22 3	50
SZS 0,6 x 3,5	12 05 05 3	10
ZB 5 (for order data, see page 335)		

6.2 / 51 / -
58.5 / 66 / 63.516 / 4
4 / 4
6 / 3
III / I

0.25 - 4 / 0.25 - 2.5

0.2 - 1.5 / 0.2 - 1.5
0.25 - 1
0.5 - 2.5
8
A 4
M 3
0.5 - 0.6
PA
V0600 / 15 / 22 - 12
600 / 15 / 18 - 10MTK-LOE... // MTK-LOE/LOE
5.2 / 57.5 / 1 // 5.2 / 69 / 1
51.5 / 59 / 5612 / 4
-
6 / 3
III / I

0.25 - 2.5 / 0.25 - 2.5

0.2 - 1.5 / 0.2 - 1.5
0.25 - 1
0.5 - 1.5
7
A 3
M 3
0.5 - 0.6
PA
V0

300 / 10 / 26 - 12

5.2 / 46 / 1
67 / 74.5 / 7210 / 4
4 / 4
4 / 3
III / I

0.25 - 2.5 / 0.25 - 2.5

0.2 - 1.5 / 0.2 - 1.5
0.25 - 1
0.5 - 1.5
7
A 3
M 3
0.5 - 0.6
PA
V0

DS
30/250 A

IP55

INLET & ACCESSORIES

These products are also available for many other voltages and frequencies. See page 7

WALL MOUNTING APPLIANCE INLET



415 V

=

WALL BOX
CABLE GLAND NOT INCLUDED

(1) and (2)

+



30" WALL BOX

70" WALL BOX

220/250V

380/440V

DS1

Pe M20 31 1A053

Pe (1) 51 8A058

P 31 18015 31 18015 972 31 18013 31 18013 972 31 18017 31 18017 972

DS3

Pe M25 31 3A053

Pe (2) 51 CA058

P 31 38015 31 38015 972 31 38013 31 38013 972 31 38017 31 38017 972

DS6

Pe M40 31 6A053

Pe (2) 51 DA058

P 31 68015 31 68013 31 68013 172 31 68017 31 68017 172

DS9

Pe M50 39 9A053

Pe M50 87 9A053

P 31 98015 31 98013 31 98013 172 31 98017 31 98017 172

DS2

Pe M63 39 2A053 (60°)

P 39 28015 39 28015 972 39 28013 39 28013 972 39 28017 39 28017 972

For other tappings, please consult us

(1) 4 knock-out entries (2 x M16 to M32 + 2 x PG11 to PG29)
(2) 4 knock-out entries (2 x M16 - M25 to M40 + 2 x PG11 - 21 to PG36)suffix 172/972 = 2 cu
suffix 264 = 4 cu

INCLINED APPLIANCE INLET



415 V

=



INCLINED SLEEVE



+



30" INCLINED SLEEVE

70" INCLINED SLEEVE

220/250V

380/440V

DS1

Pe 31 1A027

Pe 51 8A757

P 31 18015 31 18015 972 31 18013 31 18013 972 31 18017 31 18017 972

DS3

Pe 31 3A027

Pe 51 CA757

P 31 38015 31 38015 972 31 38013 31 38013 972 31 38017 31 38017 972

DS6

Pe 31 6A027

Pe 51 DA757

P 31 68015 31 68013 31 68013 172 31 68017 31 68017 172

DS9

Pe 31 9A027

Pe 87 9A087

P 31 98015 31 98013 31 98013 172 31 98017 31 98017 172

DS2

Pe 39 2A027 (60°)

P 39 28015 39 28015 972 39 28013 39 28013 972 39 28017 39 28017 972

suffix 172/972 = 2 cu
suffix 264 = 4 cu

PLUG

HANDLE

INLET



415 V

=



CABLE GLAND NOT INCLUDED

STANDARD HANDLE

FLOWER HANDLE

+



220/250V

380/440V

DS1

Pe 5-21 31 1A013

Pe M20 31 1A253 417

P 31 18015 31 18015 972 31 18013 31 18013 972 31 18017 31 18017 972

DS3

Pe 10-30 31 3A013

Pe M25 31 3A253 418

P 31 38015 31 38015 972 31 38013 31 38013 972 31 38017 31 38017 972

DS6

Pe 13-36 31 6A013

Pe M40 31 6A253 420

P 31 68015 31 68013 31 68013 172 31 68017 31 68017 172

DS9

Pe 20-36 31 6A013 03

Pe M40 31 6A953 420

P 31 98015 31 98013 31 98013 172 31 98017 31 98017 172

DS2

Pe 25-45 31 9A013

Pe M50 31 9A253 429

P 31 98015 31 98013 31 98013 172 31 98017 31 98017 172

For other tappings, please consult us

suffix 172/972 = 2 cu
suffix 264 = 4 cu

Closing Mechanisms

CLOSING HANDLE SET BASE ONLY LEVER ONLY

DS9 M 39 9A346 = 39 9A396 + 39 9A376

DS2 M 39 2A346 = 39 2A396 + 39 2A376

IP55 Inlet cap

DS1 DS3 DS6 DS9 DS2

REFERENCE 31 1A126 31 3A126 31 6A126 31 9A126 31 2A126

Example for a plug DS1 30A/230V SP,NE



PLUG

HANDLE
31 1A013INLET
31 18 015P POLYESTER
Pe POLYAMIDE
N NEOPRENE
M META

ECLIPSAI MODEL



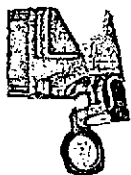
DS
30/250 A

IP55

OUTLET & ACCESSORIES

These products are also available for many other voltages and frequencies. See page 7

WALL MOUNTING SOCKET



415 V

WALL BOX

CABLE GLAND NOT INCLUDED



(1) and (2)

30 WALL BOX

30 WALL BOX

ENTRY REFERENCE

ENTRY REFERENCE

DS1

Pe M20 31 1A053

Pe (1) 51 BA058

DS3

Pe M25 31 3A053

Pe (2) 51 CA058

M25 87 3A053

DS6

Pe M40 31 6A053

Pe (2) 51 DA058

M40 39 6A053

M40 87 6A053

DS9

Pe M50 39 9A053

M50 87 9A053

DS2

M50 39 2A053 (60°)

For other tappings, please consult us

(1) 4 knock-out entries (2 x M16 to M32 + 2 x PG11 to PG29)
(2) 4 knock-out entries (2 x M16 to M25 to M40 + 2 x PG11 to PG36)

SOCKET-OUTLET



220/250V

380/440V

220/250V

380/440V

SPNE

SPNE+Aux

3PE

3PE+Aux

3PNE

3PNE+Aux

P

31 1A015

31 1A015 972

31 1A013

31 1A013 972

31 1A017

31 1A017 972

P

31 3A015

31 3A015 972

31 3A013

31 3A013 972

31 3A017

31 3A017 972

P

31 6A015

39 6A015

31 6A013

31 6A013 172

31 6A017

39 6A017

P

31 9A015

39 9A015

31 9A013

31 9A013 172

31 9A017

39 9A017

P

39 2A015

39 2A015 972

39 2A013

39 2A013 972

39 2A017

39 2A017 972

suffix 172/972 = 2 ou

suffix 264 = 4 ou

INCLINED SOCKET



415 V



REFERENCE

REFERENCE

DS1

Pe 31 1A027

Pe 51 BA757

DS3

Pe 31 3A027

Pe 51 CA757

87 3A087

DS6

Pe 31 6A027

Pe 51 DA757

39 6A027

87 6A087

DS9

Pe 31 9A027

87 9A087

39 9A027

DS2

39 2A027 (60°)

220/250V

380/440V

220/250V

380/440V

SPNE

SPNE+Aux

3PE

3PE+Aux

3PNE

3PNE+Aux

P

31 1A015

31 1A015 972

31 1A013

31 1A013 972

31 1A017

31 1A017 972

P

31 3A015

31 3A015 972

31 3A013

31 3A013 972

31 3A017

31 3A017 972

P

31 6A015

39 6A015

31 6A013

31 6A013 172

31 6A017

39 6A017

P

31 9A015

39 9A015

31 9A013

31 9A013 172

31 9A017

39 9A017

P

39 2A015

39 2A015 972

39 2A013

39 2A013 972

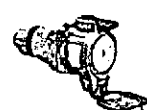
39 2A017

39 2A017 972

suffix 172/972 = 2 ou

suffix 264 = 4 ou

CONNECTOR



415 V



CABLE GLAND NOT INCLUDED

Ø mm REFERENCE

ENTRY REFERENCE

DS1

Pe 5-21 31 1A013

Pe M20 31 1A253 417

N 12-20 31 1A013 03

DS3

Pe 10-30 31 3A013

Pe M25 31 3A253 418

N 15-27 31 3A013 03

DS6

Pe 13-36 31 6A013

Pe M40 31 6A253 420

N 20-36 31 6A013 03

M40 31 6A953 420

DS9

N 25-45 31 9A013

Pe M50 31 9A253 429

N 40-58 39 2A013

M50 31 9A953 429

DS2

N 40-58 39 2A013

Pe M63 39 2A253 463

Pe M75 39 2A253 475

For other tappings, please consult us

SOCKET-OUTLET



220/250V

380/440V

220/250V

380/440V

SPNE

SPNE+Aux

3PE

3PE+Aux

3PNE

3PNE+Aux

P

31 1A015

31 1A015 972

31 1A013

31 1A013 972

31 1A017

31 1A017 972

P

31 3A015

31 3A015 972

31 3A013

31 3A013 972

31 3A017

31 3A017 972

P

31 6A015

39 6A015

31 6A013

31 6A013 172

31 6A017

39 6A017

P

31 9A015

39 9A015

31 9A013

31 9A013 172

31 9A017

39 9A017

P

39 2A015

39 2A015 972

39 2A013

39 2A013 972

39 2A017

39 2A017 972

suffix 172/972 = 2 ou

suffix 264 = 4 ou

Add suffix 453 to socket-outlet part number

See page 16

Example for a wall mounting socket DS1 30A 415V SPN



=



+

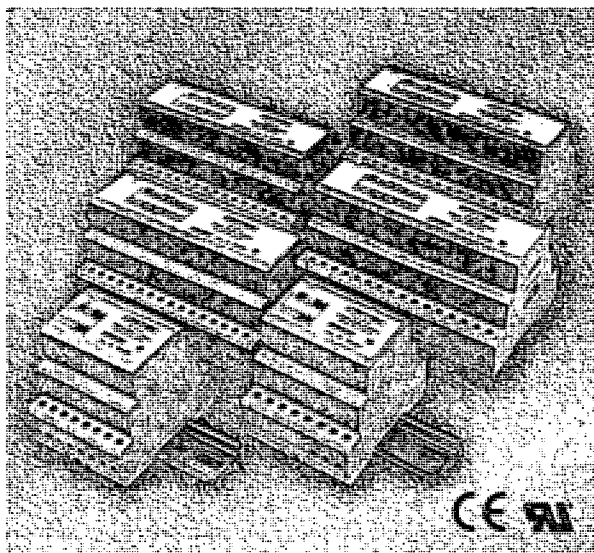


WALL MOUNTING SOCKET

WALL BOX
51 BA058SOCKET-OUTLET
31 1A017P POLYESTER
Pe POLYAMIDE
N NEOPRENE
... METAL

AC Power Devices

Transient Discriminating™ Filter



FEATURES

- Transient Discriminating™ Technology ensures safe operation during abnormal over-voltage events
- Remote protection status monitoring and LED indication
- Compact design fits into most switch and distribution boards
- Models available for all power distribution system types
- High surge rating 50kA ensures long service life
- Optional Alarm Relay and Surge Counter can be retrofitted
- Easy installation - simply clips onto 35mm DIN rail
- UL1449 Edition 2, UL1283 recognised CSA 22.2, C-Tick
- Surge rated to meet ANSI / IEEE C62.41 Cat A, Cat B, Cat C, AS / NZS 1768-1991 Cat A, B, C

TDF

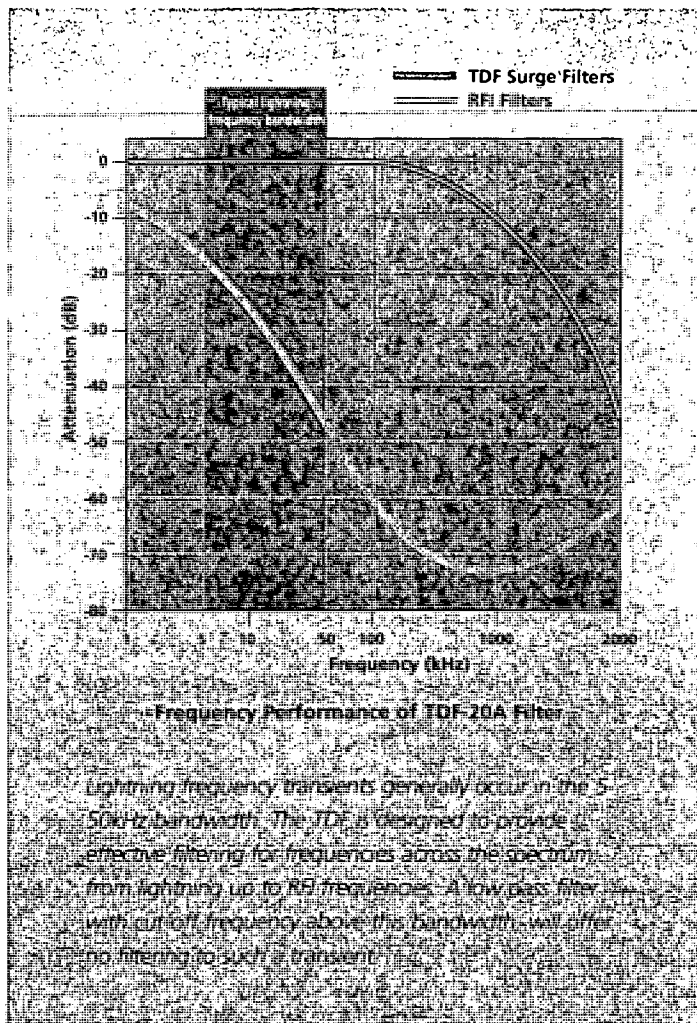
The new Transient Discriminating™ Filter family of two port (or series) SPDs offers high performance and reliable protection from power transients with the convenience of easy installation on 35mm DIN rail mountings. The TDF series has been specifically designed and strongly recommended for protection of critical electronic equipment with the advantage of a robust performance against poor voltage regulation.

The space efficient TDF provides some 65dB attenuation to transients, which not only improves the products residual voltage performance, but assists greatly in reducing the steep rates of voltage and current rise, providing superior protection for sensitive electronic equipment.

Units are available for 3A, 10A and 20A loads and in a range of voltages including 110-120V AC/DC and 240V AC.

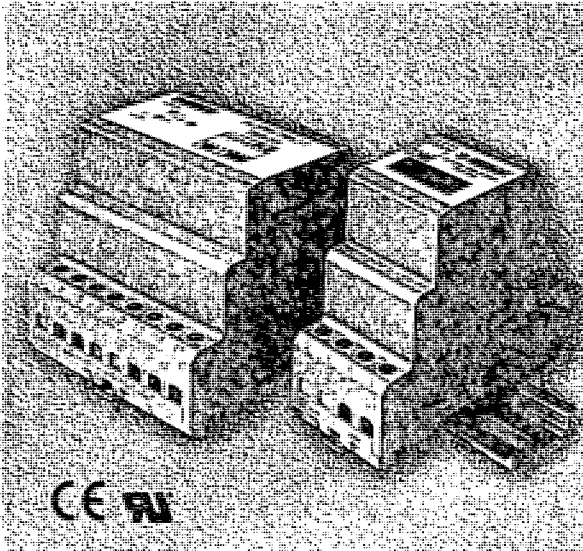
ORDERING INFORMATION

Item Number	Description
TDF-3A-240V	TDF,1 PHASE,3A,240V
TDF-10A-240V	TDF,1 PHASE,10A,240V
TDF-20A-240V	TDF,1 PHASE,20A,240V
TDF-3A-120V	TDF,1 PHASE,3A,120V
TDF-10A-120V	TDF,1 PHASE,10A,120V
TDF-20A-120V	TDF,1 PHASE,20A,120V



AC Power Devices

DINLINE Accessories



FEATURES

TDS Alarm Relay accessory

- For use with external alarm & monitoring systems
- Potential free change-over contacts
- Electronic indicators ideal for poorly illuminated locations
- UL 1449 Edition 2 Recognised

TDS Surge Counter accessory

- No power supply or batteries required to maintain counter
- Multiple diverters can be monitored by a single TDS-SC
- Accidental erasure prevented by non-resettable counter

Alarm Relay & Surge Counter

ERICO's TDS-AR Alarm Relay is an accessory to the TDF and TDS series of surge protection devices. These provide internal monitoring and visual indication of their protection status. The TDS-AR connects to a opto-output and provides a fully isolated potential free changeover alarm contact.

In addition, where the supply voltage is stable the DINLINE Alarm Relay (DAR-275) can be installed. Not only does it provide the same level of internal monitoring and visual indication as the TDS-AR, it has the added benefit of being more cost effective.

The TDS Surge Counter (TDS-SC) is a companion product to the surge diverters and can be used for site monitoring, building information management and predictive maintenance. The TDS-Surge Counter allows accurate and reliable recording of the number of impulses diverted by monitoring the surge current flow. It is powered by the surge energy - no additional power supply or batteries are required. A current transformer provides isolation from the measured circuit and allows monitoring of multiple diverters/filters.

ORDERING INFORMATION

Item Number	Description
TDS-AR	DINLINE ALARM RELAY,TDS, 90-275V
TDS-SC	DINLINE SURGE COUNTER,TDS WITH CT
DAR-275V	DINLINE ALARM RELAY,90V TO 275V
DSC-150V	DINLINE SURGE COUNTER,150V
DSC-275V	DINLINE SURGE COUNTER,275V

SPECIFICATIONS

Operation

Nominal line voltage Vrms:
Contact types:

TDS-AR

90-275
Change over,
2A 30VDC,
250VAC

DAR-275

90-275
Change over,
2A 30VDC,
250VAC

Physicals

Enclosure style:
Dimensions (W x D x H):
Warranty:
Listing:

DIN 43880
36 x 88 x 70mm
5 years
UL Recognized

DIN 43880
36 x 88 x 70mm
5 years
-

Operation

Maximum count:
Sensitivity:

TDS-SC

9999
300A 8/20µs

DSC

9999
300A 8/20µs

Physicals

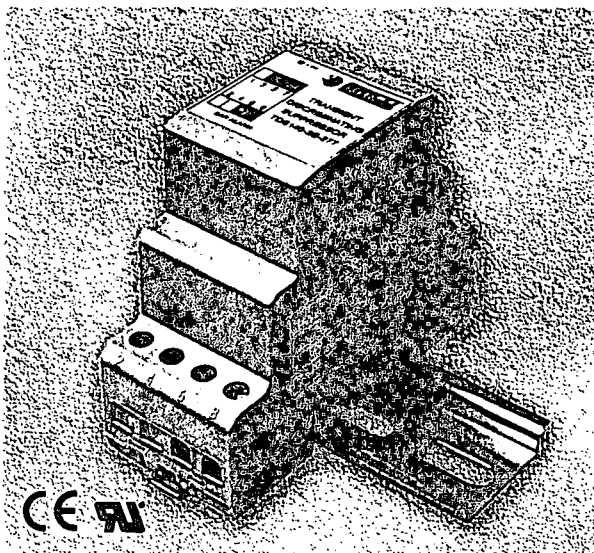
Enclosure style:
Dimensions (W x D x H):
Warranty:
Listing:

DIN 43880
36 x 88 x 70mm
5 years
UL Recognized

DIN 43880
36 x 88 x 70 mm
5 years
-

AC Power Devices

TD DINLINE Surge Diverter



TD™ DINLINE

Transient Discriminating™ (TD™) Technology represents a quantum leap in transient suppression technology for mains powered equipment. It offers a new level of safety and reliability, yet retains optimum protection levels critical for sensitive electronic equipment.

FEATURES

- TD™ Technology for superior service life
- Low let-through voltage
- UL1449 Edition 2 Recognised
- Extra fast transient withstand
- High over-voltage withstand
- Meets international EMC/RFI specifications
- Multipulse capability

ORDERING INFORMATION

Item Number	Description
TDS 140-2S-120	DINLINE SPD, TDS, 1Ph, 40kA, 120V
TDS 140-2S-277	DINLINE SPD, TDS, 1Ph, 40kA, 277V
TDS 180-4S-120	DINLINE SPD, TDS, 1Ph, 80kA, 120V
TDS 180-4S-277	DINLINE SPD, TDS, 1Ph, 80kA, 277V
TDS 1160-8S-120	DINLINE SPD, TDS, 1Ph, 160kA, 120V
TDS 1160-8S-277	DINLINE SPD, TDS, 1Ph, 160kA, 277V
TDS 50-120	DINLINE SPD, TDS, 1Ph, 3M, 20+20+10kA, 120V
TDS 50-240	DINLINE SPD, TDS, 1Ph, 3M, 20+20+10kA, 240V

SPECIFICATIONS

Operation

	TDS1xx-x8-120	TDS1xx-x8-277
Nominal Line Voltage:	100-120 Vrms	220-277 Vrms
Frequency:	50 / 60 Hz	50 / 60 Hz
Leakage Current:	< 4 mA	
MCOV (Ph-N, Ph-E, N-E):	240 Vrms	480 Vrms
Max Surge Rating:		
8/20µs	40kA 80kA 160kA	40kA 80kA 160kA
10/350µs	8kA 16kA 32kA	8kA 16kA 32kA
Energy Rating:	1920J 3840J 7680J	1920J 3840J 7680J
Aggregate Surge Material:		
8/20µs	80kA 160kA 320kA	80kA 160kA 320kA
Let-through Voltages:		
@ 3kA 8/20µs	< 480V	< 750V
Let-through Voltages:		
@ 20kA 8/20µs	< 760V	< 980V
Surge Rated to Meet:	ANSI/IEEE C62.41-1991 Cat A, B and C Zone 0/1, Class B/C	

Operation

	TDS50-120	TDS50-240
Nominal Line Voltage:	100-120 Vrms	220-277 Vrms
Frequency:	50 / 60 Hz/DC	50 / 60 Hz
Leakage Current:	< 0.2 mA	
MCOV (Ph-N, Ph-E, N-E):	170 Vrms	340 Vrms
Max Surge Rating:		
8/20µs	50kA (20+20+10kA) (L-N, L-G, N-G)	50kA (20+20+10kA) (L-N, L-G, N-G)
Energy Rating:	1390J	1390J
Aggregate Surge Material:		
8/20µs	58kA	
UL1449 SVR Rating:		
@ 500A	330V	700V
Let-through Voltages:		
@ 3kA 8/20µs	< 500V	< 800V
Surge Rated to Meet:	ANSI/IEEE C62.41-1991 Cat A, B Zone 2, Class C	

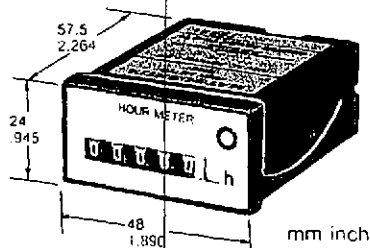
Alarms and Indicators

Status Indication:	Staged LED, opto coupler Voltage free contact 2A @ 250VAC Available with Alarm relay module
--------------------	---

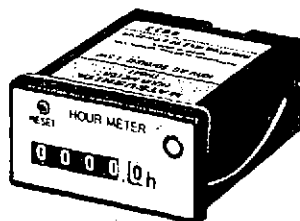
Physicals

Temperature and Humidity:	-35°C to +55°C, 0-90%
Terminals:	1.0mm ² to 6.0mm ²
Dimensions (WxDxH):	2M (36mm), 4M (72mm), 8M (144mm)
Weight:	200g (2M), 350g (4M), 700g (8M)
Listing:	UL Recognized Component AS3260, IEC950, C Tick
Warranty:	5 years

TH63·TH64 Hour Meters

NAIS**DIN HALF SIZE
HOUR METER****TH63·TH64
Hour Meters**

TH63 (without reset function)



TH64 (with reset function)

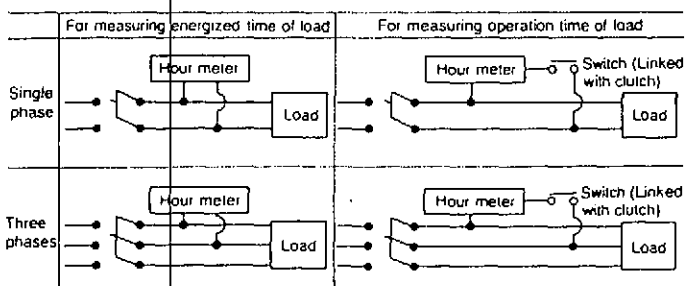
- Compact size offers more panel space.
- Wide measurement range.
- Simple installation.
- High performance motor with 50/60 Hz selection.
- Rotary indicator.
- Time measurement of leased equipment, management of compact equipment operation, maintenance management of various equipment, etc.

PRODUCT TYPE

	Part No.	Rated operating voltage	Max. power consumption	Counting range
TH63 types (without reset)	TH633	12 V AC	Approx. 1.5 W	0 to 99999.9 hours
	TH634	24 V AC		
	TH635	48 V AC		
	TH631	100 V AC		
	TH636	110 V AC		
	TH637	115 to 120 V AC		
	TH632	200 V AC		
	TH638	220 V AC		
	TH639	240 V AC		
TH64 types (with reset)	TH643	12 V AC	Approx. 1.5 W	0 to 9999.9 hours
	TH644	24 V AC		
	TH645	48 V AC		
	TH641	100 V AC		
	TH646	110 V AC		
	TH647	115 to 120 V AC		
	TH642	200 V AC		
	TH648	220 V AC		
	TH649	240 V AC		

SPECIFICATIONS

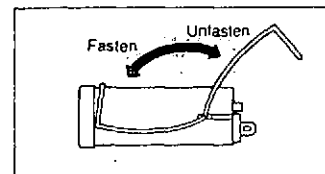
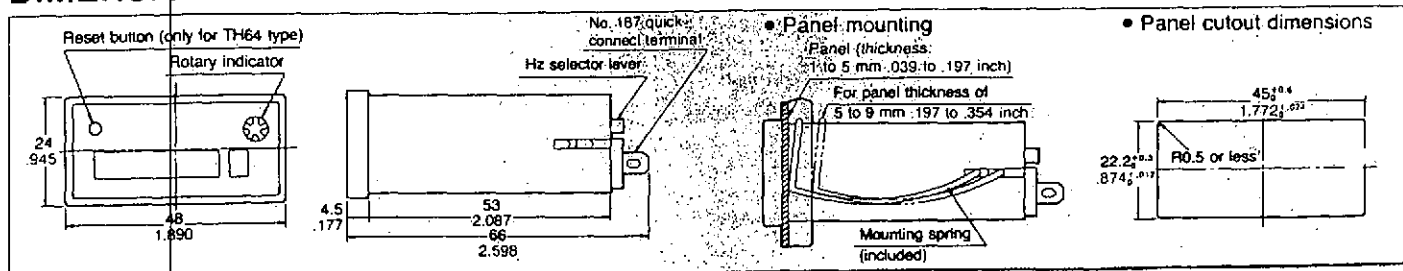
Type	TH63. (without reset)	TH64 (with reset)
Rated operating voltage	12 V AC, 24 V AC, 48 V AC, 100 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	
Operating voltage range	85 to 115% of rated operating voltage	
Rated frequency	50/60 Hz (selectable by switch)	
Initial insulation resistance (At 500 V.DC)	Min. 100 MΩ Between live and dead metal parts	
Initial breakdown voltage	2,000 Vrms Between live and dead metal parts	
Shock resistance	Functional	10 G (4 times on 3 axes)
	Destructive	100 G (5 times on 3 axes)
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Max. temperature rise	55 deg.	
Ambient temperature	-10 to +50°C +14 to +122°F	
Storage temperature	-30 to +60°C -22 to +140 F	
Ambient humidity	Max. 85% RH	
Counting direction	Addition (UP)	

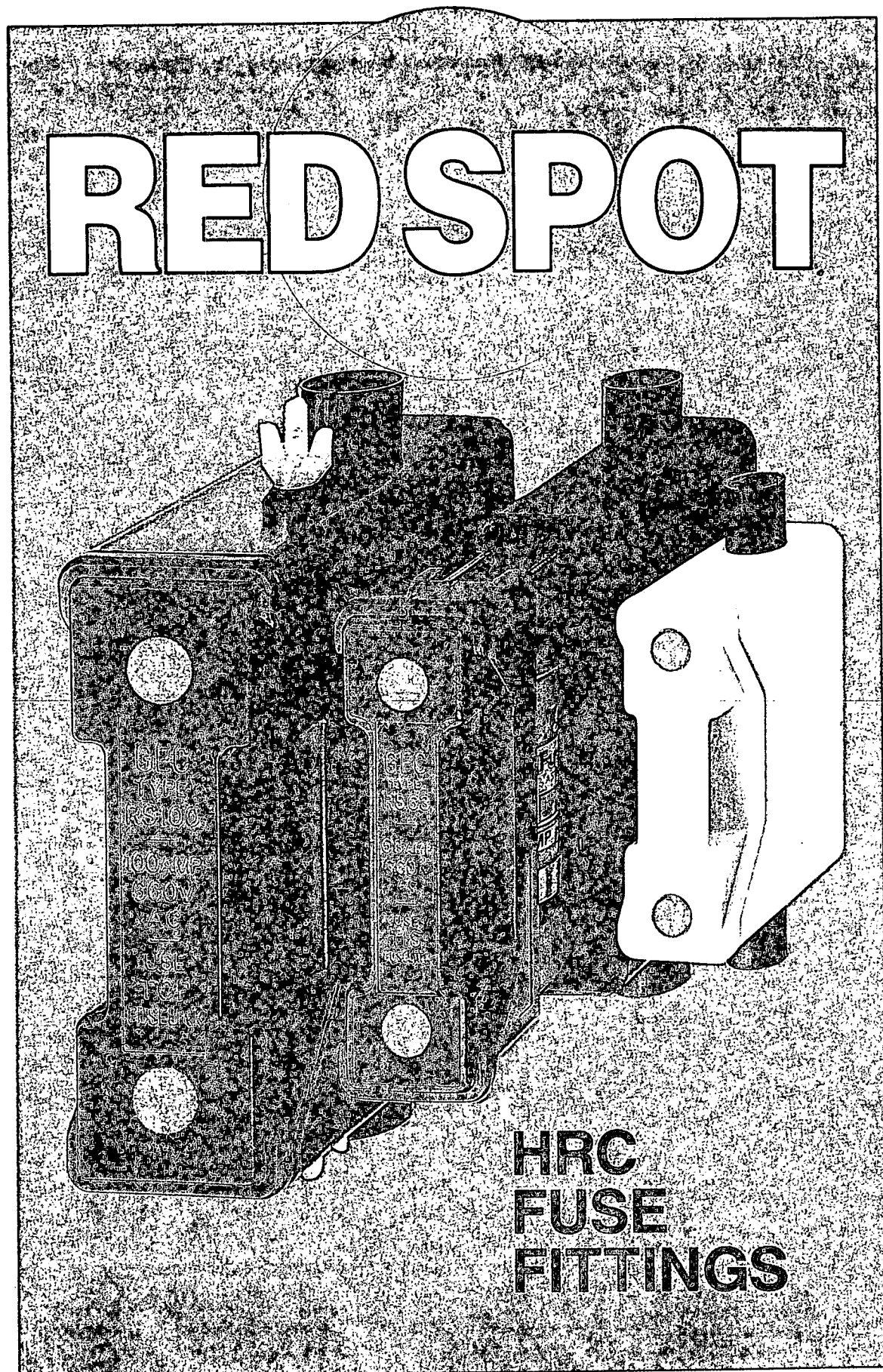
WIRING DIAGRAM

Note: Before operation, check that the Hz selector is set to the power line frequency at the installation site.

MOUNTING

1. Cut a 22.2^{±0.3} × 45^{±0.6} mm (0.874^{±0.012} × 1.772^{±0.015} inch) opening in the panel.
2. Swing the mounting spring to the rear of the hour meter and fit the hour meter into the panel opening. (There is no need to detach the mounting spring from the hour meter.) If the panel is 5 to 9 mm (0.197 to 0.354 inch) thick, move the mounting spring to the other hole toward the rear of the hour meter.
3. Swing the mounting spring to the front of the hour meter to secure the hour meter to the panel.
4. Wire the supplied quick connectors and connect to the hour meter. Be sure to use the supplied insulating sleeves to cover the connectors.

**DIMENSIONS**



GECALSTHOM

RED SPOT

**Fuse fittings to AS2005.21.2 – 1990 BS88: Part 2: 1988 660 volts A.C./D.C.
Approved by leading Authorities and used in equipment approved by Lloyds.**

SAFETY FEATURES

- Full Shrouding for personnel safety and complete compliance with the direct contact electric shock.
- Insulating sleeves are fitted to front connected fuse bases to provide increased protection at the cable entry point.
- Separate base contact insulating shrouds of great strength and flexibility ensure that no 'live' metal is dangerously exposed when the fuse carrier is removed – this enables an outgoing circuit to be cabled with complete safety to personnel and with continuity of supply to other circuits.
- Anti-vibration features protect against release of a fuse-carrier due to vibration in service. In the 400 amp size this includes a safety catch which automatically locks on the insertion of the fuse carrier.

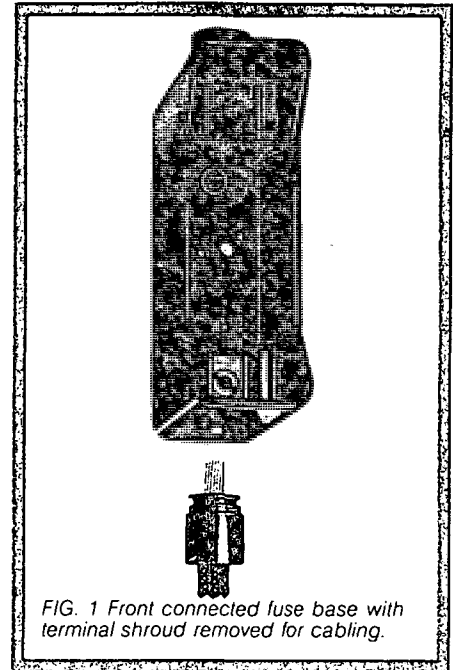


FIG. 1 Front connected fuse base with terminal shroud removed for cabling.

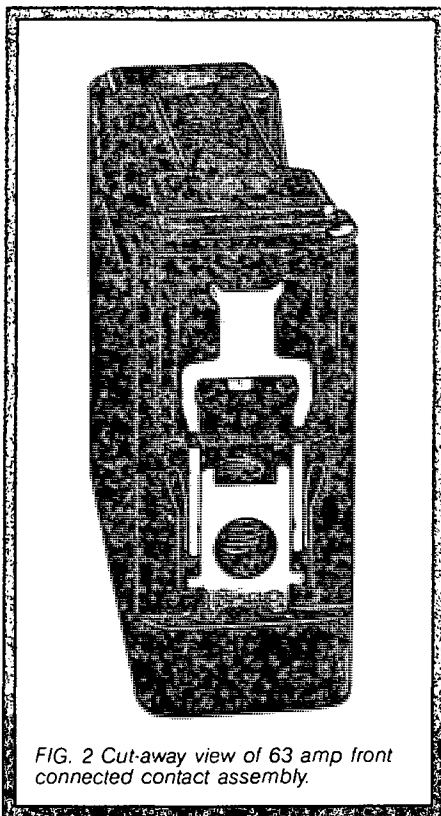


FIG. 2 Cut-away view of 63 amp front connected contact assembly.

RED SPOT SPECIAL FEATURES

20, 32, 63 & 100 amp fuse fittings

Perfect alignment of contacts with single-screw fixing achieved by registration on facets in moulding.

Large contact area and anti-vibration feature incorporated in brass contacts of accurate dimensions.

Tapered shank of fuse link fixing screw ensures easy re-entry.

Safety shroud (cut-away to show base contact) made from moulded red nylon of great strength and flexibility.

Patented non-twist cable clamping screw of large diameter.

Lasting contact pressure ensured by backing stirrups which are located by the shape of the base contact and the moulding.

Carrier and base moulded from flame retardant, non-hygroscopic phenolic.

APPLICATION DATA

RED SPOT

200 & 400 amp fuse fittings

High quality mouldings, safety shrouds and precision made copper contacts ensure reliable operation.

Additional special features

- ☐ Through grip handle for maximum control.
- ☐ Silver plated contacts with generous cross section.
- ☐ Guides to ensure parallel action on insertion or withdrawal of fuse carrier.
- ☐ Patented non-twist cable clamping screws of large diameter on the 200 amp and cable clamping plate on the 400 amp fuse holders prevent damage to cables.
- ☐ Terminal screw locking device, incorporating the principle used in the twelve sided spanner, can be fitted to the hexagon head of the terminal screw, whatever its position when fully tightened, by using one of the two positions provided for locating the captive screw (arrowed in FIG. 3)

FIG. 3 Front connected 200 amp RED SPOT fuse base with shroud removed and with moulding partly cut-away to show silver-plated base contact and terminal screw locking device.

FIG. 4 Front connected 400 amp RED SPOT fuse fitting with moulding partly cut-away to show silver-plated contact, red nylon shroud and cable clamping device.

FIG. 3

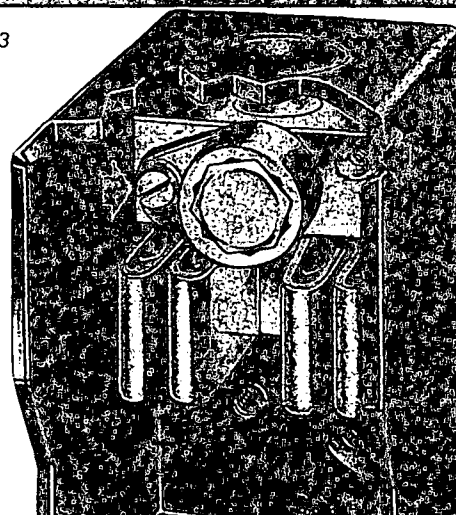
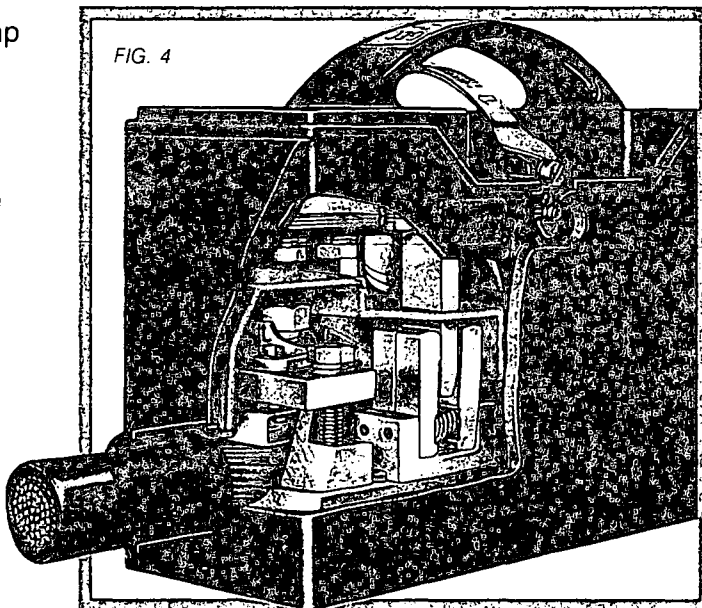


FIG. 4



LIST NUMBERS

for ordering purposes

Standard Colours: Black & White (RS20 – RS100)

Rating amp	Alternative type of connection			
	FRONT	BACK	FRONT/BACK	BACK WIRED
20	RS20H *	RS20P	RS20PH	RS20BW
32	RS32H	RS32P	RS32PH	RS32BW
63	RS63H	RS63P	RS63PH	RS63BW
100	RS100H †	RS100P	RS100PH	RS100BW †
200	RS200H	RS200P	RS200PH	
400	RS400H	RS400P	RS400PH	

† Available with sealed terminal shrouds. List Nos: RS100H-S, RS100BW-S * For Din Rail Mounting order DIN Rail Adaptor Part No: 5BB 9020-010.

Illustrations & dimensions shown on pages 5, 6, 7 & 8

APPLICATION DATA

H.R.C. FUSE LINKS ACCOMMODATED				
Fuse fitting rating amp	Type 'T' to BS.88:Part 2 & AS2005.21.2	Extended range of Type 'T' to BS.88:Part 2: & AS2005.21.2 for motor circuit protection. (660 volts a.c.)		
		List No.	Current rating amp	Rating for motor starting amp
20	NIT2-20A (550 volts a.c.)	NIT20M25 NIT20M32 (415 volts a.c.)	20 20	25 32
32	TIA2-32A	TIA32M35 TIA32M40 TIA32M50 TIA32M63	32 32 32 32	35 40 50 63
63	TIA2-32A TIS35-63A	TIS63M80 TIS63M100	63 63	80 100
100	TIA2-32A † TIS35-63A † TCP80 & 100A	TCP100M125 TCP100M160 TCP100M200	100 100 100	125 160 200
200	TBC2-63A TC80 & 100A TF125-200A	TF200M250 TF200M315 *	200 200	250 315
400	TBC2-63A § TC80 & 100 § TF125-200 § TKF250 & 315 § TKM250 & 315A TM355 & 400A	TM400M450	400	450

† Adaptor plate required Type 'A' 5BB9306-010

§ Adaptor plate required Type 'B' 5BB9307-010

* 550 volts a.c.

Note: For full details on Type 'T' fuse links, including D.C. performance, please refer to Publication IEF/401 or PSP0000

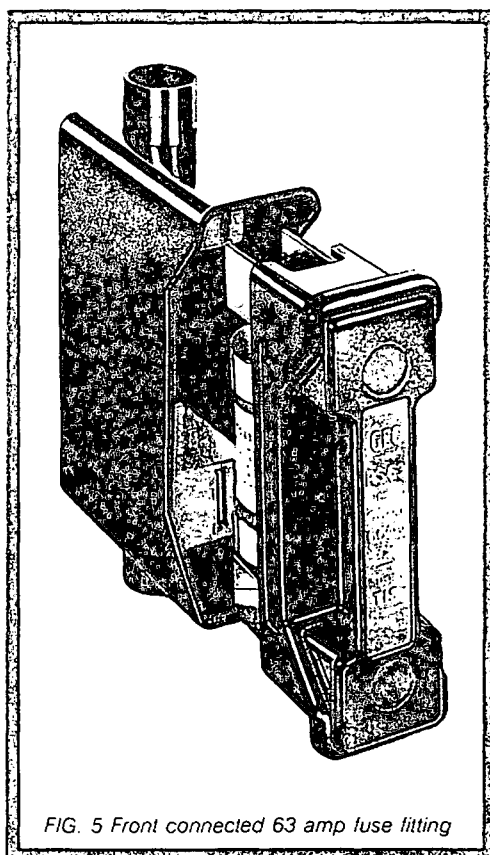


FIG. 5 Front connected 63 amp fuse fitting

METHOD OF CABLING

Front connected fuse fittings

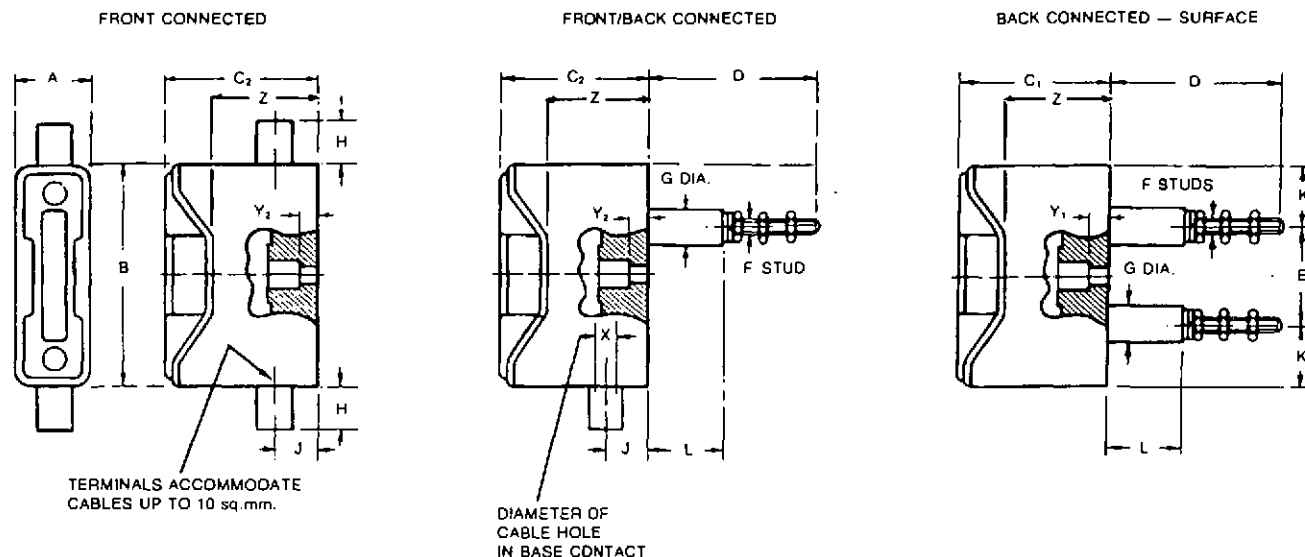
- 1) Remove red nylon insulating shroud to release cable sleeve.
- 2) Remove cable sleeve.
- 3) Fit cable sleeve over cable.
- 4) Fit conductor into fuse base terminal and tighten cable clamping screw to secure. If flexible cables are used, their relatively fine strands may be given increased protection by the use of thin wall copper ferrules over the conductor ends. The following should be taken into account:
 - a) The inside diameter of the thin wall copper ferrule should match that of the bared conductor end as closely as possible.
 - b) The length of the thin wall copper ferrule should match that of the tunnel in the fuse base terminal.
 - c) The wall thickness of the ferrule should be thin enough for the ferrule to be compressed by the tightening of the cable clamping screw. The flexible conductors will then be consolidated within the deformed ferrule.
- 5) Replace red nylon shroud taking care that it holds the cable sleeve in position by locating the shroud in the groove provided in the sleeves.

RS100 H-S & RS100 BW-S (COUNCIL SEALABLE)

- 6) Fit nylon screw through the red nylon shroud with the heads of the screws against the shrouds. Fasten the wingnuts on to the fuse fitting base.

DIMENSIONS

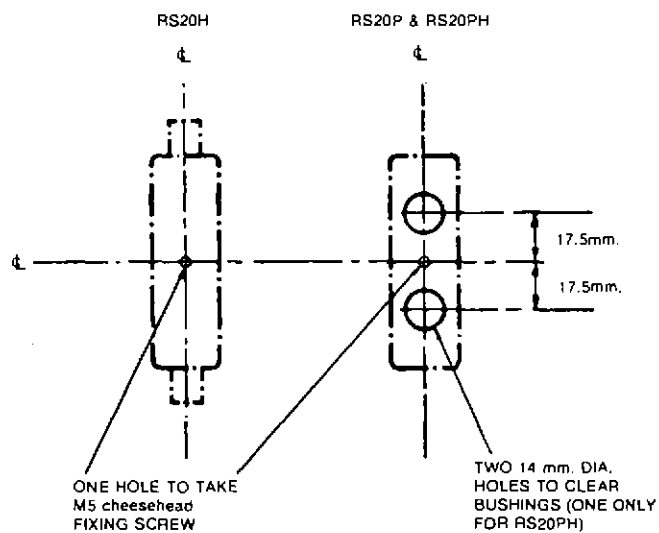
20 amp RED SPOT Fuse Fittings



	A	B	C ₁	C ₂	D	E	F	G	H	J	K	L	X	Y	Y ₂	Z
mm	27.0	79.0	54.0	55.0	63	35	M6	13.5	15.0	16	22.0	29	6.0	5.6	6.6	37

PANEL DRILLING DIMENSIONS

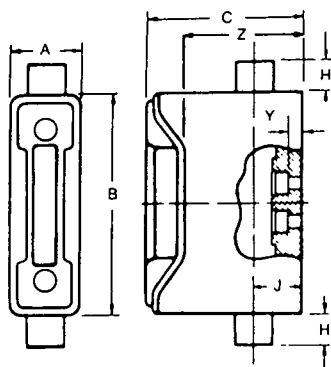
Viewed From Front Of Panel



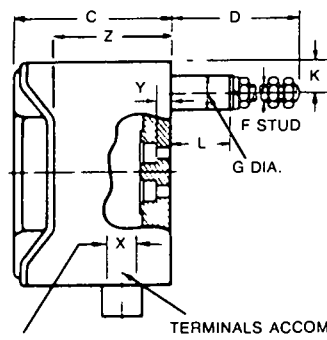
DIMENSIONS

32, 63 & 100 amp RED SPOT Fuse Fittings

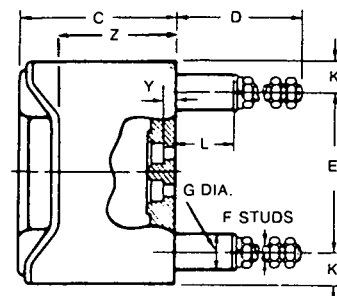
FRONT CONNECTED



FRONT/BACK CONNECTED



BACK CONNECTED



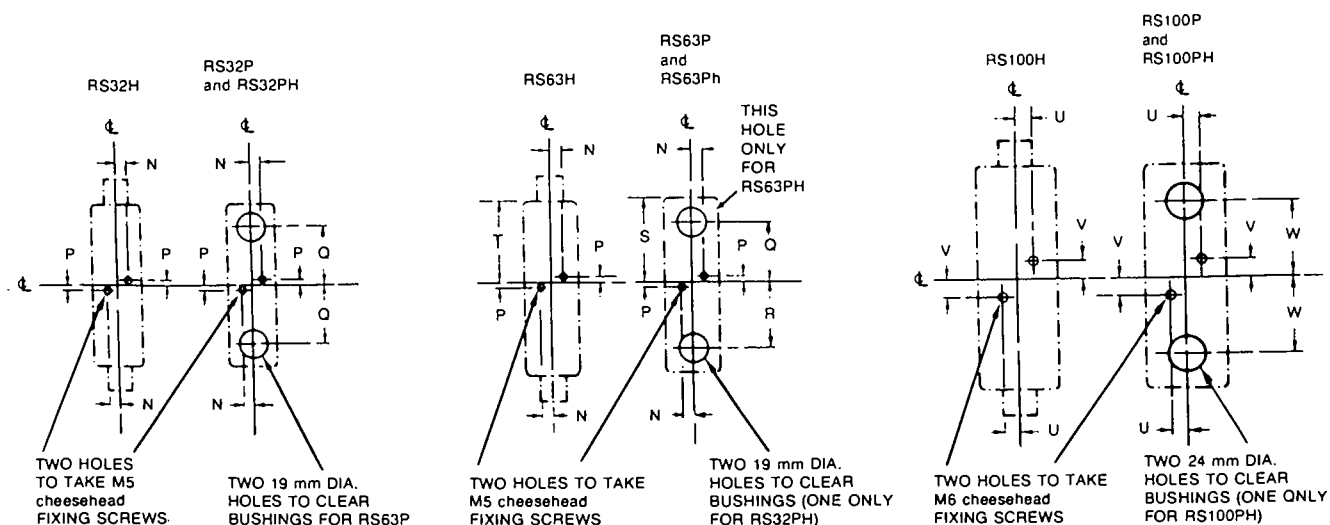
Diameter of
cable hole in
base contact

TERMINALS ACCOMMODATE CABLES UP TO:-

16 sq.mm. 32 amp.
50 sq.mm. 63 amp.
70 sq.mm. 100 amp.

Rating amp		A	B	C	D	E	F	G	H	J	K	L	X	Y	Z
32	mm	32	103	70	81.0	73	M6	17.5	15	22	15	29	6.2	5.6	49
63	mm	35	110	75	84.0	78	M8	17.5	15	24	16	29	9.5	5.6	54
100	mm	51	140	100	87	94	M10	22	15	28	23	32	12.7	7.2	74

PANEL DRILLING DIMENSIONS Viewed From Front Of Panel

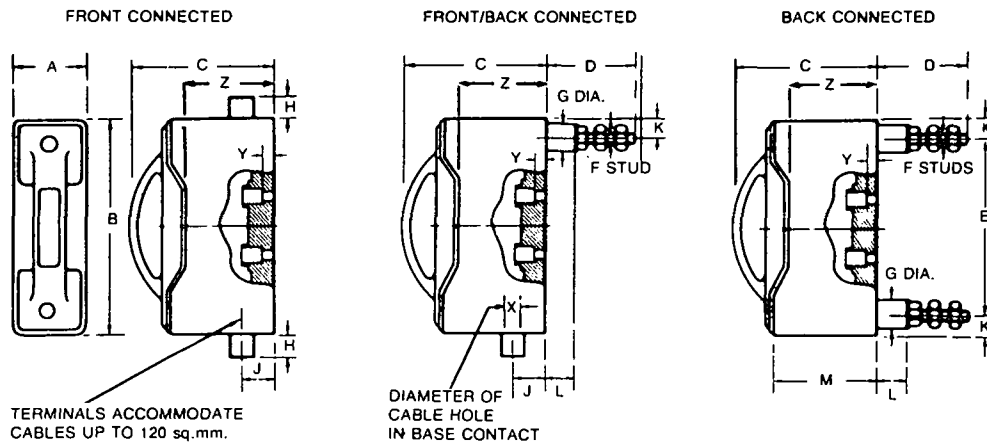


	N	P	Q	R	S	T	U	V	W
mm	6.4	3.2	36.5	41.3	52.4	51.6	9.5	11.1	46.8

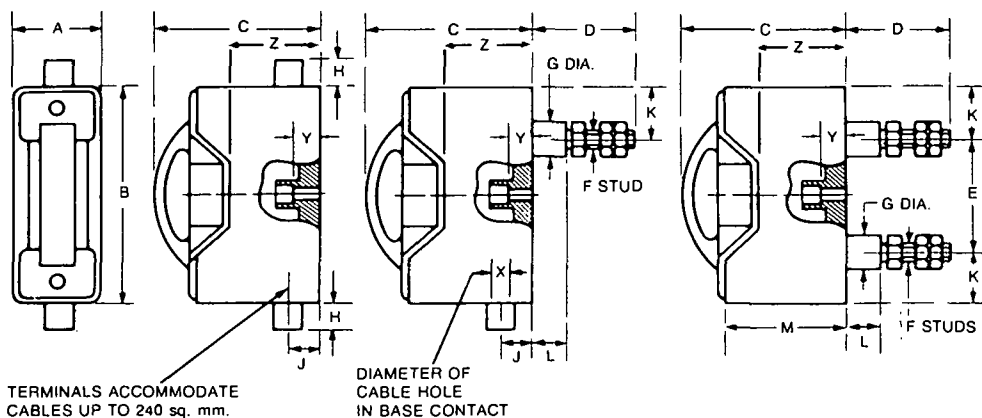
DIMENSIONS

RED SPOT Fuse Fittings

200 amp



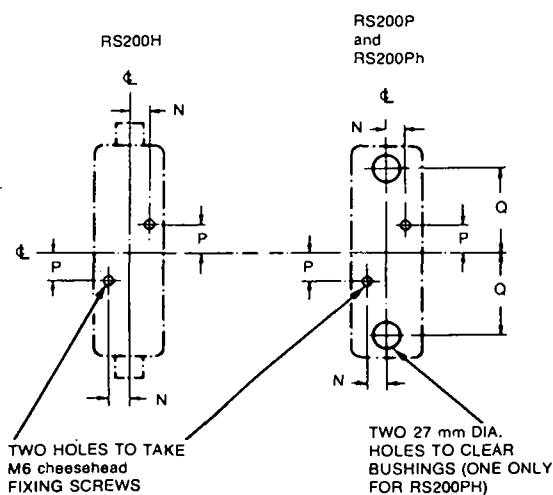
400 amp



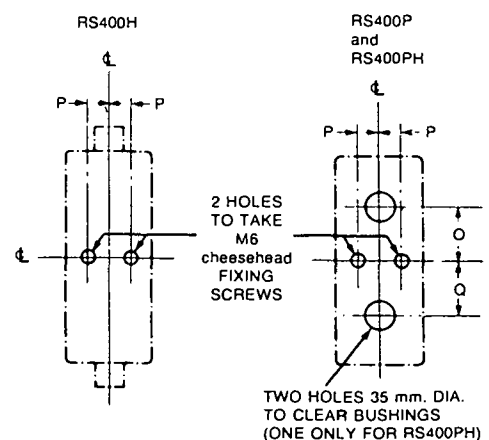
	200 amp	400 amp
	mm	mm
A	70	98
B	216	254.0
C	436.5	192
D	95	114
E	171.5	140
F	M12	M16
G	25	32
H	22	32
J	32	36.5
K	22	57
L	32	38
M	100.0	151
X	16	21
Y	9.5	32
Z	84	130

PANEL DRILLING DIMENSIONS

Viewed From Front Of Panel



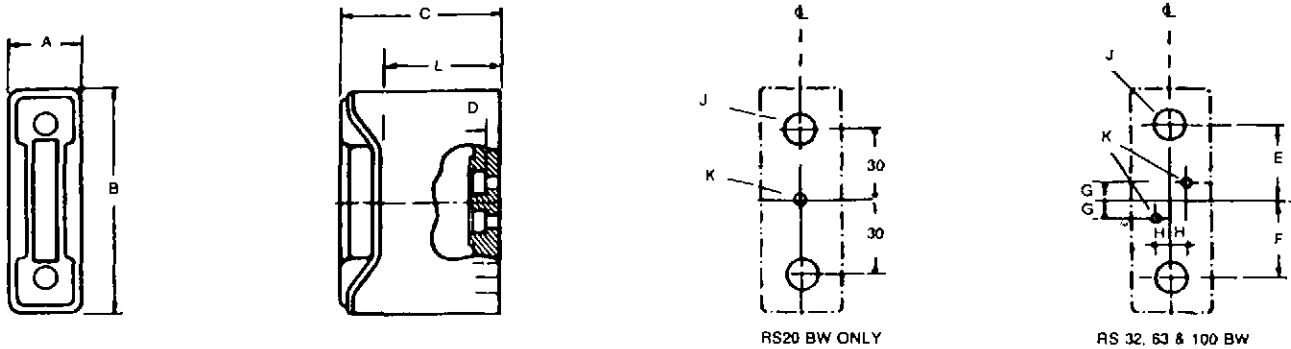
	N	P	Q
mm	19.1	28.6	85.7



	P	Q
mm	27.0	69.9

DIMENSIONS

RED SPOT H.R.C. Fuse Fittings BACK WIRED PANEL MOUNTED



TYPE	Rating Amp	All dimensions in millimetres										
		A	B	C	D	E	F	G	H	J DIA	K	L
RS20BW	20	27	80	54	6	30	30	-	-	8	To Suit M5	37
RS32BW	32	32	103	70	6	40	40	3,2	6,4	8	M5	49
RS63BW	63	35	110	75	6	40	46	3,2	6,4	8	M5	54
RS100BW	100	51	140	100	7	50	50	11	9,5	16	M6	74

SUGGESTED SPECIFICATION

☐ All fuse fittings are to be rated 660Volts and accept bolt-in type HRC fuse links. They are required to be fully shrouded, cable ferrules for front entry type should be supplied as standard.

☐ The design shall be such that when removing or replacing a fuse carrier, it shall not be possible to touch the top contact (line) when the bottom contact (load) is inserted into the base and therefore alive.

☐ Fuse fittings are to be from a range having 20A, 32A, 63A, 100A, 200A and 400A rated fittings.

☐ Associated HRC fuse links shall be rated at 80kA 550/660VAC and be ASTA 20 certified.

☐ Fuse fittings are to be Red Spot type, or equivalent. HRC fuse link shall be either GEC or English Electric Type T or equivalent.

GECALSTHOM

Industrial Products Division, GEC ALSTHOM Australia Limited (Incorporated in NSW)

25 Princes Road, Regents Park NSW 2143 · P.O. Box 22 Regents Park NSW 2143 · Telex 20729 · Telephone (02) 645 0777 · Fax (02) 645 1608

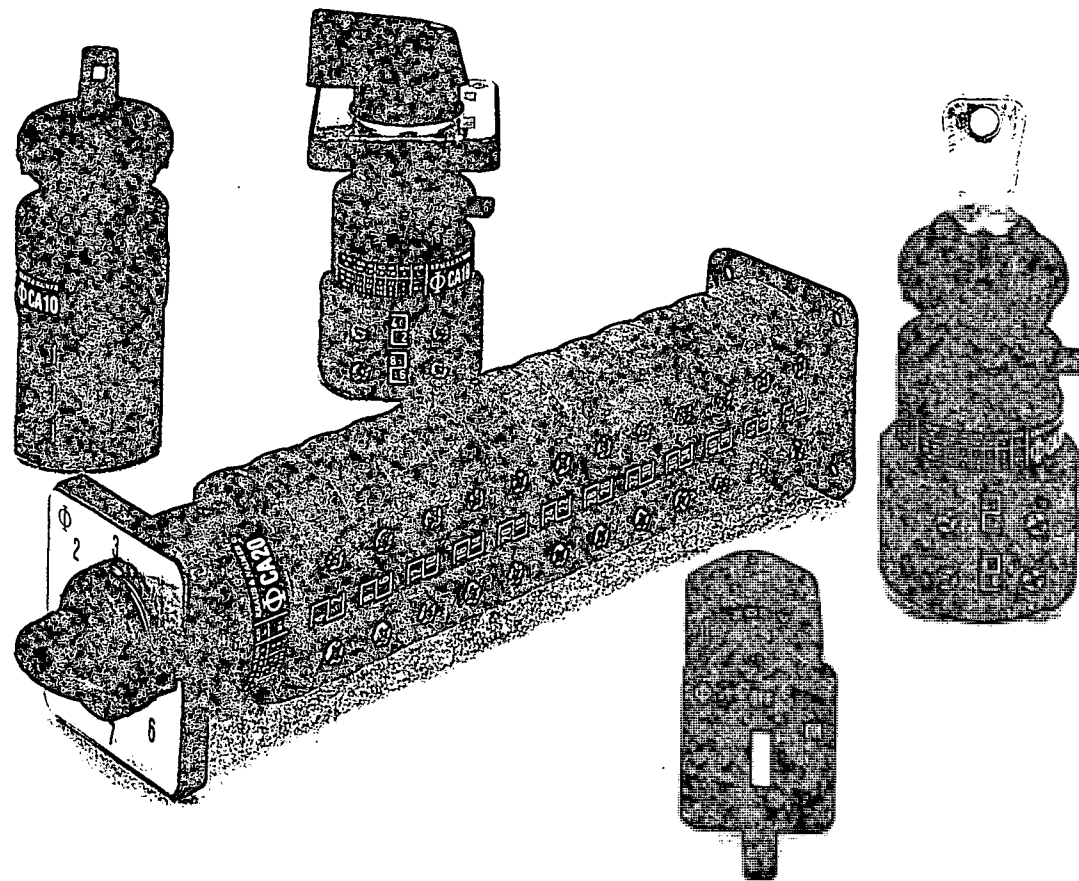
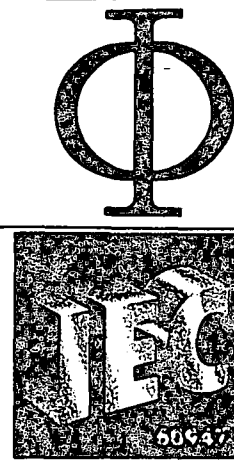
SYDNEY BRISBANE MELBOURNE PERTH ADELAIDE: HOBART NEWCASTLE
(02) 645 0777 (07) 268 4344 (03) 561 2566 (09) 277 4844 (08) 373 3766 (002) 34 5133 (049) 61 1224

KRAUS & NAIMER

BLUE LINE SWITCHGEAR

Switch Types

CA4, CA4-1, CA10, CA11, CA20, CA25
CA10B, CA11B, CA20B, CA25B



- compact design with the smallest escutcheon plate size of 30 x 30 mm (1.181" x 1.181")
- finger-proof according to VDE 0106 part 100 and VBG 4
- open terminals which are accessible from both sides
- captive plus-minus screws and screwdriver guide
- high switching capacity
- contacts with gold plating (switch types CA4 and CA4-1)

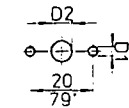
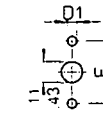
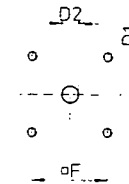
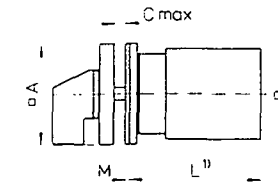
Dimensions
mm
inch

Panel mounting

EF

E22

E/EF



	A	B	C	D1	D2	E	F	M
CA4, CA4-1	30 1.18	28 1.10	4 .16	3.2 .13	8 - 11 .31 - .43	-	-	-
CA10, CA11	48 1.89	43 1.69	4 .16	5 .20	15 - 19 .59 - .75	30 1.42	36 .06	1.5
CA20	48 1.89	45 1.77	4 .16	5 .20	15 - 19 .59 - .75	30 1.17	36 1.42	1.5
CA25	48 1.89	46 1.81	4 .16	5 .20	15 - 19 .59 - .75	30 1.17	-	-
CA10B, CA11B, CA20B, CA25B	64 2.52	56 2.20	4 .16	5 .20	19 - 22 .75 - .87	-	48 1.89	3 .12

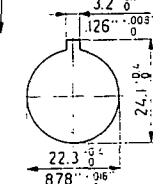
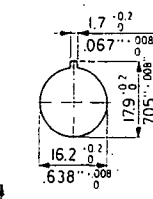
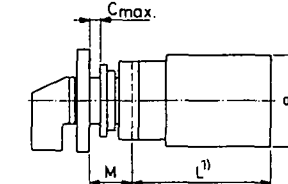
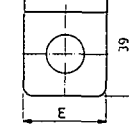
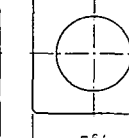
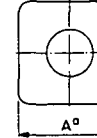
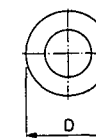
Single hole mounting

FS1/
FT1

FS2/
FT2

FH3

FS4

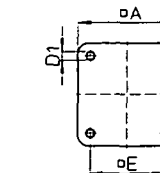
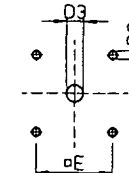
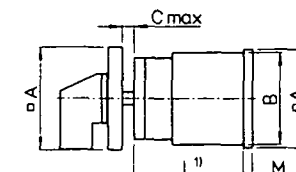


	CA4 CA4-1	CA10 CA11	CA20	CA25
A/E	30 1.18	49 1.93	49 1.93	49 1.93
B	28 1.10	43 1.69	45 1.77	46 1.81
C	4 .16	6 .24	6 .24	6 .24
D	29.5 1.16	39 1.54	39 1.54	39 1.54
M	12.5 .49	20 .79	20 .79	20 .79
FH3...	-	1.07	1.07	1.07

Base mounting

Front mounting

Rear mounting



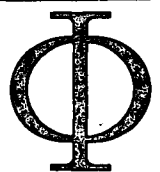
	A	B	C	D1	D2	D3	E	M
CA10, CA11	48 1.89	43 1.69	4 .16	5 .20	8 - 15 .31 - .59	36 1.42	4 .16	1.5
CA20	48 1.89	45 1.77	4 .16	5 .20	8 - 15 .31 - .59	36 1.42	4 .16	1.5
CA25	48 1.89	46 1.81	4 .16	5 .20	8 - 15 .31 - .59	36 1.42	4 .16	1.5
CA10B, CA11B, CA20B, CA25B	64 2.52	56 2.20	4 .16	5 .20	10 - 15 .39 - .59	48 1.89	3 .12	1.5

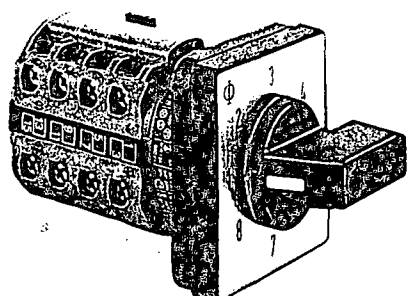
Dimensions L

	1	2	3	4	5	Stages 6	7	8	9	10	11	12
CA4, CA4-1	30 1.18	38 1.50	46 1.81	54 2.13	62 2.44	70 2.76	78 3.07	86 3.39	94 3.70	-	-	-
CA10	31.7 1.25	41.2 1.62	50.7 2.0	60.2 2.37	69.7 2.74	79.2 3.12	88.7 3.49	98.2 3.87	107.7 4.24	117.2 4.61	126.7 4.99	136.2 5.36
CA11	34.9 1.37	47.6 1.87	60.3 2.37	73.0 2.87	85.7 3.37	98.4 3.87	111.1 4.37	123.8 4.87	136.5 5.37	149.2 5.87	161.9 6.37	174.6 6.87
CA20	35.9 1.41	84.6 1.91	61.3 2.41	74 2.91	86.7 3.41	99.4 3.91	112.1 4.41	124.8 4.91	137.5 5.41	150.2 5.91	162.9 6.41	175.6 6.91
CA25	37.2 1.44	51.2 2.02	65.2 2.57	79.2 3.12	93.2 3.67	107.2 4.22	121.2 4.77	135.2 5.32	149.2 5.87	163.2 6.43	177.2 6.98	191.2 7.53
CA10B	37.9 1.49	47.4 1.87	56.9 2.24	66.4 2.61	75.9 2.99	85.4 3.36	94.9 3.74	104.4 4.11	113.9 4.48	123.4 4.86	132.9 5.23	142.4 5.61
CA11B	41.1 1.62	53.8 2.12	66.5 2.62	79.2 3.12	91.9 3.62	104.6 4.12	117.3 4.62	130 5.12	142.7 5.62	155.4 6.12	168.1 6.62	180.8 7.12
CA20B	42.1 1.66	54.8 2.16	67.5 2.66	80.2 3.16	92.9 3.66	105.6 4.16	118.3 4.66	131 5.16	143.7 5.66	156.4 6.16	169.1 6.66	181.8 7.16
CA25B	43.4 1.71	57.4 2.26	71.4 2.81	85.4 3.36	99.4 3.91	113.4 4.46	127.4 5.01	141.4 5.56	155.4 6.11	169.4 6.66	183.4 7.21	197.4 7.76

australian solenoid co. pty. ltd.

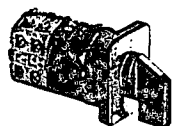
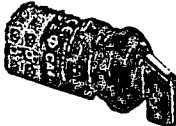
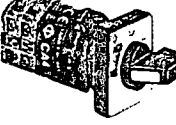
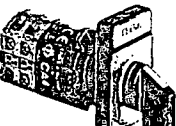
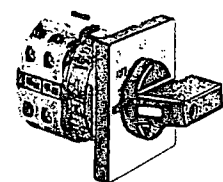
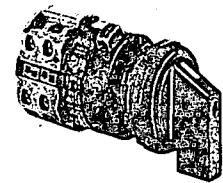
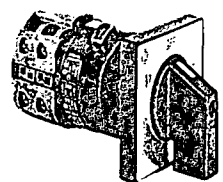
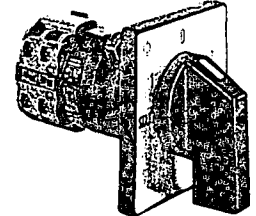
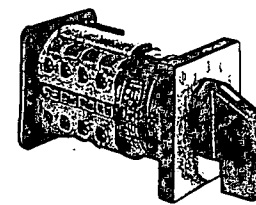
379 Liverpool Road, ASHFIELD, N.S.W. 2131
P. O. Box 1093, ASHFIELD, N.S.W. 1800
Tel: (02) 9797-7333 Fax: (02) 9797-0092



Construction Data
<p>The terminals of the CA-series cam switches are accessible from both sides. This is an advantage in cases where the switch is prewired for installation or in cases where the terminal wiring cannot be done in the sequence of the stage. The compact design, the excellent switching capabilities under AC-15, AC-3 resp. AC-23A and the obviously unlimited number of switch developments are characteristic for the CA switches and exceed the requirements of IEC 60947-3 and VDE 0660 part 107.</p> <p>CA switches of this series are supplied with open terminals and protected against accidental finger contact in accordance with VDE 0106 part 100 (VBG 4). Captive plus-minus terminal screws and integrated screwdriver guides facilitate wiring.</p> <p>The CA4 and CA4-1 switches offer maximum space saving benefits. A CA4 or a CA4-1 switch in E mounting 1 stage long and 2 contacts fits into 30 x 30 mm cubicle. The additional length of any further stage is 8 mm. CA4 and CA4-1 contacts are supplied standard with gold plating (CA4 = 1 µ, CA4-1 = 35 µ).</p> <p>Single hole mounting according to EN 50007 with protection IP 65 is suitable for either 16/22 mm (CA4, CA4-1) or 22 mm (CA10-CA25B) diameter holes and is available with key operator, if required.</p> <p>Switching angle of CA switches may be 30°, 45°, 60° or 90°. Switch types CA4 and CA4-1 are available with up to 18 contacts. CA10-CA25B switches are available with up to 24 contacts.</p> <p>A wide range of optional extras and enclosures is available.</p> <p>Your order should include the following data:</p> <ol style="list-style-type: none"> 1. Switch type (selection according to the following tables) 2. Switching program (order a prescribed form for special programs) 3. Mounting type 4. Escutcheon plate and handle 5. Optional extras


Switch Types				CA4 CA4-1	CA10 CA10B	CA11 CA11B	CA20 CA20B	CA25 CA25B
Rated Insulation Voltage U_i		IEC 60947-3 ¹⁾ , EN 60947-3 ¹⁾ VDE 0660 part 107 ¹⁾ SEV ³⁾ UL/Canada CEE/NEMKO	V V V V	440 380 300 400/380	690 660 300 400	690 660 600 400	690 660 600 400	690 690 300 -
Rated Impulse Withstand Voltage U_{imp}			kV	4	6	6	6	6
Rated Thermal Current I_{th}		IEC 60947-3, EN 60947-3 VDE 0660 part 107 SEV ³⁾ UL/Canada	A A A A	10 10 10/- 10	20 20 16/12 20 ⁴⁾	20 20 16/12 20 ⁴⁾	25 32 25/25 30	32 32 32/32 30
Rated Operational Current I_n		IEC 60947-3, EN 60947-3 VDE 0660 part 107	A	10	20	20	25	32
AC-21A Switching of resistive loads including moderate overloads			A	10	20	20	25	32
AC-1 Resistive or low inductive loads		SEV ³⁾ 380 V 660 V	A A	10 -	16 12	16 12	25 20	32 32
AC-15 Switching of control devices, contactors, valves etc.		IEC 60947-3, EN 60947-3 VDE 0660 part 107 220 V-240 V 380 V-440 V	A A	2,5 1,5	5 4	5 4	8 5	12 6
Pilot Duty		UL/Canada ³⁾ Heavy	VAC	300	300	600	600	300
Ampere Rating Resistive or low inductive loads		UL/Canada ³⁾	A	10	20 ⁴⁾	20 ⁴⁾	30	30
Resistive loads/Motor load		CEE NEMKO	A A	4/2 6/4 ²⁾	10/6 10/6	10/6 -	16/10 20/10	- -
Short Circuit Protection								
Max. fuse size		(gL-characteristic)	A	10	25	25	35	35
Rated short-time withstand current		(1s-current)	A	60	140	140	280	480
Rated Utilization Category		IEC 60947-3, EN 60947-3 VDE 0660 part 107						
AC-3 Direct-on-line starting, star-delta starting		3 phase 220 V-240 V 3 pole 380 V-440 V 500 V 660 V-690 V	kW	1,5 2,2 -	3 5,5 5,5	3 5,5 5,5	4 7,5 7,5	5,5 11 11
		1 phase 110 V 2 pole 220 V-240 V 380 V-440 V	kW	0,3 0,55 0,75	0,6 2,2 3	0,6 2,2 3	1,5 3 3,7	2,2 4 5,5
AC-23A Frequent switching of motors or other high inductive loads		3 phase 220 V-240 V 3 pole 380 V-440 V 500 V 660 V-690 V	kW	1,8 3 -	3,7 7,5 7,5	3,7 7,5 7,5	5,5 11 11	7,5 15 15
		1 phase 110 V 2 pole 220 V-240 V 380 V-440 V	kW	0,37 0,75 1,1	0,75 2,5 3,7	0,75 2,5 3,7	1,5 3 5,5	2,2 4 7,5
Ratings		UL/Canada						
Standard motor load		120 V	HP	0,75	1,5	1,5	3	5
DOL-Rating (similar AC-3)		3 phase 240 V 3 pole 480 V 600 V		1 - -	3 - -	3 5 5	7,5 10 10	10 - -
		1 phase 120 V 240 V 277 V 480 V 600 V	HP	0,33 0,75 0,75 -	0,5 1 2 -	0,5 1 2 2	1,5 3 3 5	2 5 5 -
Max. Permissible Wire Gage								
single-core or stranded wire			mm ² AWG	2x 1,5 14	2x 2,5 12	2x 2,5 12	2x 4 10	2x 6 8
flexible wire (sleeving in accordance with DIN 46228)			mm ² AWG	2x 1,5 (-) 16	2x 2,5 (2,5) 14	2x 2,5 (2,5) 14	2x 4 (2,5) 12	2x 4 (4) 10

1) Valid for lines with grounded common neutral termination, overvoltage category III, pollution degree 3. Values for other supply systems on request. 2) Valid for CA4 only. 3) International Standards and Approvals, refer to Catalog 100, page 39. 4) Canada max. 16 A.

Essential Mounting	Code	For type	
	E EF	CA4 CA4-1	Panel mounting two hole p/m two hole p/m Protection IP 65
	FS1		Single hole mounting combined with 16 and 22 mm Protection IP 65 w/o escutcheon plate
	FS2	CA4 CA4-1	with escutcheon plate 30 x 30 mm
	FS4		with escutcheon plate 30 x 39 mm
	E22 EF	CA10 CA11 CA20 CA25 CA10 CA11 CA20 CA25 CA10B CA11B CA20B CA25B	Panel mounting Protection IP 65 two hole p/m four hole p/m
	FT1		Single hole mounting 22 mm Protection IP 65 w/o escutcheon plate
	FT2	CA10 CA11 CA20 CA25	with escutcheon plate 48 x 48
	FH3		with escutcheon plate 64 x 64 mm
	VE	CA10 CA11 CA20 CA25 CA10B CA11B CA20B CA25B	Base mounting Protection IP 40 four hole p/m

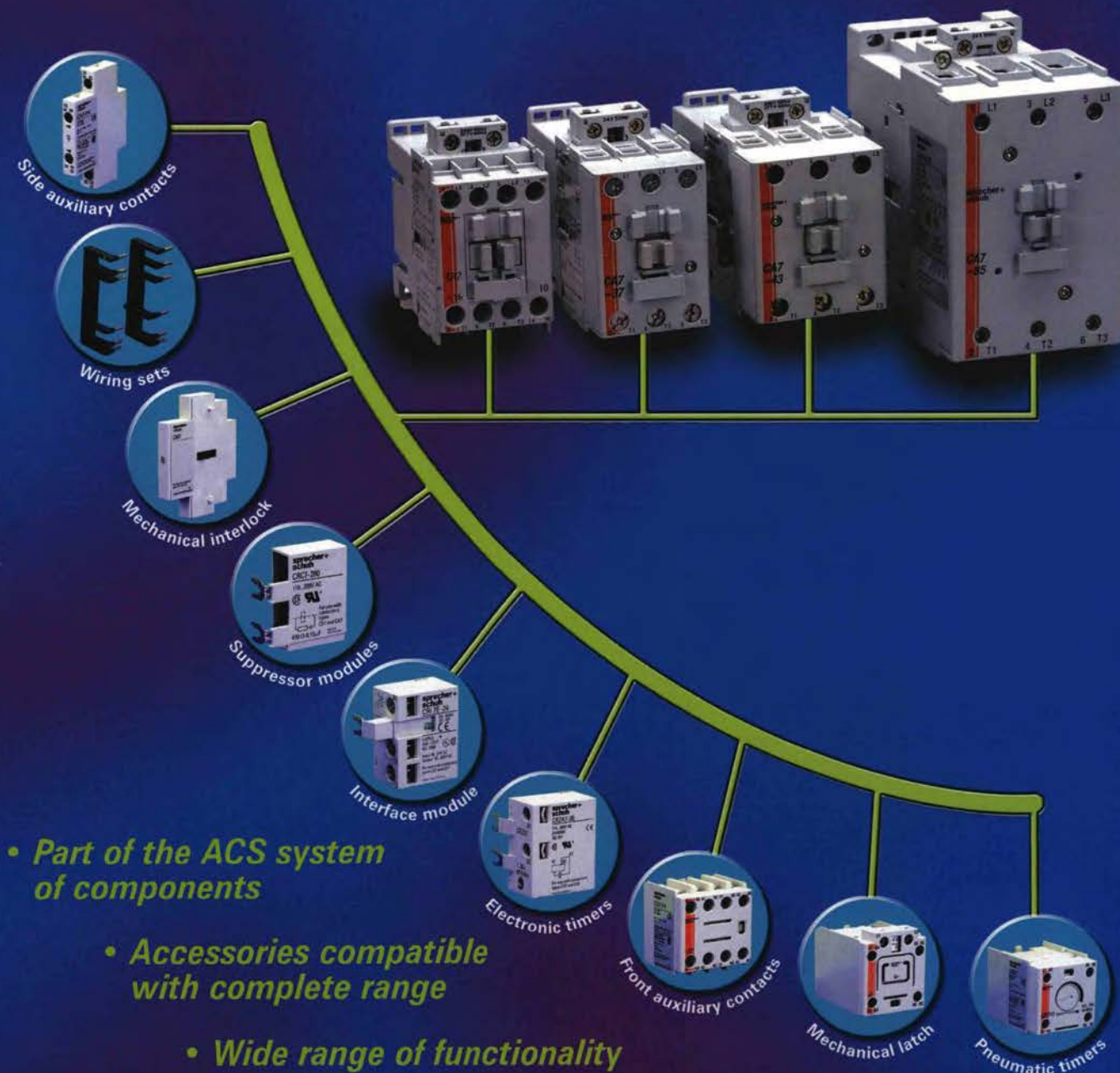
sprecher+
schuh *The ultimate
in technology*

NHP



CA 7 Contactors

More than just a contactor...
It's a contactor system.

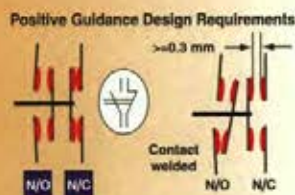
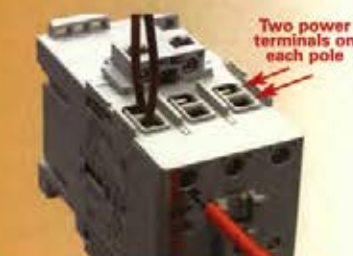


NHP ELECTRICAL ENGINEERING PRODUCTS PTY LTD

A.B.N. 84 004 304 812
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CA 7

Contactors ... features ahead of its time!



Reversible coils ... Total flexibility

Contactors usually have fixed coil connections. CA 7 contactors however, offer reversible coils giving the user the option of either top or bottom mounted coil terminals. This is particularly useful in providing more convenient access to coil connections.

The appropriate coil configuration can be ordered already fitted or simply modified on site.

Dual power terminals

CA 7-30 through to CA 7-85 are designed with two power terminals for each pole. This simplifies power wiring of interconnected contactors in reversing, reduced voltage and two speed applications. Simplified wiring results in less labour/downtime and reduced cost.

An extensive range of accessories common to all frame sizes is available: auxiliary contact blocks, timing elements, mechanical latch, interface module mechanical interlock and suppressor modules. A common mechanical interlock enables two CA 7 contactors of different physical size to be interlocked, making it ideal for applications such as multi-speed starters.

Sample of the Cat. No. when ordering:

CA 7 - 9 - 10...V

CA 7 series

Refers to the AC 3 rating in amps

Coil switching voltage

This is the auxiliary contact configuration 10 = 1 N/O, 01 = 1 N/C

	AC 3 kW	AC 3 Amps	AC 1 40 °C	AC 1 60 °C	Aux. Contacts N/O N/C	Maximum Aux. Contacts	Cat. No. 1) 2) 3) 4)
CA 7-16 45 mm wide 16 A	4	9	32	32	1 0	9	CA 7-9-10...V
					0 1	9	CA 7-9-01...V
	5.5	12	32	32	1 0	9	CA 7-12-10...V
					0 1	9	CA 7-12-01...V
CA 7-37 45 mm wide 30 A, 37 A	7.5	16	32	32	1 0	9	CA 7-16-10...V
					0 1	9	CA 7-16-01...V
	11	23	32	32	1 0	9	CA 7-23-10...V
					0 1	9	CA 7-23-01...V
CA 7-43 54 mm wide 43 A	15	30	50	45	0 0	8	CA 7-30-00...V
	18.5	37	50	45	0 0	8	CA 7-37-00...V
	22	43	85	63	0 0	8	CA 7-43-00...V
CA 7-85 72 mm wide 60 A, 72 A, 85 A	30	60	100	100	0 0	8	CA 7-60-00...V
	37	72	100	100	0 0	8	CA 7-72-00...V
	45	85	100	100	0 0	8	CA 7-85-00...V

Note: 1) Add control voltage

2) Also available in DC control eg. (CA 7-9C-10...V)

3) Available in 4 pole version eg. (CA 7-9M40...V)

4) 4 pole DC version available on indent only

NHP
www.nhp.com.au

ELECTRICAL ENGINEERING PRODUCTS PTY LTD

A.B.N. 84 004 304 812

Melbourne Sydney Newcastle Brisbane Townsville Rockhampton Toowoomba Cairns Adelaide Perth Darwin Hobart

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FAX: +61 3 9429 1075 +61 2 9648 4353 +61 2 4960 2203 +61 7 3891 6139 +61 7 4775 1457 +61 7 4922 2947 +61 7 4633 1796 +61 7 4035 6999 +61 8 8371 0962 +61 8 9277 1700 +61 8 8947 2049 +61 3 6228 9757

FLYER CA7-F

Q-Pulse Id TMS1117

Active 10/12/2014

CA7-F 10/01 14 M

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TemBreak

Total Protection, Complete Control





NO

TOYOTA HILUX CO. LTD.

HILUX

HILUX

In 1600A

1600V AC

XS1600NE

Circuit Breaker

TemBreak

TERASAKU

TemBreak

Total Protection, Complete Control

TemBreak incorporates a series of microprocessor based MCCBs that represents a major evolution in low-voltage distribution systems. They were engineered to meet the requirements of the fast developing information-oriented society. Each model is designed to serve a key point in the system. Providing refined characteristics, incorporating true r.m.s. detection and ensuring the reliability necessary for the efficient functioning of the system.

TemBreak's features are designed to match the needs of the 90's

- Meets Worldwide Users Requirements
- Electronic Type TemBreak
- Achieves a Higher Degree of Protection Co-ordination
- Adjustable Rated Current
- World Wide Standards
- Operation Unaffected by Harmonics
- Adjustable Long and Short Time-delay Trips
- Expanded Protective Functions
- Improved Breaking Performance
- Spacesaving
- Fast Break Mechanism
- Advanced Breaking Technology
- Highest Degree of Protection

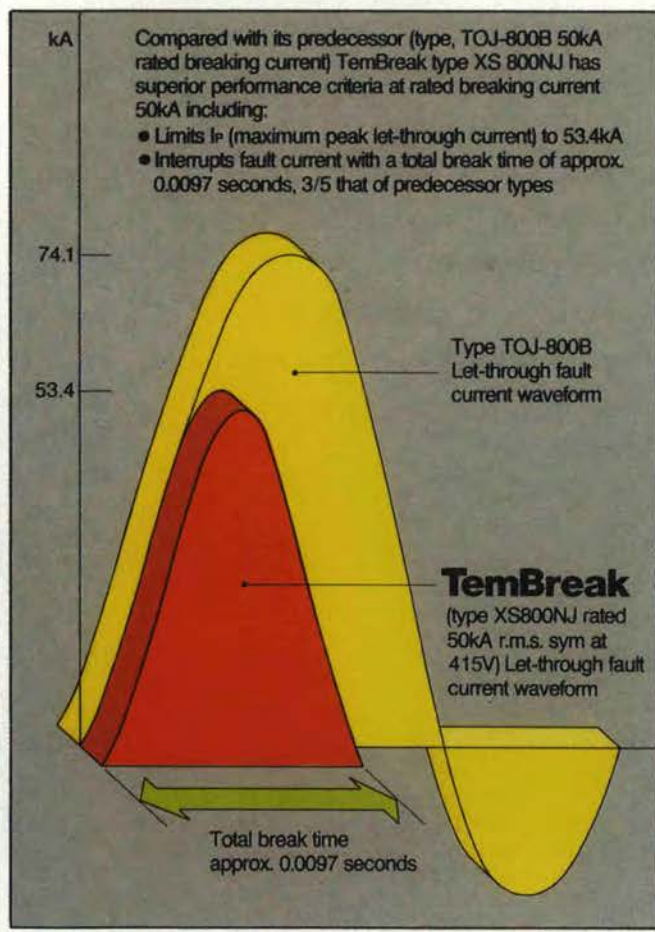
Contents:	Fast Break Mechanism _____	Page 2
	Advanced Technology _____	Page 4
	Correspondence TemBreak - Existing Breakers _____	Page 6
	Precise Protection Co-ordination _____	Page 8
	OCR Checker _____	Page 12

Fast Break Mechanism (FBM)

EXCEPTIONAL CURRENT LIMITING QUICK-BREAKING PERFORMANCE

TERASAKI's ingenuity on current breaking is reflected in the new Fast Break Mechanism (FBM) of the TemBreak series. Achieving high-speed, highly-efficient breaking. Its outstanding features include: U-shaped conductors, Dual Repulsive Contacts and Quick-break Arc Chutes (To quickly quench and extinguish ionized arcing gases) The Current Limiting, Quick-Breaking Performance of TemBreak provides exceptional current-limiting characteristics that have not been possible with existing moulded case circuit breakers. The current-limiting characteristics of TemBreak products, up to 800A frame, are outstanding.

REMARKABLE CURRENT — LIMITING FEATURE

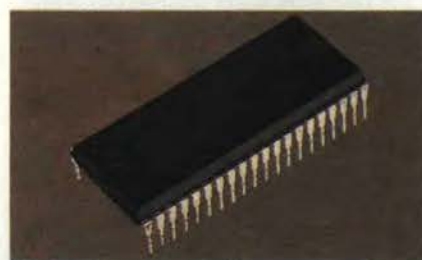
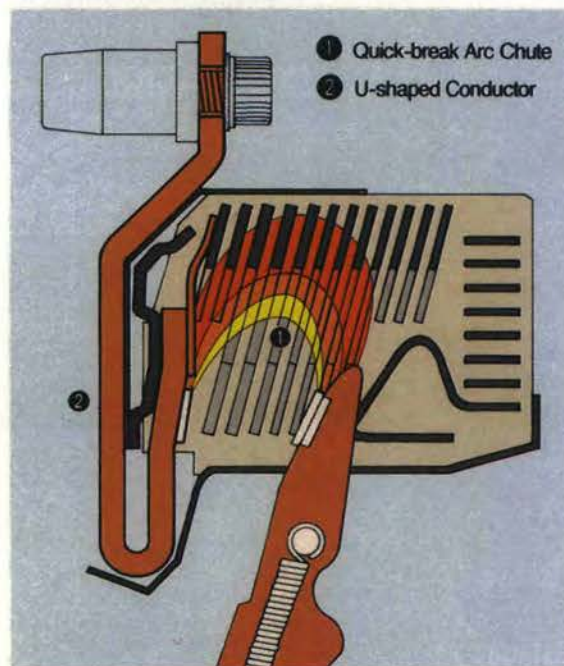


HIGH SPEED, HIGHLY-EFFICIENT BREAKING ACHIEVED!!

U-shaped Conductors

Dual Repulsive Contacts

Quick-break Arc Chutes



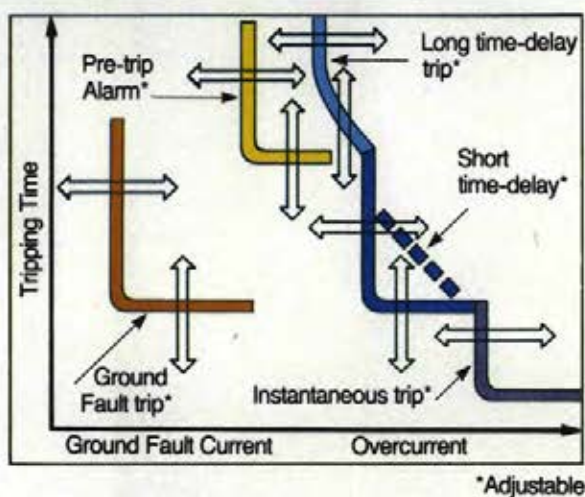
MULTI-PROTECTIVE FUNCTIONS!! By 8-Bit CPU

Terasaki's 28 years of achievements in the field of electronic technology is "second to none". In particular, its microcomputer application engineering has a "first class record" of supplying computer systems, of high, cost-performance to a variety of industrial plants over the past 10 years.

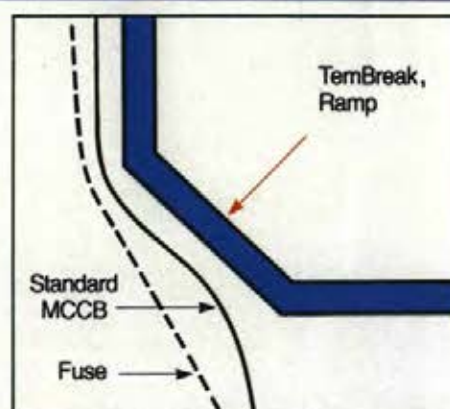


TemBreak contains advanced technology for precise protection co-ordination, anticipating the requirements of commercial buildings and automated factories.

Multiple Protective Functions Incorporating A Wide Range of Pick-Up Current and Time-delay Settings



Protective Characteristics Are Readily Co-ordinated With Those of Thermal-Magnetic MCCBs and Fuses. (The adjustable short time-delay trip has a ramp in its characteristic curve)



TemBreak Meets All Major Standards

Based Standards

IEC PUB 157-1 Part 1/International Electrotechnical Commission

AS 2184/Australian Standard

BS 4752 Part 1/British Standard

VDE 0660/Verband Deutscher Elektrotechniker

CEI 17.5/Comitato Elettrotecnico Italiano

NEMA AB-1/National Electrical Manufacturers Association

JIS C8 370/Japanese Industrial Standards

TemBreak's Adjustable Rated Current Type (Meets IEC Standards) And Is Available In A Wide Range For Plant Applications

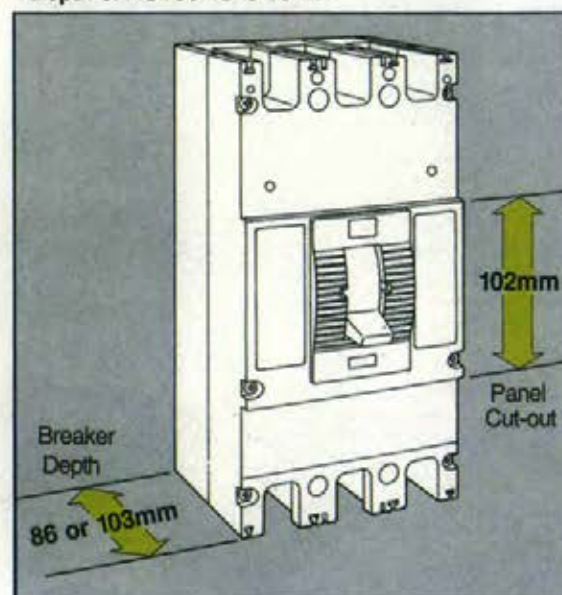
Plug in Mounting Blocks, for Switchboard Use

Note: The degree of protection provided by the mounting blocks for plug-in type TemBreak breakers (for Switchboard use) is IP-20, as defined in IEC Pub, 529.

Unified Dimensions Simplifies Distribution Board Design

TemBreak includes frame sizes up to 800A which are the most frequently used in distribution boards. Unified dimensions include:

Two depth sizes and one panel cut-out height
*Depth of XS100NS is 68mm



TemBreak series

38 types

A new generation of MCCBs procuring a major evolution in low voltage distribution systems. Each model provides refined characteristics, incorporating true r.m.s. detection and ensuring the reliability necessary for the efficient functioning of a system.

- ★ **UNAFFECTED BY HARMONICS**
- ★ **UNIFIED DIMENSIONS**
- ★ **3 and 4 POLE CONSTRUCTIONS**



FRAME (A)	30	50	100/125	160	225/250	400	600/630	800	1250	1600	2000	2500
Economical series			XE100CS 5kA/5kA 15-100A									
	XE30NS 2.5kA(220V) 3-30A	XE50NS 2.5kA/2.5kA 3-50A	XE100NS 10kA/15kA 10-100A		XE225NB 15kA/18kA 125-225A XE225NS	XE400NS 25kA/25kA 250-400A	XE600NS 25kA/25kA 500-600A					
Standard series		XS50CS 5kA/5kA 10-50A	XS125CJ (XS125CS)* 14kA/18kA 12.5-125A			XS400CJ 30kA/35kA 160-400A	XS630CJ 35kA/45kA 250-630A					
	XS30NS 2.5kA/2.5kA 3-30A	XS50NS 10kA/15kA 10-50A	XS125NJ (XS125NS)* 2.5kA/30kA 12.5-125A	XS160NJ 25kA/35kA 100-160A	XS250NJ 25kA/35kA 100-250A	XS400NJ 50kA/50kA 160-400A	XS630NJ 50kA/65kA 250-630A	XS800NJ 50kA/65kA 500-800A				
						8-bit CPU XS400NE 50kA/50kA 125-400A	8-bit CPU XS630NE 50kA/65kA 315-630A	8-bit CPU XS800NE 50kA/65kA 400-800A	8-bit CPU XS1250NE 50kA/65kA 630-1250A	8-bit CPU XS1600NE 85kA/100kA 800-1600A	8-bit CPU XS2000NE 85kA/100kA 1000-2000A	8-bit CPU XS2500NE 85kA/100kA 1250-2500A
					XS250PJ 35kA/35kA 100-250A							
High-fault level series			XH125NJ 50kA/50kA 12.5-125A	XH160NJ 50kA/50kA 100-160A	XH250NJ 50kA/50kA 100-250A	8-bit CPU XH250PE 65kA/65kA 125-250A	8-bit CPU XH400NE 65kA/65kA 125-400A	8-bit CPU XH630NE 65kA/65kA 315-630A	8-bit CPU XH800NE 65kA/65kA 400-800A			
XV mining 1100/1200V series						XV400NE 12.5kA 125-400A	XV630NE 12.5kA 315-630A	XV800NE 12.5kA 400-800A	XV1250NE 250kA 400-1250A			

* One pole type

415V AC (IEC 157-1, BS 4752-1, CEI 17-5) **P-1**

← Breaker type

← 380V AC (IEC 157-1, BS 4752-1, CEI 17-5) **P-1**


← Rated current

← **8-bit CPU**

← **Electronic type TemBreak**

Indicates breaker fitted with microcomputerised protective system.

Note: **I** Available on indent only.





Precise Protection Co-ordination

TemBreak, Electronic Type

TemBreak Profile (Electronic type)

Each electronic type TemBreak product is fitted with an electronic protective device using an 8-bit microprocessor, to provide full protective functions necessary for upgrading low-voltage distribution systems and for achieving the highest reliability in operation.

Operation Unaffected By Harmonics

Semiconductor controlled power equipment in a distribution system can be a source of harmonic currents, which can cause malfunctioning in other equipment within the system.

The TemBreak's electronic protective device is designed to detect, true r.m.s. value of the load current. Therefore, remaining unaffected by harmonics.

TemBreak's electronic protective device consists of a number of flat-package ICs, which are compactly mounted, using high-density double-surface mounting, the most advanced surface mount technology.

Protective Characteristics of TemBreak (Electronic type)

The protective characteristics include:

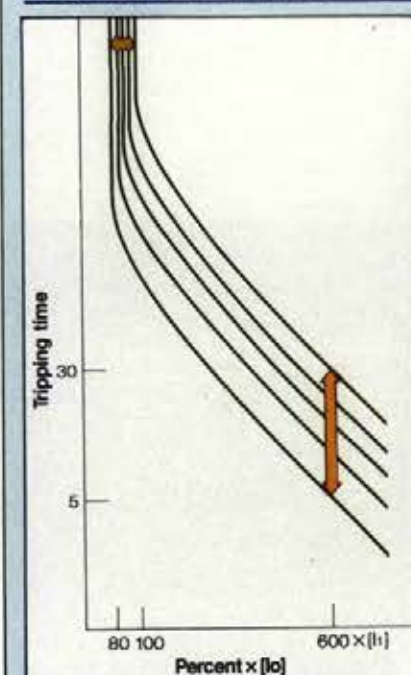
An adjustable long time-delay (For general industrial plants and for generator protection). An adjustable short time-delay trip (for co-ordination with existing solid-state trip and thermal magnetic trip breakers or fuses). An adjustable instantaneous

trip, an adjustable ground fault trip and an adjustable pre-trip alarm.

NOTE: The ground fault trip and pre-trip alarm can not be used simultaneously in a single breaker.

Adjustable long time-delay trip (LTD)

For general industrial applications



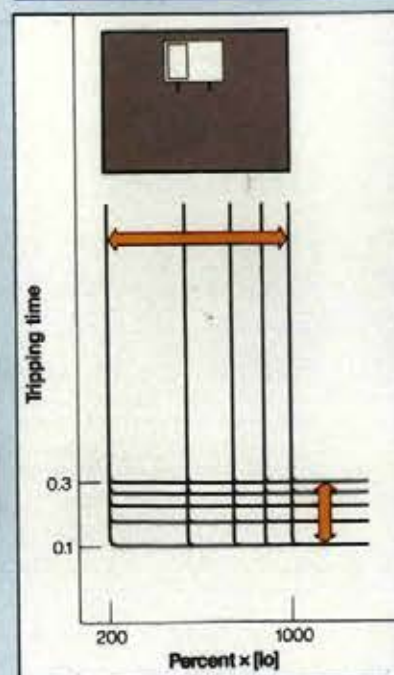
The pick-up current (I_1) of the LTD is adjustable from 80, 85, 90, 95 to 100% of the base current (I_0).



The LTD time delay at 600% of the rated current (I_1) is adjustable from; 5, 10, 15, 20 to 30 secs

Adjustable short time-delay trip (STD)

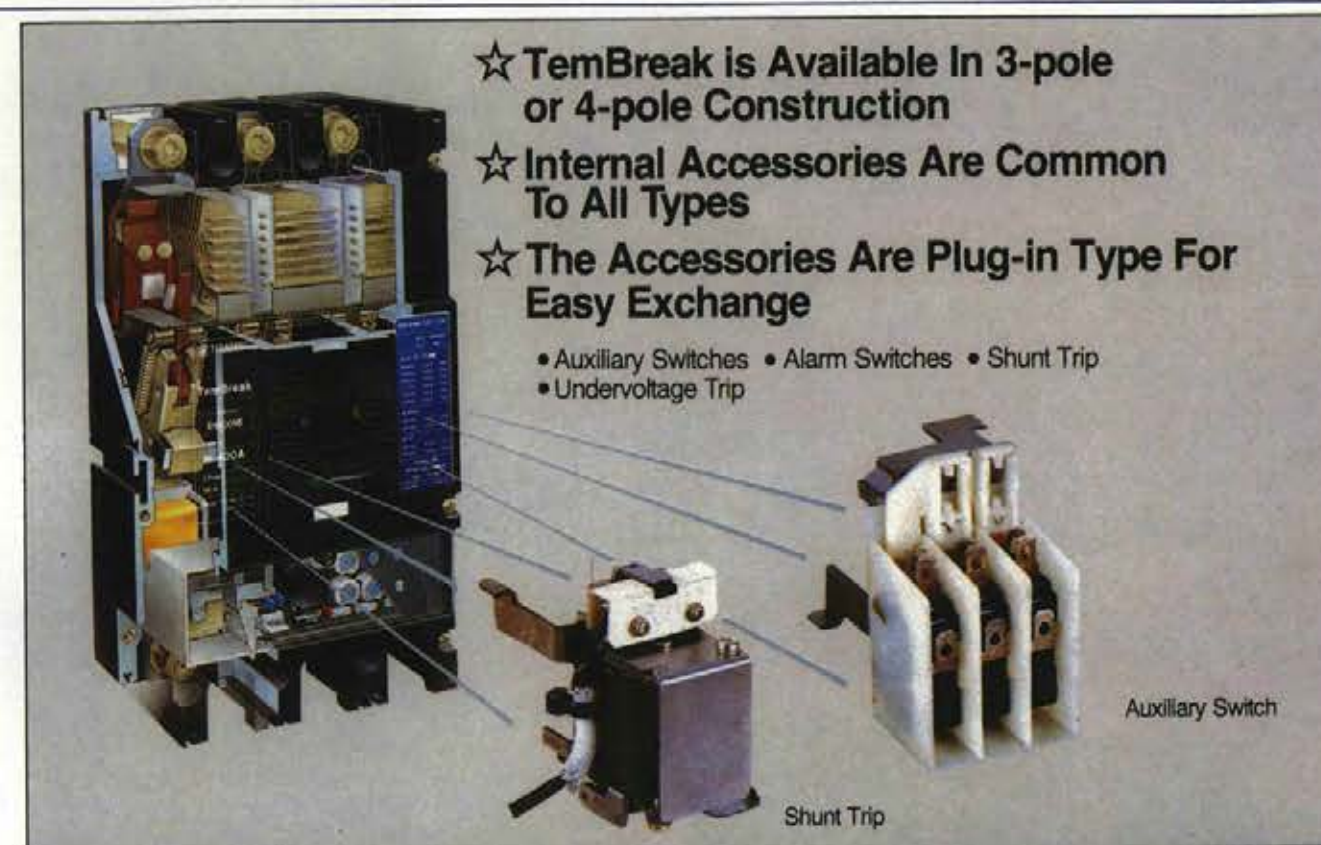
For co-ordination with existing solid-state trip breakers



The STD pick-up current (I_2) is adjustable from; 200, 400, 600, 800 to 1000% of the rated current (I_0).



The STD has a definite time-delay characteristic. This opening time is adjustable from; 100, 150, 200, 250 to 300 ms



☆ TemBreak is Available In 3-pole or 4-pole Construction

☆ Internal Accessories Are Common To All Types

☆ The Accessories Are Plug-in Type For Easy Exchange

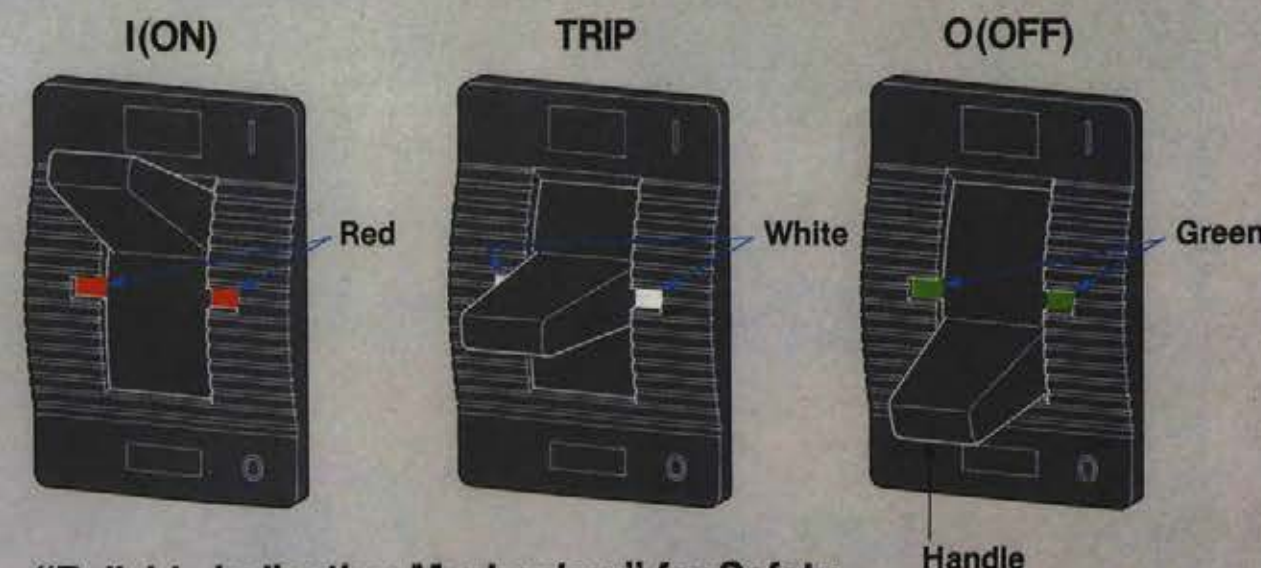
- Auxiliary Switches • Alarm Switches • Shunt Trip
- Undervoltage Trip

Auxiliary Switch

Shunt Trip

Contact Status Indication

International symbols are used (colour coded) for status indication; I (ON) Red, TRIP, White, O (OFF) Green.

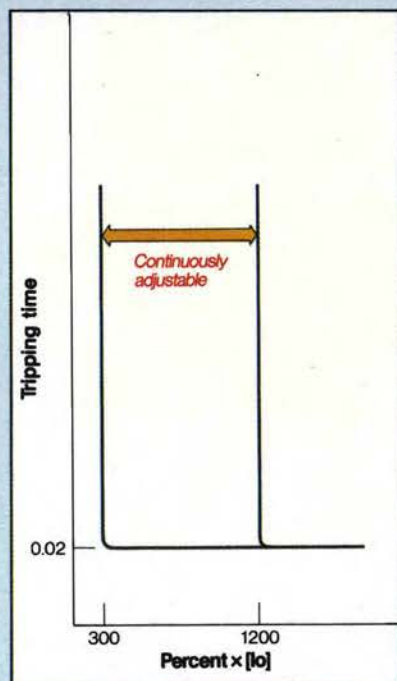


"Reliable Indication Mechanism," for Safety

The operating handle indicates the O (OFF) position ONLY when the required isolating distance, between

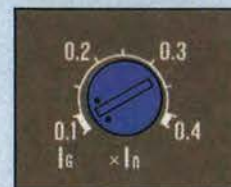
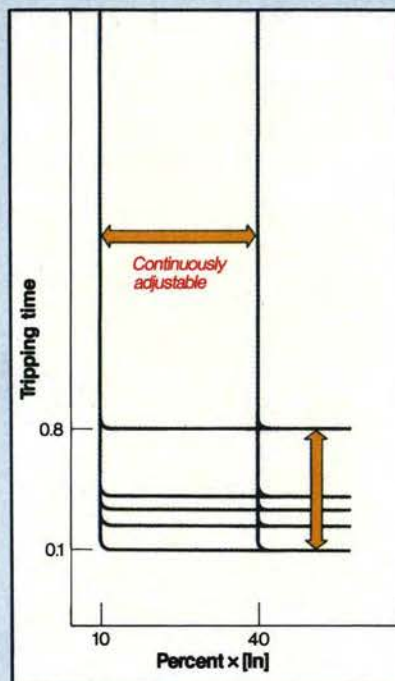
the fixed and moving contact is achieved (No extra indication is necessary)

Adjustable instantaneous trip (INST)



The INST pick-up current [I_3] is continuously adjustable from 300% to 1200% of the rated current [I_o]

Adjustable ground fault trip (GFT)

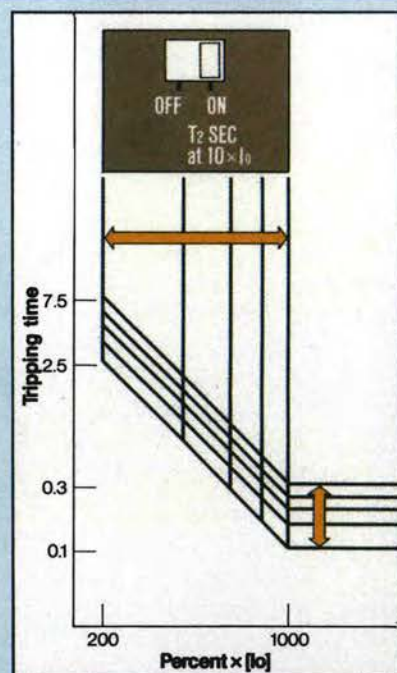


The GFT pick-up current [I_6] is continuously adjustable from 10% to 40% of the rated current [I_n]



The GFT has a definite time-delay characteristic, its opening time is adjustable from; 100, 200, 300, 400 to 800ms

For co-ordination with thermal-magnetic trip breakers or fuses.

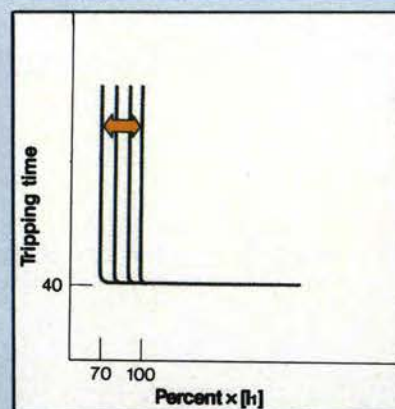


The STD pick-up current [I_2] is adjustable from 200, 400, 600, 800 to 1000% of the rated current [I_o]



The STD has a time current characteristic of $FT = \text{constant}$ (ramp characteristic) for optimum co-ordination with conventional thermal-magnetic type moulded case circuit

Adjustable pre-trip alarm (PTA)



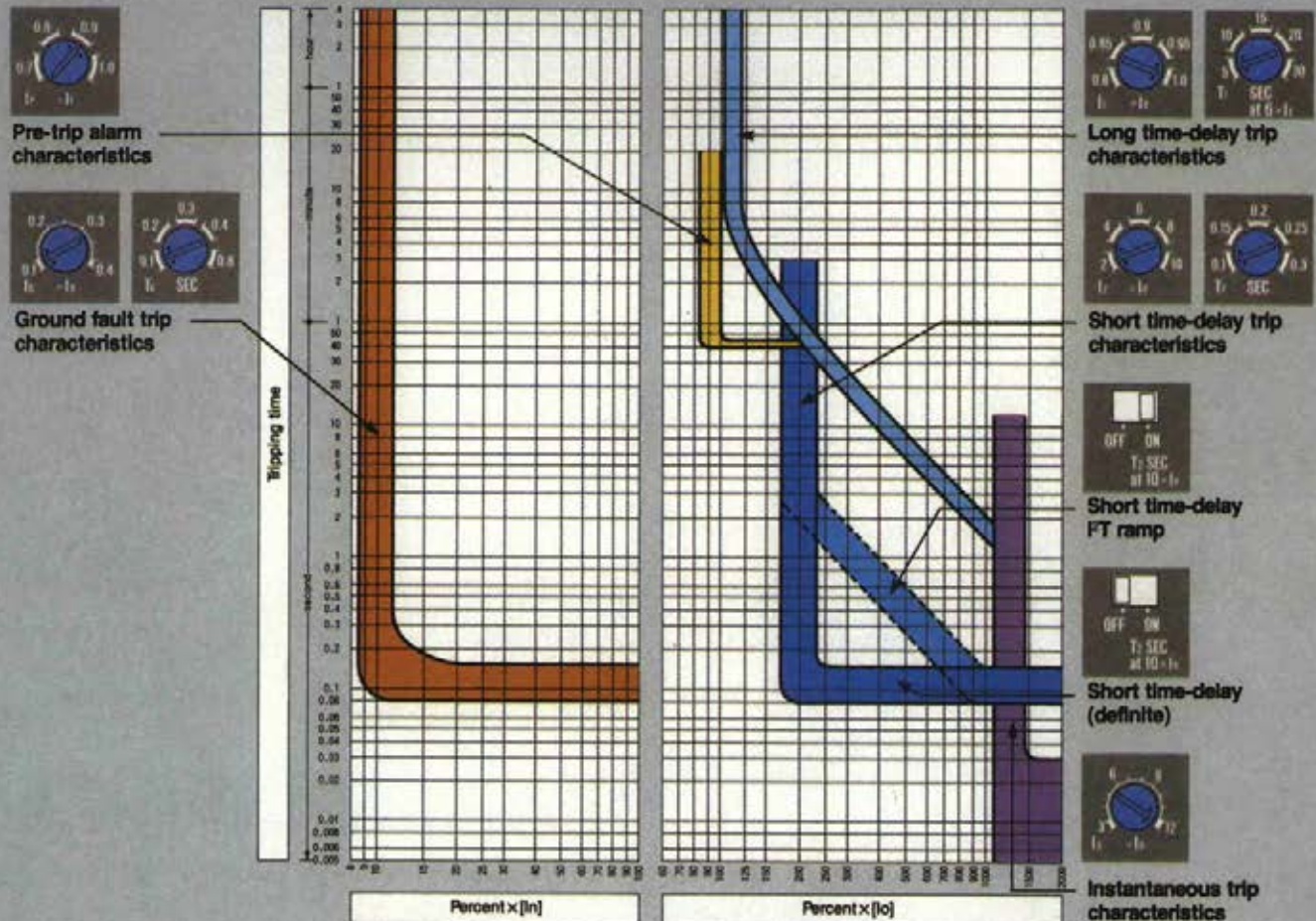
The PTA pick-up current [I_P] is adjustable from 70, 80, 90 to 100% of the rated current (I_1). The time-delay is 40 seconds fixed. (A separate power source is required)

breakers or fuses. It has a definite time-delay characteristic at current levels above 1000% of the rated current (I_o)

Precise Protection Co-ordination

TemBreak, Electronic Type

Overcurrent tripping characteristics (Example)



Adjustable Rated Current

TemBreak (Electronic type)

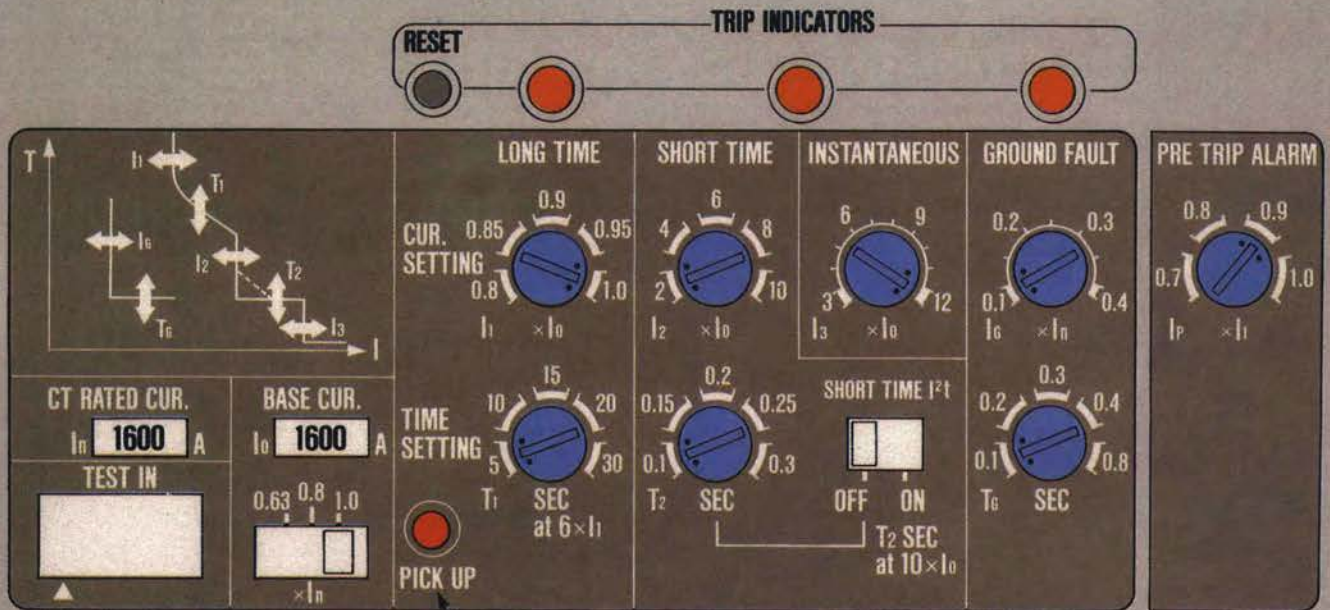
The rated current of the electronic type TemBreak is adjustable in 15 steps from 50% to 100% of the nominal rated current, using the base current [I_b] select switch and the rated current [I_r] setting dial.

The rated current of a single breaker is adjustable in 15 steps from 50% to 100%. This is one of the essential features for precise protection co-ordination and for upgrading low-voltage distribution systems.

Base current	63	80	100
Current dial	80 85 90 95 100	80 85 90 95 100	80 85 90 95 100
Breaker rated current	50 54 57 60 63	64 68 72 76 80	80 85 90 95 100

72% in this example

Electronic, 8-Bit CPU adjustment face



Type: XS1600NE

Pick-up LED

LED turns on when LTD function picks-up.

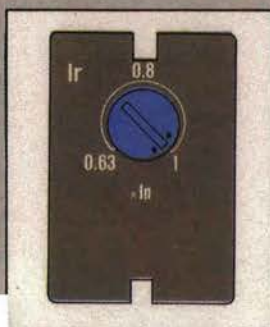
Note: If PTA is fitted, this LED flickers when PTA functions pick-up (separate control power required)

Trip Indicators (Optional)

One of the LEDs is lit to indicate which trip function tripped the breaker LTD, STD/INST or GFT (separate control power required)

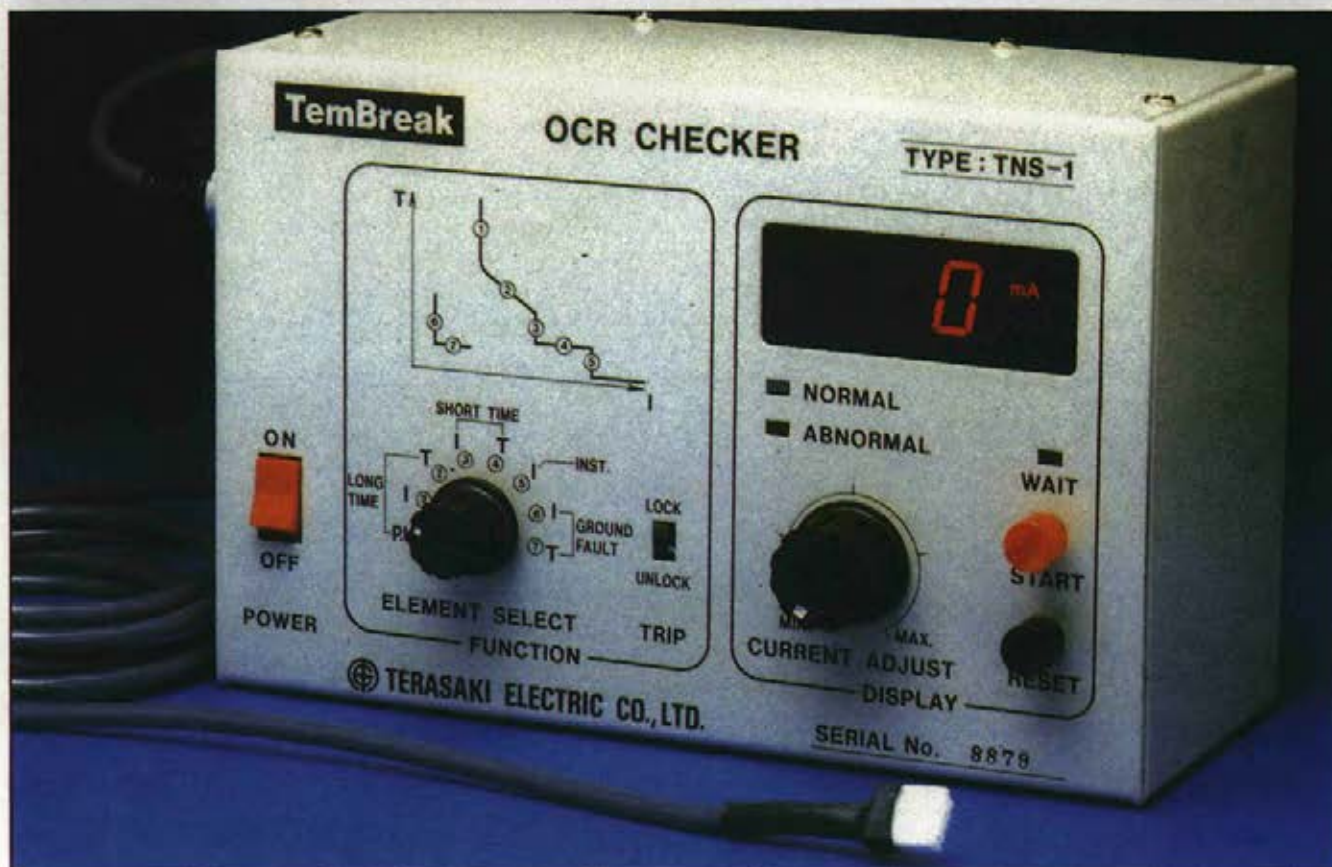
TemBreak (Thermal-magnetic trip type)

The rated current is continuously adjustable from 63% to 100% of the nominal rated current. The scale is marked at three positions; 63%, 80% and 100%



TemBreak

OCR Checker (Portable)



TemBreak OCR checker, type TNS-1, is an easy-to-use instrument for field testing the trip functions of the electronic type TemBreak circuit breakers.

It checks the pick-up current and tripping time values of the functions (LTD, STD, INST and GFT)

The values are indicated digitally on a 3-digit LED display

Power Source 100-110VAC or 220-240VAC,
single phase, 50/60Hz 30VA
Dimensions: 200mm(W) x 84mm (H) x 130mm (D)

NHP ELECTRICAL ENGINEERING PRODUCTS PTY LTD

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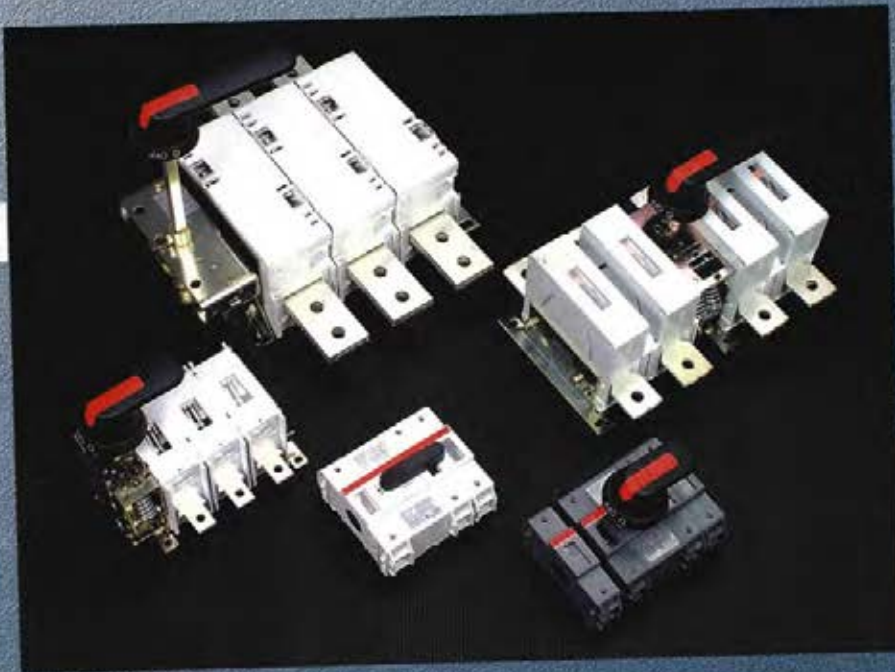
Proudly Australian

Catalogue
SG
June 1999

Strömberg

POWERLINE – SWITCHLINE

OS, OESA switch fuses and OT, OETL load-break switches



NHP ELECTRICAL ENGINEERING PRODUCTS PTY LTD
A.C.N. 004 304 812





NHP was formed in 1968 for the purpose of manufacturing, importing and merchandising a wide range of specialised electrical switchgear, motor control gear and other technical electrical products for Australian industry.

NHP is a wholly Australian owned company and exclusively represents a considerable number of overseas companies. These companies manufacture complementary equipment to the NHP programme, which includes locally manufactured products in Melbourne.

The head office and Melbourne sales organisation is situated at Richmond, with branch offices in Sydney, Brisbane, Adelaide, Perth, Newcastle, Townsville, Rockhampton, Toowoomba, Cairns and Darwin.



The company also has an office in New Zealand primarily involved in the supply of Terasaki circuit breakers and panelboards.

NHP is also represented by agents in Hobart, Launceston and Burnie. NHP products are stocked and distributed through more than 500 centres Australia wide.

Due to this extensive national sales and service network, the company is able to continue a policy of supplying an extensive range of technical electrical equipment, supported by substantial stocks and competent service on a national basis.

All branch offices and agents are connected to the on-line computer network centred in Melbourne. Experienced engineers are also available to assist customers, throughout Australia and to advise on all technical aspects and application requirements of equipment.

NHP is a supplier to the full spectrum of industry which uses industrial type electrical equipment, including mining and general industries, electrical contractors and government departments.

It is the continuing policy of the company to improve both the range and quality of products and services available for the Australian market. Experienced engineering and management personnel continually visit world centres to ensure that the organisation keeps pace with technological advances, research and development and modern marketing techniques.

Strömberg

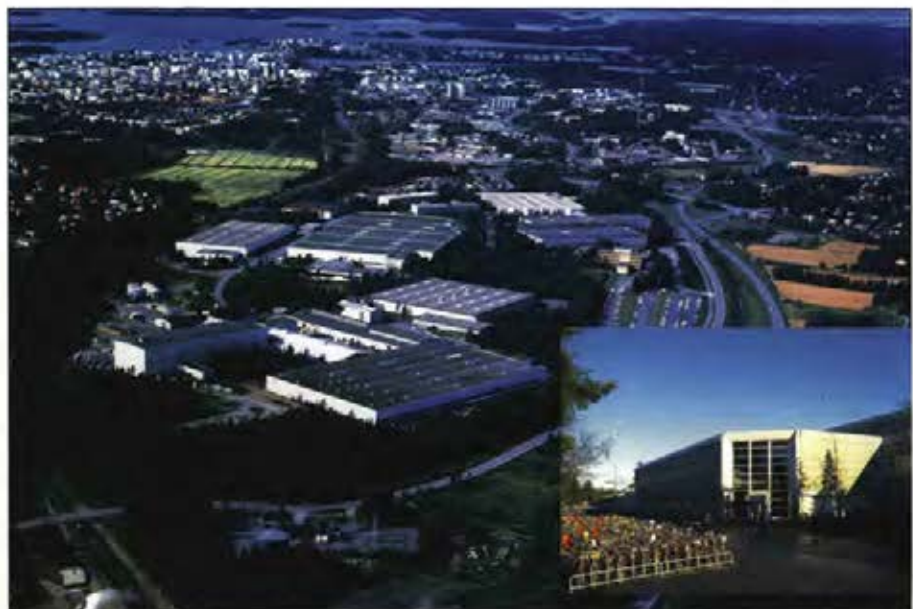
Strömberg is located in Vaasa, Finland. For many years the company has been a major part of the manufacturing heart of this city. The picture right, shows Strömberg Park – such is the size of this multifaceted electrical manufacturing company. The inset picture shows the entrance to the switchgear factory.

Strömberg began business on July 24th 1889 when Gottfrid Strömberg walked into the Helsinki City Administrative Court to register the electric company he had just founded. The young engineer had in mind some technical improvements with which he could make better direct current dynamos and electrical lighting installations than his rivals.

The unofficial motto of the new company was, "good workmanship and the best raw materials". Over a century later the ideas of the founder of Strömberg live on. The company's own innovations are still the basis of production. Technical know how and product development in response to customer needs are maintained and remain the key principles in the company's operations. Through this technical expertise, research and development Strömberg has recently expanded their research and development of switch fuse and load-break switches.

This has resulted in the introduction of a substantial number of new products for the world market, including the new OH handle range, OS switch fuse and OT small load-break switches. Many of the developments shown in this catalogue are world innovations and have created a new standard in switch design and application. NHP assists Strömberg with its developments to ensure that the Australian market's needs are met with products that suit. NHP's representation of Strömberg stems from the late seventies.

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Strömberg PowerLine

Switch fuses OS, OESA Overview

NHP

The switch fuse combines the many advantages of a load-break switch with the superior short circuit protection capabilities of fuses. Fuses are maintained in a stationary position ensuring long electrical and mechanical life for electrical networks in minimal space. By using switch fuses selectivity is technically assured and simple to apply. The Strömberg range of switch fuses is available in DIN and BS88 standard. Typically DIN fuses can withstand 120 kA and BS fuses 80 kA.

Fuse protection from 32 – 800 Amps, 690 volts

The Strömberg range of switch fuses are available in four major product groups.

- OESA mini 32 amp
- OS32 – 63 amps
- OESA32 – 160 amps
- OESA200 – 800 amps

By its very nature and construction a fuse link has superior short circuit protection capability with regards to higher prospective fault levels. The Strömberg PowerLine switch fuse units are designed to meet the highest requirements of present standards, which include a total safety concept. All Strömberg switch fuses are tested according to IEC 947-3 standard and are certified by the Kema Organisation. The IEC 947-3 standard has, more stringent definitions for isolation, breaking, making and safety.

Range versatility

New features within the range of Strömberg switch fuses add to the performance and ease of use for the end user.

These features include:

- Single pole to four pole versions
- Multipole mechanisms for 6/8 pole units, changeover, bypass and mechanically interlocked switch combinations.
- Auxiliary switches
- New handle designs available in plastic and metal.
- Extension shafts to 535 mm
- Various locking attachments
- Electrical interlocks

This wide selection of versatile accessories help meet the variety of customer specific safety requirements.

Reliable isolation

Strömberg PowerLine switch fuses are tested as switch disconnectors according to IEC 947. The switching mechanism has a double break contact which isolates both sides of the fuse, allowing for safe interchange of the protective device. The design of the Strömberg PowerLine switch fuses allows for reliable isolation throughout the life time of the switch fuse.



Space saving and versatility in installation with back connection terminals.



OESA Mini – Withdrawable fuses reduce installation costs and down time due to fast component replacement. Protected construction, IP 20.



OS – New generation in switch fuses. Full IP20 protection, clip on accessories. Withdrawable fuses.

KEMA
EUR
- Certified
IEC 947-3

Strömberg PowerLine

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Switch fuses OS, OESA Overview

New machine directive IEC204 (EN6024)

The range of Strömberg PowerLine switch fuses have been designed to comply with the above IEC204 directive. Part of this standard requires that the rated impulse withstand voltage (Uimp) exceeds 8kV. By complying with this standard it allows the switch fuses to be installed in many environmental conditions, system voltages and installation categories.

Reliable handle indication

As part of the development of the Strömberg PowerLine switch fuse, reliable handle indication reduces the risk of accidents in the case of contact welding. In the first case, the fused device will cut off the maximum current to a level which will prevent contact welding. In the event that contact welding was to occur, the mechanism is designed so as the handle will not turn to the "OFF" position, it will always return towards the "ON" position therefore maintaining the door interlock

Safety for the user

The switch fuse can withstand high short circuit currents several times with only the low cost fuse element requiring replacement. Depending on the range, as the fuse is isolated on both sides and the door can only be opened when the switch fuse is in the "OFF" position. Additional safety is provided by the padlocking capabilities of the switch fuse. The switch fuse handle can be locked in the off position which will eliminate the possibility of closing the circuit during maintenance procedures or accidental closure of the switch fuse.

Track resistant material

All materials used in the manufacture of the PowerLine switch fuse range are of track resistant material according to IEC112. The construction of the PowerLine range is designed to withstand the high heat and humidity of the tropics as well as the extreme cold of the arctic conditions. The unit can be used in any condition between these two limits.

New pistol handle range OH_ for switch fuse and load-break switches

The new handle designs provided by Strömberg have a number of features.

- New modern design.
- All handles IP 65 protection.
- Defeatable door interlocking.
- Double insulation.
- Homogeneous range of handles for switches from 16A to 800 amps.
- Handle indication via "ON/OFF" as well as I-0.
- Colour availability is black as standard, or safety yellow/red design.
- Hanover design award achieved in 1997 awarded by the Industry Forum Design Germany.



The handle can be padlocked in OFF position with three padlocks, thus preventing door from opening, and the closing of the circuit in maintenance situations.



Reliable indication of contact position on both the handle and on the switch body.



Changing the fuse is safe as the fuse links are isolated on both sides of the fuse. The fuses and the switch fuse do not need any arc blowing space. This contributes to space saving in the design of motor starters.



The handle achieved the Industry Forum Design award at Hanover.

Strömberg PowerLine

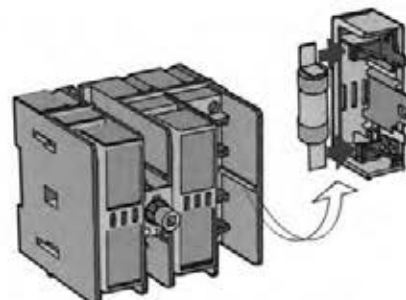
Switch fuses OS, OESA

Overview

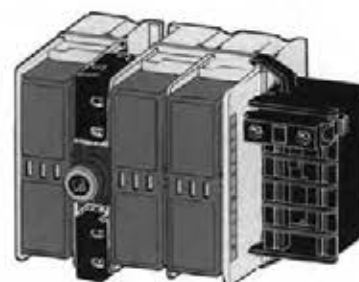
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Mini, 32A – Outstanding features in a compact design

- Totally protected IP20 construction.
- All live parts are not accessible to the human finger.
- Extra shrouding is available if required.
- Auxiliary contact test facility. The auxiliary contacts can be tested without closing the main contacts. This is ideal for commissioning and control circuit fault tracing.
- Interlocked door can be opened in the test position.
- Modern fuse holder replacement design. The fuse holders are interlocked to prevent removal when the switch is in the "ON" position.
- The OESA mini range can take type A1 or F1 BS fuses.



The fuse replacement is completely safe. Fuse can be replaced only, when the switch fuse is in the OFF position.



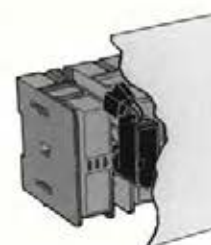
Max. eight auxiliary contacts can be fitted to the OESA mini switch fuses.

Versatile options

The compact mini is provided with DIN rail mounting facilities or base mounting. As part of the standard fuse holder design, extra terminals allow access to the fuses for testing and/or blown fuse indication are standard. The OESA mini is available in 3 and 4 pole configurations. The fourth pole can be switched or fused as required. Eight auxiliary contacts can be fitted to the OESA mini or 2 auxiliary switches can be fitted within the profile of the switch thus not increasing the overall mounting requirements.

The OESA Mini switch fuse uses the same homogenous style of handle as the rest of the Strömberg range

The pistol type handle will accommodate up to 3 padlocks, is door defeatable and has IEC standard markings on the handle.



Padlockable handles in the OFF position. Door interlock, defeatable in ON position.

Strömberg PowerLine

Switch fuses OS, OESA Overview

NEW

NHP

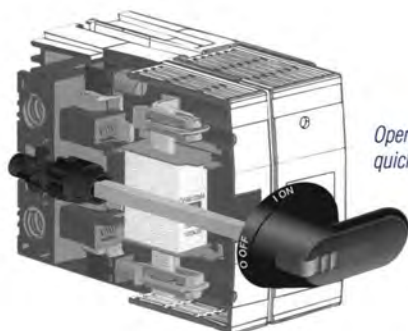
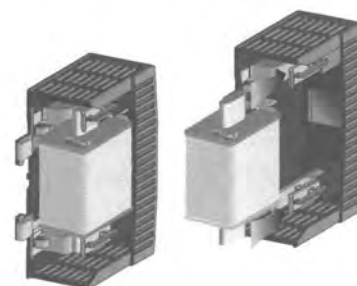
OS, 32...160 Amp – The new OS switch fuses, offer a new dimension in safety and flexibility for fused short-circuit protection

Operator safety

- Fully IP20 protected for both cable connection and fuses.
- Removable fuse holders allow for fast fuse replacement and increased operator safety.
- Fuse holders can not be removed whilst this switch is in the "ON" position.
- Operator independent quick make, quick break mechanism.
- The OS switch fuse range features an over centre operating mechanism, thus the mechanism is charged to the appropriate level and then operates independent of the rotation speed of the shaft.
- Isolation on both sides of the fuses via double switching contacts.
- Auxiliary test position operates without the main contacts being closed which is ideal for commissioning and control circuit fault finding.
- Available in BS and DIN fuse formats.

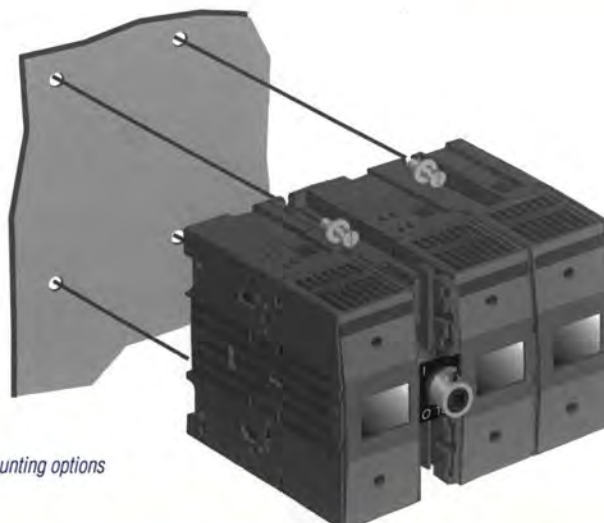
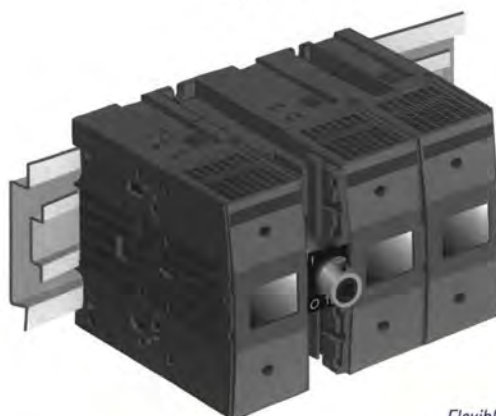
Flexible mounting options

- The OS switch fuse range may be mounted by a 35mm, 75mm DIN rail or base panel mounted.
- The fourth pole can be easily snapped on to the side of the switch fuse.
- Fully symmetrical construction enables mounting on any plane.



Operator independent quick make, quick break mechanism

Withdrawable fuse holders for safe, quick replacement of fuses, BS & DIN



Flexible mounting options

Switch fuses

Strömberg PowerLine

Switch fuses OS, OESA

Overview


NEW
NHP

Accessories

- Simple snap on mounting auxiliary contacts allows flexibility for the installer, up to 8 normally open or normally closed single pole contacts can be used.
- Changeover contacts are available upon request.
- All auxiliary contact blocks are IP20 protected as per European standards.
- All auxiliary contacts have a positive opening feature.
- All OS switch fuses have a test function to enable control circuit commissioning and testing.



Various options

- Four pole switch fuses are available.
- IP65 handle available in black or safety red/yellow.
- Fuse links: – DIN 00 or BS88 A2, A3

Technical features

- Short circuit current up to 100 kA.
- Full motor ratings 32/63 Amp = 15/30 kW, AC23.
- Category A up to 500 volts AC.
- Rated impulse withstand voltage 12 kV.
- 20 µm meter thick silver coated contacts to give longer electrical life.



OH_ pistol type handle

Fuse monitor OFM690

- Galvanic isolation.
- Snap on mounting.
- Operates with all fuses.
- One trip contact.
- One alarm contact plus LED.
- Compact size.
- Supplied from standard connections.
- Wide operating voltage range, 380 volts...690 volts AC.
- Phase unbalance compensated.



OH84 direct mount handle



OFM 690 fuse monitor

Strömberg PowerLine

Switch fuses OS, OESA Overview

OESA 32 – 160A

Strömberg range of powerline switch fuses have always been designed with safety as a primary consideration. They have double break contacts which isolate fuse links on both sides of the fuse, to increase the safety to personnel during the replacement of fuse links. The OESA range of load-break switches use the same homogenous handle design available throughout the entire Strömberg range. These handles can be locked in the "OFF" position with three padlocks, preventing the closing of the switch fuse during maintenance procedures. The fast component replacement capabilities of the switch reduce installation costs and down time. The construction is IP20 protection with the addition of shrouds. Various options include back connection terminals to save space and increase the versatility of use.

New auxiliary contacts

New auxiliary contacts are available via a snap on side mounted contact support frame. The auxiliary blocks are rated up to 690 volt AC (IEC947-5-1) and are IP20 protected without any additional shrouding.

Up to 10 auxiliary contacts may be added to the switch fuse, the general design of the OESA range will meet the many and varied needs of customers. The auxiliary contacts feature positive opening operation. A mechanical cam drives the contact block, this prevents contact welding when turning from "ON" to "OFF". Units that use a spring design can, under certain circumstances, weld "ON", thus creating a safety hazard.

Test position indication

In line with the advances in the Strömberg PowerLine design, a test position ensures easy and safe commissioning of motor control centres. The test position closes the auxiliary contact enabling control circuit commissioning and fault finding. The blocks are available in N/O, N/C and changeover (upon request).

OESA 200 – 800A

The Strömberg PowerLine switch fuse range has increased safety via snap on fuse covers and terminal shrouds. Strömberg PowerLine switch fuses are designed to meet customer needs in terms of safety, ease of installation, space saving and operational convenience. The major features of the OESA200 to 800 amp switch fuse range are:

- Compact size.
- Mechanical interlocking.
- Direct connection of aluminium cables.
- Double break contacts.
- Remote control via a motor operator.

Easy selectivity with switch fuses

Selectivity is easily achieved via the simple application of fuses. The major advantage of fuses is seen during high fault level situations allowing very low current cut off and limitation of energy (I²t) to the fault. Switch fuses can be used in type two co-ordination for motor starters, reducing the size of contactors and thus lead to cost saving in motor starters.

Versatility

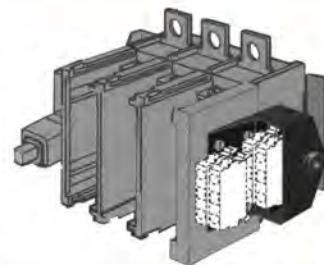
The Strömberg PowerLine switch fuse range has many different handle configurations, this allows ease of installation and versatility in different switchboards. The operating mechanisms can be placed at the end of the switch, between the poles or to the side of the switch (side operated switch fuses).

High performance ratings in compact sizes

A standard design throughout the Strömberg PowerLine switch fuse range, is the unique patented, quick make, quick break mechanism. The rotational speed of the shaft can vary depending on the operator. The quick make, quick break mechanism is designed to be a charged spring arrangement with over centre switching. All switch fuse contacts have a patented self-cleaning design to prevent the build up of arcing by-products.

The Strömberg PowerLine switch fuse range is designed to have a long electrical life and an inherent quality guarantee of reliable performance. The switch fuses have high breaking and making capacity up to 690 volts.

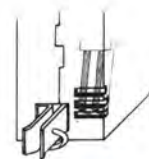
The unique, compact construction saves valuable space in motor control centres and distribution boards.



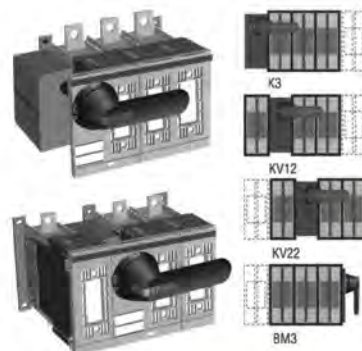
New auxiliary contacts have available contact frame and snap-on mounted single pole contact blocks.



The location of auxiliary contacts.



Visible contacts.



The placement possibilities of the operating mechanism increase ease of installation and adaptability to different switchboards.



Unique patented self-cleaning contacts on both sides of the fuse.

Strömberg Switchline

Load-break switches OT, OETL

Overview

NHP

The Strömberg Switchline range of load-break switches are designed to meet international standards readily accepted by countries throughout the world.

Related standards

All Strömberg Switchline load-break switches comply with IEC947-1 & 3. Other related standards are IEC664, 269 & 204.

Applications

The Strömberg Switchline load-break switches are designed to perform as:

- Switch disconnectors (IEC947 and VDE660)
- Motor circuit switches (AC23 ratings up to 1000 volts)
- Main switches (VDE0113)
- Local safety switches (VDE0660, SS4280605, KY 117-79)
- Special switches (IE earthing devices)
- Busbar couplers (IE OETL 2500 K3/3)

European machine directives (IEC 204, EN 60204 compliant)

The rated impulse withstand voltage (Uimp) exceeds 8kV allowing practically free installation for all physical environments, system voltages and installation categories.

Environmentally friendly

All Strömberg products are designed using the latest information on environmentally friendly materials. An example of which is, cadmium, which is not used in any of the contacts, thus, heavy metal pollution in the environment is reduced. All plastics used in the design of the Strömberg Switchline range are fully recyclable.

Track resistant material

All materials used in the manufacture of the Switchline switch load-break range are of track resistant material according to IEC112. The construction of the Switchline range is designed to withstand the high heat and humidity of the tropics as well as the extreme cold of the arctic conditions. The unit can be used in any condition between these two limits.

Total operator safety

The Strömberg Switchline load-break switches can handle many electrical situations where circuit fault levels are up to 100kA. The handles used are part of the Strömberg homogenous range allowing from 45 mm to 275 mm handles to be used. All handles have the following features:

- New modern design
- Standard IP65 protection
- Defeatable door interlocking
- Double insulation
- Handle indication via "ON/OFF" as well as I-0
- Colour availability is black as standard or safety yellow/red design
- Hanover design award achieved in 1997 awarded by the Industry Forum Design of Germany.

As part of the development of the Strömberg Switchline load-break switches handle indication reduces the risk of accidents. In the event that contact welding, was to occur, the mechanism is designed so the handle will not turn to the "OFF" position. It will always return to the "ON" position, therefore, maintaining the door interlock "ON" position.

Auxiliary contacts, electrical interlocks, mechanical interlocks and various attachments for interlocking, contribute to the safe use of the Strömberg-range.



Recyclable materials are used and in production process environmental aspects are considered during the production process.



Mechanical interlock



If the contacts are welded together, the handle does not deviate from ON position more than 45°.

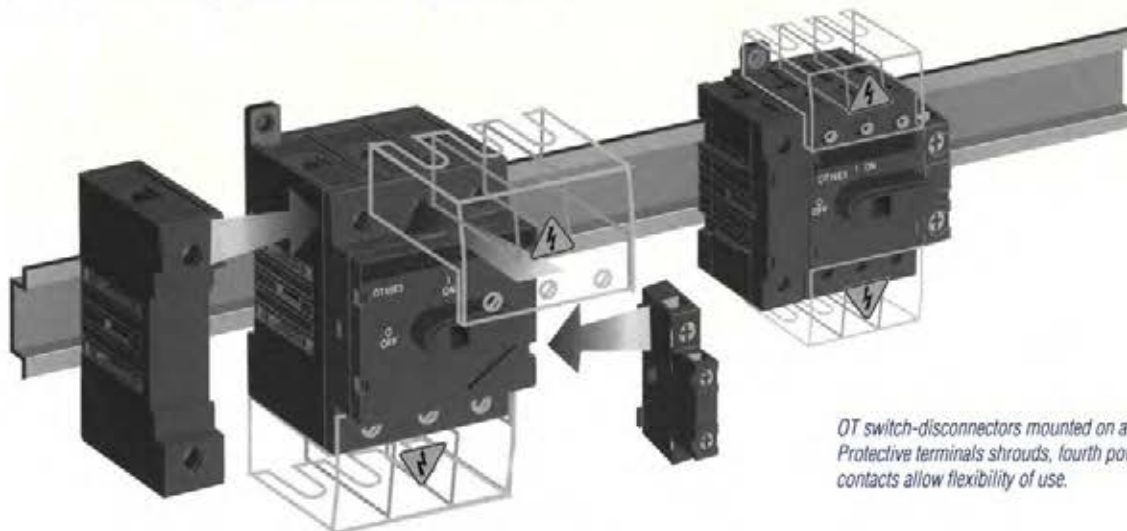
Strömberg Switchline

Load-break switches OT, OETL Overview

NEW
NHP

OT 16E...125E

New modular switch disconnectors



OT switch-disconnectors mounted on a DIN rail. Protective terminals shrouds, fourth pole and auxiliary contacts allow flexibility of use.

A family of four frame sizes

The OT family has the following current ratings, 16, 25, 32, 45, 63, 80, 100 and 125 amp ratings. The switches comply with the latest specifications of modern low voltage installations. One of the major features of the OT switch range is the quick make / quick break mechanism which is independent of the rotational speed of the shaft. Once the over centre position is reached, the mechanism releases, closing the main contacts giving superior making capacity.

Safe and reliable

The OT range of load-break switches has as standard a front toggle operator. These switches can be fitted with the homogenous range of Strömberg selector and pistol type handles as required. All the switches are IP20 rated, additional shrouding, if required, can be easily snapped onto the switch.



Small compact structure.



Handle can be padlocked in OFF position.



Eight current ranges in four frame sizes.

Strömberg Switchline

Load-break switches OT, OETL Overview

NHP

OT125A and 160E

Small in size, big in performance – visual isolators

The OT 125A and 160E load-break switches comply with the latest specifications of modern low voltage installations. The load-break switches are tested according to IEC947-3-1 and 3. The switches are compact, safe and have visible double break contacts, which are self-cleaning. The handle position is the standard Strömberg design with reliable indication. They have operator independent quick make / quick break mechanisms, can be door interlocked and have fully protected clamp type terminals as standard.

The modular design of the OT125A and OT160E allow for universal fitting into various switchboards. The optional fourth pole can be quickly and easily clipped onto the 3 pole switch, allowing for design changes at the last minute. All switches are provided with shaft and handle as standard. The switch mechanism is padlockable in the "OFF" position with 3 padlocks. The OT125A and 160E can be easily mounted on 35mm DIN rail, 75mm DIN rail and base mounting.



Mounting to the door plate.

OETL 200...3150

Flexibility of the range

The Strömberg Switchline load-break switches are synonymous with quality and reliability. The high performance of the switches allow for many design possibilities which are adaptable to different switchboards. The switches can be ordered with the mechanism at the end, between poles or to the side of the switch. The modular design enables a variety of different applications from motor control centres to DC switching and busbar couplers. The different pole sizes and phase distances allow for flexible switchboard design. The OETL 200 to OETL 3150 Amp range of Switchline load-break switches can be fitted with changeover mechanisms, mechanical interlocks, electrical interlocks and parallel kits for special applications.



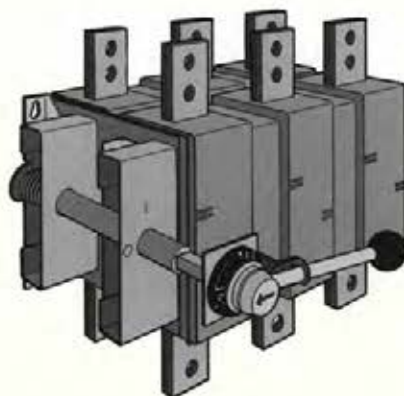
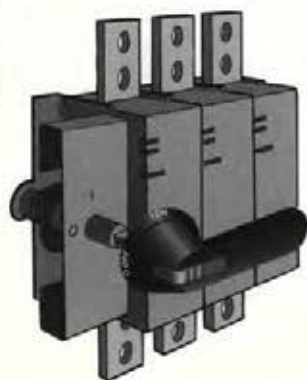
*Unique contact construction.
Protected terminals.*



*Operator-independent
quick-make / quick-
break mechanism.*



Outboard shaft type



Flexibility of construction gives many possibilities.



Inboard shaft type

Strömberg Switchline

Load-break switches OT, OETL

Overview

Easy installation

All Strömberg Switchline load-break switches have adjustable shafts, which allow for easy installation into panels of different depths. The large load-break switches are provided with keyhole fixing brackets for easy and quick installation.

Comprehensive optional accessories allow for a variety of switch combinations which are safe and versatile. The outstanding electrical characteristics provided by the Strömberg Switchline range provide space saving and operational convenience in an extremely compact design.

Easy to adapt

Copper busbars can be a significant expense in the design and construction of any switchboard. The Strömberg Switchline load-break switches can simplify construction with various phase distances to match the busbar distance.

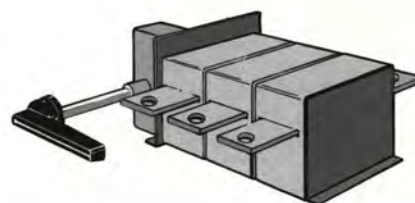
The Strömberg Switchline load-break range can be fitted with motor operators to allow remote control via SCADA systems or Automatic transfer logic panels.

Easy installation

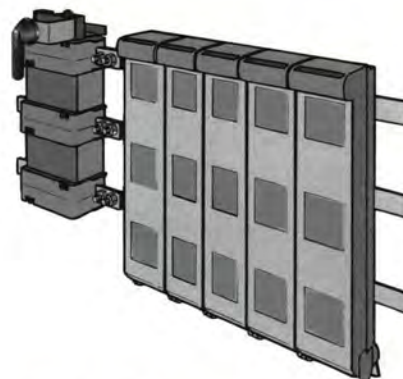
The standard construction of the OETL Strömberg Switchline range of load-break switches increase operator safety via additional terminal shrouds meeting the various demands of end-user safety requirements. Auxiliary contacts can be easily fitted to the top or side of the load-break switch. Visible contacts allow for safety maintenance procedures where visible break is required. Side operated versions of the OETL load-break switches are available up to 800 amps.



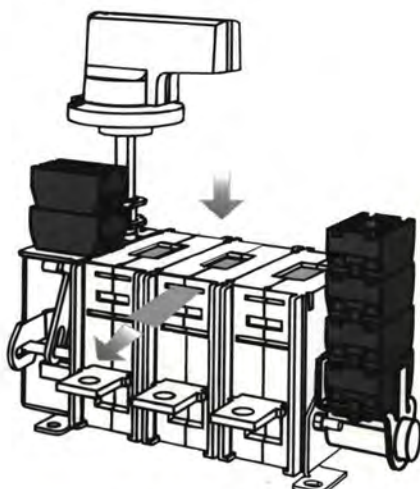
Adjustable shaft-length.



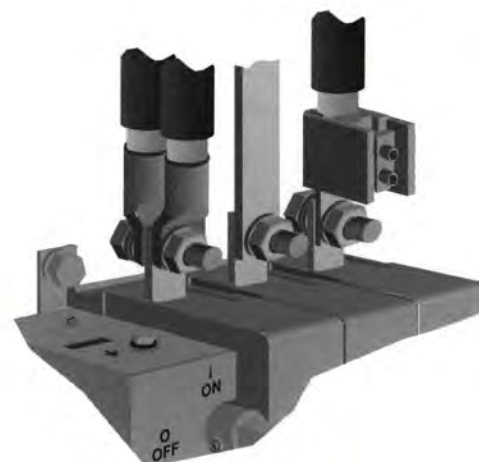
Earthing switch, mounted to a horizontal position.



Load-break switch OETL 1600 K185 can be directly mounted onto a distribution board with switch fuses or fuses bases.



Auxiliary contacts of OETL200...315 and removable windows.



Versatile connecting possibilities.

Strömberg PowerLine

Switch fuses OS, OESA – IEC 947

Technical data

NHP

Technical data according to IEC 947 for OS, OESA switch-disconnector-fuses

				OESA Mini	PowerLine, OS	
Switch size		A		32	32	63
Rated insulation voltage	Pollution degree 3	V		1000	1000	1000
Dielectric strength	50 Hz, 1 min	kV		10	10	10
Rated impulse withstand voltage		kV		12	12	12
Rated thermal current in ambient 40 °C / max. fuse power dissipation *)	In open air	A / W		32/3.5	32/7.5	63/7.5
	In enclosure	A / W		32/3.5	32/7.5	63/7.5
...with minimum cable cross section	In enclosure with solid links	A		32	40	85
	Cu	mm²		6	10	16
Rated operational voltage AC-20 and DC-20		V		1000	1000	1000
Rated operational current, AC 21A	up to 500V	A		32	32	63
Rated operational current, AC 22A	up to 500V	A		32	32	63
Rated operational current, AC 23A	up to 500V	A		32	32	63
Rated operational current / poles in series	48V ^{*)}	A		32/2	^{*)}	^{*)}
DC 21A	110-220V	A		32/2	^{*)}	^{*)}
	440V	A		32/4	^{*)}	^{*)}
	500-750V	A		^{*)}	^{*)}	^{*)}
	1000V	A		^{*)}	^{*)}	^{*)}
Rated operational current / poles in series	48V ^{*)}	A		32/2	^{*)}	^{*)}
DC 23A	110-220V	A		32/2	^{*)}	^{*)}
	440V	A		32/4	^{*)}	^{*)}
	500-750V	A		^{*)}	^{*)}	^{*)}
	1000V	A		^{*)}	^{*)}	^{*)}
Rated operational power, AC 23A ^{*)} - The kW-ratings are accurate for 3 phase 1500 R.P.M. standard asynchronous motors	415V	kW		15	15	30
Rated breaking capacity in category AC 23A	up to 500V	A		256	504	504
Rated breaking capacity / poles in series	up to 220V	A		128/2	^{*)}	^{*)}
in category DC 23	440V	A		128/4	^{*)}	^{*)}
	500-750V	A		^{*)}	^{*)}	^{*)}
	1000V	A		^{*)}	^{*)}	^{*)}
Rated conditional short-circuit current r.m.s. and corresponding max. allowed cut-off current, peak- values	80 kA, 415V	kA		9	17	17
- The cut-off currents refer to single phase fuse tests	100 kA, 500V	kA		7.5	17	17
- Fuse selection tables on request	50 kA, 690V	kA		6	14	14
Rated short-time withstand current, 1s.	R.M.S. -value	kA		1	2.5	2.5
Rated capacitor power	400V	kvar		15	^{*)}	^{*)}
- The capacitor rating of the switch fuse is limited by the fuse link	415V	kvar		15	^{*)}	^{*)}
Power loss / pole	With rated current, without fuse	W		2	1	4
Mechanical endurance	Divide by two for operation cycles	Oper.		20000	20000	20000
Fuse types, IEC 269-2	DIN 43620			-	00	00
	BS 88			A1	A2-A3	A2-A3
-size/distance of fuse link bolts-		mm		M4/44.5	M5/73	M5/73
Weight without accessories	3-pole switch fuses	kg		0.7	1.3	1.3
	4-pole switch fuses	kg		0.9	1.6	1.6
Built-in terminal size		mm²		0.5...10	2.5...25	2.5...25
Terminal bolt size	Metric thread diameter x length	mm²				
Terminal tightening torque	Counter torque required	Nm		2	3.5	3.5
Fuse-links bolts tightening torque		Nm		2	3.5	3.5
Operating torque	Typical for 3-pole switch fuses	Nm		3	4	4

Notes: ^{*)} Ambient temperature 60 °C: derating 20%. Mounting on "ceiling": derating 10%. Mounting on wall, horizontal fuses: derating 8%.

^{*)} Utilisation category B.

^{*)} Some fuse links limit these figures further. Starting current characteristics must be considered separately.

^{*)} OESA Mini, use 4-pole switches with 2 + 2 parallel contacts in series.

^{*)} Care should be taken in the selection of switches for motor applications. In many cases the motor switching capability exceeds that of the maximum size of fuse that the switch can carry. In these cases it is wise to choose the fuse first (perhaps a motor start type) and then choose a suitable switch that can physically carry that fuse.

^{*)} Available upon request.

Strömberg PowerLine

Switch fuses OS, OESA – IEC 947

Technical data

NHP

OESA				PowerLine, OESA					
32	63	100	160	200	250	315	400	630	800
750 8 12	750 8 12	750 8 12	750 8 12	1 000 10 12	1 000 10 12	1 000 10 12	1 000 10 12	1 000 10 12	1 000 10 12
32/7.5 32/7.5 40 6	63/7.5 63/7.5 75 16	125/12 125/12 125 50	160/12 135/9 160 50	200/22 200/22 280 95	250/32 250/23, 230/27 315 120	315/32 315/32 400 185	400/45 400/34, 360/37 450 240	630/60 600/45, 570/50 700 2x185	800/65 720/55 900 2x240
750 32 32 32	750 63 63 63	750 125 125 100	750 160 160 100	1000 200 200 200	1000 250 250 250	1000 315 315 315	1000 400 400 400	1000 630 630 630	1000 800 800 720
32/3 32/4	63/3 63/4	125/3 125/4 ²⁾	160/3 160/4 ²⁾	200/2 200/2 200/2 200/3 200/4	250/2 250/2 250/2 250/3 250/4	315/2 315/2 315/2 315/3 315/4	400/2 400/2 400/2 400/3 400/4	630/2 630/2 630/2 630/3 630/4	800/2 800/2 800/2 800/3 800/4
32/3	63/3	125/3 100/4 ²⁾	160/3 100/4 ²⁾	200/2 200/2 200/2 200/3	250/2 250/2 250/2 250/3	315/2 315/2 315/2 315/3	400/2 400/2 400/2 400/3	630/2 630/2 630/2 630/3 630/4	800/2 800/2 800/2 800/3 800/4
15	30	55	55	110	140	180	230	340	380
256	504	800	800	2000	2000	3200	3200	5760	5760
128/3	256/3	640/3 400/4	640/3 400/4	1000/2 1000/2 1000/3	1000/2 1000/2 1000/3	1600/2 1600/2 1600/3	1600/2 1600/2 1600/3	3200/2 3200/2 3200/3 3200/4	3200/2 3200/2 3200/3 3200/4
10 6	12 9 8	23 17 14	23 17 14	40 40 35	40 40 35	40 40 35	40 40 35	75 75 60	75 75 60
1.5	2	5	5	8	8	10	10	16	16
15 16	30 32	50 55	57 62	90 100	105 115	145 160	180 200	250 270	310 340
0.7	4	5	9	5	11	13	30	55	77
20000	20000	20000	20000	16000	16000	16000	16000	10000	10000
00 A2-A3 M5/73	00 A2-A3 M5/73	00 A2-A4 M5/73, M8/94	00 B1-B2 M8/111	B1-B2 M8/111	1 B1-B2 M8/111	B1-B3 M8/111	2 B1-B4 M8/111	3 C1-C2 M10/133, 184	3 C1-C3 M10/133, 184
1.6 1.9 2.5...25	1.6 1.9 2.5...25	1.8 2.3 M8x25	1.8 2.3 M8x25	6.9 7.9 M10x40	6.9 7.9 M10x40	7.3 8.3 M10x40	7.8 8.8 M10x40	15.5 19.0 M12x40	17.0 21.0 M12x40
5 3.5 3	5 3.5 3	15...22 M5:3.5 / M8:10 5	15...22 10 5	30...44 15 22	30...44 15 22	30...44 15 22	30...44 15 22	50...75 40 28	50...75 40 28

Switch fuses

Strömberg Switchline

NHP

Load-break switches / switch-disconnectors OT, OETL – IEC 947

Technical data

			OT									
Switch size			16E	25E	32E	45E	63E	80E	100E	125E	125A	160E
Rated insulation voltage and operational voltage, AC 20 and DC 20	V		750	750	750	750	750	750	750	750	750	750
	kV		8	8	8	8	8	8	8	8	12	12
Rated thermal current I_{th} open	A		25	32	40	50	63	80	115	125	135	200
	A	40°C enclosed	25	32	40	50	63	80	115	125	135	160
	A	60°C enclosed	25	32	40	50	63	80	115	125	125	160
Rated operational currents	A											
	A											
AC 21A	A	≤ 500V	16	25	32	45	63	80	100	125	125	200 ¹⁾
	A	1000V ²⁾										
AC 22A	A	≤ 500V	16	25	32	45	63	80	100	125	125	200 ¹⁾
	A	1000V ²⁾										
AC 23A	A	≤ 415V	16	20	23	30	38	55	80	90	105	135
	A	1000V ²⁾										
Rated operational currents/poles in series	A											
	A											
	A											
	A											
	A											
DC 21A	A	48V	16/1	25/1	32/1	45/1	63/1	80/1	100/1	125/1	125/1	160/1
	A	110V	16/2	25/2	32/2	45/2	63/2	80/2	100/2	125/2	125/2	160/1
	A	220V	16/3	25/3	32/3	45/4	63/4	80/4	100/4	125/4	125/2	160/2
	A	440V									125/3	160/3
	A	750V									125/4	160/4
Rated operational currents/poles in series	A											
	A											
	A											
	A											
DC 23A	A	48V	16/1	25/1	32/1	45/1	63/1	80/1	100/1	125/1	125/1	160/1
	A	110V	16/2	25/2	32/2	45/2	63/2	80/2	100/2	125/2	125/1	160/1
	A	220V	16/4	25/4	32/4	45/4	45/4	45/4	63/4	63/4	125/2	160/2
	A	440V									125/3	160/3
Rated operational power	kW											
	kW											
	kW											
	kW											
AC 23	kW	240V	3	4	5.5	7.5	11	18.5	22	22	30	45
	kW	400/415V	7.5	9	11	15	18.5	30	37	45	55	75
	kW	500V	7.5	9	11	15	18.5	18.5	37	45	55	75
	kW	690V	7.5	9	11	15	15	15	37	45	55	75
The kW-ratings are accurate for three-phase 1500 r.p.m. standard asynchronous motors.												
Short-circuit current with back-up fuses of size ³⁾ :	kA		50	50	50	50	50	50	50	50	50	50
	A		25	32	40	50	63	80	100	125	250	200
Rated voltage	V/V	U _e	415	415	415	415	415	415	415	415	415/690	415/690
Rated conditional short-circuit current	kA/kA		50	50	50	50	50	50	50	50	80/50	80/50
Max. allowed fuse size	A/A		25	32	40	50	63	80	100	125	160/250	160/250
Max. allowed cut-off current, peak value	kA/kA		6.5	6.5	6.5	8.3	8.5	11	18	18	21.9/21.6	21.9/21.6
Rated short-circuit making capacity, prospective peak value. I_{cm} 690V/500V			kA	0.705	0.705	0.705	1.4	1.4	2.1	3.6	3.6	12
Rated short time withstand current, r.m.s I_{cw} ⁴⁾	kA	0.2s									7	7
	kA	1.0s	0.5	0.5	0.5	1	1	1.5	2.5	2.5	4	4
AC breaking capacity	A	≤ 415V	128	160	184	240	304	440	640	720	840	1080
	A	500V	128	160	184	240	256	256	480	560	720	1000
	A	690V	80	88	96	160	160	160	320	400	400	640
Capacitor ratings												
Rated capacitor duty												
Electrical endurance at rated operational current, pf 0.65												
operational cycles			3000	3000	3000	3000	3000	3000	3000	3000	1000	1000
Mechanical endurance			20000	20000	20000	20000	20000	20000	20000	20000	20000	20000
Power loss per one pole			W	0.3	0.6	1.0	1.4	2.8	6.4	6.3	4.7	6.5
Operating torque			Nm	1	1	1	1.2	1.2	2	2	6.0	6.0
Weight	kg	3 pole	0.11	0.11	0.11	0.27	0.27	0.31	0.36	0.36	1.1	1.1
	kg	4 pole	0.15	0.15	0.15	0.35	0.35	0.45	0.5	0.5	1.3	1.3
Suitable conductor cross section Cu			mm ²	0.75...10	0.75...10	0.75...10	1.5...25	1.5...25	1.5...50 ³⁾	10...70	10...70	10...70
Bolt size												

Notes: ¹⁾ At 380...415V when provided with busbar connections OEZXX6
²⁾ Minimum stranded 2.5mm

³⁾ PF 0.95
⁴⁾ IEC 947-3, utilisation category B, infrequent operation.

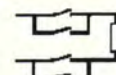


Figure 1

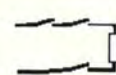


Figure 2

Strömberg Switchline**NHP****Load-break switches / switch-disconnectors OT, OETL – IEC 947**
Technical data

OETL											
200	250	315	400	630	800	1000	1250	1600	2500	3150	
1000 12	1000 12	1000 12	1000 12	1000 12	1000 12	1000 12	1000 8	1000 8	1000 8	1000 8	1000 8
250 200 175	315 270 220	350 315 260	500 500 410	630 630 500	800 720 600	1000 1000 900	1250 1250 1000	1600 1600 1250	2500 2300 1950	3150 2600 2300	
200 200	250 250	315 315	500 400	630 630	800 630	1000	1250	1600	2500 *)	3150 *)	
200 200	250 250	315 250	500 400	630 400	800 400	1000	1250	1600	1600 *)	1600 *)	
200 125	250 125	315 125	500 200	630 200	720 200	800	800	800	800 *)	800 *)	
200/2 200/2 200/2 200/3 200/4	250/2 250/2 250/2 250/3 250/4	315/2 315/2 315/2 315/3 315/4									
200/2 200/2 200/2 200/3 200/4	250/2 250/2 250/2 250/3 250/4	315/2 315/2 315/2 315/3 315/4									
55 110 132 170	75 132 160 200	90 160 200 250	132 200 315 315	180 315 355 355	200 355 400 355	250 400 450	250 400 450	250 400 450	250 400 450	250 400 450	
100 400	100 400	100 400	100 50 500 630	50 800	80 800	50	50	50	50	50	
500/690 100/50 400 30	500/690 100/50 400 30	500/690 100/50 400 30	500/690 100/50 500 33	500/690 100/50 800 *) 62	500/690 100/50 800 *) 62	690 45	690 45	690 45	690 50	690 50	
35	35	35	65	80	80	105	105	105	105/140	105/140	
17.5 8	17.5 8	17.5 8	35 17	38 17	38 17	100 80	100 80	100 80	110 80	110 80	
1600 1600 1600	2000 2000 2000	2520 2520 2520	4800 4000 2800	5040 4640 2800	5780 4800 2800	6400 6400 2500 *)	6400 6400 2500 *)	6400 6400 2500 *)	6400 6400 4800 *)	6400 6400 4800 *)	
90 135	110 170	140 210	250 400	300 450	330 500						
1000 16000	1000 16000	1000 16000	1000 10000	1000 10000	500 10000	500 6000	500 6000	500 6000	100 *) 1200	100 *) 1200	
3.0 3.7	3.0 3.7	3.0 3.7	5.2 6.4	6.2 7.6	6.2 7.6	16.3 20.5	16.3 20.5	17.5 22.5	37 47	37 47	
3.5 8.2	5.5 8.2	8.5 8.2	13 17	22 21	40 21	27 21	40 21	67 21	90 50	140 50	
8x25	10x30	10x30	10x40	12x40	12x40	12x60	12x60	12x60	12x60	12x60	

Load-break switches

*) PF 0.65
 *) IEC 408
 *) Size 4

Standards
 IEC 947 / 1, 3, IEC 408, BS 5419, VDE 0660
 VDE 0113, UL 508, UL 98, SS 4280605
 CSA C22.2 No. 4 and 14
 KY 119-79, Det Norske Veritas
 Bureau Veritas

Approvals
 ASTA
 SEMKO
 KEMA
 Det Norske Veritas
 Bureau Veritas
 NEMKO
 DEMKO

Finnish Electrical Inspectorate
 Underwriters Laboratories (UL)
 Polish Register of Shipping
 Lloyd's Register of Shipping
 Register of Shipping of the USSR
 Canadian Standards Association (CSA)

Detailed information
 on request.

Strömberg PowerLine

Switch fuses OS, OESA – 32...160A

Ordering information

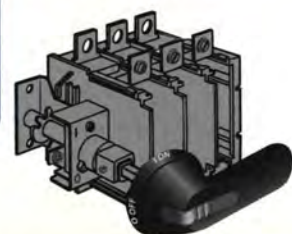
NHP



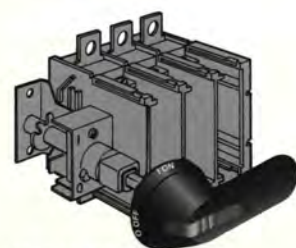
OESA P3 A1 mini



OS 32...63_12 (BS & DIN pattern)



OESA 100 G1 (BS pattern)



OESA 00-160 (DIN pattern)



Outboard shaft, OESA B3, B4 & D3, D4



Inboard shaft, OESA BV12, BV22 & DV12, DV22



OESA side operated type, see page 19.

BS-pattern 32...160

OESA 32 mini switches include black IP65 handle (OHB65J5) with I-O/On-Off indication and shaft (OXP5X150) length 150mm, mounting depth H=245...325mm. Protected tunnel terminals IP20.

OS 32 and 63 switches includes black IP65 handle (OHB65J6) with I-O/On-Off indication and a shaft (OXP6X150) length 150mm, mounting depth H=141...260mm. Protected tunnel terminals IP20.

OESA 32 and 63 switches have protected tunnel terminals IP 20

black IP 65 handle (OHB65J6) with I-O/On-Off indication and shaft (OXP6X120) length 210 mm, mounting depth H=200...280.

OESA 100 and 160 switches include terminal bolt kit, black IP 65 handle (OHB80J6) with I-O/On-Off indication and shaft (OXP6X210) length 210 mm, mounting depth H=200...280.

Optional handles and shafts – Refer page 26 to 27.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 43 to 47.

Cat. No.	Number of poles	Rated operational voltage AC 23 [V]	I _{th} (open) [A]	Rated operational current / rated operational power in category AC 23A , IEC 947 415V [A/kW]	Weight with package [kg]	Fuse type [BS]
OESA 32 P3 A1-H mini	3	690	32	32/15	0.7	A1
¹⁾ OESA 32 P4 A1-H mini	4				0.9	
OESA 32 P3 F1-H mini	3				0.7	NNS
OS 32 B12	3	690	32	32/15	1.3	A2, A3
OS 32 B22 ²⁾	4				1.6	
OESA 32 G1	3	690	32	32/15	1.6	A2
¹⁾ OESA 32 G4	4 ³⁾				1.9	
¹⁾ OESA 32 GV22	4				1.9	
OS 63 B12	3	690	63	63/30	1.3	A2, A3
OS 63 B22 ²⁾	4	690	63		1.6	
OESA 63 G1	3	690	63	63/30	1.6	A2, A3
OESA 63 G4	4 ³⁾				1.9	
OESA 63 GV31	4				1.9	
OESA 100 G1	3	690	125	100/55	2.2	A2, A3, A4
OESA 100 G4	4 ³⁾				2.8	
¹⁾ OESA 100 GV31	4				2.8	
OESA 160 B3	3	690	160	100/55	2.2	B1, B2
OESA 160 B4	4 ³⁾				2.8	

DIN-pattern 32...160

OS 32 and 63 switches includes black IP65 handle (OHB65J6) with I-O/On-Off indication and a shaft (OXP5X150) length 150mm, mounting depth H=141...260mm. Protected tunnel terminals IP20.

OESA 63 switches have protected tunnel terminals, black IP65 (OHB65J6) handle with I-O/On-Off indication and shaft (OXP6X150) 13, length 150 mm, mounting depth H = 140...220.

OESA 125 and 160 switches include terminal bolt kit, black IP65 handle (OHB80J6) with I-O/On-Off indication and shaft (OXP6X150) length 150 mm, mounting depth H = 145...220.

Optional handles and shafts – Refer page 26 to 27.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 43 to 47.

Cat. No.	Number of poles	Rated operational voltage AC 23 [V]	I _{th} (open) [A]	Rated operational current / rated operational power in category AC 23A , IEC 947 415V [A/kW]	Weight with package [kg]	Fuse type [DIN]
OS 32 D12	3	690	32	32/15	1.3	00
OS 32 D22 ²⁾	4				1.6	
OS 63 D12	3	690	63	63/30	1.3	00
OS 63 D22 ²⁾	4				1.6	
¹⁾ OESA 00-63	3	690	63	63/30	1.6	00
¹⁾ OESA 00-63 A4	4-switched neutral				1.9	
¹⁾ OESA 00-125	3	690	125	100/55	2.2	00
¹⁾ OESA 00 125 A4	4-switched neutral				2.8	
¹⁾ OESA 00-160	3	690	160	100/55	2.2	00

Fourth poles – to suit OS switch fuses

Snap on mounting to left side of switch

Cat. No.	Remarks
OS P4N ²⁾	Switched fourth pole suitable for OS 32...63 3 pole BS and DIN types
¹⁾ OS P4B	Fused fourth pole suitable for OS 32...63 3 pole BS type only
¹⁾ OS P4D	Fused fourth pole suitable for OS 32...63 3 pole DIN type only

Notes: ¹⁾ Utilisation category B

²⁾ The fourth pole in OESA 32...160 is provided with a solid link, which can be replaced by a fuse link.

Inboard shafts for DIN switch fuses available on indent.

³⁾ The fourth pole in OS32...63 is provided with a solid link. Fusible fourth poles available on indent basis.

¹⁾ Available on indent only.

Strömberg PowerLine

Switch fuses OESA – 200...800A

Ordering information

NHP



OESA 200...800 B3 (BS pattern)



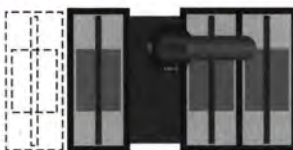
OESA 200...800 BV12 (BS pattern)



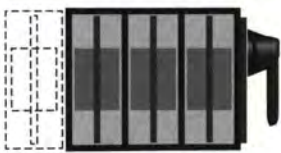
OESA 250...800 DV12 (DIN pattern)



Outboard shaft, OESA B3, B4 & D3, D4



Inboard shaft, OESA BV12, BV22 & DV12, DV22



Side operated types, see page 19.

BS-pattern 200...800

OESA 200...400 include terminal bolt kit, IP20 fuse cover, black IP 65 handle (OHB125J12) with I-O/On-Off indication and shaft (OXP12X250), length 250 mm, mounting depth H=250...340.

OESA 630...800 include terminal bolt kit, IP20 fuse cover, black IP65 handle (OHB145J12) with I-O/On-Off indication and shaft (OXP12X250), length 250 mm, mounting depth H=255...325.

Optional handles and shafts – Refer page 26 to 27.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 48 to 49.

Fuse covers – Refer page 24.

Cat. No.	Number of poles	Rated operational voltage AC 23 [V]	I_{th} (open) [A]	Rated operational current / rated operational power in category AC 23A, IEC 947 415 V [A/kW]	Weight with package [kg]	NHP Fuse type [BS]
OESA 200 B3	3	690	200	200 / 110	7.1	B1, B2
OESA 200 B4	4 ¹⁾				8.2	
OESA 200 BV12	3				7.1	
¹⁾ OESA 200 BV22	4 ¹⁾				8.2	
OESA 250 B3	3	690	250	250 / 140	7.1	B1, B2, B3
¹⁾ OESA 250 B4	4 ¹⁾				8.2	
OESA 250 BV12	3				7.1	
OESA 250 BV22	4 ¹⁾				8.2	
OESA 315 B3	3	690	315	315 / 185	7.9	B1, B2, B3
OESA 315 B4	4 ¹⁾				8.9	
OESA 315 BV12	3				7.9	
¹⁾ OESA 315 BV22	4 ¹⁾				8.9	
OESA 400 B3	3	690	400	400 / 230	8.3	B1, B2, B3, B4
OESA 400 B4	4 ¹⁾				9.4	
OESA 400 BV12	3				8.3	
OESA 400 BV22	4 ¹⁾				9.4	
OESA 630 B3	3	690	630	630 / 340	16.0	C1, C2
¹⁾ OESA 630 B4	4 ¹⁾				21.0	
OESA 630 BV12	3				16.0	
¹⁾ OESA 630 BV22	4 ¹⁾				21.0	
OESA 800 B3	3	690	800	800 / 380	18.0	C1, C2, C3
¹⁾ OESA 800 B4	4 ¹⁾				24.0	
OESA 800 BV12	3				18.0	
¹⁾ OESA 800 BV22	4 ¹⁾				24.0	

DIN-pattern 250...800

OESA 250...400 include terminal bolt kit, black IP 65 (OHB125J12) handle with I-O/On-Off indication and shaft (OXP12X250) length 250 mm, mounting depth H=250...340.

OESA 630...800 include terminal bolt kit, black IP 65 (OHB145J12) handle with I-O/On-Off indication and shaft (OXP12X250) length 250 mm, mounting depth H=255...325.

Optional handles and shafts – Refer page 27.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 48 to 49.

Fuse covers (not included with Din models)

Cat. No.	Number of poles	Rated operational voltage AC 23 [V]	I_{th} (open) [A]	Rated operational current / rated operational power in category AC 23A, IEC 947 415V [A/kW]	Weight with package [kg]	Fuse type [DIN]
OESA 250 D3	3	690	250	250 / 150	7.3	1
¹⁾ OESA 250 D4	4 ¹⁾				8.2	
¹⁾ OESA 250 DV12	3				7.3	
¹⁾ OESA 250 DV22	4 ¹⁾				8.2	
OESA 400 D3	3	690	400	400 / 230	8.3	2
¹⁾ OESA 400 D4	4 ¹⁾				9.4	
¹⁾ OESA 400 DV12	3				8.3	
¹⁾ OESA 400 DV22	4 ¹⁾				9.4	
OESA 630 D3	3	690	630	630 / 340	16.0	3
¹⁾ OESA 630 D4	4 ¹⁾				21.0	
¹⁾ OESA 630 DV12	3				16.0	
¹⁾ OESA 630 DV22	4 ¹⁾				21.0	
OESA 800 D3	3	690	800	800 / 380	18.0	3
¹⁾ OESA 800 D4	4 ¹⁾				24.0	
¹⁾ OESA 800 DV12	3				18.0	
¹⁾ OESA 800 DV22	4 ¹⁾				24.0	

Notes: ¹⁾ The fourth pole is provided with a solid link which can be replaced by a fuse link if required.

¹⁾ Available on indent only

Strömberg PowerLine

Back connect terminals – Switch fuses OESA 32...800A

Ordering information

NHP

Special
version
switches

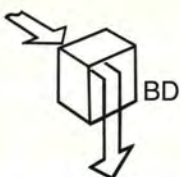
Outboard shaft
OESA 63 G1 BB



Outboard shaft
OESA 200...800 D3 BB



Inboard shaft
OESA 200...800 DV12 BB



Please, complete the type number
with code: BD
Back connection on upper terminals.



Please, complete the type number with
code: BB
Back connection terminals on both sides
of the switch.



Please, complete the type number with
code: UB
Back connection on lower terminals.

Back connect, BS-pattern 32...160

OESA 32 and 63 switches the normal terminals are protected tunnel terminals, the back connection terminals (cable size 6...35 mm²) include bolt kit. Switches include black IP65 handle (OHB65J6) with I-O/ON-OFF indication and shaft (OXP6X210) length 210mm.
OESA 100 and 160 switches include terminal bolt kit, black IP65 handle (OHB80J6) with I-O/ON-OFF indication and shaft (OXP6X210) length 210mm.

Optional handles and shafts – Refer page 26 to 27.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 53 to 55.

Fuse covers (not included with 32...160 amp switches – page 24.

Cat. No.	Number of poles	Rated operational voltage AC 23 [V]	I _{th} (open) [A]	Rated operational current / rated operational power in category 415 V, AC 23A, IEC 947 [A/kW]	Weight [kg]	Fuse type [BS]
OESA 32 G1 BB OESA 32 G1 UB	3	500	32	32/15	1.7 1.6	A2
OESA 32 G4 BD OESA 32 G4 BB OESA 32 G4 UB	4	500	32	32/15	1.9 2.0 1.9	
OESA 63 G1 BD OESA 63 G1 BB OESA 63 G1 UB	3	690	63	63/30	1.6 1.7 1.6	A2, A3
OESA 63 G4 BD OESA 63 G4 BB OESA 63 G4 UB	4	690	63	63/30	1.9 2.0 1.9	
OESA 100 G1 BD OESA 100 G1 BB OESA 100 G1 UB	3	690	125	100/55	2.2 2.3 2.2	A2, A3, A4
OESA 100 G4 BD OESA 100 G4 BB OESA 100 G4 UB	4	690	125	100/55	2.8 2.9 2.8	
OESA 160 B3 BD OESA 160 B3 BB OESA 160 B3 UB	3	690	160	100/55	2.2 2.3 2.2	B1, B2
OESA 160 B4 BD OESA 160 B4 BB OESA 160 B4 UB	4	690	160	100/55	2.8 2.9 2.8	

Back connect, BS-pattern 200...800

OESA 200...400 switches include terminal bolt kit, IP20 fuse cover, black IP 65 handle (OHB125J12) with I-O/ON-OFF indication and shaft (OXP12X250) length 250mm.

OESA 630...800 switches include terminal bolt kit, IP20 fuse cover, black IP65 handle (OHB145J12) with I-O/ON-OFF indication and shaft (OXP12X250), length 250mm.

Optional handles and shafts – Refer page 27.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 48 to 49.

Cat. No. Complete the Cat. No. with code BD, BB or UB depending of direction of the terminal	Number of poles	Rated operational voltage AC 23 [V]	I _{th} (open) [A]	Rated operational current / rated operational power in category AC 23A, IEC 947 415V [A/kW]	Weight with package [kg]	Fuse type [BS]
OESA 200 B3_ OESA 200 B4_ OESA 200 BV12_ OESA 200 BV22_	3 4 3 4	690	200	200 / 110	7.1 8.2 7.1 8.2	B1, B2
OESA 315 B3_ OESA 315 B4_ OESA 315 BV12_ OESA 315 BV22_	3 4 3 4	690	315	315 / 100	7.9 8.9 7.9 8.9	B1, B2, B3
OESA 400 B3_ OESA 400 B4_ OESA 400 BV12_ OESA 400 BV22_	3 4 3 4	690	400	400 / 230	8.3 9.4 8.3 9.4	B1, B2, B3, B4
OESA 630 B3_ OESA 630 B4_ OESA 630 BV12_ OESA 630 BV22_	3 4 3 4	690	630	630 / 340	16.0 21.0 16.0 21.0	C1, C2
OESA 800 B3_ OESA 800 B4_ OESA 800 BV12_ OESA 800 BV22_	3 4 3 4	690	800	800 / 380	18.0 24.0 18.0 24.0	C1, C2, C3

Notes: DIN versions are also available on indent.

Available on indent only.

Strömberg PowerLine

Side operated switch fuses, BS-pattern 32...400A

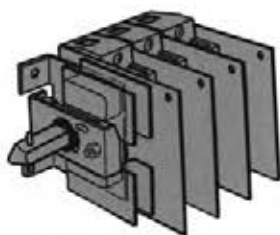
Ordering information

Special
version
switches

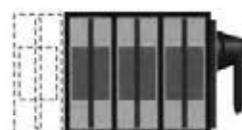
NHP



OESA 32...63 BS12



OESA 32, 63 BM3



Side operated types,
OESA_BM3, BM4
OESA_DM3, DM4

Side operated switch fuses, BS-pattern 32...400

OS 32...63 switches have protected tunnel terminals IP20, black handle (OHB65J6E001S).

OESA 32 and 63 switches have protected tunnel terminals, 2 changeover aux. contacts and handle (OHB80J6E001S).

OESA 200 and 400 switches include terminal bolt kit, fuse cover. Handle kit has to be ordered separately. See page 26.

Optional handles – Refer page 26.

Auxiliaries – Refer page 22.

Fuse selection – Refer page 21.

Dimensional diagrams – Refer page 51 to 52.

<input type="checkbox"/> Cat. No.	Number of poles	Rated operational voltage [V]	I_{th} (open) [A]	Rated operational current / rated operational power in category 415V AC 23/IEC 947 [A/kW]	Weight with package [kg]
OS 32 BS12	3	690	32	32/15	1.6
OS 32 BS22	4				1.9
OESA 32 BM3	3	500	32	32/15	1.5
OESA 32 BM4	4				1.8
OS 63 BS12	3	690	63	63/30	1.6
OS 63 BS22	4				1.9
OESA 63 BM3	3	690	63	63/30	1.5
OESA 63 BM4	4				1.8
OESA 200 BM3	3	690	200	200 / 110	7.2
OESA 200 BM4	4				8.3
OESA 315 BM3	3	690	315	315 / 180	8.0
OESA 315 BM4	4				9.0
OESA 400 BM3	3	690	400	400 / 230	8.4
OESA 400 BM4	4				9.5

Note: ☐ Available on indent only.

Switch fuses

Arc D-Tect

Arcing Fault Detection System



DETECTS:

DANGEROUS ARCING FAULTS

LIMITS:

COSTLY DOWNTIME & REPAIRS



Strömberg PowerLine

NHP

Enclosed switches – steel & plastic – Switch fuses OS, OESA Ordering information



OS 323 SE



OESA 3153 SE



OS 633 SEP



OESA 1603 SEP

Combining the outstanding features of the 'Eldon' and 'Fibox' series enclosure range with the reliable Strömberg range of switch fuses, enables NHP to offer totally enclosed switches for separate surface mounting.

Midline (fully assembled) Steel – OS 32...63, OESA 100...800

All enclosed switch fuses have a high strength plastic reinforced OH pistol type handle complete with padlock facility, door interlock (defeatable).

Standard features:

- Fully assembled
- Mounting plate
- Removable gland plate top and bottom

- Neutral link
- IP 55 degree of protection
- Options available include: (Contact NHP)
- 4 pole versions
- Auxiliary contacts
- IP65 versions

Switch size [A]	Enclosed thermal current Ith _a [A]	Rated power 415V AC 23 °) [kW]	No. poles	Steel enclosure No.	Dimensions (mm) ¹⁾			Switch type	Cat. No
					Height	Width	Depth		
32A	32A	15kW	3	AM0303020	300	300	200	OS 32 B12	OS 323SE
63A	63A	30kW	3	AM0303020	300	300	200	OS 63 B12	OS 633SE
100A	100A	55kW	3	AM0303020	300	300	200	OESA 100 G1	OESA 1003SE
160A	135A	55kW	3	AM0504020	400	300	200	OESA 160 B3	OESA 1603SE
200A	200A	110kW	3	AM0604026	600	400	250	OESA 200 B3	OESA 2003SE
250A	250A	140kW	3	AM0604026	600	400	250	OESA 250 B3	OESA 2503SE
315A	315A	180kW	3	AM0705026	700	500	250	OESA 315 B3	OESA 3153SE
400A	400A	230kW	3	AM0705026	700	500	250	OESA 400 B3	OESA 4003SE
630A	600A	340kW	3	AM0806032	800	600	300	OESA 630 B3	OESA 6303SE
800A	720A	380kW	3	AM0806032	800	600	300	OESA 800 B3	OESA 8003SE

Midline (fully assembled) Polycarbonate – OS 32...63, OESA 100...160

All enclosed switch fuses have a high strength plastic reinforced OH pistol type handle complete with padlock facility, door interlock (defeatable).

Standard features:

- High impact polycarbonate enclosures
- IP 65 degree of protection

- Non-corrosive enclosure
- Neutral link provided
- Options available include (contact NHP):
- 4 pole versions
- Auxiliary contacts

Switch size [A]	Enclosed thermal current Ith _a [A]	Rated power 415V AC 23 °) [kW]	No. poles	Polycarbonate enclosure No.	Dimensions (mm) ¹⁾			Switch type	Cat. No
					Height	Width	Depth		
32	32	15kW	3	PCR282818G	280	280	180	OS 32 B12	OS 323 SEP
32	32	15kW	3	PCR282818G	280	280	180	OESA 32 G1	OESA 323 SEP
63	63	30kW	3	PCR282818G	280	280	180	OS 63 B12	OS 633 SEP
63	63	30kW	3	PCR282818G	280	280	180	OESA 63 G1	OESA 633 SEP
125	125	55kW	3	PCR382818G	380	280	180	OESA 100 G1	OESA 1003 SEP
160	135	55kW	3	PCR382818G	380	280	180	OESA 160 B3	OESA 1603 SEP

Notes: ¹⁾ External dimensions do not include handles and locks.
²⁾ Actual rated power may be limited to the maximum starting current of the chosen fuse.

Strömberg PowerLine

Fuse selection, fuse monitor – Switch fuses OS, OESA
Accessories

Fuse selection – cross reference guide for Switch Fuses
Fuse manufacturers part numbers – Australian/British standard

Switch fuse types	Motor rating (kW) 3ø 415V	Fuse type [BS88]	Current rating	NHP COMPACT	GEC	MEM	Siemens	Hawker Siddeley	Holec
OESA 32 P3F1 mini	5.5	F1	2...32	NNS	NS	SN2	3NW NS	F 06	NS
OESA 32 P3A1 mini	5.5	A1	2...32	NNIT	NIT	SA2	3NW NIT	F21	NIT
OS 32...63B, OESA 32...100G	5.5	A2	2...32 amp	NTIA	TIA	SB3	3NW TIA	H07	TIA
OS 32...63B, OESA 100G	15	A3	40...63 amp	NTIS	TIS	SB4	3NW TIS	K07	TIS
OESA 100G	30	-	80...100 amp	NOS	OS	SO	3NW OS	-	-
OESA 100G	30	A4	80...100 amp	NTCP	TCP	SD5	3NW TCP	L14	TCP
-	5.5	Hybrid (A4) 125...200 amp		NTFP	TFP	SD6	3NW TFP	M14	TFP
OESA 160...400B	15	B1	2...63 amp	NTBC	TBC	SF3	3NW TBC	K09	TBC
OESA 160...400B	30	B1	80...100 amp	NTC	TC	SF5	3NW TC	L09	TC
OESA 160...400B	55	B2	125...200 amp	NTF	TF	SF6	3NW TF	M09	TF
OESA 250...400B	110	B3	250...315 amp	NTKF	TKF	SF7	3NW TKF	N09	TKF
OESA 250...400B	110	-	250...315 amp	NTKM	TKM	SG7	3NW TKM	N11	TKM
OESA 400B	150	B4	355...400 amp	NTMF	TMF	SF8	3NW TMF	P09	TMF
OESA 630...800B	150	C1	355...400 amp	NTM	TM	SH8	3NW TIM	P11	TM
OESA 630...800B	280	C2	450...630 amp	NTTM	TTM	SH9	3NW TTM	R11	TTM
OESA 800B	400	C3	710...800 amp	NTLM	TLM	SH10	3NW TLM	S11	TLM
OS 32...63D, OESA 32...160D	45	Din pattern							
OESA 250D	90	00	6...160 amp	N00	NHG 00	7999	3NA5	-	P851.00
OESA 400D	150	1	25...250 amp	N1	NHG 1	8001	3NA4 144	-	P851.1
OESA 630...800D	280	2	80...400 amp	N2	NHG 2	8002	3NA4 260	-	P851.2
		3	315...630 amp	N3	NHG 3	8003	3NA1	-	P851.3

Switch fuses



DIN F – DIN fuse extractor handle

DIN fuse handle and mounting bracket

Cat. No.	For	Description
DIN-fuse sizes		
DIN F	00, 1, 2, 3	DIN fuse extractor handle
DIN FMB		For mounting of fuse handle DIN F when not using

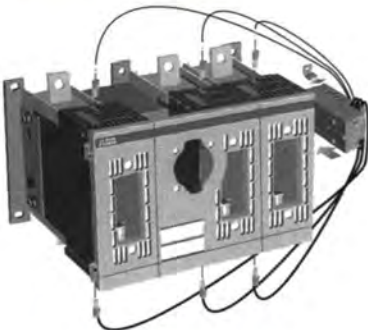


OFM 690
Fuse monitor

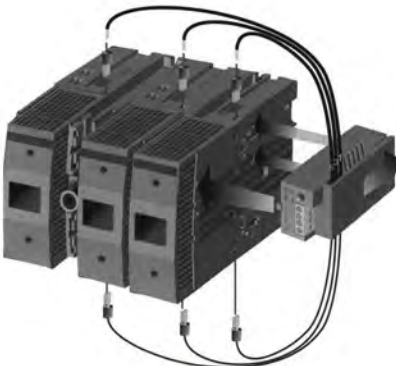
Fuse monitor, OFM 690

The OFM fuse monitor provides a facility for an immediate tripping option after a fuse has blown. Mounts direct to side of OS 32...63 switches or may be panel mount for use with other OESA switch fuses and OFAX din fuse bases. Includes 1N/O + 1N/C contact plus trip LED indication.

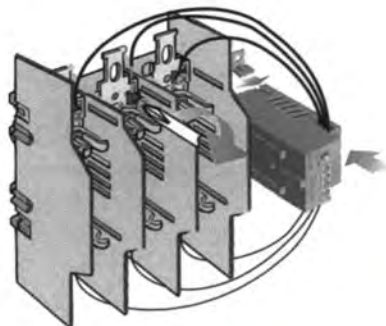
Cat. No.	Rated voltage (V AC)	Weight (kg)
OFM 690	380...690	0.14



OESA 200...800 + OFM 690



OS_ + OFM 690



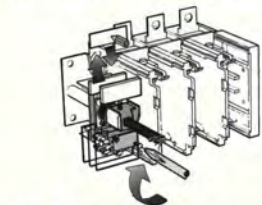
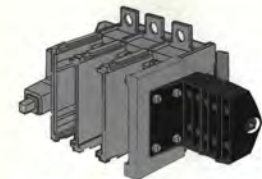
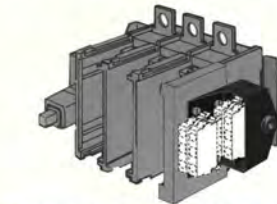
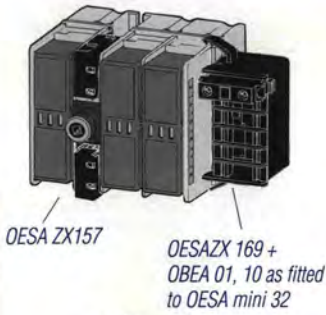
OFAX_ + OFM 690

Strömberg PowerLine



Auxiliary contacts – Switch fuses OS 32...63, OESA 32...160
Accessories

Switch fuses



OZXK 7, 8 (Changeover auxiliaries)
as fitted to OESA 32...160

OESA mini 32

Complete ordering of auxiliaries require auxiliary contact frame OESAZX169 and OBEA auxiliaries as required (max 6).
All OBEA aux. require base OESAZX169 for mounting to switch or select ready made kits below.
For ON and OFF functions of auxiliary and main contacts see pages 77.

Cat. No.	Auxiliary contacts	Performance data		Features
OESAZX 169	Auxiliary contact frame. Not suitable for side operated switches			Max. 6 auxiliary contacts (type OBEA_) can be fitted.
OBEA 01 OBEA 10	1 N/O 1 N/C	U _e 120V 230V 415V 690V 125V	I _e : AC15/DC13 8A/- 6A/- 4A/- 2A/- -1.1A	Mounted on side of the switch (max 6), requires aux. contact frame OESAZX 169. Please note that OBEA auxiliaries have opposite polarity on OESA mini than for OESA 32...160
OESAZX 157	1 C/O	U _e 24V 250V 440V	I _e : AC15/DC12 -6A 3A/0.1A 2A/-	

OS 32...63

Snap-on mounting to the switch, IP 20, cable cross section 0.75...2 x 2.5 m². Max. 6 auxiliary contacts mountable onto the side.
Max. 2 auxiliary contacts mountable between the poles, which are used as Test-contacts, see a function chart below. No frame required.

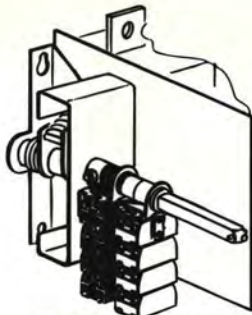
Cat. No.	Auxiliary contacts	Performance data		Features		
		U _e	I _e : AC15	Handle position	Main contacts	Aux./Test contacts N.O.
OA1G 10 OA1G 01	1 N/C 1 N/O	240V 415V 690V	6A 4A 2A	Test 0 1	Open Open Closed	Closed Open Closed

OESA 32...160

Complete ordering of auxiliaries require auxiliary contact frame OESAZX 250 (100...160A) and OBEA auxiliaries as required. All OBEA auxiliaries require base OESAZX 250 or 252 for mounting to switch, or select ready made kits below.
Protection degree IP 20-OBEA, IP 10-OZXK 7, 8. For ON and OFF functions of auxiliary and main contacts see pages 77.

Cat. No.	Auxiliary contacts	Performance data		For switch sizes	Features
OESA ZX 252	Auxiliary contact frame			32...63A	Max. 4 standard contacts OBEA below.
OESA ZX 250	Auxiliary contact frame			100...160A	Max. 4 standard contacts OBEA below.
OESA ZX 254	Auxiliary extension frame			32...160A	Extension frame for extra 4 contacts. Fits to side of basic frame OESA ZX 250 or 252.
OBEA 10	1N/O	U _e 24V 48V 110V 240V 400V	I _e : AC15/DC13 8A/- 6A/- 4A/- 2A/- -1.1A	OESA 32...160A	Mounting with the mounting frames above. Max. 8 aux. blocks possible with extension frame.
OBEA 01	1N/C				
OZXK 7	1C/O	U _e 24V 250V 440V	I _e : AC15/DC12 -6A 3A/0.1A 2A/-	32...160A	Aux supplied complete with cam and bracket. No additional frame required.
OZXK 8	2C/O				

Strömberg PowerLine
Auxiliary contacts – Switch fuses OESA 200...800A
Accessories



OZXX _ (as fitted with cam and bracket)



OZXX _ (as fitted direct to switch)*

OESA 200...800

Technical data for OZXX 1...5:

Protection degree, IP20, cable cross section min. 0.5 mm², max. 2 x 2.5 mm². Insulation voltage 690V. Thermal current I_{th} = 10A. For ON and OFF functions of auxiliary and main contacts see page 78.

Cat. No.	Auxiliary operation to suit switch type OESA		Performance data IEC 947-5-1	
	200...400A ¹⁾	630...800 ¹⁾	U _e	I _e AC12/DC12
OZXX 1	1N/O+1N/C ²⁾	1N/O+1N/C	120V	8A/-
OZXX 2	2N/O+2N/C ²⁾	2N/O+2N/C	125V	-/1.1A
OZXX 3 ¹⁾	4N/O+4N/C ²⁾	4N/O+4N/C	240V	6A/-
OZXX 4	2N/O ²⁾	2N/O	250V	-/0.55A
OZXX 5 ¹⁾	4N/O ²⁾	4N/O	400V	4A/-
OZXX 12	2N/C ³⁾	-	415V	4A/-
OZXX 13	4N/C ³⁾	-	440V	-/0.31A
OZXX 14	1N/O+1N/C ³⁾	-	480V	3A/-
OZXX 16	4N/O+4N/C ³⁾	-	500V	3A/0.27A
OZXX 02	2N/O ³⁾	-	600V	-/0.2A
			690V	2A/-

Notes: ¹⁾ 8 N/O + 8 N/C = 2 x OZXX 3.
²⁾ 8 N/O = 2 x OZXX 5.
³⁾ 200-400 types may mount auxiliary with bracket supplied or directly on switch.
630-800 must use bracket, will not mount on switch.
Inboard shaft models can fit only one auxiliary to bracket.

¹⁾ Mount direct to switch only.
²⁾ Mount using cam & bracket supplied only.
³⁾ Mount direct to switch or cam & bracket supplied.

Strömberg
PowerLine switch fuses



OS, 32...160 Amp – The new OS
switch fuses, offer a new dimension
in safety and flexibility for fused
short-circuit protection

Safety for the operator

- Fully IP20 protected for both cable connection and fuses.
- Removable fuse holders allow for fast fuse replacement and increased operator safety.
- Fuse holders cannot be removed whilst this switch is in the "ON" position.
- Operator independent quick make, quick break mechanism.
- The OS switch fuse range features an over centre operating mechanism, thus the mechanism is charged to the appropriate level and then operates independent of the rotation speed of the shaft.
- Isolation on both sides of the fuses via double switching contacts.
- Auxiliary test position operates without the main contacts being closed which is ideal for commissioning and control circuit fault finding.
- Available in BS and DIN fuse formats.

Flexible mounting options

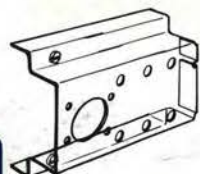
- The OS switch fuse range may be mounted by a 35mm, 75mm DIN rail or base panel mounted.
- The fourth pole can be easily snapped on to the side of the switch fuse.
- Fully symmetrical construction enables any plane of mounting for the switch fuse.

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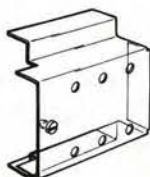
Fuse covers – Switch fuses OESA

Accessories

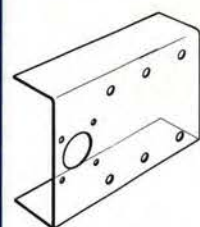
NHP



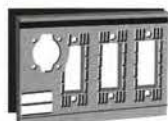
OESAZX 172



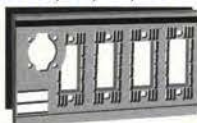
OESAZX 89



OESAZX 3, 44, 74



OESAZX 190, 192, 194, 196



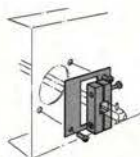
OESAZX 191, 193, 195, 197



OESAZX 205, 207, 209, 211



OESAZX 206, 208, 210, 212



OESAZX 83



OESAZX 204

OESA 32...160

➤ OS type switch fuses do not require fuse covers.

Cat. No.	For switch types	Number of poles
i OESAZX 44	OESA 00-32, 00-63	3
OESAZX 172	OESA 32 G1, 63 G1	3
i OESAZX 89	OESA 32 BM3, 63 BM3	3
OESAZX 3	OESA 00-125, 100 G1, 00-160,	3
OESAZX 74	OESA 160 B3	3

OESA 200...800

➤ BS type switch fuses include a fuse shroud as standard when ordering switch fuse.

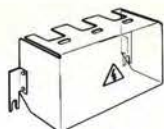
Cat. No.	For switch types	Number of poles
OESAZX 190	OESA 200B, 250D, 250B	3
i OESAZX 191	200 BM_, 250 DM_	4
OESAZX 205	OESA 200 BV_, 250 DV_	3
i OESAZX 206		4
OESAZX 192	OESA 315 B_, 400 D_, 400 B_	3
i OESAZX 193	315 BM_, 400 DM_, 400 BM_	4
OESAZX 207	OESA 315 BV_, 400 DV_, 400 BV_	3
i OESAZX 208		4
OESAZX 194	OESA 630 D_, 630 B_	3
i OESAZX 195		4
OESAZX 209	OESA 630 DV_, 630 BV_	3
i OESAZX 210		4
OESAZX 196	OESA 800 D_, 800 B_	3
i OESAZX 197		4
OESAZX 211	OESA 800 DV_, 800 BV_	3
i OESAZX 212		4

Fuse cover interlock kits

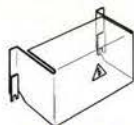
Cat. No.	Features	For switch sizes
i OESAZX 83 OESAZX 204	The interlock kit prevents the fuse cover from being opened when the switch fuse is in ON position	32...160A 200...800A

Note: **i** Available on indent only.

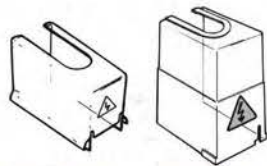
Strömberg PowerLine
Terminal shrouds, links – Switch fuses OESA
Accessories



OESAZX 8, 75

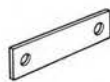


OESAZX 41, 81

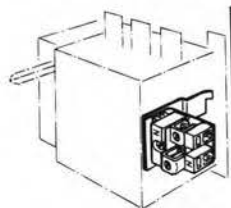


OESAZX 119

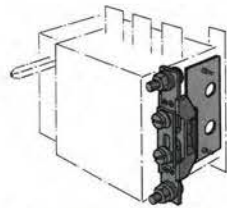
OESAZX 102



63 MFNL, 100 MFNL,
OESAZX 98, OESAZL 79



OESAZX 87, 118



OESAZX 85, 86, 87, 88, 118

Terminal shrouds for switch fuses OESA 100...800A

32 and 63A:

Switch fuses do not require terminal shrouds.

Cat. No.	For switch types	Number of poles	Quantity for full protection [pcs]
OESAZX 8	OESA 100 G, 00-125, 00-160	3	2
OESAZX 41		4	2
OESAZX 75	OESA 160 B	3	2
OESAZX 81		4	2
OESAZX 119	OESA 200...400	3	6
		4	8
OESAZX 102	OESA 630...800	3	6
		4	8

Solid links

Cat. No.	For switch types	Packing [pcs]
63 MFNL	OS 32 B, 63 B, OESA 32 G, 63 G	1
100 MFNL	OESA 100 G	
OESAZX 98	OESA 160 B...400B	
OESAZL 79	OESA 630 B, 800 B	

Neutral links

Cat. No.	I_{th} [A]	Max. cable cross section/Cu [mm ²]	Description	Suitable for switch fuse size
OESAZX 87	63	16	Detachable, mounted to the switch	32...63
OESAZX 118	125	35		125
OESAZX 86	160	240		125...160
OESAZX 85	400	240		200...400
OESAZX 88	800	240		630...800
OESAZX 162	200	10...120	Mounting onto mounting plate	
OESAZX 164	315	10...300		
OESAZX 165	400	10...300		

Note: Available on indent only.

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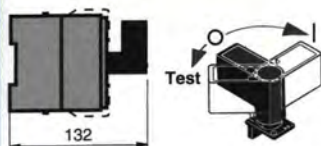
Handles – Switch fuses OS, OESA

Accessories

NHP



OH_65...275J_



YASDB 79



OHB 4

YASDA 28
YASDA 8

OETLZX 74

Optional handles – plastic³⁾

Handles for front operated switch fuses

Indication I-ON / O-OFF.

Shaft must be ordered separately, see page 27. Door drilling and dimensions see page 69 to 71.

Cat. No.	Colour	Handle length (mm)	For shaft diameter (mm)	Suitable for switch fuse	Features
OHB65J5 ¹⁾ OHY65J5 ¹⁾	black yellow-red	65	5	OESA mini 32A	IP65 protection.
OHB65J6 ¹⁾ OHY65J6 ¹⁾	black yellow-red	65	6	OS 32...63A OESA 32...160A	Padlockable with up to 3 padlocks in OFF position, bail diameter 5...10mm. Handles may be padlocked in ON position with simple modification.
OHB80J6 OHY80J6	black yellow-red	80			
OHB125J12 OHY125J12	black yellow-red	125	12	OESA 200...800A	Door interlock in ON position, defeatable.
OHB145J12 OHY145J12	black yellow-red	145	12	OESA 630...800A	
OHB175J12 OHY175J12	black yellow-red	175	12		
OHB275J12 OHY275J12	black yellow-red	275	12		

Direct mount handle

IP00. For direct mount to switch. Padlockable in OFF and test positions.

YASDB 79	black	-	5	OESA mini 32A	Includes a shaft. Padlockable with 2 padlocks.
OHB4		-	6	OS 32...63A	No shaft needed. Padlockable with 3 padlocks.

Handles for side operated switch fuses

IP65. Indication: 32A mini – 1 ON 0 OFF test; OESA 32...400A – 1 ON 0 OFF

OHB65J5 TE00S	black	60	5	OESA 32 BM3 mini	See features for front operated handle above.
OHB80J6 E001S	black	80	6	OESA 32...160 BM	
OHB145J12 E002S	black	145	12	OESA 200...400 BM	

Handles for changeover & bypass mechanism (see also metal handles below)

IP65. Indication: I - O - II. See page for changeover and bypass mechanisms.

OHB80J6E011	black	80	6	OESA ZW1 (32...160A)	See features for front operated above.
OHB145J12E011		145	12	OESA ZW11 (200...400A 3P)	

Optional handles – metal³⁾

Handles for front operated switch fuses

IP 65, padlockable with 3 padlocks in OFF position, door interlock in ON position. Door drilling Ø45mm, see page 69 to 71.

Shaft must be ordered separately, see page 27. Dimensions see page 69 to 71.

Cat. No.	Colour	Handle length (mm)	For shaft diameter (mm)	Suitable for switch fuse
YASDA 8 ¹⁾	black	220	12	OESA 200...800

Handles for side operated switch fuses

IP 65, padlockable with 3 padlocks in OFF position, door drilling 18mm and dimensions see page 69 to 71.

OETLZX 74	black	145	12	OESA 200...400BM
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Handles for changeover & bypass mechanism (see also plastic handles above)

IP 65, padlockable with 3 padlocks in OFF position, door interlock in ON position, door drilling Ø45mm, see page 69 to 71.

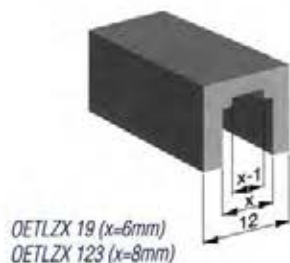
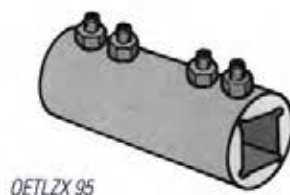
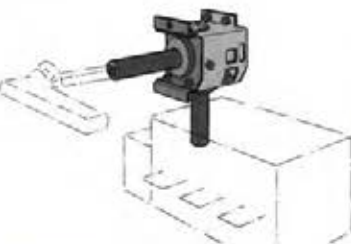
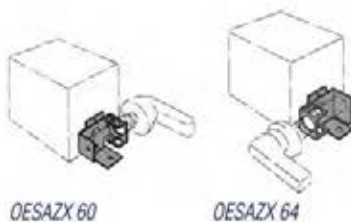
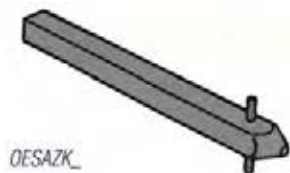
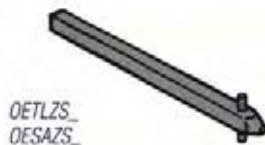
1 YASDA 6	black	320	12	OETL ZW12 (630...800 3P8) 200...800A 4P) OETL ZW13 (200...800A)
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- Notes: ¹⁾ Handle with I ON-O OFF-test indication available on indent. Contact NHP.
²⁾ Handle available with metal collar (YASDA8MC).
³⁾ Shafts must be ordered separately. see page 27.
 1 Available on indent only.

Strömberg PowerLine

NHP

Shafts and shaft accessories – Switch fuses OS, OESA Accessories



Optional extended shafts – standard

Cat. No.	Length (mm)	Diameter (mm)	H mm	For switch type	For handle type
OSP5X150-V0	150	5	135...210	OESA 32 (mini)	OH_65J5
OSP5X265-V0	265		245...325		OH_65J5 TE00S
OSP5X400-V0	400		380...460		
OSP6X210	210	6	200...280	OS 32...63	OH_65J6
OSP6X290	290		280...360	OESA 32...160	OH_80J6
OSP6X360	360		350...430		OH_80J6 E001S
OSP6X430	430		420...500		OH_80J6E011
OSP12X185	185	12	165...275	OESA 200...400	OH_125J12
OSP12X250	250	12	230...340	OESA 200...400	OH_145J12
			255...325	OESA 630...800	OH_175J12
OSP12X280	280	12	260...370	OESA 200...400	OH_275J12
			285...355	OESA 630...800	OH_145J12 E002S
OSP12X325	325	12	305...415	OESA 200...400	OH_145J12E011
			330...400	OESA 630...800	OETLZX 74
OSP12X395	395	12	375...485	OESA 200...400	
			400...470	OESA 630...800	
OSP12X465	465	12	445...555	OESA 200...400	
			470...540	OESA 630...800	
OSP12X535	535	12	515...625	OESA 200...400	
			540...610	OESA 630...800	
OSP12X3950P ¹⁾	395	12	375...485	OESA 200...400	YASDA 8, YASDA 28
			400...470	OESA 630...800	YASDA 8

Note: ¹⁾ OESA ZK43 DP has double pin for interlocking of door.

Accessories

Shaft direction modification

Cat. No.	For switch type	Remarks
OSP6XZK 60	OESA 32...160A	Modifies the direction of shaft.
OSP6XZK 64		

90° angle kit

OETLZX 108	OESA 200...800A	A normal switch can be changed to a side operated switch	12mm shaft
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Shaft extension socket

OETLZX 95	-	For extending the shaft or use in combination with OETLZX 19, OETLZX 123 for shafts of different sizes.	12mm shaft
OETLZX 19	-	Adaptors to place inside of OETLZX 95 to connect shafts of different sizes	6mm & 5mm shaft
OETLZX 123	-		8mm shaft

Note: ¹⁾ Available on indent only

Switch fuses

Strömberg PowerLine

Multipole, changeover & bypass mechanisms – Switch fuses OS, OESA Accessories

NHP


OETLZW 9

OETLZW 2

The mechanisms are provided with holes, enabling different shaft distances, see example below. For dimensional diagrams refer pages 72 to 75.

The combination switches can be mounted either horizontally or vertically.

Cat. No.	Shaft distance [mm]	Remark	For switch sizes
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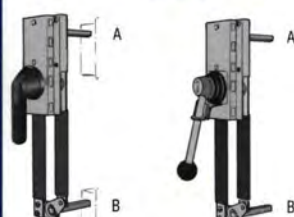
6 and 8-pole mechanism

Parallel attachment for building 6 and 8-pole switches. Both switches work simultaneously.

OESAZW2	45 + (0...13) x 15	The shafts and the standard handle of one of the switches can be used for operating the switch.	OS 32...63, OESA 32...160
OETLZW 9	60 + (0...19) x 20		OESA 200...800



OESAZW 1



OETLZW 11

OETLZW 12

Changeover mechanism

OESAZW 1	90 + (0...10) x 15	Includes shafts and a plastic handle (OHB80J6E011) with I-O-II indication.	OS 32...63 OESA 32...160
OETLZW 11	210 + (0...11) x 20	Include shafts and a plastic handle (OHB275J12E011) with I-O-II indication.	OESA 200...400
OETLZW 12	210 + (0...20) x 20	Include shafts and a metallic handle (YASDA 21) with I-O-II indication.	OESA 200...400 OESA 630...800

By-pass mechanism

A combination of two switches in parallel with one change-over to by-pass, for example, a breaker for maintenance. The by-pass mechanism can be used together with another combination attachment.

OETLZW 13	Between A and B 210 + (0...18) x 20 Between A and C 250 + (0...18) x 20	Includes shafts and a metal handle (YASDA 6) with I-O-II indication	OESA 200...800
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Example

Shaft distance can be adjusted

$$250 \text{ mm} + (0 \dots 18) \times 20 \text{ mm}$$

Minimum distance

Number of increments possible

Distance of increments

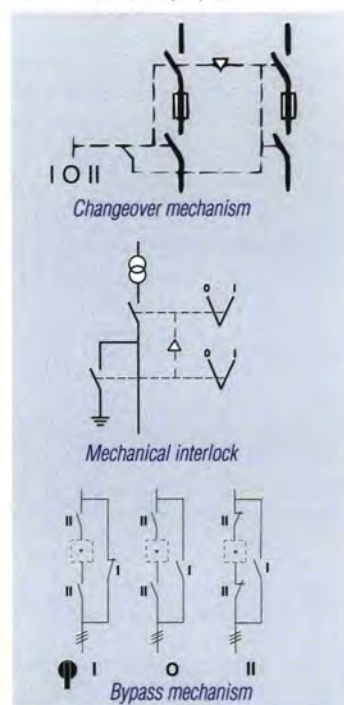
eg. distance = eg. 250, 270, 290, 310, ... 610
number of increments = (min) (1), (2), (3), ... (18) (max)

Mechanical interlock

Prevents one switch from closing to ON-position if the other is not in OFF-position. Suitable shafts and handle; see page 26 to 27.

OETLZW 3	300	The standard handle and shaft can be used for operation	OESA 200...800
OETLZW 14	250		
OETLZW 15	500		

Note: ☐ Available on indent only.

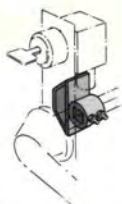


Strömberg PowerLine

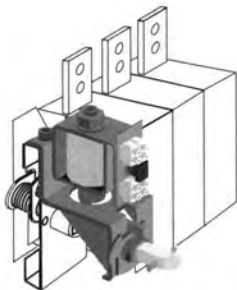
NHP

Locking devices and connection accessories – Switch fuses OS, OESA

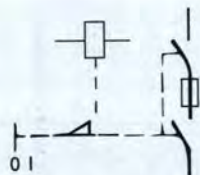
Accessories



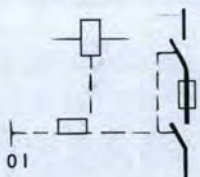
OETLZW 16, 5
Cam attachment (lock and key not included)



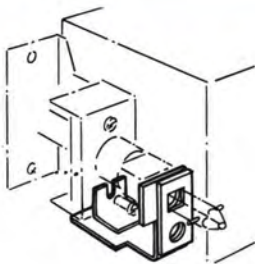
OETLZT 80_



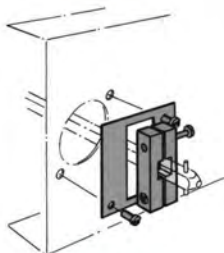
OETLZT 80 A



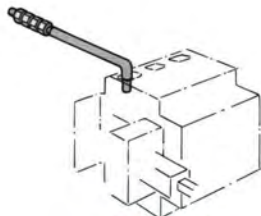
OETLZT 80 L



OESAZX 116



OESAZX 83



OESAZX 61, 62

Locking accessories

Cat. No.	Shaft sizes	For switch sizes	Description
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Cam attachment

OETLZW 16	5,6,8 mm	OS 32...63 OESA 32...160	Cam attachment for Castell, Fortress interlocks Cam attachment for adopting the switches to the interlock system. The lock and key are not included and must be ordered separately (LSF lock no. is H31Q/SHOT/DS). Refer page 76 for mounting dimensions.
OETLZW 5	12 mm	OESA 200...800	

Electrical interlock

OETLZT 80A/ coil voltage	OESA 630...800	Closed circuit principal, for interlocking the switch movement. When the coil circuit is dead, A-types can't be operated to ON-position and L-types to ON- or OFF position. U_n/R : 110V AC/1000Ω, 220V AC/3900Ω, 24VDC/48Ω, 48VDC/190Ω, 60VDC/300Ω, 110VDC1000Ω, 220VDC/3900Ω P = 15 W $U = 0.7...1.1 U_n$
OETLZT 80L/ coil voltage		

Shaft padlock

OESAZX116	OESA 32...160	Shaft padlock. The switch mechanism can be padlocked in OFF position. Shaft padlock is standard feature in large switch fuses.
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Fuse cover interlock

OESAZX 83	OESA 32...160	The kit prevents the fuse cover opening when the switch fuse is in ON position. This feature is standard on OS 32...63.
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Back connection studs

Back connection studs enable easy connection of a switch fuse to busbar

Cat. No.	For switch sizes	Mounting distance from bottom of switch [mm]	Packing [pcs]
1 OESAZX 61	OS, OESA 32...63 A	30...110	3
1 OESAZX 62	OESA 125 A		

Note: 1 Available on indent only.

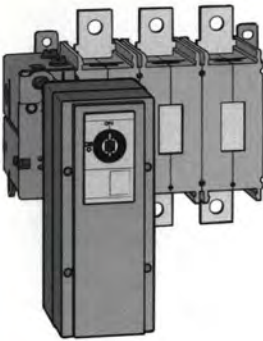
Strömberg PowerLine

Motor operators – Switch fuses, OESA

Accessories



Motor operator



OEMO Motor Operator

OEMO motor operator has been designed for remote control of the switch. The standard delivery includes complete control circuit, short cable and manual handle (YAS DA23).

Cat. No.	Functions	For switch fuses	Nominal Current [A] ¹⁾	Max. Current [A] ²⁾	Weight [kg]
OEMO 002 ³⁾ ...V OEMO 003 ³⁾ ...V	(ON-OFF)	OESA 200...400 OESA 630...800	1	4	5.5
OEMO 202 ³⁾ ...V OEMO 303 ³⁾ ...V ¹⁾	Change-over mechanism needed	OESA 200...400 OESA 630...800	1	4	5.5

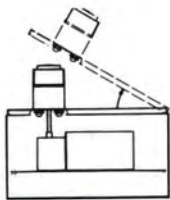
Notes: ¹⁾ Changeover mechanism is required see page and must be ordered together with OEMO 303...
²⁾ Please include following voltage required in ordering number.
240V AC

1	AC: 24V, 48V, 110V
2	DC: 24V, 48V

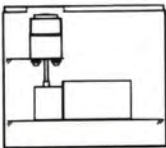
³⁾ Nominal at 240V AC

1	Available on indent only.
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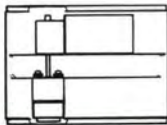
MOUNTING OPTIONS



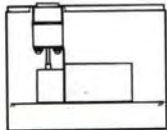
On the door



Behind the door



Behind the switch



Flush mounting

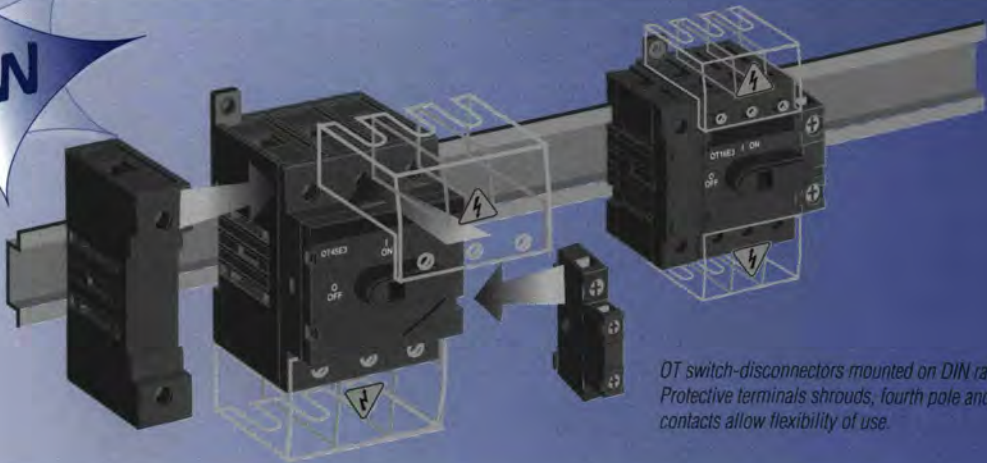
Strömberg Switchline

Load-break switches

OT 16E...125E

New modular switch disconnectors

NEW



OT switch-disconnectors mounted on DIN rail. Protective terminals shrouds, fourth pole and auxiliary contacts allow flexibility of use.

A family of four frame sizes

The OT family has the following current ratings, 16, 25, 32, 45, 63, 80, 100 and 125 amp ratings. The switches comply with the latest specifications of modern low voltage installations. One of the major features of the OT switch range is the quick make / quick break mechanism which is independent of the rotational speed of the shaft. Once the over centre position is reached the mechanism releases, thus, closing the main contacts giving superior making capacity.

Safe and reliable

The OT range of load-break switches has as standard a front toggle operator. These switches can be fitted with the homogenous range of Strömberg selector and pistol type handles as required. All the switches are IP20 rated additional shrouding, if required, can be easily snapped onto the switch.

Strömberg Switchline

NHP

Load-break switches OT 16...160A, OETL 200...315A

Ordering information



OT 16...80E3



OH_ 'Pistol' handle



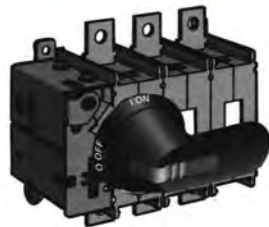
OT 100, 125 E3



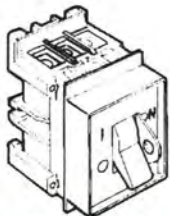
OH_ 'Selector' handle

OT 125A3
OT 160E3

OT 160M3



OETL 200...315 K3



OETL 25C 1 / 40 C1 / 63 C3 / 80 C1



OETL 125C 1

Outboard shaft
OETL K3, K4
OETL D1, D4



Inboard shaft
OETL KV 12,
OETL KV 22.



Side operated.
See page 18.



Rotary type 25A...315 A

OT 16...125E_: Includes IP20 tunnel terminals and standard type handle (pictured) if required with pistol or selector handle see note¹⁾ below.

OT 125A_, **OT 160E_**: Includes black IP 65 door mounted handle with On-Off/I-O indication (OHB65J6) and shaft (OXP6X210), length 210mm, mounting depth H=185...215.

OT 125M_, **OT 160M_**: Includes IP20 tunnel terminal and ready-mounted shallow handle (YAST 1) are included. No separate shaft needed.

OETL 200...315: Include black IP 65 handle with On-Off /I-O indication (OHB80J8) and shaft (OXP8X140) length 140mm. Mounting depth H=120...220. Terminal bolt kit see page 33.

Optional handles and shafts – Refer page 38 to 39.

Auxiliaries – Refer page 36.

Dimensional diagrams – Refer page 56 to 60.

Enclosed load-break range – Refer page 34 to 35.

Cat. No.	Number of poles	Rated insulation	I _{th} (open) current [A]	Rated operational currents AC 21/AC 23 [A/A]		Weight (kg)	Include handle and shaft	Short time rating 0.2s / 1.0s kA
				415V	1000V			
OT 16E3_	3	750	25	16/16	–	0.11	Y)	~0.5
OT 16E4_	4					0.15		
OT 25E3_	3	750	32	25/20	–	0.11	Y)	~0.5
OT 25E4_	4					0.15		
OT 32E3_	3	750	40	32/23	–	0.11	Y)	~0.5
OT 32E4_	4					0.15		
OT 45E3_	3	750	50	45/30	–	0.27	Y)	~1.0
OT 45E4_	4					0.35		
OT 63E3_	3	750	63	63/38	–	0.27	Y)	~1.0
OT 63E4_	4					0.35		
OT 80E3_	3	750	80	80/55	–	0.31	Y)	~1.5
OT 80E4_	4					0.45		
OT 100E3_	3	750	115	100/80	–	0.36	Y)	~2.5
OT 100E4_	4					0.50		
OT 125E3_	3	750	125	125/90	–	0.36	Y)	~2.5
OT 125E4_	4					0.5		
OT 125A3	3	750	135	125/90	–	1.0	Yes	7/4
OT 125A4	4					1.3		
OT 160E3	3	750	160	160/135	–	1.0	Yes	7/4
OT 160E4	4					1.3		
OT 160M3	3	750	160	160/135	–	1.0	Yes	7/4
OT 160M4	4					1.3		
OETL 200K3	3	1000	250	200/200	200/125	3.0	Yes	17/10
OETL 200K4	4					3.7		
OETL 200 KV 12	3					3.0		
OETL 200 KV 22	4					3.7		
OETL 250K3	3	1000	315	250/250	250/125	3.0	Yes	17/10
OETL 250K4	4					3.7		
OETL 250 KV 12	3					3.0		
OETL 250 KV 22	4					3.7		
OETL 315K3	3	1000	350	315/315	315/125	3.0	Yes	17/10
OETL 315K4	4					3.7		
OETL 315 KV 12	3					3.0		
OETL 315 KV 22	4					3.7		

Toggle type 25A...125 A

OETL 25C1	3	690	40	25/16	–	0.20	Toggle	0.9/0.9
OETL 25C4	4					0.23	Toggle	
OETL 40C1	3	690	63	40/25	–	0.20	Toggle	1.0/1.0
OETL 40C4	4					0.23	Toggle	
OETL 63C3	3	690	80	63/63	–	0.30	Toggle	1.5/1.0
OETL 63C4	4					0.33	Toggle	
OETL 80C1	3	690	100	80/63	–	0.30	Toggle	1.5/1.5
OETL 125C1	3					0.45	Toggle	

Fourth poles – OT rotary load-break switches

Cat. No.	Remarks	Weight with package [kg]
OTPS 32 EP	Suitable for OT 16...32 E3: Dovetail mounting IP20	0.03
OTPS 63 EP	Suitable for OT 45...63 E3: Snap on mounting IP20	0.06
OTPS 80 EP	Suitable for OT 80 E3: Clip on mounting IP20	0.08
OTPS 125 EP	Suitable for OT 100...125 E3: Snap on mounting IP20	0.14
OTPS 160 EP	Suitable for OT 125 A3, OT 160 E3	0.3

Notes: ¹⁾ Includes knob type handle as standard. To order with IP65 'pistol' type handle (OHB45J5) and shaft (OXP5X265), 265mm long, include 'P' in part number. To order with IP65 'selector' type handle (OHB2AJ) and shaft (OXS5X250) 265mm long, include 'S' in part number.

²⁾ Available on indent only.

Strömberg Switchline

Load-break switches OETL 400A...3150A

Ordering information



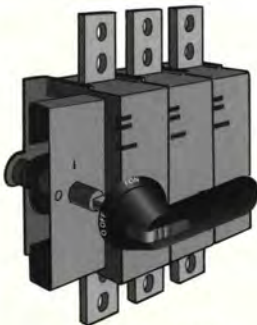
OETL 400...800 K3



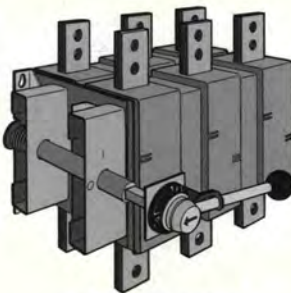
OETL 400...800 KV12



OETL 400...800 KV22



OETL 1000...1600 K3



OETL 2500, 3150 K3



OETL 1600, 2500, 3150 K3/3

Rotary type 400...3150 A

OETL 400...3150: Includes terminal bolt kit. See page 33.

OETL 400...800: Includes black IP 65 handle with I-O/On-Off indication (OHB125J12) and shaft (OXP12X166), length 166mm, mountable height H=160...255mm.

OETL 1000...1600: Includes black IP 65 handle with I-O/On-Off indication (OHB145J12) and shaft (OXP12X250) length 250mm, mountable height H=255...325.

OETL 2500...3150: Includes IP 54 metallic handle with I-O/On-Off indication (YASDA 8) and shaft (OXP12X325) length 325mm, mountable height H=340...535).

Optional handles and shafts – Refer page 38 to 39 .

Auxiliaries – Refer page 36.

Enclosed load-break range – Refer page 34 to 35 .

Dimensional diagrams – Refer page 61 to 64.

Cat. No.	Number of poles	Rated insulation voltage [V]	I _{th} (open) [A]	Rated operational currents AC 21/AC 23 [A/A]		Weight [kg]	Include handle and shaft	Short time rating 0.2s /1.0s kA
				415V	1000V			
OETL 400D1	3	1000	500	500/500	400/200	5.2	Yes	30/24
OETL 400D4	4					6.4	Yes	
OETL 400 KV 12	3					5.2	Yes	
OETL 400 KV 22	4					6.4	Yes	
OETL 630K3	3	1000	630	630/630	630/200	6.2	Yes	38/24
OETL 630K4	4					7.6	Yes	
OETL 630KV 12	3					6.2	Yes	
OETL 630KV 22	4					7.6	Yes	
OETL 800K3	3	1000	800	800/720	-/200	6.2	Yes	38/24
OETL 800K4	4					7.6	Yes	
OETL 800KV 12	3					6.2	Yes	
OETL 800KV 22	4					7.6	Yes	
OETL 1000K3	3	1000	1000	1000/800		16.3	Yes	65/50
OETL 1000K140 ¹⁾	3					17.6	Yes	
²⁾ OETL 1000K185 ³⁾	3					17.6	Yes	
OETL 1000K4	4				-	20.5	Yes	
OETL 1000KV 12	3					16.3	Yes	
OETL 1000KV 22	4					20.5	Yes	
OETL 1250K3	3	1000	1250	1250/800	-	16.3	Yes	65/50
OETL 1250K140	3					17.6	Yes	
OETL 1250K185 ³⁾	3					17.6	Yes	
OETL 1250K4	4					20.5	Yes	
OETL 1250KV 12	3					16.3	Yes	
¹⁾ OETL 1250KV 22	4					20.5	Yes	
OETL 1600K3	3	1000	1600	1600/800	-	17.5	Yes	65/50
¹⁾ OETL 1600K140 ³⁾	3					17.6	Yes	
OETL 1600K185 ³⁾	3					17.6	Yes	
²⁾ OETL 1600K200 ³⁾	3					17.6	Yes	
¹⁾ OETL 1600K4	4					22.5	Yes	
OETL 1600KV 12	3					17.5	Yes	
¹⁾ OETL 1600KV 22	4					22.5	Yes	
OETL 1600 K3/3 ³⁾	3					18	Yes	
OETL 2500K3 ¹⁾	3	1000	2500	2500/- (1600, AC22)	-	37	Yes	80/65
OETL 2500K185 ³⁾	3					37	Yes	
¹⁾ OETL 2500K4 ³⁾	4					47	Yes	
OETL 2500KV 12 ³⁾	3					37	Yes	
OETL 2500KV 22 ³⁾	4					47	Yes	
OETL 2500K3/3 ³⁾	3					37	Yes	
¹⁾ OETL 2500K4/4 ³⁾	4					47	Yes	
OETL 3150K3 ¹⁾	3	1000	3150	3150/- (1600, AC22)	-	37	Yes	80/65
OETL 3150K185 ³⁾	3					37	Yes	
¹⁾ OETL 3150K4 ³⁾	4					47	Yes	
OETL 3150KV 12 ³⁾	3					37	Yes	
OETL 3150KV 22 ³⁾	4					47	Yes	
¹⁾ OETL 3150 K3/3 ³⁾	3					37	Yes	
¹⁾ OETL 3150 K4/4 ³⁾	4					47	Yes	

Notes: ¹⁾ The busbar connections for different busbar arrangements have to be ordered separately, see 'Busbar connections', page 41.

²⁾ With extended phase distances: – OETL 1600 K140: 140 mm. – OETL 1000...3150 K185: 185 mm. – OETL 1600 K200: 200 mm.

³⁾ Bustie switch.

¹⁾ Available on indent only

Outboard shaft
OETL K3, K4
OETL D1, D4



Inboard shaft
OETL KV 12,
KV 22.



Side operated.
See page 18.

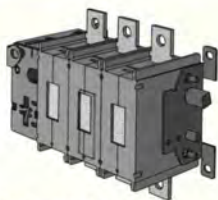


Strömberg Switchline

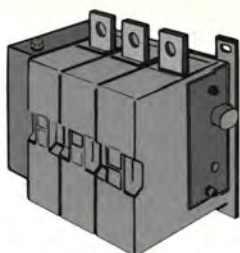
Side operated and earthing switches – OETL Ordering information

Special
version
switches

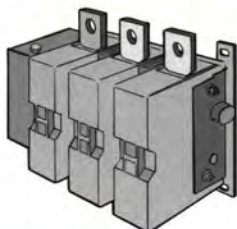
NHP



OETL 200, 315KM 3



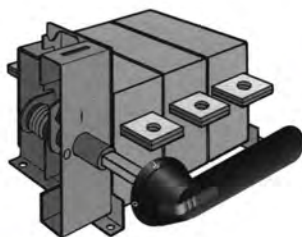
OETL 400DM1



OETL 630, 800KM 3



OETL KM3, KM4



OETL 1250M3

Side operated load-break switches 200...800 A

Includes terminal bolt sets. 400...800 include phase barriers.
The handle and shaft have to be ordered separately, see page 38 to 39.

Cat. No.	Number of poles	Rated operational voltage [V]	I_{th} (open) [A]	Rated operational currents with AC 21A/AC 23 [A/A]		Weight [kg]
				415V	1000V	
OETL 200KM3	3	1000	250	200/200	200/125	3.0
OETL 200KM4	4					3.7
OETL 250KM3	3	1000	315	250/250	250/125	3.0
¹⁾ OETL 250KM4	4					3.7
OETL 315KM3	3	1000	350	315/315	315/125	3.0
¹⁾ OETL 315KM4	4					3.7
OETL 400DM1	3	1000	500	500/500	400/200	5.2
¹⁾ OETL 400DM4	4					6.3
OETL 630KM3	3	1000	630	630/630	630/200	6.2
¹⁾ OETL 630KM4	4					7.6
OETL 800KM3	3	1000	800	800/720	800/—	7.3
¹⁾ OETL 800KM4	4					9.2

Earthing load-break switches 1250A

Earthing switches include terminal bolt set, M12X60 black IP65 handle (OHB145J12E421) with \perp – 0 indication, padlockable in both positions, door interlock in 'O' position and shaft OXP12X185 length 185mm.

Cat. No.	Number of poles	Short circuit making capacity [kA]		Short time withstand current / 1s [kA]	Weight [kg]
		Peak	RMS		
OETL 1250M3	3		50 / 1.0 s ²⁾	50	16
¹⁾ OETL 1250M140 ³⁾	3	105			20.6

Terminal bolt kit details

Switch type	Bolt size	Package [pcs]
OETL 200	M8 x 25mm	6pcs/pack
OETL 250, 315	M10 x 30mm	6pcs/pack
OETL 400	M10 x 40mm	6pcs/pack
OETL 630, 800	M12 x 40mm	6pcs/pack
OETL 1000, 1600	M12 x 60mm	6pcs/pack
OETL 2500, 3150	M12 x 60mm	12pcs/pack

Notes: ¹⁾ Phase distance 140mm.
²⁾ Maximum distance between busbar support and switch terminal 70mm
³⁾ Available on indent only.

Strömberg Switchline

Enclosed switches, steel enclosed load-break switches OT, OETL

Ordering information

NHP

Enclosed load-break switches are available in 3 steel ranges and 1 plastic range. The ‘Standard’, ‘Midline’ and ‘Eclipse’ steel enclosed isolator have varying standard features and optional features to suit any particular requirement.



S1603 – supplied unassembled

Standard – (self assembly made easy) 16...800A

- Standard features:
- IP65 protection

➤ Pistol type padlockable interlocked handle

➤ Neutral link provided with 3 pole versions

➤ 2 x earthing points

➤ Pre drilled mounting plate

➤ 1.2mm sheet steel

➤ Mounting screws provided

➤ Door pre-punched to suit handle
- Auxiliaries – Refer page 36.

Switch size [A]	No. of Poles	Enclosure size			Switch type	Cat. No.
		H	W	D		
16	3	200	200	150	OT 16 E3	OT 163 PSE ¹⁾
25	3	200	200	150	OT 25 E3	OT 253 PSE ¹⁾
32	3	200	200	150	OT 32 E3	OT 323 PSE ¹⁾
45	3	200	200	150	OT 45 E3	OT 453 PSE ¹⁾
63	3	200	200	150	OR 63 E3	OT 63 PSE ¹⁾
80	3	200	200	150	OT 80 E3	OT 80 PSE ¹⁾
100	3	200	200	150	OT 100 E3	OT 100 PSE ¹⁾
200	3	700	380	155	OETL 200 KV12	S2003
200	4	700	380	155	OETL 200 KV22	S2004
250	3	700	380	155	OETL 250 KV12	S2503
250	4	700	380	155	OETL 250 KV22	S2504
315	3	700	380	155	OETL 315 KV12	S3153
315	4	700	380	155	OETL 315 KV22	S3154
400	3	800	460	200	OETL 400 KV12	S4003
400	4	800	460	200	OETL 400 KV22	S4004
630	3	800	460	200	OETL 630 KV12	S6303
630	4	800	460	200	OETL 630 KV22	S6304
800	3	800	460	200	OETL 800 KV12	S8003
800	4	800	460	200	OETL 800 KV22	S8004

Load-break switches



OETL 2503 SE

Midline – (fully assembled) 125...1600

- Standard features:
- ‘OH’ pistol type handle

➤ Provided neutral link

➤ Door hinges left or right

➤ IP 55 protection

➤ Key lockable door

➤ Steel entry gland plate

➤ Fully assembled
- Optional features: (Contact NHP for details)
- 4 pole versions

➤ Side operated versions
- Auxiliaries – Refer page 36.

Switch size [A]	No. of Poles	Dimensions (mm) ¹⁾			Switch type	Cat. No.
		H	W	D		
125	3	400	300	150	OT 125 A3	OT 1253 SE
160	3	400	300	150	OT 160 E3	OT 1603 SE
200	3	500	300	200	OETL 200 K3	OETL 2003 SE
250	3	500	300	200	OETL 250 K3	OETL 2503 SE
315	3	500	300	200	OETL 315 K3	OETL 3153 SE
400	3	600	400	200	OETL 400 K3	OETL 4003 SE
630	3	700	500	250	OETL 630 K3	OETL 6303 SE
800	3	1000	600	250	OETL 800 K3	OETL 8003 SE
1000	3	1200	800	300	OETL 1000 K3	OETL 10003 SE
1250	3	1200	800	300	OETL 1250 K3	OETL 12503 SE
1600	3	1200	800	300	OETL 1600 K3	OETL 16003 SE

Notes: ¹⁾ External dimensions do not include handles and locks.
²⁾ To replace ‘pistol’ type handle with ‘selector’ type handle replace ‘P’ with ‘S’ in Cat. No. OT163PSE to OT163SSE.

Strömberg Switchline



Enclosed switches, steel and plastic load-break switches OT, OETL
Ordering information



E1603
(unassembled, IP 54, steel gland plates)



E1603F
(assembled, IP 54, steel gland plates)



OTP 16



OTP 45



OTP 80, 125

Eclipse – Steel enclosed isolators

Standard features:

- IP 65 degree of protection
- Strömberg pistol type handle
- Steel 3mm aluminium or brass gland plates
- Neutral link provided with 3 pole versions
- 2 x earth studs
- Pre drilled mounting plate
- Mounting screws for switch
- 1.6mm sheet steel
- Door hinged left or right
- Mounting brackets (top and bottom)
- Simple to self assemble

Switch size [A]	No. of Poles	Enclosure size			Switch type	Cat. No.
		H	W	D		
200	3	700	380	155	OETL 200 KV12	E2003
200	4	700	380	155	OETL 200 KV22	E2004
250	3	700	380	155	OETL 250 KV12	E2503
250	4	700	380	155	OETL 250 KV22	E2504
315	3	700	380	155	OETL 315 KV12	E3153
315	4	700	380	155	OETL 315 KV22	E3154
400	3	800	460	200	OETL 400 KV12	E4003
400	4	800	460	200	OETL 400 KV22	E4004
630	3	800	460	200	OETL 630 KV12	E6303
630	4	800	460	200	OETL 630 KV22	E6304
800	3	800	460	200	OETL 800 KV12	E8003
800	4	800	460	200	OETL 800 KV22	E8004

Optional gland plates to suit Eclipse

Switch size [A]	Enclosure size		Cat. No.		Aluminium 3mm
	W	D	3mm	Brass 6mm	
200...315	380	155	E7B3	E7B6	E7A3
400...800	460	200	E8B3	E8B6	E8A3
IP65 gasket to suit gland plate E7			E7IP65		
IP65 gasket to suit gland plate E8			E8IP65		

Polyester OTP surface motor isolators – 3 pole

OT enclosed switches:

- Available 16 to 125A
- Integrated earth and neutral connections
- Knockouts for threaded entries top and bottom
- Knockouts in base for rear entry
- Padlockable
- IP65 rated
- Easy to mount
- Cable clamps

Switch size kW (AC 23)	Handle type	Enclosure size			Cat. No.
		H	W	D	
7.5	Selector	120	85	60	OTP 16
9	Selector	150	130	60	OTP 25
11	Selector	150	130	60	OTP 32
15	Selector	200	145	90	OTP 45
18.5	Selector	200	145	90	OTP 63
30	Selector	400	200	140	OTP 80
37	Selector	400	200	140	OTP 125

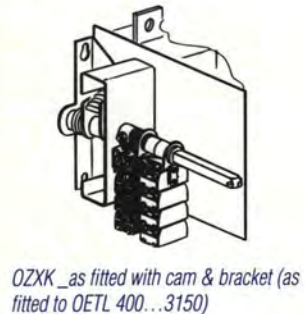
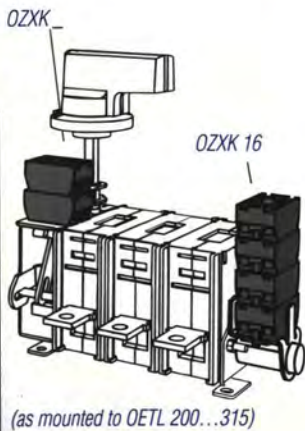
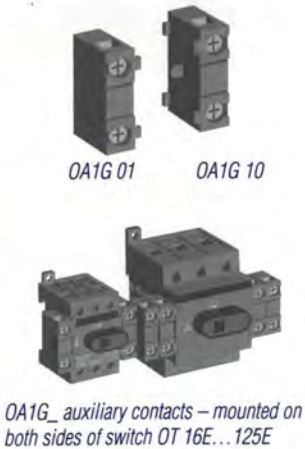
Note: Other variation of switches and enclosure sizes available, contact NHP for details.

Strömberg Switchline

Auxiliary contacts – Load-break switches OT, OETL

Accessories

NHP



OT 16E...125E

Snap on direct mounting to switch, protection degree IP 20, I+n = 16A, cable cross section max. 2 x 2.5mm², no frame required. For ON and OFF functions of auxiliary and main contacts see page 79.

Cat. No. ¹⁾	Auxiliary contacts	Performance data		Features
OA 1G10	1 N/O	U _B	I _e : AC12/DC12	Mountable to right side of switch (max 2).
		24V	8A/10A	
		48V	-/6A	Mountable to left side of switch (max 2).
		110V	8/2A	
OA 1G01	1 N/C	240V	6A/0.7A	

OT 125A...160E

Complete ordering of auxiliaries by ordering mounting base 'OEZNP1' and OBEA auxiliaries as required (max 6). All OBEA aux require base 'OEXNP1' for mounting to switch. Protection degree IP 20. Cable cross section min. 0.5 mm², max. 2 x 2.5 mm². Insulation voltage 690V AC. Thermal current I_{th} = 10 A. For ON and OFF functions of auxiliary and main contacts see page 79.

Cat. No.	Auxiliary contacts	Performance data		Features
OBEA 10	1 N/O	U _B	I _e : AC12/DC12	Mounting with the mounting base OEZNP1 below. Max. 6 aux. blocks.
		24V	8A/10A	
		48V	-/6A	
		110V	8A/2A	
OBEA 01	1 N/C	240V	6A/0.7A	
		400V	4A/-	
OEZNP 1	Auxiliary contact frame for 3 or 4 pole switches			Max. 6 aux. contacts (type OBEA above) can be fitted.

OETL 200...3150

Protection degree IP 20. Cable cross section min. 0.5 mm², max. 2 x 2.5 mm². Insulation voltage 690V AC. Thermal current I_{th} = 10 A. For ON and OFF functions of auxiliary and main contacts see page 80. Contact numbering according to EN50 013.

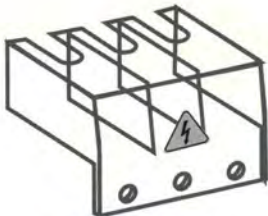
Cat. No.	Auxiliary operation to suit switch size			Performance data IEC 947-5-1	
	200...315 ²⁾	400...800A	1000...3150 ³⁾	U _B	I _e AC12/DC12
OZXK 1	2 N/O or 2 N/C ⁴⁾	1 N/O + 1 N/C ⁵⁾	1 N/O + 1 N/C	120V	8A/-
OZXK 2	4 N/O or 4 N/C ⁴⁾	2 N/O + 2 N/C ⁵⁾	2 N/O + 2 N/C	125V	-/1.1A
	2 N/O + 2 N/C ⁴⁾	-	-	240V	6A/-
OZXK 3 ¹⁾	8 N/O or 8 N/C ⁴⁾	4 N/O + 4 N/C ⁵⁾	4 N/O + 4 N/C	250V	-/0.55A
	4 N/O + 4 N/C ⁴⁾	-	-	400V	4A/-
	2 N/O + 6 N/C ⁴⁾	-	-	415V	4A/-
	6 N/O + 2 N/C ⁴⁾	-	-	440V	-/0.31A
OZXK 4	1 N/O + 1 N/C	2 N/O ⁵⁾	2 N/O	480V	3A/-
OZXK 5	2 N/O + 2 N/C	4 N/O ⁵⁾	4 N/O	500V	3A/0.27A
OZXK 12	1 N/O + 1 N/C	2 N/C ²⁾	-	600V	-/0.2A
OZXK 13	2 N/O + 2 N/C	4 N/C ²⁾	-	690V	2A/-
OZXK 14	2 N/O or 2 N/C ⁴⁾	1 N/O or 1 N/C ⁵⁾	-		
OZXK 16	4 N/O + 4 N/C (same as OZXK3)	4 N/O + 4 N/C ⁵⁾	-		
OZXK 02	1 N/O+1 N/C	2 N/O ²⁾			

Notes: ¹⁾ 8 N/O + 8 N/C auxiliary contacts = 2 x OZXK 3.
²⁾ Mount direct to switch only.
OZXK 16 uses special side mount cam and bracket.

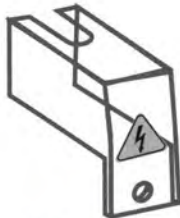
³⁾ Mount using cam & bracket supplied only.
⁴⁾ Aux block rotated 180° will change N/O to N/C, vice versa.
⁵⁾ Mount direct to switch or cam & bracket supplied.

Strömberg Switchline

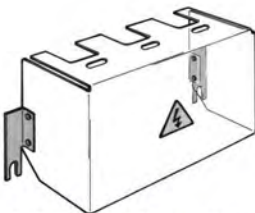
Terminal shrouds – Load-break switches OT, OETL
Accessories



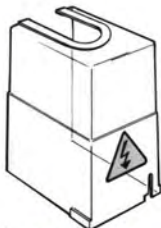
OTS 32,...125T3



OTS 32,...125T1



OETL ZX 31, 32, 93, 94, 111, 112



OETLZX 128 &
OESA ZX 102



OETLZX 130

Terminal shrouds for load-break switches – OT, OETL 16...1250A

OT load-break switches OT16...160 offer, IP20 protection as standard.

Cat. No.	For switch sizes	Number of poles	Quantity for full protection [pcs]
OTS 32 T3 OTS 32 T1	OT 16...32E_	3 1	2)
OTS 63 T3 OTS 63 T1	OT 45...63E_	3 1	2)
OTS 80 T3 OTS 80 T1	OT 80E_	3 1	2)
OTS 125 T3 OTS 125 T1	OT 125E_	3 1	2)
OETLZX 128	OETL 200...315	3 4	6 8
OETLZX 31 OETLZX 32	OETL 400	3 4	2 2
OETLZX 177 OETLZX 178	OETL 400KV12 OETL 400KV22	3 4	2 2
OETLZX 179 OETLZX 180	OETL 630...800KV12 OETL 630...800KV22	3 4	2 2
OETLZX 93 OETLZX 94	OETL 630	3 4	2 2
OETLZX 111 OETLZX 112	OETL 800	3 4	2 2
OESA ZX 102	OETL 1000, 1250	3 4	6 8

Phase barrier for OETL 200...315

Cat. No.	Description	Packing [pcs]
OETLZX 130	Phase barriers (not needed, when using terminal shrouds OETLZX 128, see above)	4

Notes:) for full 4 pole protection OTS_ T3 & OTS_T1 must be ordered together.
i Available on indent only.

Strömberg Switchline

Handles – Load-break switches OT, OETL Accessories

NHP


OH_1AH1



OH_3AH1



OH_2AJ



OH_65...275J_



YAST 1



YASDA 8



OETLZX 74

Optional handles – plastic ¹⁾

Selector type handles for front operated load-break switches.

Indication I ON - O OFF. Shafts must be ordered separately, see page 39. Door drilling Ø53mm and dimensions page 69 to 71.

Cat. No.	Colour	Rating IP	Outline dimension (mm)	Suitable for load-break switch	Features
OHB1AH1	Black	54	48 x 48 x 25	OT 16...80E	Door interlock in 'ON' position
OHY1AH1	Yellow-red				
OHB3AH1	Black	54		OT 16...125E	Door interlock in 'ON' position
OHY3AH1	Yellow-red				Padlockable with one padlock, bail diameter 5...6.3mm
OHB2AJ	Black	65	65 x 65 x 34.5		Door interlock in 'ON' position
OHY2AJ	Yellow-red				Defeatable padlockable with 3 padlocks, bail diameter 5...8mm

Pistol type handles for front operated load-break switches

Shaft has to be ordered separately, see page 39. Door drilling Ø53mm and dimensions page 69 to 71.

Cat. No.	Colour	Handle length (mm)	Shaft diameter (mm)	Suitable for load-break switch	Features
OHB45J5	Black	45	5	OT 16...125E	IP65 protection.
OHY45J5	Yellow-red				
OHB65J5	Black	65	6	OT 125A	Padlockable with up to 3 padlocks in 'OFF' position bail diameter 5...10mm.
OHY65J5	Yellow-red			OT 160E	
OHB80J6	Black	80	8		Door interlock in 'ON' position, defeatable.
OHY80J6	Yellow-red				
OHB80J8	Black	80	8	OETL 200...315	Handles may be padlocked in 'ON' position with simple modifications.
OHY80J8	Yellow-red				
OHB125J12	Black	125	12	OETL 400...800	
OHY125J12	Yellow-red				
OHB145J12	Black	145	12	OETL 400...1600	
OHY145J12	Yellow-red				
OHB175J12	Black	175	12		
OHY175J12	Yellow-red				
OHB275J12	Black	275	12	OETL 400...3150	
OHY275J12	Yellow-red				

Direct mount handle

IP00, For direct mount to switch. See page 31. Dimensions see page 69 to 71.

YAST 1	Black	-	-	OT 125A, OT 160E	No shaft required.
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Handles for side operated switches

Door drilling Ø53mm, see page 70.

OHB80J8 E00S	Black	80	8	OETL 200...315	See features above.
OHB145J12 E00S	Black	145	12	OETL 400...800	Same applies.

Optional handles – metal ¹⁾

Handles for front operated switches

IP 65, padlockable with 3 padlocks in OFF position, door drilling Ø45mm, see page 69 to 71.

Shaft has to be ordered separately, see page 39.

Cat. No.	Colour	Handle length (mm)	Shaft diameter (mm)	Suitable for load-break switch
YASDA 28	Black	145	12	OETL 400...800
YASDA 8	Black	220	12	OETL 400...3150

Handles for side operated switches

IP 65, padlockable with 3 padlocks in OFF position, door drilling Ø18mm, see page 69 to 71. Includes 12mm shaft.

OETLZX 74	Black	185	12	OETL 400...800
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Notes: ¹⁾ Shaft has to be ordered separately see page 39. Handles for changeover and bypass mechanism also available please refer to NHP.
²⁾ Available on indent only.

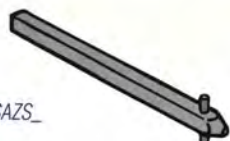
Strömberg Switchline

NHP

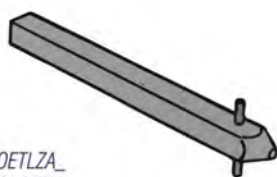
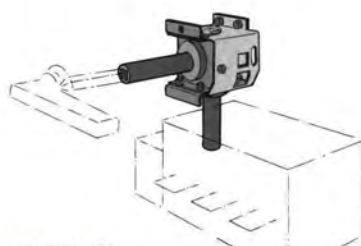
Shafts – Load-break switches OT, OETL Accessories and shaft accessories



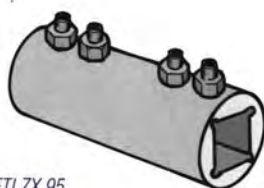
OX_ (for selector type handles)



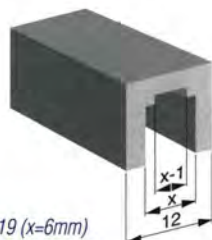
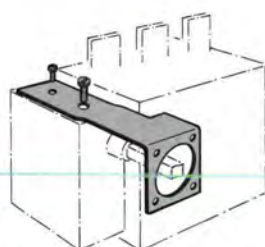
OESAZ_

OETLZA_
OESAZK_

OETLZX 108



OETLZX 95,

OETLZX 19 (x=6mm)
OETLZX 123 (x=8mm)

OHZX 1, 2, 3

Optional extended shafts

Cat. No.	Length (mm)	Diameter (mm)	H mm	For switch type	For handle type
OX5S5X85	85	5-keyed	Refer dimensional diagrams on page 56 to 57.	OT16...125E	OH_1 AH1 OH_3 AH1 OH_2AJ OH_45J5 OH_65J5
OX5S5X120	120				
OX5S5X180	180				
OX5S5X330	330				
OX5S5X400	400				
OX6X210	210	6	210	OT125A...160E	OH_45J5 OH_80J6 OH_80J6E011
OX6X290	290		295		
OX6X360	360		365		
OX6X530	530		435		
OX8X140	140	8	185...215	OETL 200...315	OH_80J8 OH_80J8 E00S
OX8X240	240		220...320		
OX8X340	340		320...420		
OX8X500	500		480...580		
OX12X166	166	12	160...255	OETL 400...800	OH_125J12 OH_145J12 OH_175J12 OH_275J12 OH_145J12 E00S OH_145J12 E001 OETLZX 74 YASDA 28, YASDA 8, YASDA 6 YASDA 6, YASDA 8
OX12X250	250		230...340	OETL 400...800	
OX12X280	280		255...325	OETL 1000...1600	
OX12X365	325		260...370	OETL 400...800	
OX12X395	395		285...355	OETL 1000...1600	
OX12X465	465		305...415	OETL 400...800	
OX12X535	535		330...400	OETL 1000...1600	
OX12X395 DP ¹⁾	395		340...535	OETL 2500...3150	
			375...485	OETL 400...800	
			400...470	OETL 1000...1600	
			410...605	OETL 2500...3150	
			445...555	OETL 400...800	
			470...540	OETL 1000...1600	
			480...675	OETL 2500...3150	
			515...625	OETL 400...800	
			540...610	OETL 1000...1600	
			550...745	OETL 2500...3150	
			375...485	OETL 400...800	
			400...470	OETL 1000...1600	
			410...605	OETL 2500...3150	

Accessories

Cat. No.	For switch type	Remarks
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90° angle kit

OETLZX 108	OETL 400...3150	A normal switch can be changed to a side operated switch
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Shaft extension socket

OETLZX 95	OETL 400...3150	A normal switch can be changed to a side operated switch For extending the shaft or use in combination with OETLZX 19, OETLZX 123 for shafts of different size.	12mm shaft
OETLZX 19		Adapters to place inside of OETLZX 95 to connect shafts of different sizes	6mm & 5mm shaft
OETLZX 123			8mm shaft

Handle mounting bracket

OHZX 2	OETL 200...315	Handle support bracket for direct mounting of handle on switch behind door
OHZX 1	OETL 400...800	
OHZX 3	OETL 1000...3150	

Note: ¹⁾ OXP12395DP has double pin for interlocking of door

Load-break switches

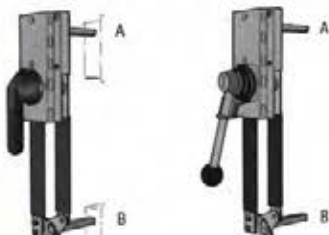
Strömberg Switchline

Multipole, changeover & bypass mechanisms – Load-break OT, OETL Accessories

NHP


OETLZW 8, 9

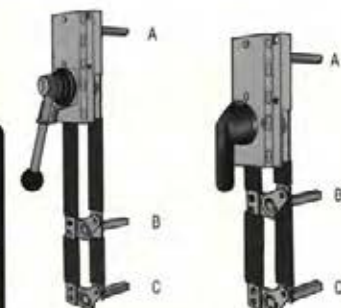
OETLZW 2, 18

OETLZW 11
OETLZW 20

OETLZW 12

OETLZW 6
OETLZW 17

OETLZW 17



OETLZW 13

OETLZW 21



OETLZW 3, 14, 15, 19

The mechanisms are provided with holes, enabling different shaft distances, see example below.
For dimensional diagrams refer pages 72 to 75.

The combination switches can be mounted either horizontally or vertically.

Cat. No.	Shaft distance [mm]	Remark	For switch sizes
6 and 8-pole mechanism			
Parallel attachment for building 6 and 8-pole switches. Both switches work simultaneously.			
OETLZW 8	30 + (0...13) x 15	Requires standard handle (1 pc – see p 38.) and shaft (2 pcs – see p 39.) To suit switch OT 16...125E	OT 16E...125E
OESAZW 2	45 + (0...11) x 15	Includes handle (OHB145J12) and shaft (2 pcs) included in the kit	OT 125A, 160E
OETLZW 18	80 + (0...10) x 20	Includes handle (OHB145J12) and shaft (2 pcs) included in the kit	OETL 200...315
OETLZW 9	60 + (0...19) x 20	Requires 1 handle and 2 shafts for operation. Handle and shafts supplied with switches can be used. Otherwise see p 39 for shafts and p 38 for handles	OETL 400...1600

Changeover mechanism

OTZW 6	90 + (0...10) x 15	Includes shafts and a plastic handle (OHB80J6E011) with I-O-II indication	OT 16E...125E
OESAZW 1	90 + (0...10) x 15	Includes shafts and a plastic handle (OHB80J6E011) with I-O-II indication	OT 125A, 160E
OETLZW 20	210 + (0...11) x 20	Include shafts and a plastic handle (OHB145J12E011) with I-O-II indication	OETL 200...315
OETLZW 11	210 + (0...11) x 20	Include shafts and a plastic handle (OHB145J12E011) with I-O-II indication	OETL 400
OETLZW 12	210 + (0...20) x 20	Include shafts and a metallic handle (YASDA 6) with I-O-II indication	OETL 630...1600

By-pass mechanism

A combination of two switches in parallel with one change-over to by-pass, for example, a breaker for maintenance. The by-pass attachment can be used together with another combination attachment.

DTZW 17	Between A and B 90 + (0...6) x 15 Between A and C 90 + (0...10) x 15	Kit includes shafts and a plastic handle (OHB80J6E011) with I-O-II indication	OT 16E...125E
OETLZW 21	Between A and C 210 + (0...9) x 20 Between A and C 250 + (0...9) x 20	Kit includes shafts and a plastic handle (OHB145J12E011) with I-O-II indication	OETL 200...315
OETLZW 13	Between A and B 210 + (0...18) x 20 Between A and C 250 + (0...18) x 20	Mechanism kit includes shafts and a metal handle with I-O-II indication	OETL 400...1600

Example

Shaft distance can be adjusted

$$250 \text{ mm} + (0 \dots 18) \times 20 \text{ mm}$$

Minimum distance

Number of increments possible

Distance of increments

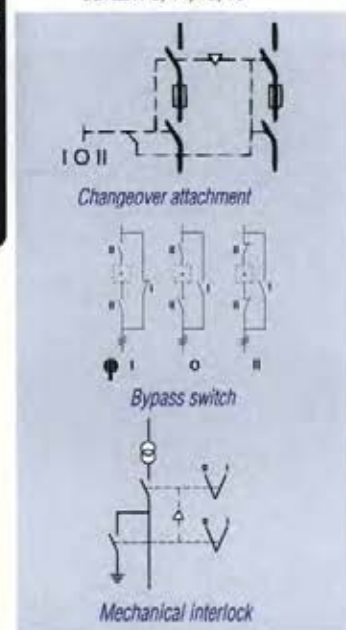
eg. distance = eg. 250, 270, 290, 310, ... 610

number of increments = (min) (1), (2), (3), ... (18) (max)

Mechanical interlock

Prevents one switch from closing to ON-position if the other is not in OFF-position. Suitable shafts and handle; see the table below.

DTZW10	190	The standard handle and shaft can be used for operation	OT 125A...160E
OETLZW 19	(3 pole) (4 pole) 240 280	Requires handle (1 pc) see page 38 and shaft 8mm (2 pcs), see page 39. To suit switch OETL 200...315	OETL 200...315
OETLZW 3	300	Requires handle (1 pc) see page 38 and shaft (2 pc) see page 39.	OETL 400...1600
OETLZW 14	250	For OETL 1000...1600 – OHB175J12, OETL 400...800 – YASDA 6	OETL 400...1600
OETLZW 15	500		OETL 400...3150



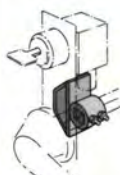
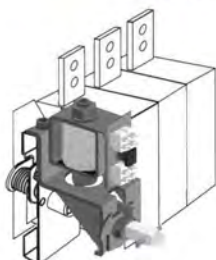
Strömberg Switchline

NHP

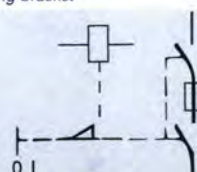
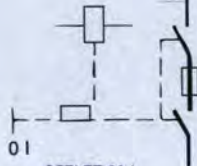
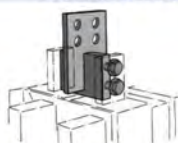
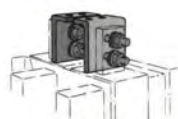
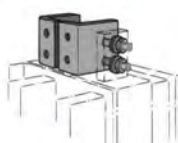
Interlocking and connection accessories – Load-break OT, OETL Accessories



SA 1

OETLZW 16, 5
Cam attachment (lock
and key not included)

OETLZT 80_

OETLZT 100, 140
Mounting bracketOETLZT 80 A
Electrical interlockOETLZT 80 L
Electrical interlockOETLZX 115
Vertical mountingOETLZX 114
Vertical / back mountingOETLZX 114/1
Edgewise mounting

Locking accessories

Cat. No.	Shaft sizes	For switch sizes	Description
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Padlock adaptor

SA 1	–	OT 16...125, OT 125A...160E	Padlocking adaptor with 3.5mm hasp.
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Mechanical interlock

OETLZW 16	5,6,8 mm	OT 16...125E, OT 125A, OT 160E	Cam attachment for Castell, Fortress interlocks. Cam attachment for adopting the switches to the interlock system. The lock and key are not included and must be ordered separately (LSF lock no. is H31Q/SHOT/DS). Refer p 76 . for mounting dimensions.
OETLZW 5	12 mm	OETL 400...3150	

Electrical interlock

OETLZT 80A/coil voltage AC: 240 DC: <input type="checkbox"/> 60 <input type="checkbox"/> 110 <input type="checkbox"/> 48 <input type="checkbox"/> 60 <input type="checkbox"/> 24 <input type="checkbox"/> 48 <input type="checkbox"/> 24	(Electrical interlock can be mounted directly to OETL 1000...3150 switches. Switch sizes OETL 200...800 require mounting bracket OETL ZT100, 140, see below	Closed circuit principal, for interlocking the switch movement. When the coil circuit is dead, A-types can't be operated to ON-position and L-types to ON- or OFF position. U _n /R:110V AC/1000Ω, 220V AC/3900Ω, 24VDC/48Ω, 48VDC/190Ω, 60VDC/300Ω, 110VDC/1000Ω, 220VDC/3900Ω P = 15 W U = 0.7...1.1 U _n
OETLZT 80L/coil voltage AC: 240 DC: <input type="checkbox"/> 240 <input type="checkbox"/> 110 <input type="checkbox"/> 110 <input type="checkbox"/> 60 <input type="checkbox"/> 60 <input type="checkbox"/> 48 <input type="checkbox"/> 48 <input type="checkbox"/> 24 <input type="checkbox"/> 24		
OETLZT 140	OETL 200...315	Mounting bracket
OETLZT 100	OETL 400...800	– for adapting OETLZT 80_ onto OETL 200...800

Busbar connections for OETL 2500 and OETL 3150

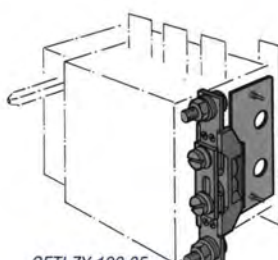
Busbar termination from different directions can be carried out by means of terminal connection kits providing ease and speed of installation.

Cat. No.	Number of connectors	Description	Packing [pcs]	For switches
<input type="checkbox"/> OETLZX 115	6	Vertical mounting	1	3 pole
<input type="checkbox"/> OETLZX 115/1	8			4 pole
OETLZX 114	6	Vertical / back mounting or Edgewise mounting	1	3 pole
OETLZX 114/1	8			4 pole

Neutral links

Cat. No.	I_{th} [A]	Max. cable cross section/Cu [mm ²]	Description	Suitable for switch fuse size
OETLZX 129	400	240	Detachable, mounted to the switch	OETL 200...315
OESA ZX 85	400	240		OETL 400...800
OESA ZX 162	200	10...120	Mounted separately to the base plate	
OESA ZX 164	315	10...300		
OESA ZX 165	400	10...300		

Note: ☐ Available on indent only.

OETLZX 129 85
Neutral link

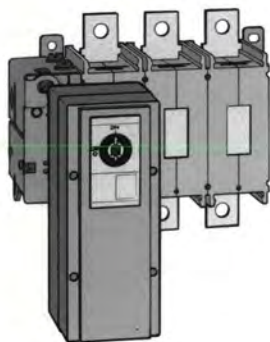
Strömberg Switchline

Motor operators – Load-break switches, OETL Accessories

NHP

Motor operator

OEMO motor operator has been designed for remote control of the switch. The standard delivery includes complete control circuit; short cable and manual handle (YASDA 23).

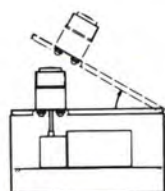


OEMO Motor Operator

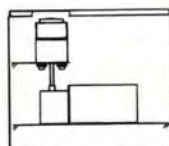
Cat. No.	Functions	For load-break switches	Nominal Current [A]	Max. Current [A]	Weight [kg]
OEMO 001 ¹⁾ OEMO 002 ¹⁾ OEMO 003 ¹⁾ OEMO 004 ¹⁾	1-0 (ON-OFF)	OETL 200...315 OETL 400...800 OETL 1000...1600 OETL 2500...3150	1	4	5.5
OEMO 101 ¹⁾ ...V ¹⁾ OEMO 202 ¹⁾ ...V ¹⁾ OEMO 303 ¹⁾ ...V ¹⁾	I-O-II Change-over mechanism needed	OETL 200...315 OETL 400...800 OETL 1000...1600	1	4	5.5

Notes: ¹⁾ Changeover mechanisms is required see page 40 and must be ordered together with OEMO 101...103.
²⁾ Please include following voltage required in ordering number.
 240V AC ☐ AC: 24V, 48V, 110V
☐ DC: 24V, 48V
☐ Available on indent.

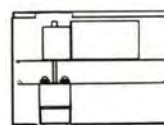
MOUNTING OPTIONS



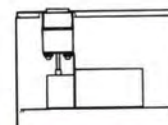
On the door



Behind the door



Behind the switch



Flush mounting

Strömberg Enclosed switches

NHP

Standard range (self assembly made easy)

Steel enclosed load-break switches, 200...800A

- 1.2mm sheet steel enclosure
- Integral earth stud and neutral link
- Pre-drilled mounting plate and door
- Removable door
- Easy self assembly

Typical Standard range

Midline range (fully assembled)

Steel enclosed load-break switches and switch fuses

Plastic enclosed load-break switches and switch fuses

- IP54 protection (minimum)
- Doors hinged left or right
- Polyurethane gasket
- Concealed hinges
- Ratings from 16 to 1600A
- Key lockable door
- Durable powdercoat finish
- Neutral link
- Insulated versions available

Typical Midline range

Eclipse range (self assembly made easy)

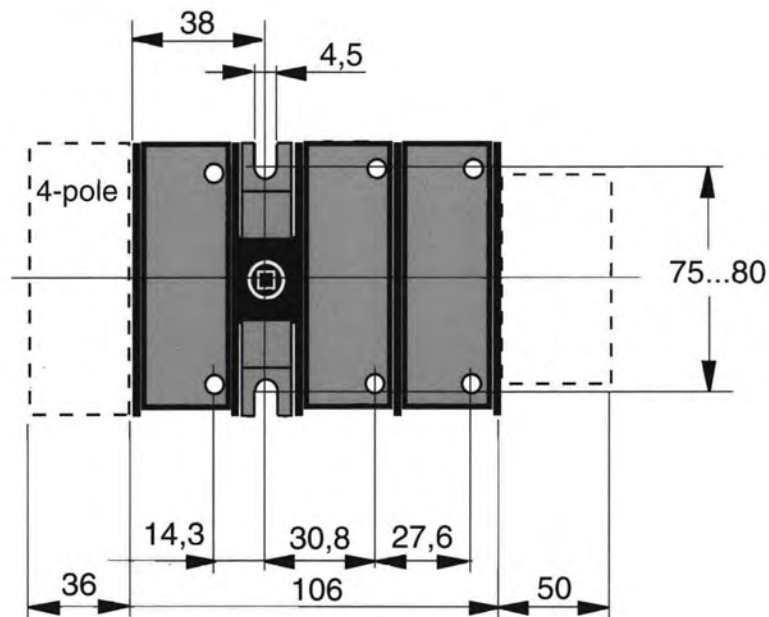
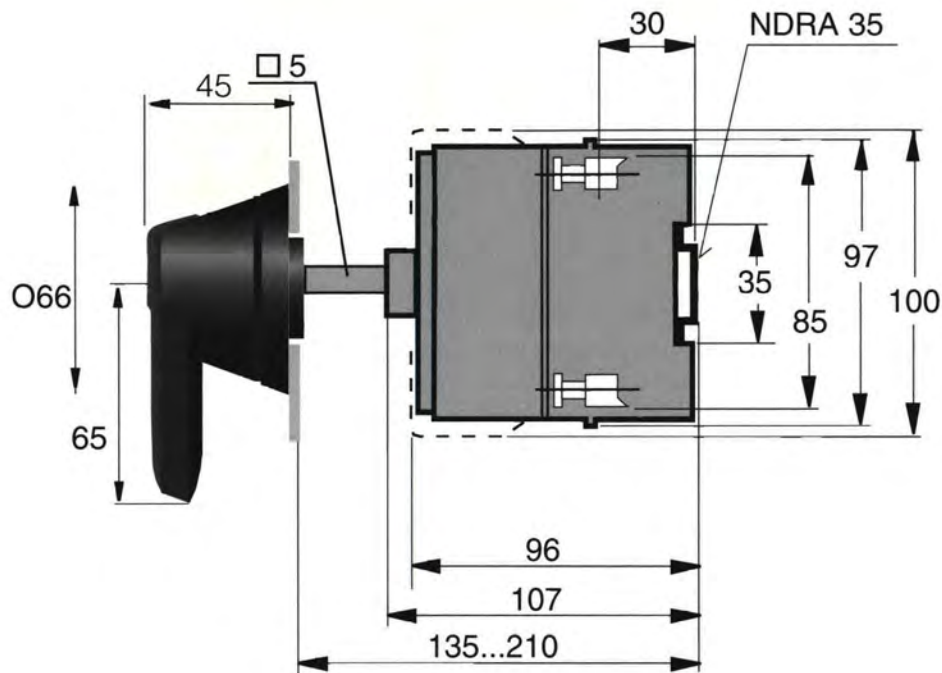
Steel enclosed load-break switches 200...800A

- Fully welded 1.6mm sheet steel enclosure
- IP54 standard or IP65 option
- Aluminium, steel or brass gland plate options
- Durable powdercoat finish
- Neutral link and earth studs provided
- Ratings from 80 to 800A
- Removable doors hinged left or right
- Pre-drilled mounting plate
- Integral wall mounting brackets
- Easy self assembled or fully assembled option

Typical Eclipse range

All NHP enclosed switches are finished in RAL7032 powdercoat.



Strömberg PowerLine**Switch fuses OESA 32A – Mini**
Dimensional drawings (mm)**OESA mini 3 and 4 pole**

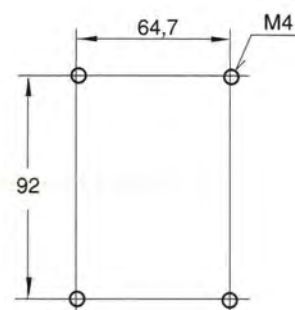
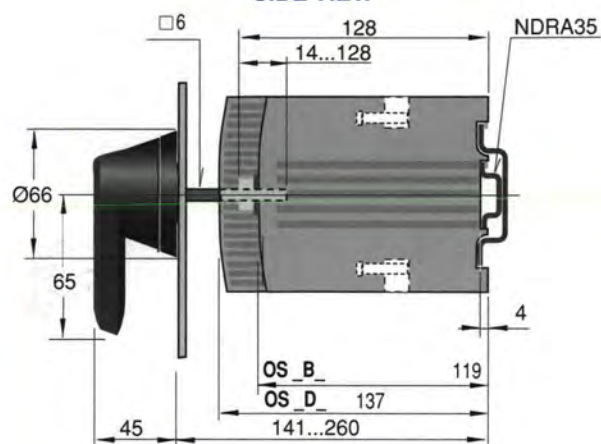
Strömberg PowerLine

Switch fuses OS, 32A...63A – Front operated
Dimensional drawings (mm)



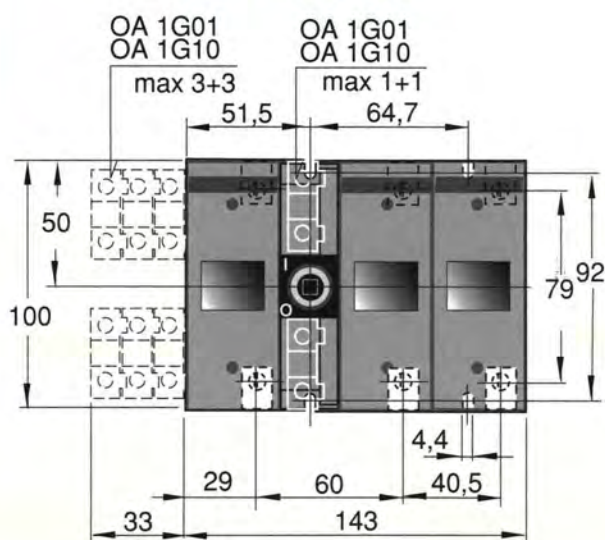
32A and 63A DIN & BS

SIDE VIEW



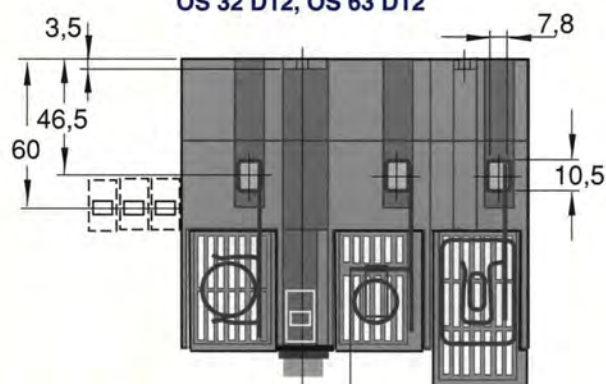
FRONT VIEW – 3 POLE

OS 32 B12, OS 63 B12
OS 32 D12, OS 63 D12



TOP VIEW – 3 POLE

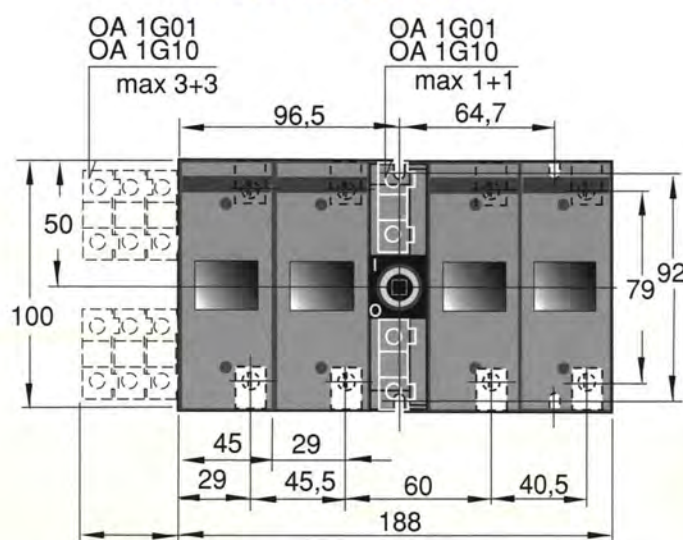
OS 32 B12, OS 63 B12
OS 32 D12, OS 63 D12



BS 88 A2, A3 DIN 00
OS 32B12 OS 32D12
OS 63B12 OS 63D12

FRONT VIEW – 4 POLE

OS 32 B22, OS 63 B22
OS 32 D22, OS 63 D22



TOP VIEW – 4 POLE

OS 32 B22, OS 63 B22
OS 32 D22, OS 63 D22



BS 88 A2, A3 DIN 00
OS 32B22 OS 32D22
OS 63B22 OS 63D22

Strömberg PowerLine

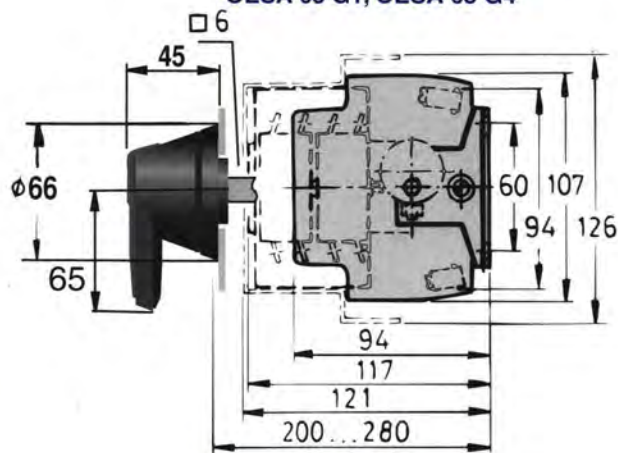
Switch fuses OESA, 32A...63A – Front operated Dimensional drawings (mm)

DIN &
BS type

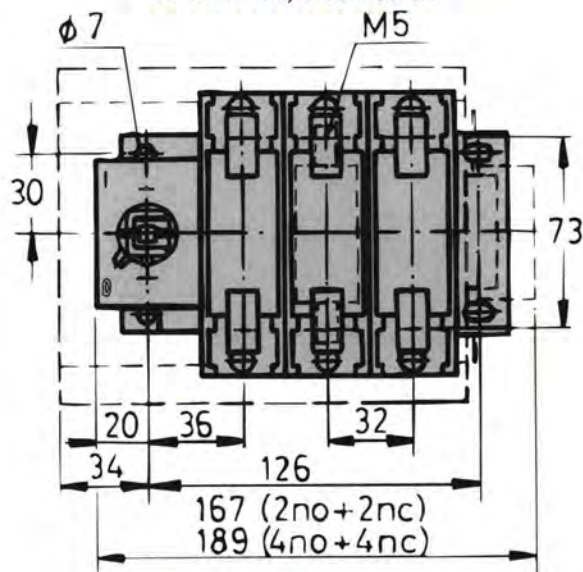
NHP

32A and 63A BS

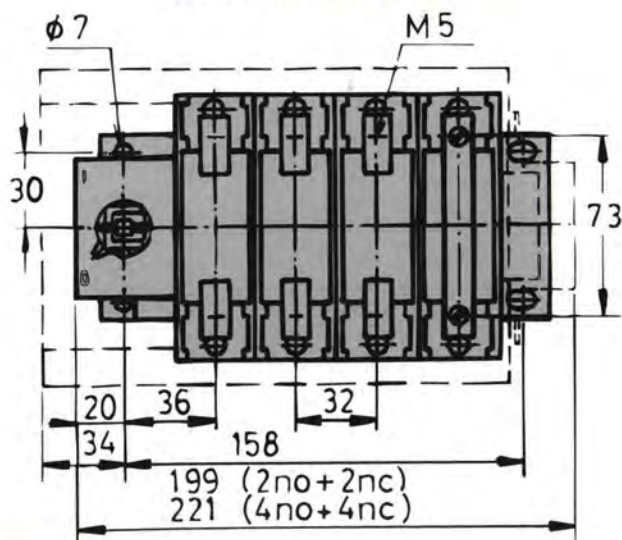
SIDE VIEW
OESA 32 G1, OESA 32 G4
OESA 63 G1, OESA 63 G4



FRONT VIEW – 3 POLE
OESA 32 G1, OESA 63 G1

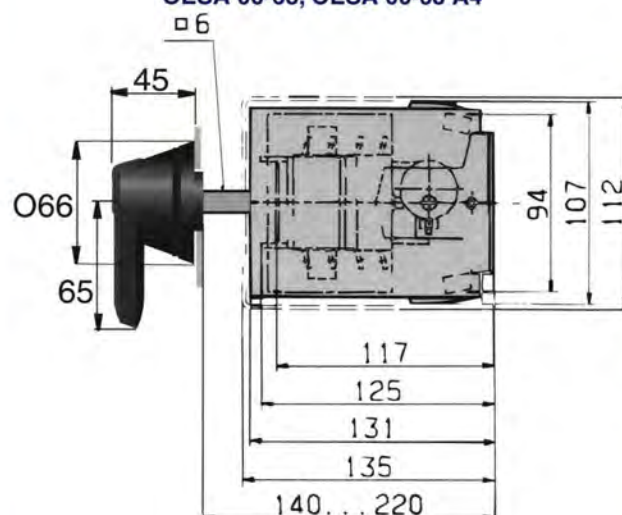


FRONT VIEW – 4 POLE
OESA 32 G4, OESA 63 G4

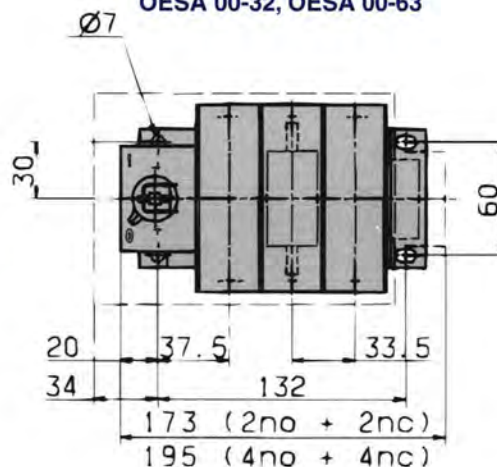


32A and 63A DIN

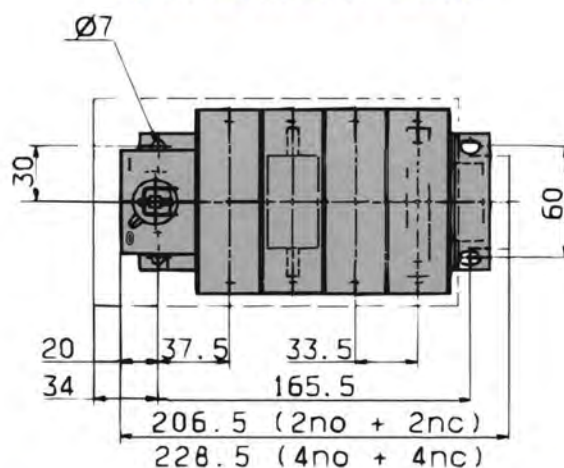
SIDE VIEW
OESA 00-32, OESA 00-32 A4
OESA 00-63, OESA 00-63 A4



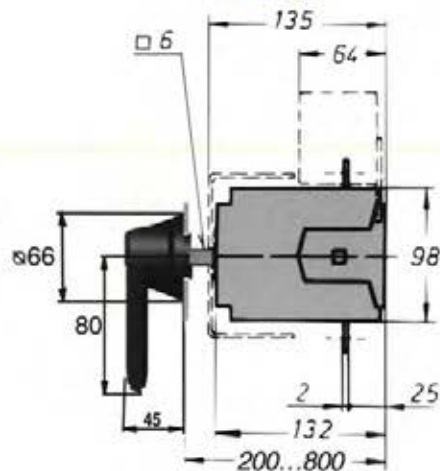
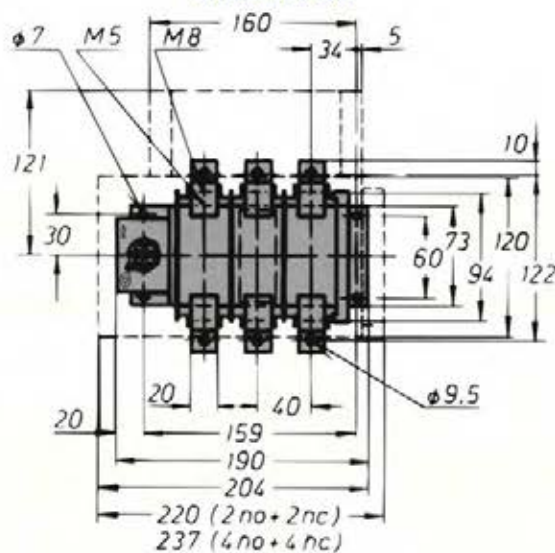
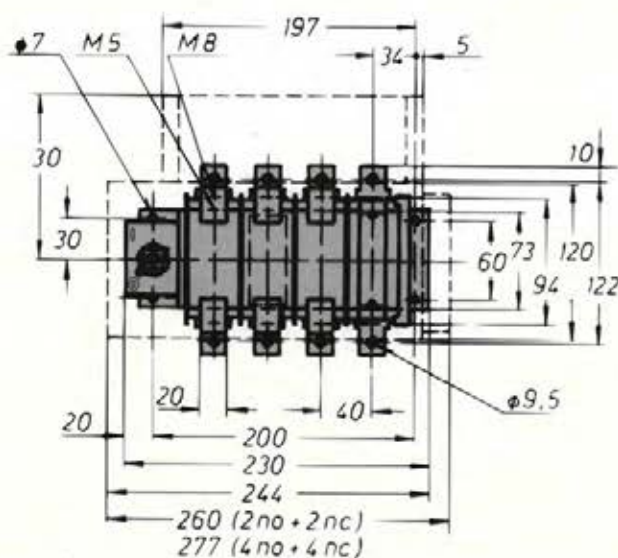
FRONT VIEW – 3 POLE
OESA 00-32, OESA 00-63



FRONT VIEW – 4 POLE
OESA 00-32 A4, OESA 00-63 A4

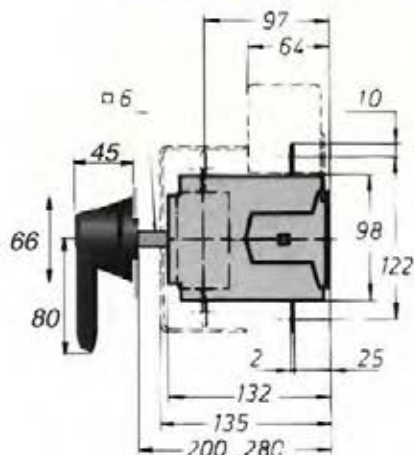


Switch fuses

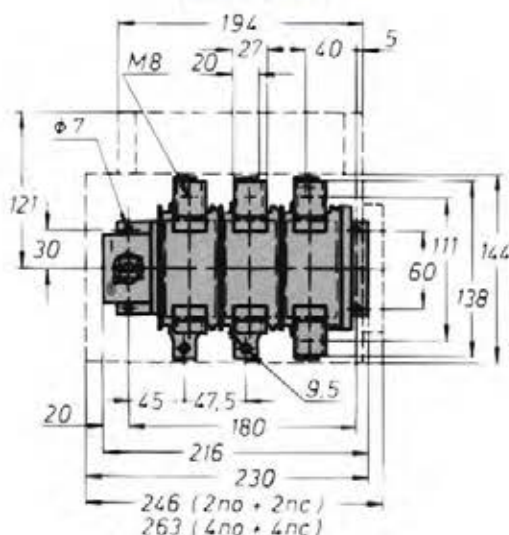
Strömberg PowerLine**Switch fuses OESA, 100A – Front operated**
Dimensional drawings (mm)**NHP****Bg
type****100 A BS****SIDE VIEW****FRONT VIEW – 3 POLE
OESA 100 G1****FRONT VIEW – 4 POLE**

Strömberg PowerLine**Switch fuses OESA, 125A...160A – Front operated**
Dimensional drawings (mm)**NHP****160A BS****SIDE VIEW**

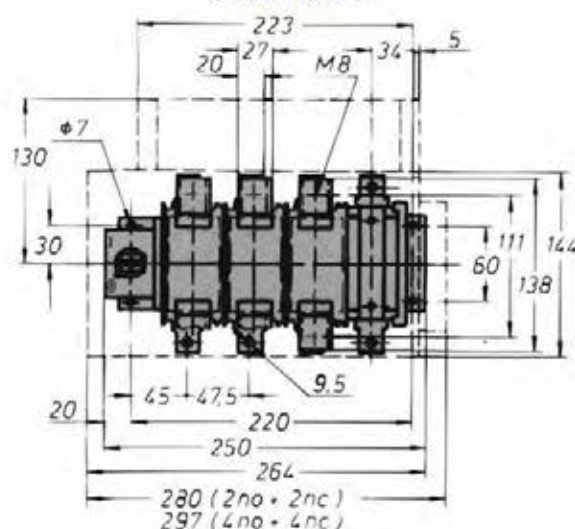
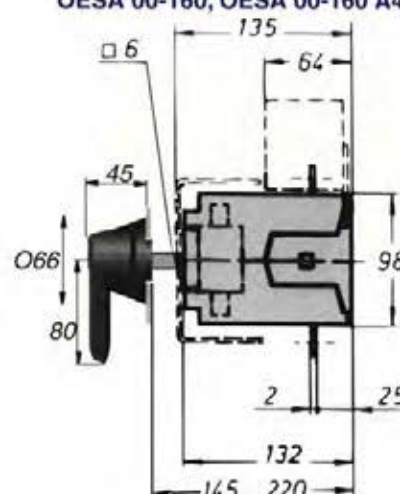
OESA 160 B3, OESA 160 B4

**FRONT VIEW – 3 POLE**

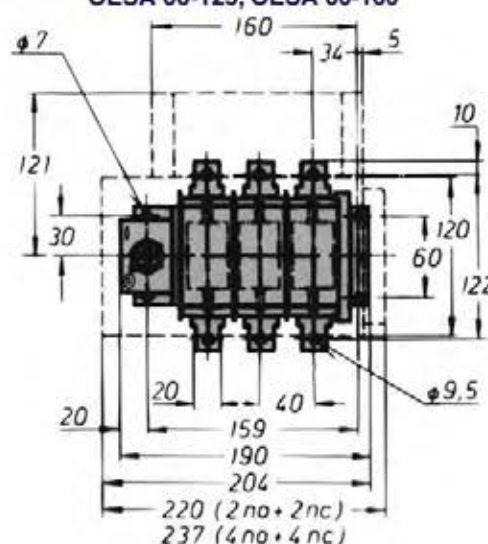
OESA 160 B3

**FRONT VIEW – 4 POLE**

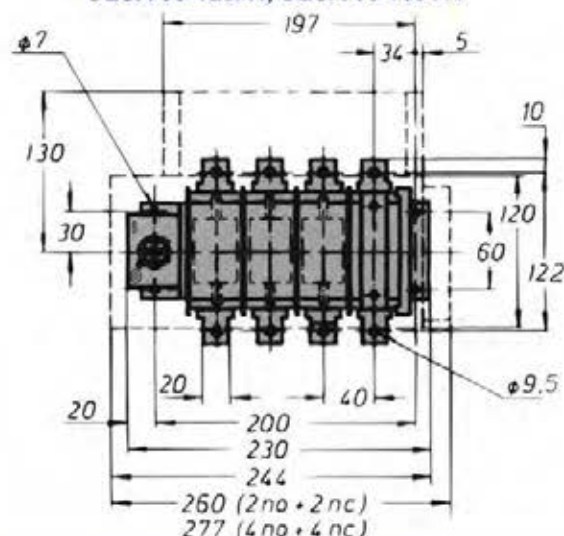
OESA 160 B4

**125A and 160A DIN****SIDE VIEW**OESA 00-125, OESA 00-125 A4
OESA 00-160, OESA 00-160 A4**FRONT VIEW – 3 POLE**

OESA 00-125, OESA 00-160

**FRONT VIEW – 4 POLE**

OESA 00-125A4, OESA 00-160 A4

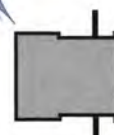
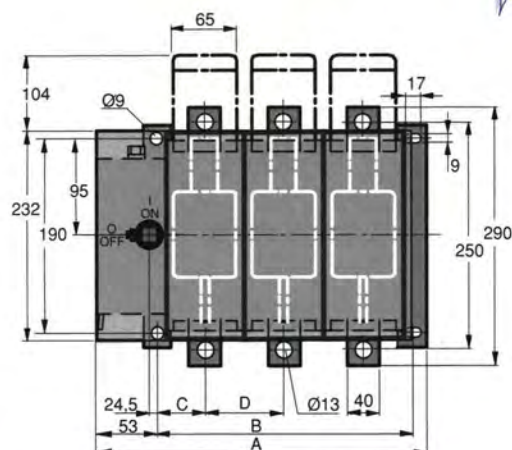
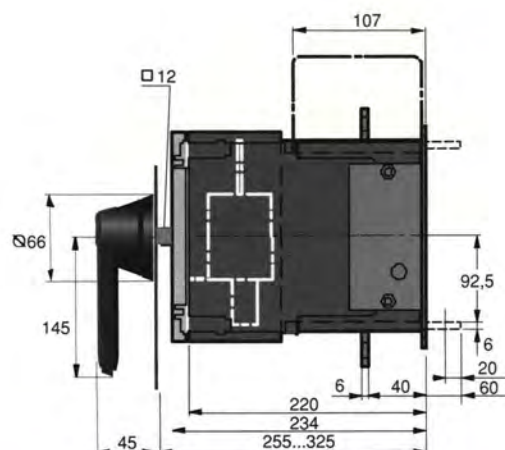


Strömberg PowerLine

Switch fuses OESA, 630A...800A – Front operated Dimensional drawings (mm)

NHP
**DIN &
BS type**

OESA 630A...800A



OESA 630D3



OESA 630D3BD



OESA 630D3BB

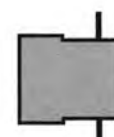
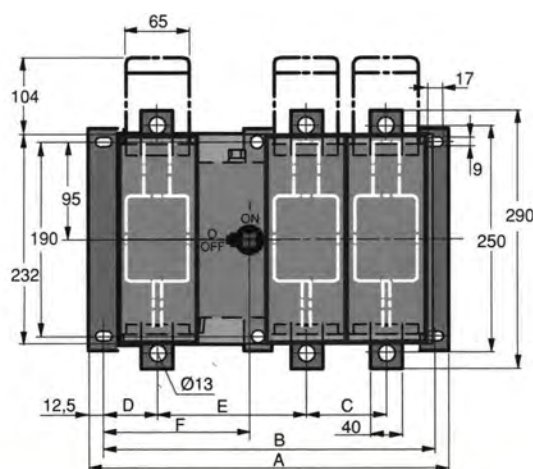
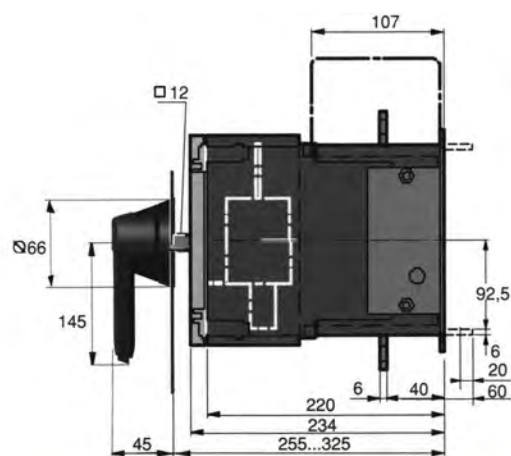


OESA 630D3UB

Switch fuses

Outboard shafts

DIN-pattern	No. of poles	BS-pattern	A	B	C	D
OESA 630D3	3	OESA 630B3	343	278	59	80
OESA 630D4	4	OESA 630B4	423	358	59	80
OESA 800D3	3	OESA 800B3	373	308	64	90
OESA 800D4	4	OESA 800B4	463	398	64	90



OESA 630DV12



OESA 630DV12BD



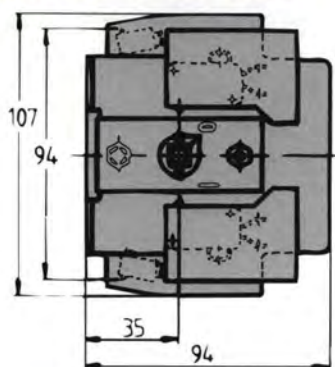
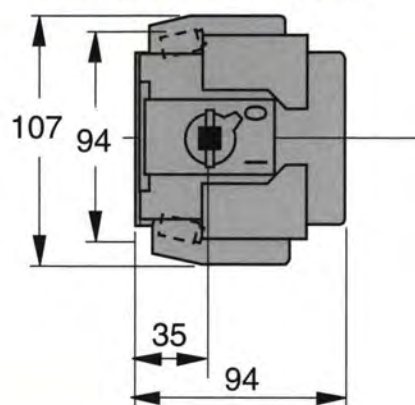
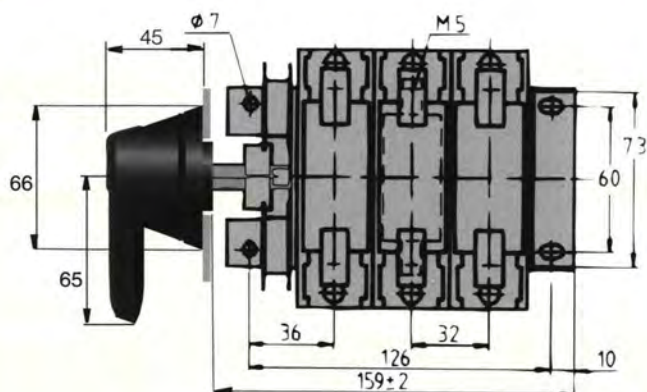
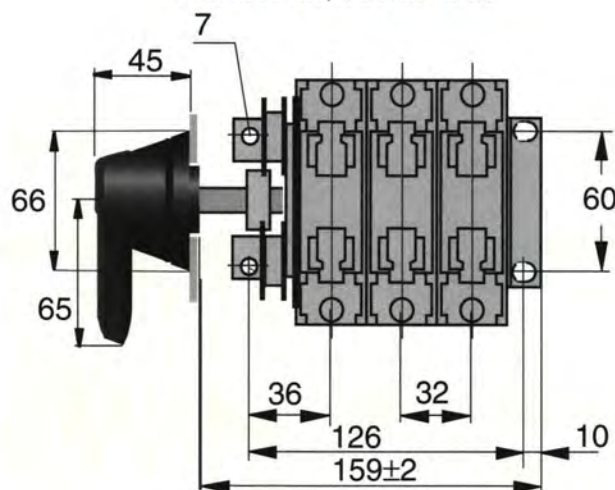
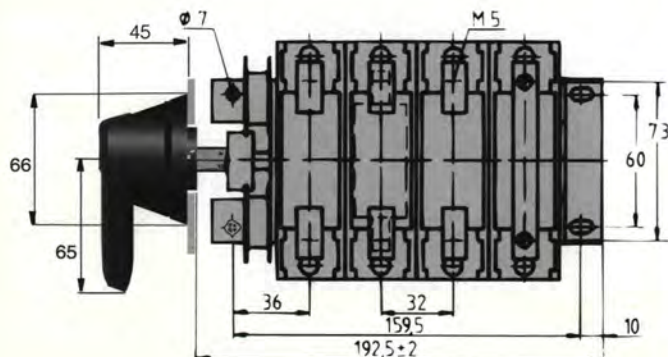
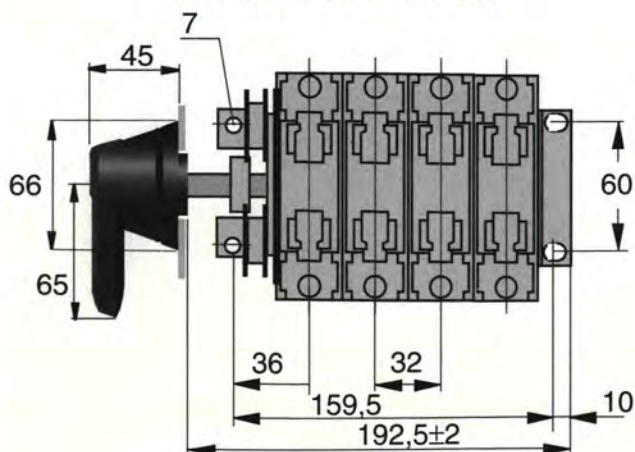
OESA 630DV12BB



OESA 630DV12UB

Inboard shafts

DIN-pattern	No. of poles	BS-pattern	A	B	C	D	E	F
OESA 630DV12	3	OESA 630BV12	378	353	80	59	155	131
OESA 630DV22	4	OESA 630BV22	458	433	80	59	155	211
OESA 800DV12	3	OESA 800BV12	408	383	90	64	165	141
OESA 800DV22	4	OESA 800BV22	498	473	90	64	165	231

Strömberg PowerLine**Switch fuses OESA, 32A...63A – Side operated**
Dimensional drawings (mm)**NHP****DIN & BS type****32A and 63A BS****SIDE VIEW**
OESA 32 BM3, OESA 32 BM4
OESA 63 BM3, OESA 63 BM4**32A and 63A DIN****SIDE VIEW**
OESA 32 DM3, OESA 32 DM4
OESA 63 DM3, OESA 63 DM4**FRONT VIEW – 3 POLE**
OESA 32 BM3, OESA 63 BM3**FRONT VIEW – 3 POLE**
OESA 32 DM3, OESA 63 DM3**FRONT VIEW – 4 POLE**
OESA 32 BM4, OESA 63 BM4**FRONT VIEW – 4 POLE**
OESA 32 DM4, OESA 63 DM4

Strömberg PowerLine

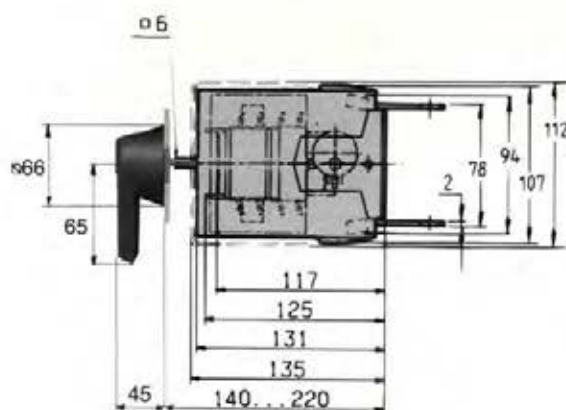
Switch fuses OESA, 32A...160A – Back connect
Dimensional drawings (mm)

NHP

DIN
type

32A and 63A DIN

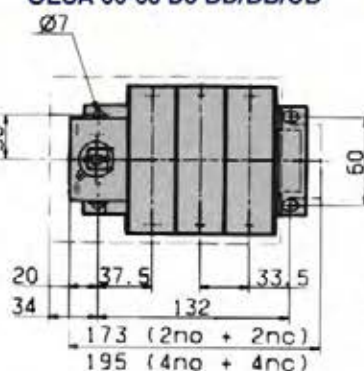
SIDE VIEW



FRONT VIEW – 3 POLE

OESA 00-32 D3 BD/BB/UB

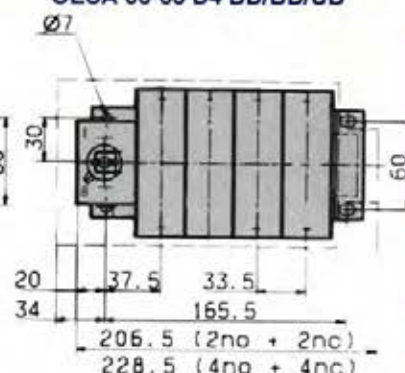
OESA 00-63 D3 BD/BB/UB



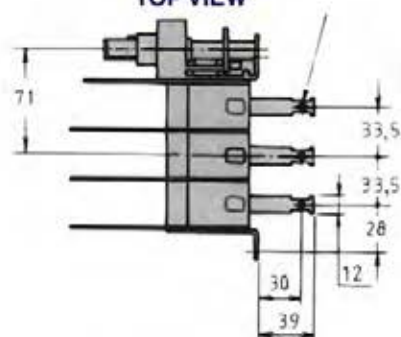
FRONT VIEW – 4 POLE

OESA 00-32 D4 BD/BB/UB

OESA 00-63 D4 BD/BB/UB

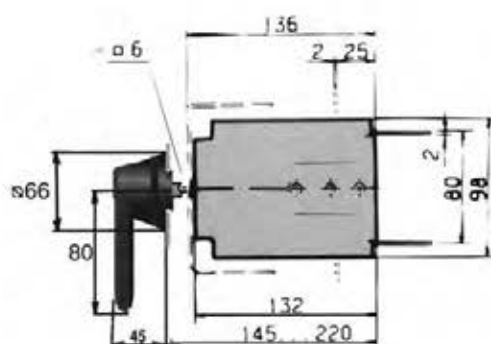


TOP VIEW



125A and 160A DIN

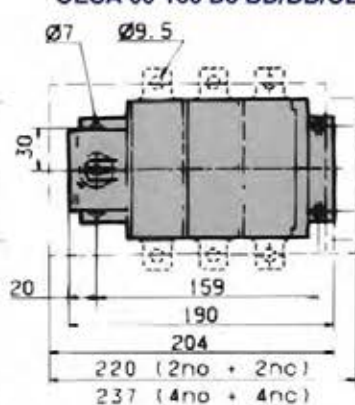
SIDE VIEW



FRONT VIEW – 3 POLE

OESA 00-125 D3 BD/BB/UB

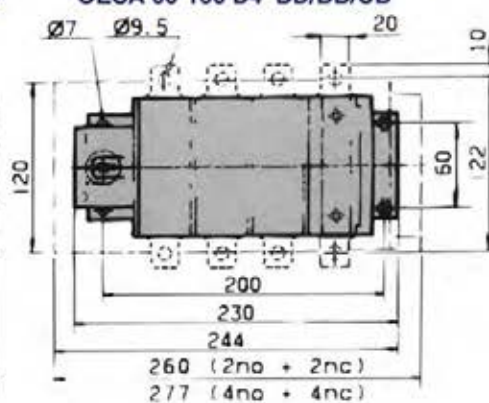
OESA 00-160 D3 BD/BB/UB



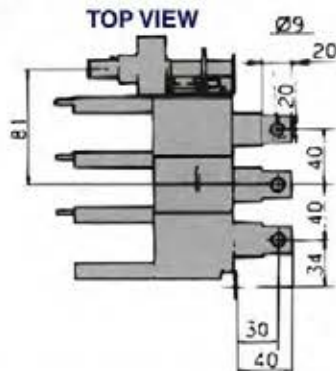
FRONT VIEW – 4 POLE

OESA 00-125 D4 BD/BB/UB

OESA 00-160 D4 BD/BB/UB



TOP VIEW

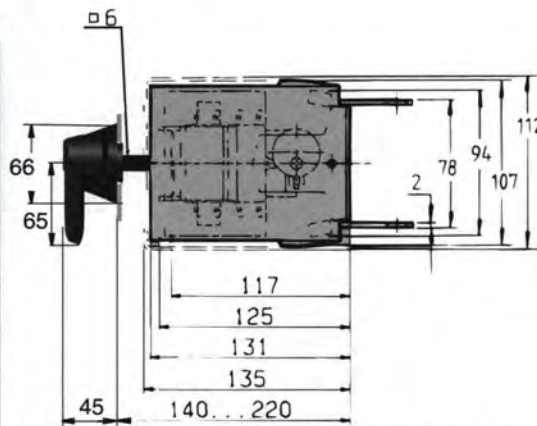
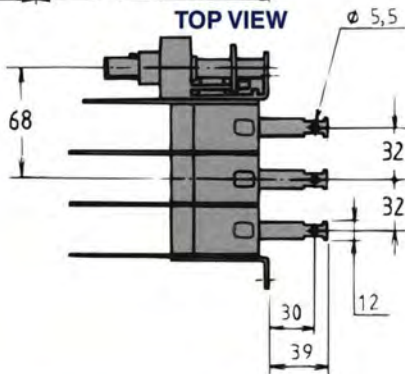
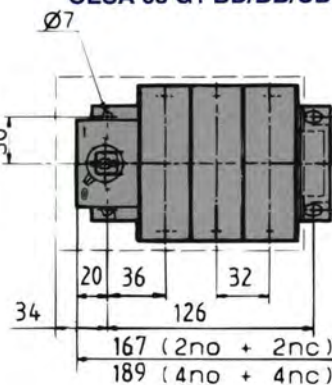
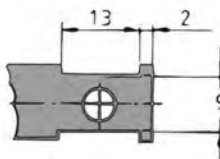
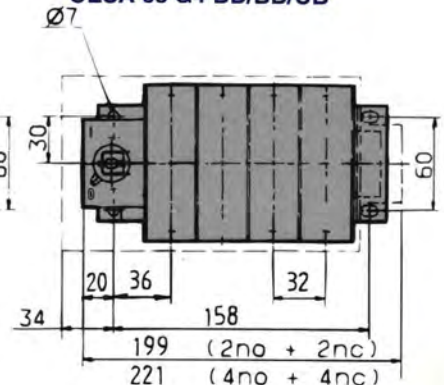


Strömberg PowerLine

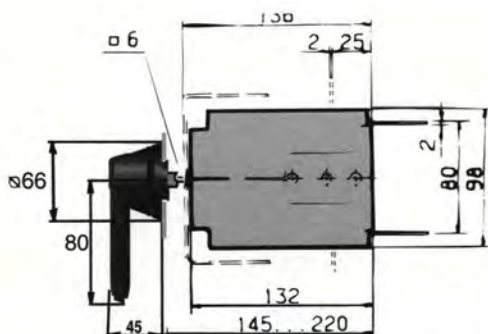
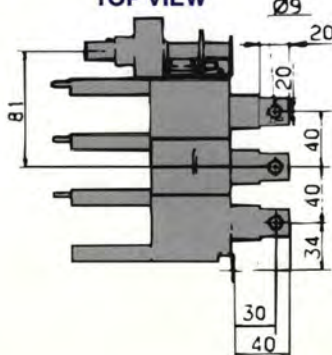
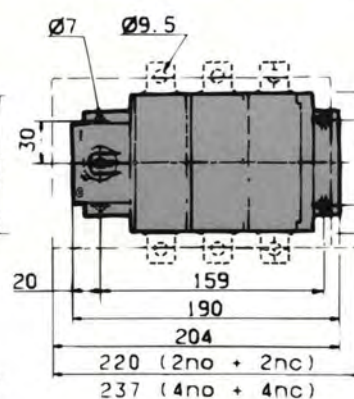
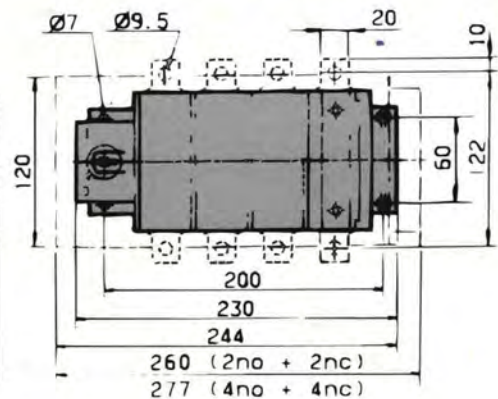
Switch fuses OESA, 32A...100A – Back connect Dimensional drawings (mm)

NHP
*BS
type*

32A and 63A BS

SIDE VIEW

TOP VIEW

FRONT VIEW – 3 POLE
OESA 32 G1 BD/BB/UB
OESA 63 G1 BD/BB/UB

FRONT VIEW – 4 POLE
OESA 32 G4 BD/BB/UB
OESA 63 G4 BD/BB/UB

FOR TERMINAL YUZL 30

125A and 160A BS

SIDE VIEW

TOP VIEW

FRONT VIEW – 3 POLE
OESA 100G1 BD/BB/UB

FRONT VIEW – 4 POLE
OESA 100G4 BD/BB/UB


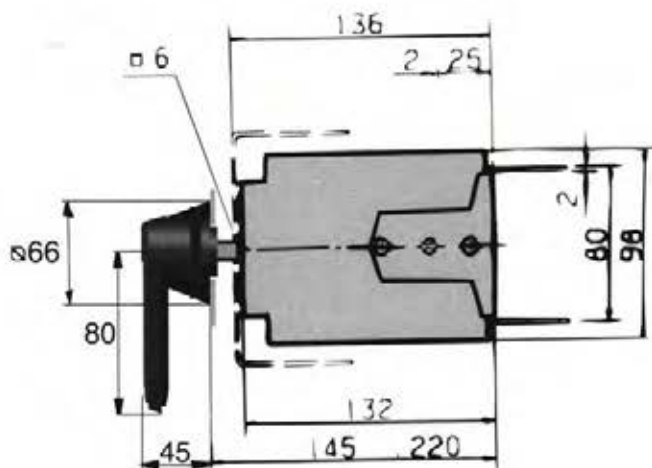
Strömberg PowerLine

Switch fuses OESA, 160A – Back connect Dimensional drawings (mm)

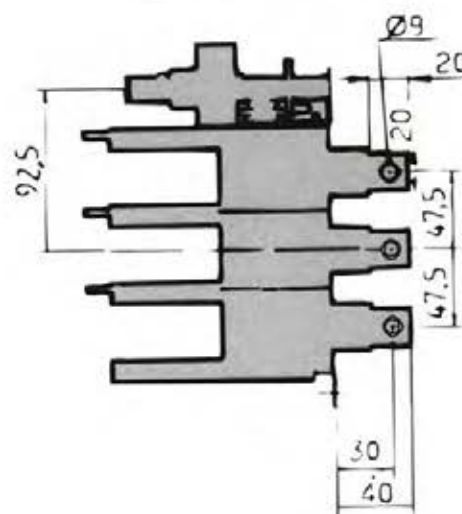
NHP
*BS
type*

160A BS

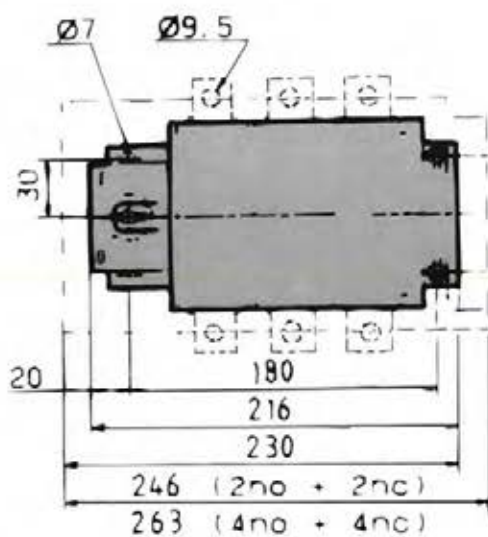
SIDE VIEW
OESA 160 B3 BD/BB/UB
OESA 160 B4 BD/BB/UB



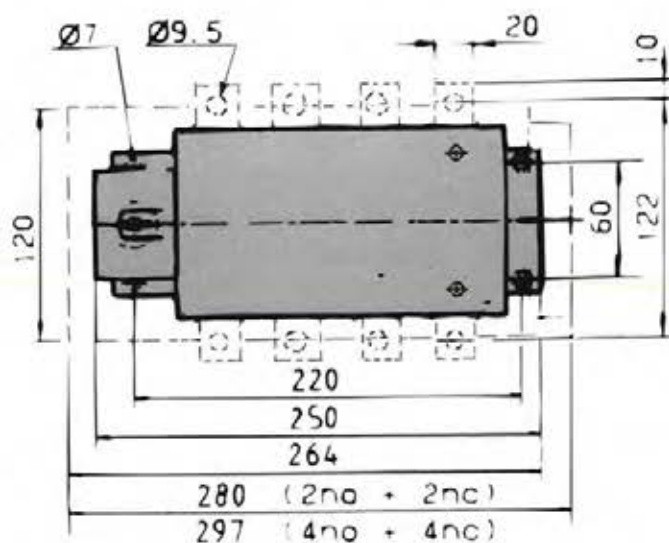
TOP VIEW
OESA 160 B3 BD/BB/UB
OESA 160 B4 BD/BB/UB



FRONT VIEW – 3 POLE
OESA 160 B3 BD/BB/UB



FRONT VIEW – 4 POLE
OESA 160 B4 BD/BB/UB



Switch fuses

Strömberg Switchline

Load-break switches OT 80E...125E – OT type

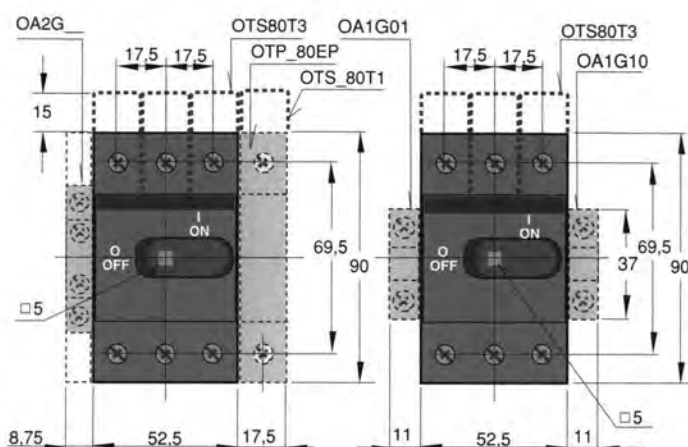
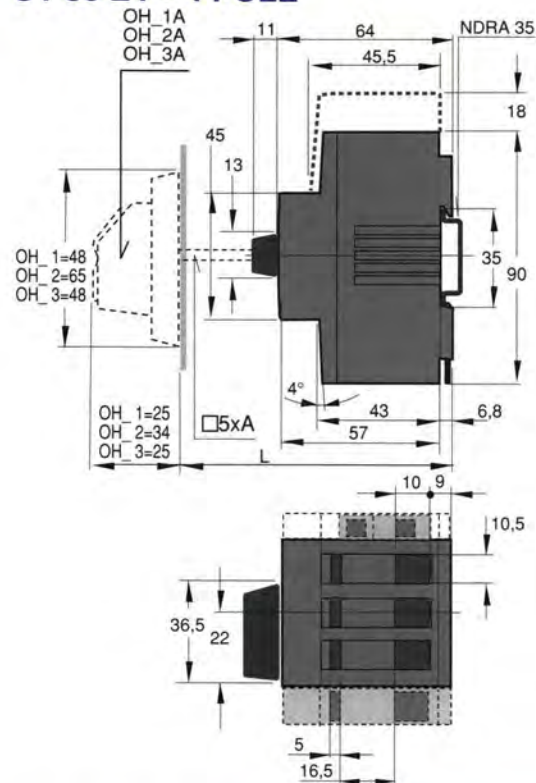
Dimensional drawings (mm)

Small
load-break

NHP

OT 80 E3 – 3 POLE

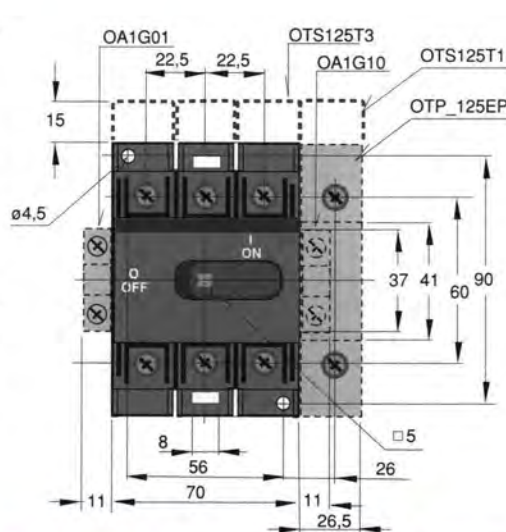
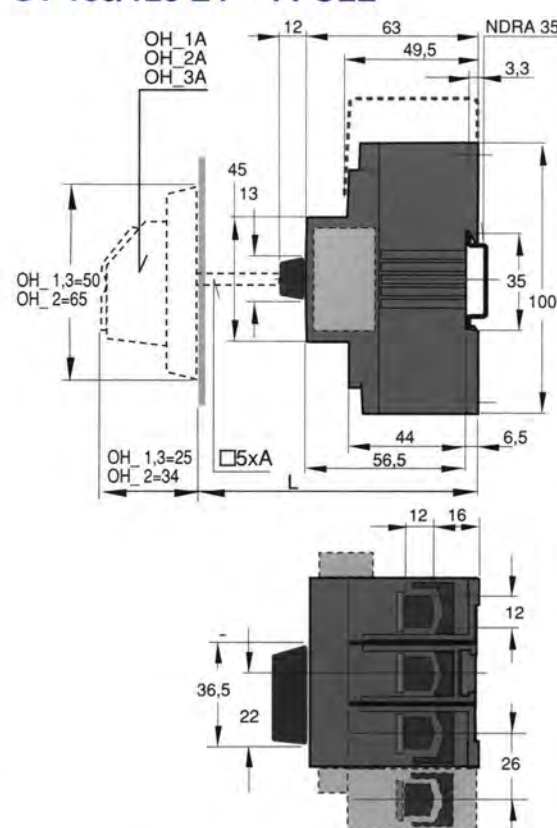
OT 80 E4 – 4 POLE



Shaft type	Handle – OH_1, 3		Handle – OH_2		Handle – OH_45J5	
	A	L	A	L	A	L
OX 85	85	127	85	113		
OX 120	120	162	120	148		
OX 180	180	222	180	208		
OX 250	250	292	250	278		
OX 330	330	375	330	358		
OXZS 48					150	175
OXZS 49					265	290
OXZS 50					400	425

OT 100/125 E3 – 3 POLE

OT 100/125 E4 – 4 POLE



Shaft type	Handle – OH_1, 3		Handle – OH_2		Handle – OH_45J5	
	A	L	A	L	A	L
OX 85	85	112.5	85	98.5		
OX 120	120	147.5	120	133.5		
OX 180	180	207.5	180	193.5		
OX 250	250	277.5	250	263.5		
OX 330	330	375.5	330	343.5		
OXZS 48					150	175
OXZS 49					265	290
OXZS 50					400	425

Strömberg Switchline

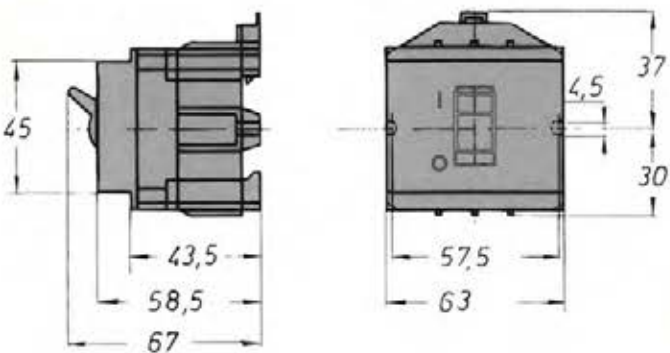
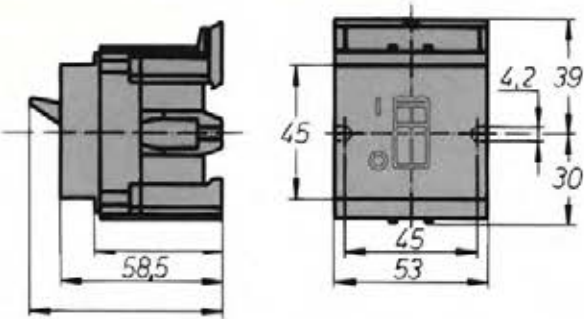
NHP

Load-break switches OETL 25C...125C – Toggle type
Dimensional drawings (mm)

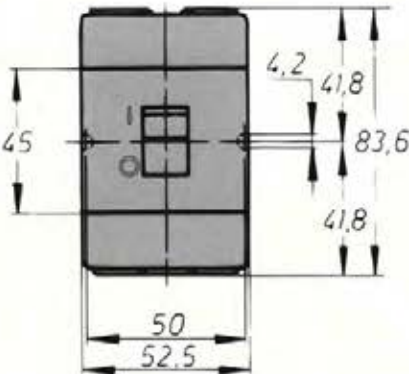
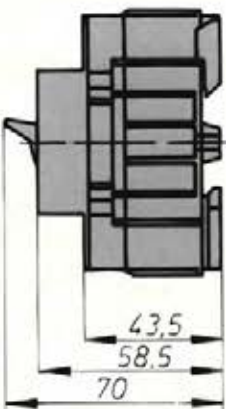


OETL 25/40 C1 – 3 POLE

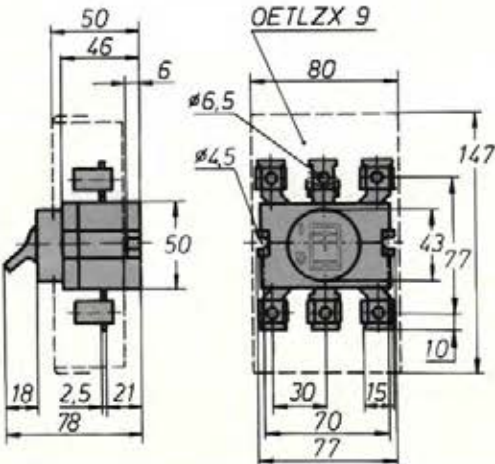
OETL 25/40/63 C4 – 4 POLE



OETL 63 C3, OETL 80C1 – 3 POLE



OETL 125 C1 – 3 POLE



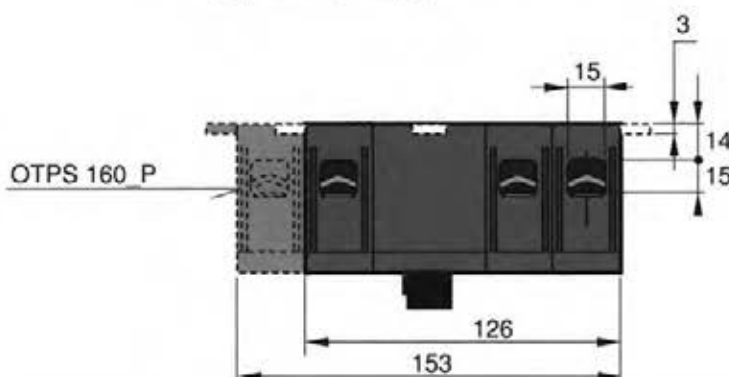
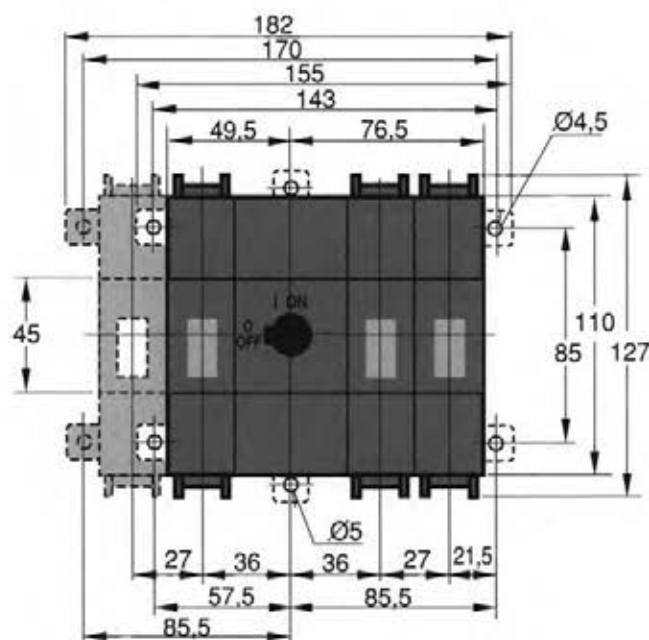
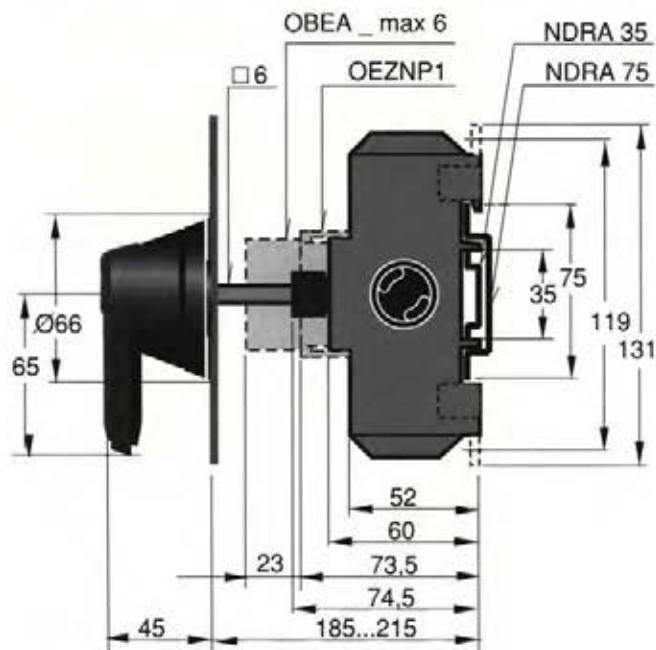
Load-break switches

Strömberg Switchline

Load-break OT 125A...160E – OT type Dimensional drawings (mm)

NHP
*Visible
contacts*

OT 125A3, OT 160E3, OT160M3 – 3 POLE
OT 125A4, OT 160E4, – 4 POLE



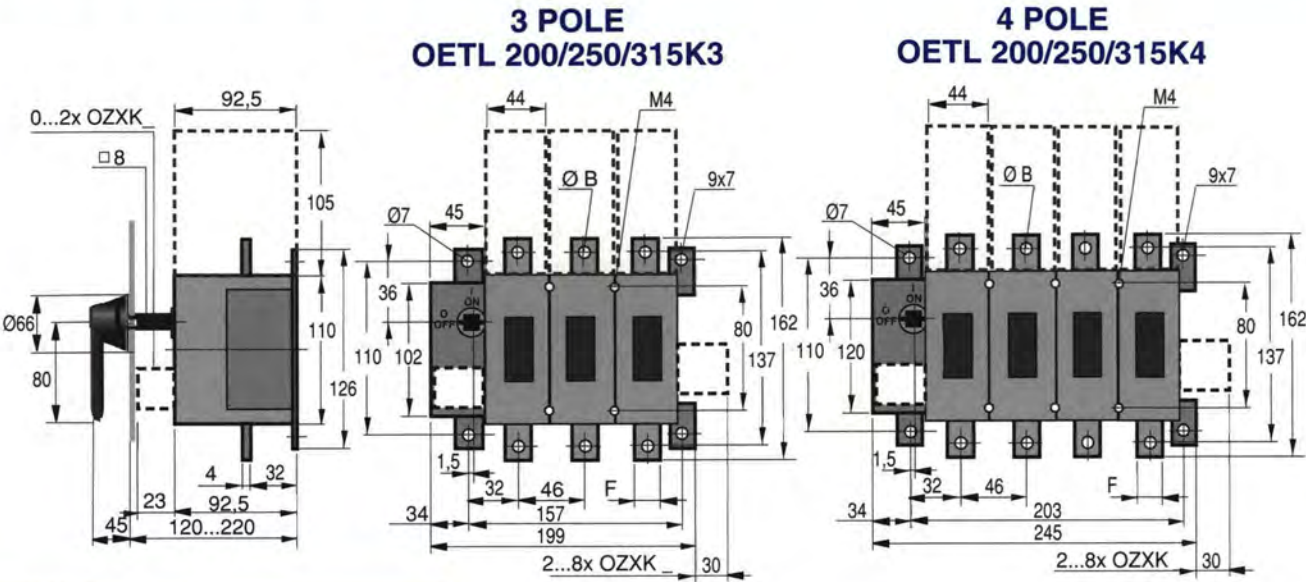
Load-break switches

Strömberg Switchline

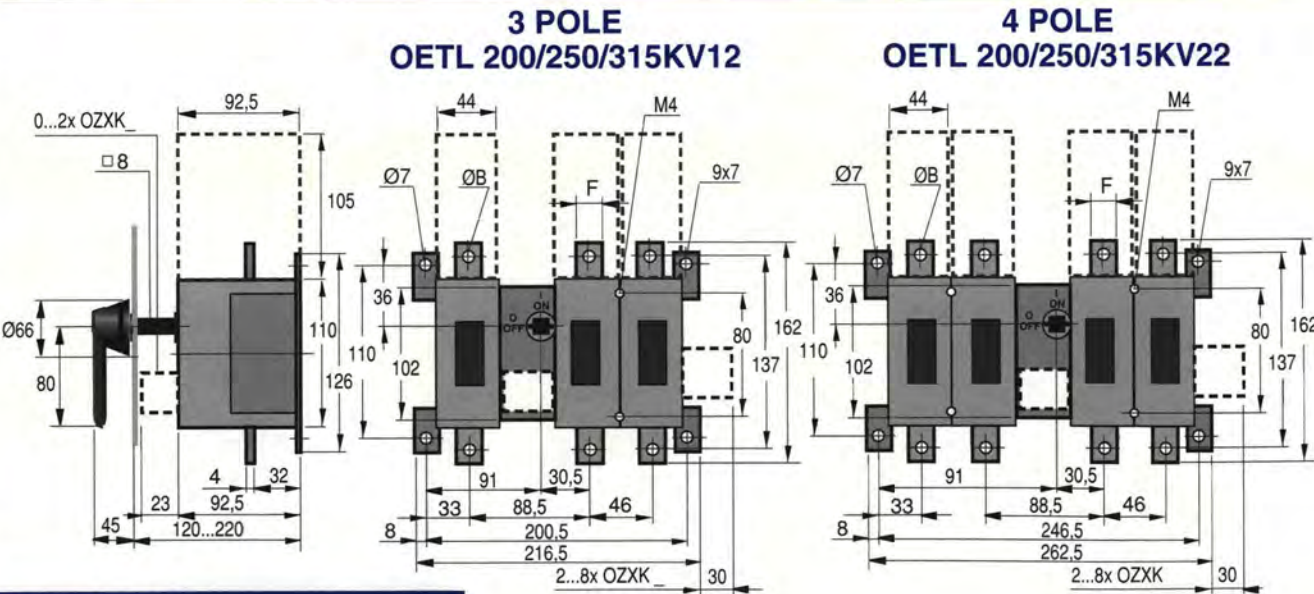
Load-break switches OETL 200...315A – Front operated

Dimensional drawings (mm)

NHP



Outboard shafts			
Switch type	No. of poles	ØB	F
OETL 200K3	3	9	20
OETL 200K4	4	9	20
OETL 250K3	3	11	25
OETL 250K4	4	11	25
OETL 315K3	3	11	25
OETL 315K4	4	11	25



Inboard shafts			
Switch type	No. of poles	ØB	F
OETL 200KV12	3	9	20
OETL 200KV22	4	9	20
OETL 250KV12	3	11	25
OETL 250KV22	4	11	25
OETL 315KV12	3	11	25
OETL 315KV22	4	11	25

Strömberg Switchline

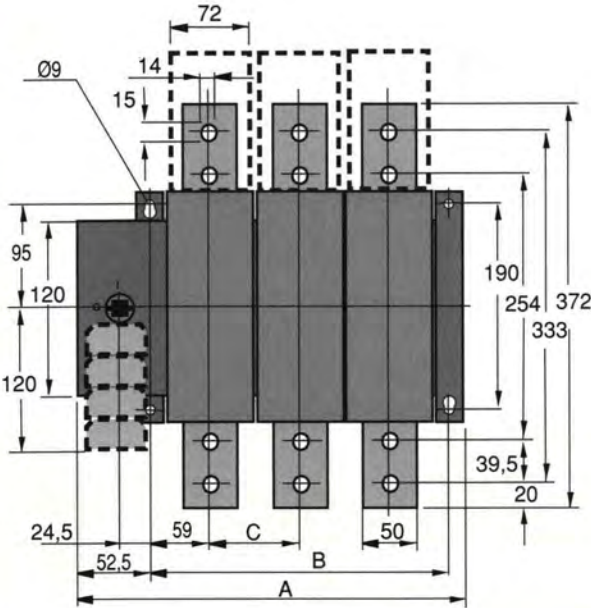
NHP

Load-break switches OETL 1000...1600A – Front operated
Dimensional drawings (mm)



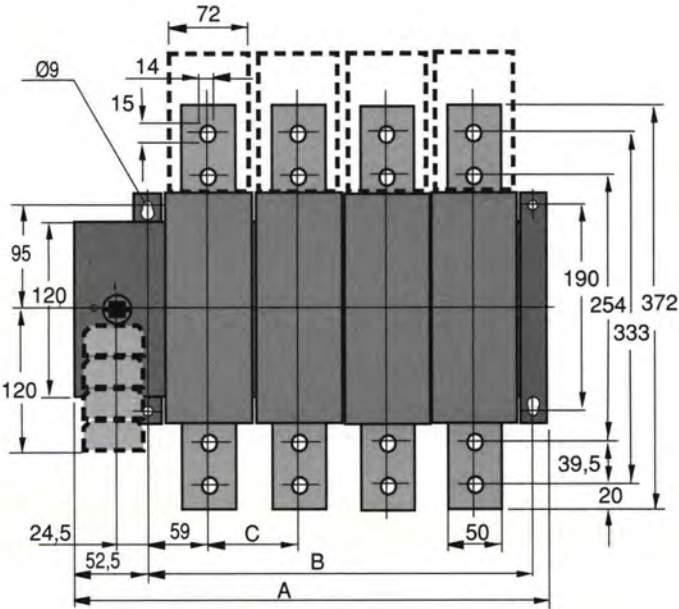
3 POLE

OETL 1000 /1250/1600 K3
OETL 1000/1250/1600 K140
OETL 1000/1250/1600 K185
OETL 1000/1250/1600 K200



4 POLE

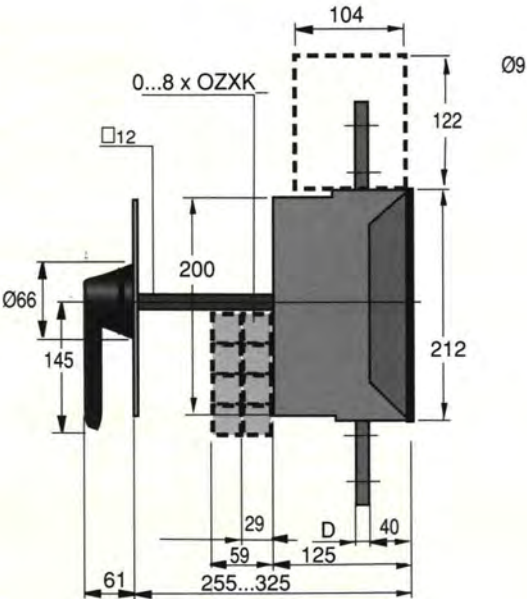
OETL 1000/1250/1600 K4



Load-break switches

Outboard shaft

Switch type	No. of poles	A	B	C	D
OETL 1000K3	3	343	278	80	12
OETL 1000K4	4	423	358	80	12
OETL 1250K3	3	343	278	80	12
OETL 1250K4	4	423	358	80	12
OETL 1600K3	3	363	298	90	16
OETL 1600K4	4	453	388	90	16
OETL 1000/1250/1600K140	3	461	396	139	16
OETL 1000/1250/1600K185	3	555	490	186	16
OETL 1000/1250/1600K200	3	583	518	200	16

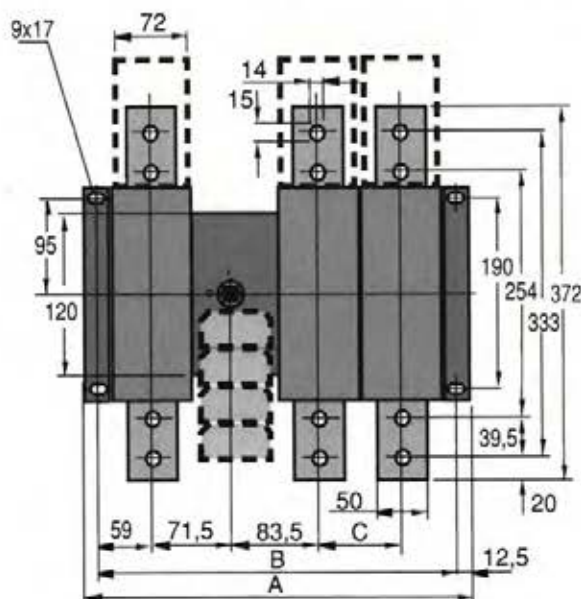
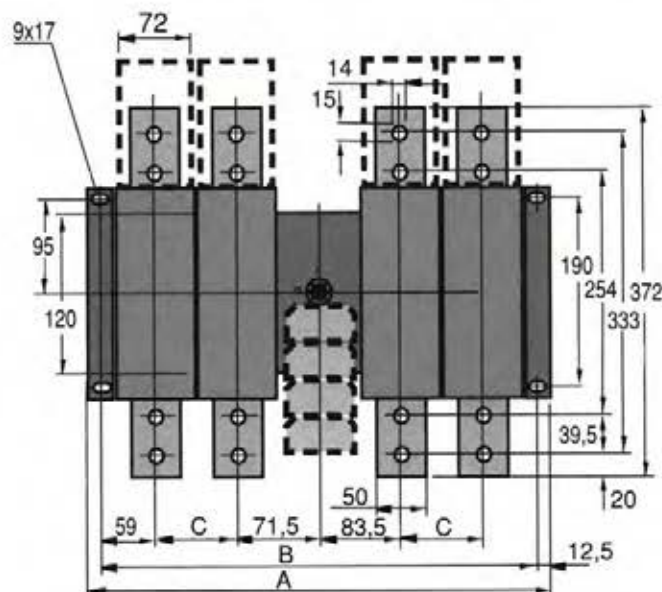


Strömberg Switchline

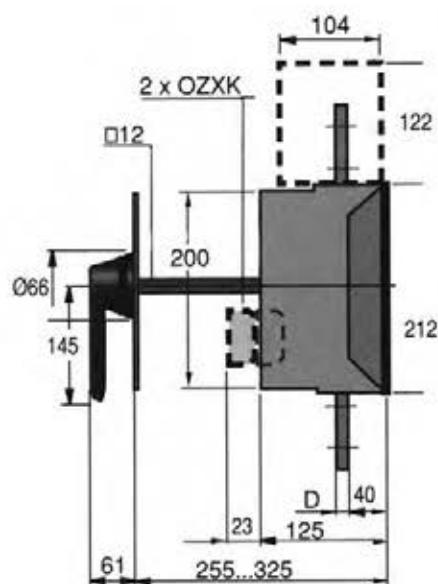
NHP

Load-break switches OETL 1000...1600A – Front operated

Dimensional drawings (mm)

Inboard shaft
OETL 1000/1250/1600 KV12 – 3 POLE

OETL 1000/1250/1600 KV22 – 3 POLE

Inboard shaft

Switch type	No. of poles	A	B	C	D
OETL 1000KV12	3	378	353	80	12
OETL 1000KV12	4	458	433	80	12
OETL 1000KV12	3	378	353	80	12
OETL 1000KV12	4	458	433	80	12
OETL 1000KV12	3	388	363	90	16
OETL 1000KV12	4	478	453	90	16


Load-break switches

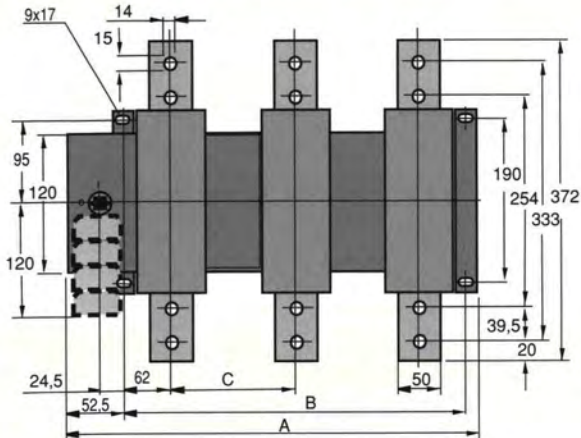
Strömberg Switchline

NHP

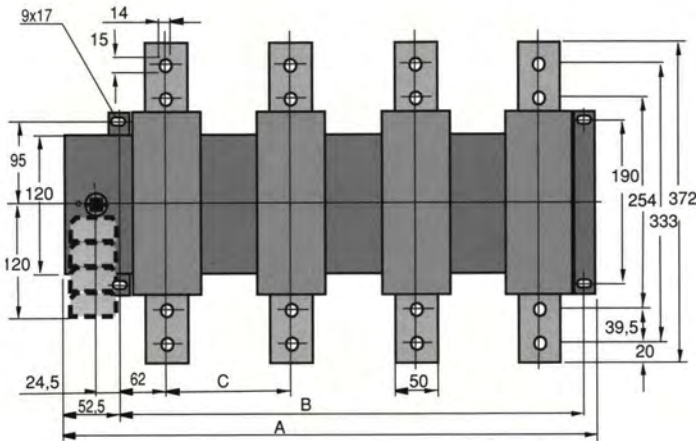
Load-break switches OETL 2500...3150A – Front operated
Dimensional drawings (mm)



3 POLE
OETL 2500/3150 K3
OETL 2500/3150 K185



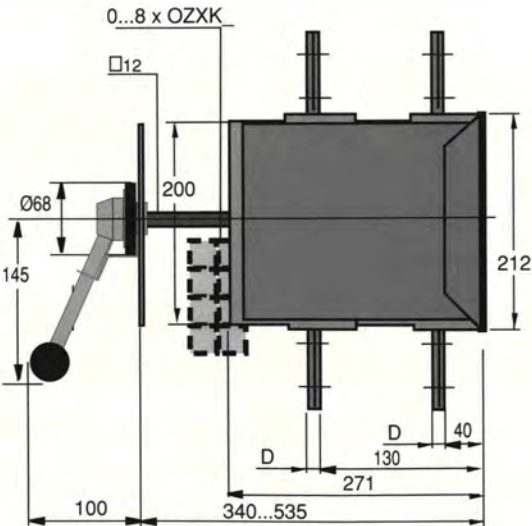
4 POLE
OETL 2500/3150 K4



Load-break switches

Outboard shaft

Switch type	No. of poles	A	B	C	D
OETL 2500K3	3	468	403	139	16
OETL 2500K185	4	562	497	186	16
OETL 2500K4	3	607	542	139	16
OETL 3150K3	4	468	403	139	16
OETL 3150K185	3	562	497	186	16
OETL 3150K4	4	607	542	139	16



Strömberg Switchline

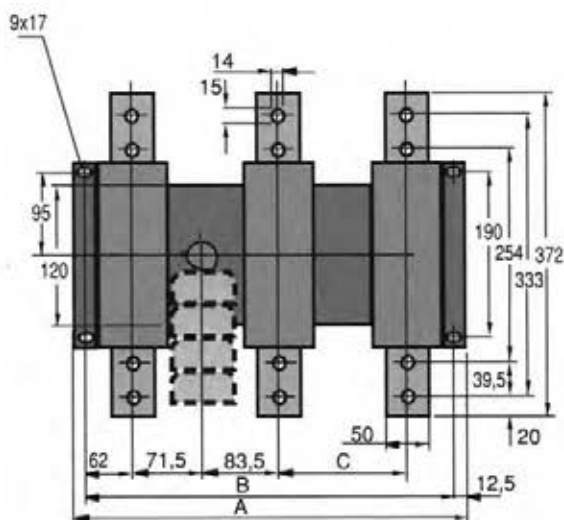
NHP

Load-break switches OETL 2500...3150A – Front operated

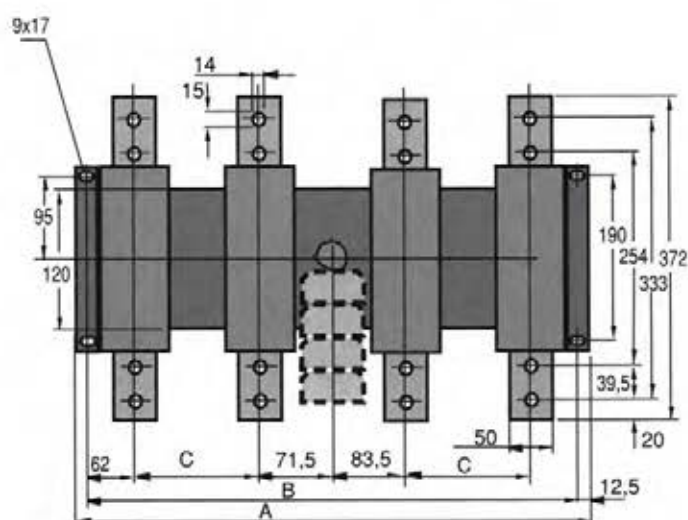
Dimensional drawings (mm)

**Inboard
shaft**

3 POLE
OETL 2500/3150 KV12

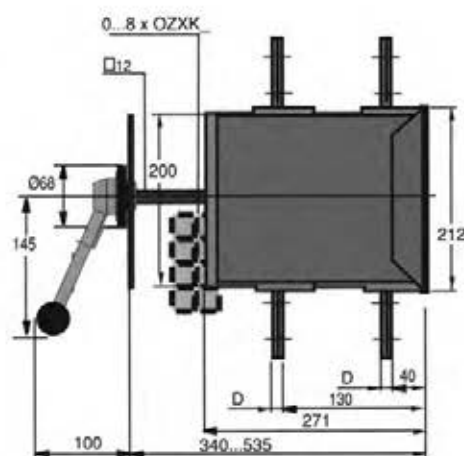


4 POLE
OETL 2500/3150 KV22



Inboard shaft

Switch type	No. of poles	A	B	C	D
OETL 2500KV12	3	443	418	139	16
OETL 2500KV22	4	582	557	139	16
OETL 3150KV12	3	443	418	139	16
OETL 3150KV22	4	582	557	139	16

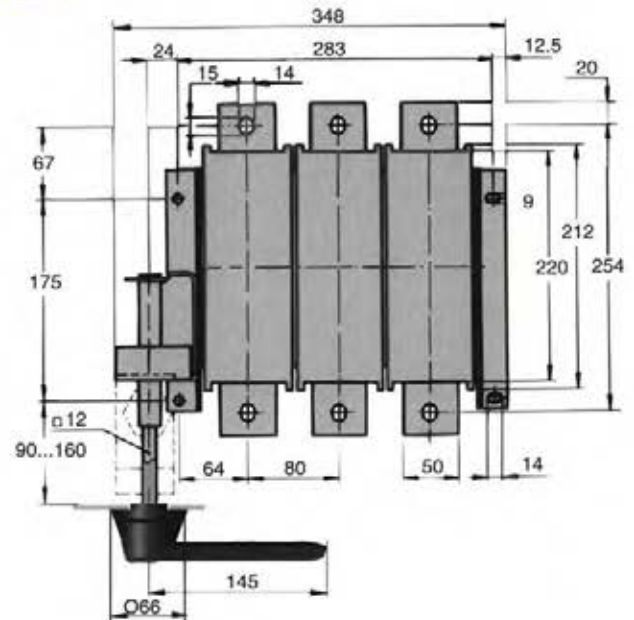
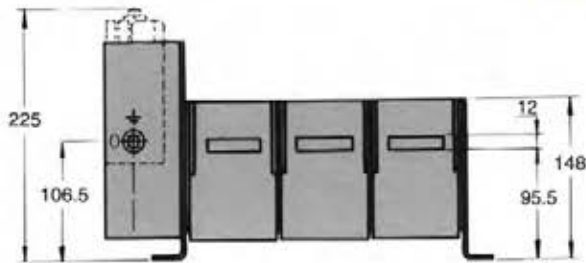

Load-break switches

Strömberg Switchline

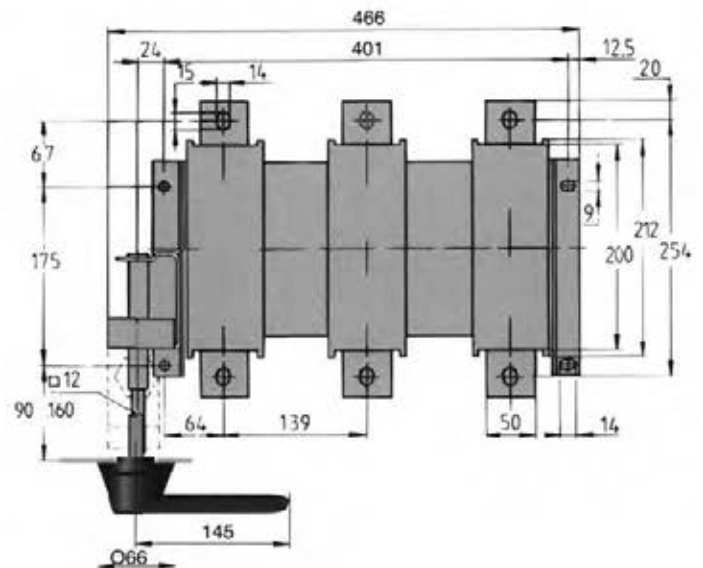
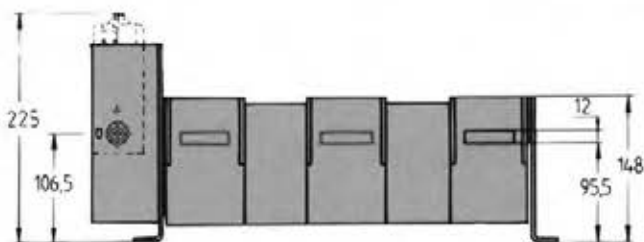
NHP

Load-break switches OETL -1250A Earth switches Dimensional drawings (mm)

3 POLE OETL 1250 M3



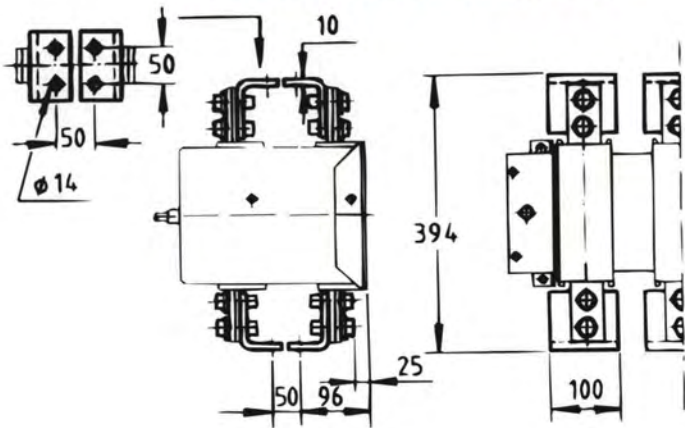
3 POLE OETL 1250 M140



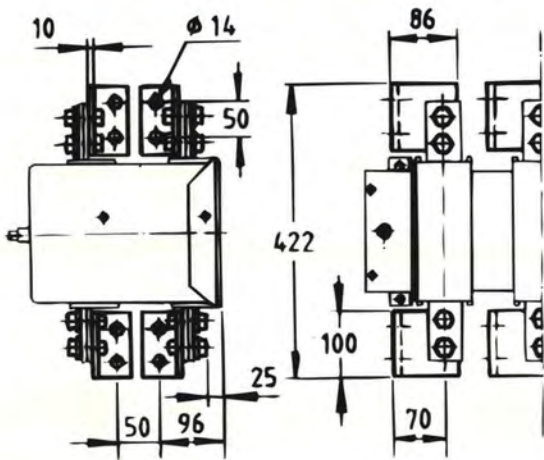
Load-break switches

Connection busbars for OETL 2500 and OETL 3150
Dimensional drawings (mm)

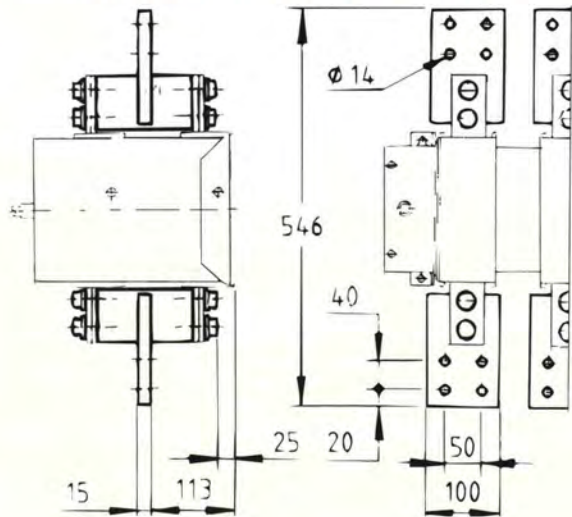
VERTICAL/BACK MOUNTING
OETLZX 114, OETLZX 114/1



EDGEWISE MOUNTING
OETLZX 114, OETLZX 114/1

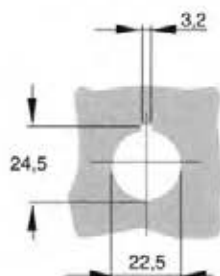
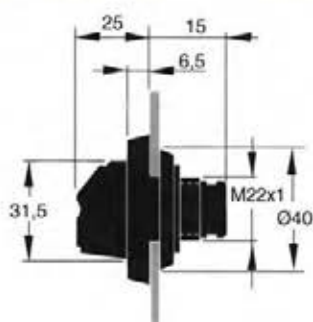


VERTICAL MOUNTING
OETLZX 115, OETLZX 115/1

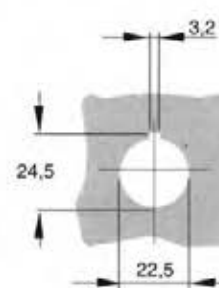
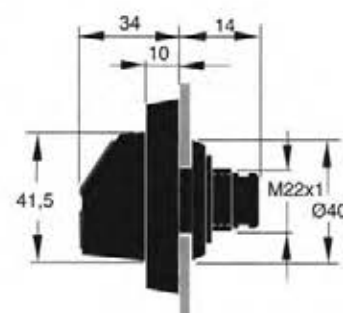


Strömberg**Handles – Plastic selector type, OH**
Dimensional drawings (mm)**Selector
type****NHP****Part No. Construction****OHB 3AH1**

- Opening of door (blank = normal, 1 = non defeatable)
- Protection class (H = IP54, J = IP65)
- Installation (A = shaft mounting)
- Physical size (see below)
- Colour (B = black, Y = yellow/red)

OHB 1AH1, OHY 1AH1
OHB 3AH1, OHY 3AH1

Padlockable in 'OFF' position with 1 padlock Ø5...Ø6.3mm.
OH_ 3AH1 only.

OHB 2AJ, OHY 2AJ

Defeatable in 'ON' position



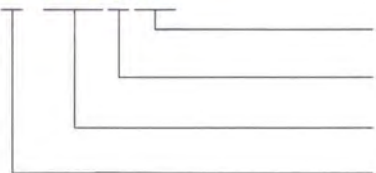
Padlockable in 'OFF' position
with 3 padlocks Ø5...Ø8mm



Minimum distance between shaft and hinge



Load-break switches

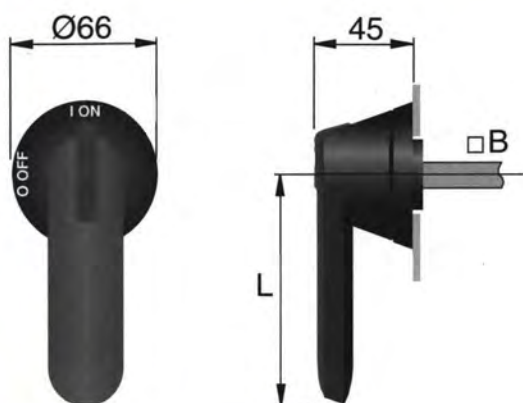
Strömberg**Handles – Plastic pistol type, OH**
Dimensional drawings (mm)**Pistol
type****NHP****Part No. Construction****OHB 125J12**

Shaft diameter in mm.

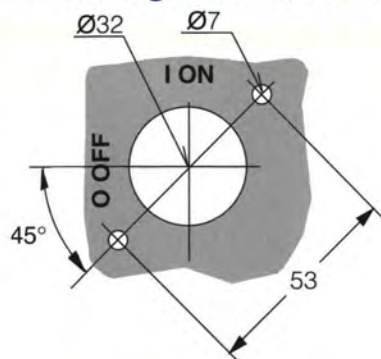
Protection class (J = IP65)

Physical size (length of handle in mm)

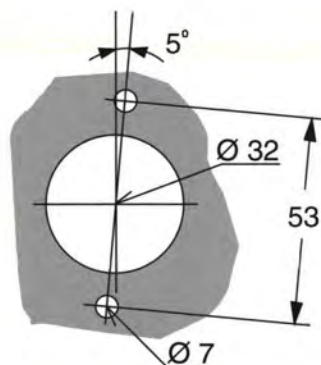
Colour (B = black, Y = yellow/red)



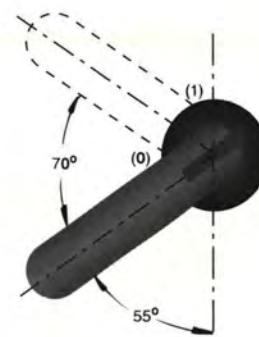
Handle type	Handle length L	Shaft (mm) B
OH_ 45J5	45	5
OH_ 65J5	65	5
OH_ 65J6	65	6
OH_ 80J6	80	6
OH_ 125J12	125	12
OH_ 145J12	145	12
OH_ 175J12	175	12
OH_ 275J12	275	12

Door drilling for OH_ handles

Front operated handles



Side operated handles, E00_

**Pistol type handle features**

All pistol type handles are easily defeatable in 'ON' position



Padlockable in 'OFF' position and in 'ON' position with easy irreversible modification contact NHP

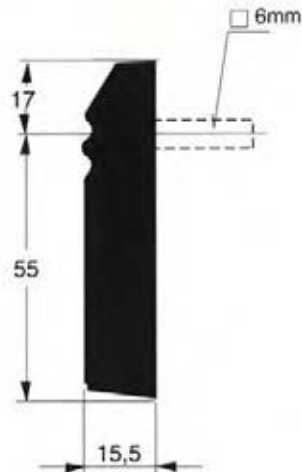
Strömberg**NHP**

Handles – Plastic pistol type, OH continued, direct and metal types

Dimensional drawings (mm)

Direct mount handle

YAST1 (to suit switch type OT125A...160E)

**OHB 4**

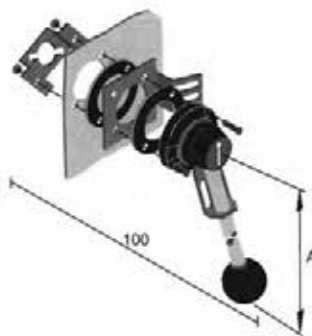
(to suit switch type OS 32...63)



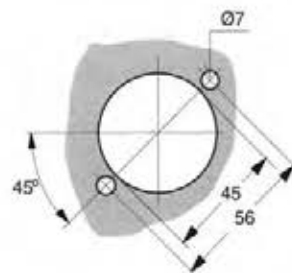
Note: Refer NHP for details

Metallic handles

YASDA 8 (to suit switch types OESA 630...800 E)

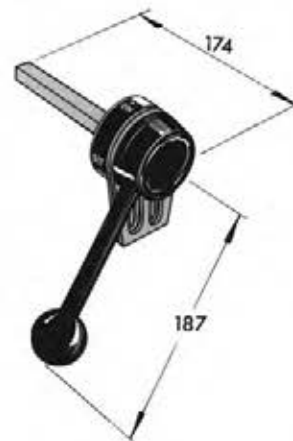


YASDA 8 (A = 220mm)
YASDA 28 (A=145mm)

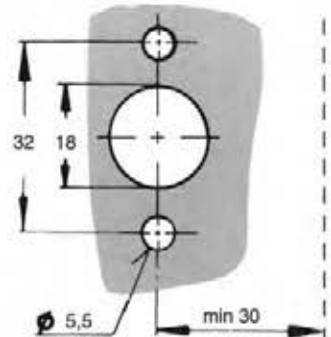


Door drilling for YASDA 8, 28

OETLZX 74 (to suit side operated switches 400...800)

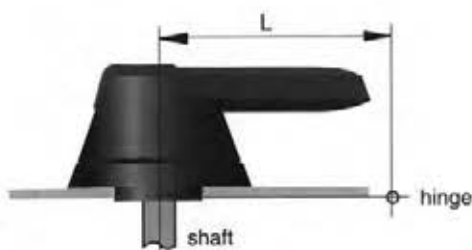


OETLZX 74



Door drilling for OETLZX 74

Minimum distance, L, between the hinge and the rotating shaft



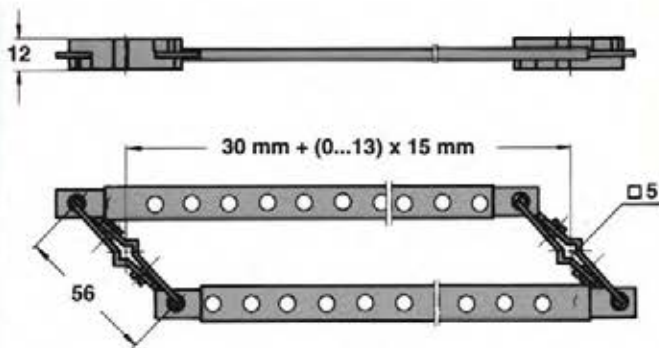
Switch size		L (mm)	Suitable handle
Switch fuse	Load-break		
OS, OESA 32...63	OT 125A...160E	60	OH_45J_, OH_65J_
OESA 32...160	OETL 200...315	80	OH_80J_
OESA 200...400	OETL 400...1600	150	OH_125J_, OH_145J_
OESA 200...800	—	175	OH_175J_
OESA 200...800	OETL 2500...3150	275	OH_275J_
OESA 200...800	OETL 2500...3150	220	YASDA 8

Strömberg
Mechanisms – 6 and 8 pole switches
Dimensional drawings (mm)

NHP

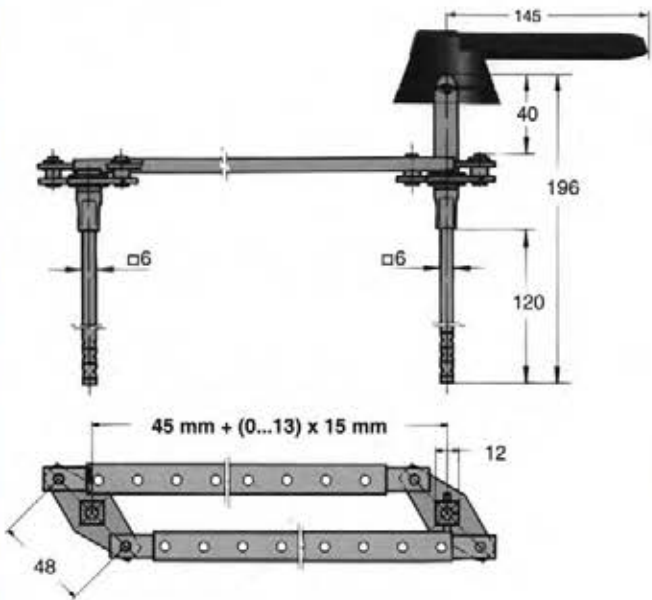
Switch fuses

OETLZW 8



To suit switch type	
Load-break	Switch fuse
OT 16...125E	-

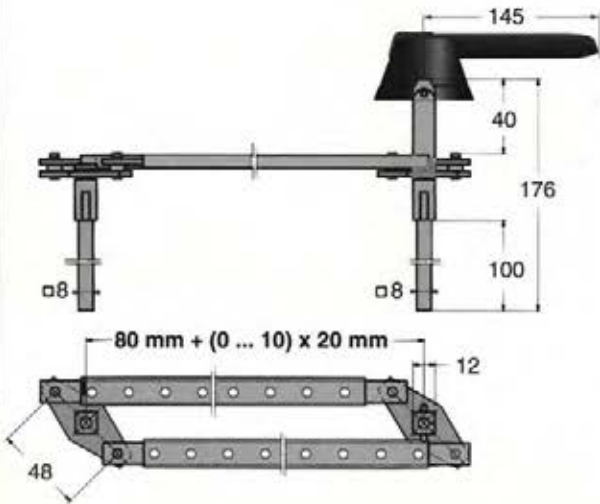
OETLZW 2



To suit switch type	
Load-break	Switch fuse
OT 125A...160E	OS 32...63
	OESA 32...160

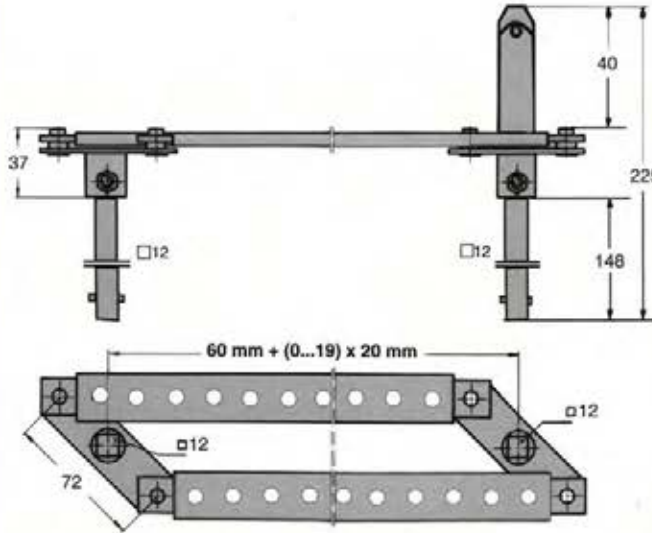
Load-break switches

OETLZW 18



To suit switch type	
Load-break	Switch fuse
OETL 200...315	-

OETLZW 9



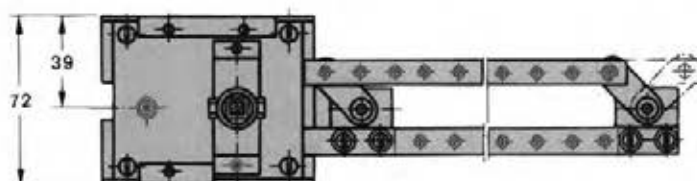
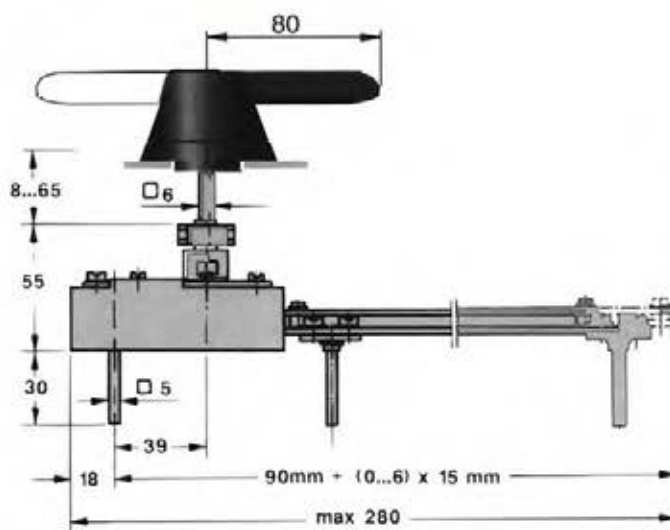
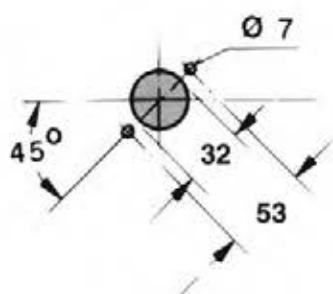
To suit switch type	
Load-break	Switch fuse
OETL 400...1600	OESA 200...800

Strömberg**NHP**

Mechanisms – Changeover and Bypass

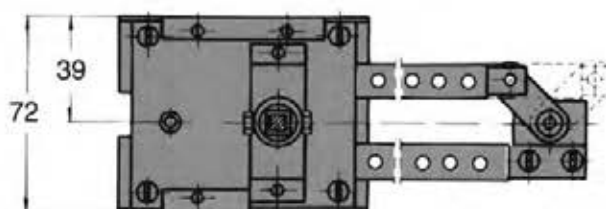
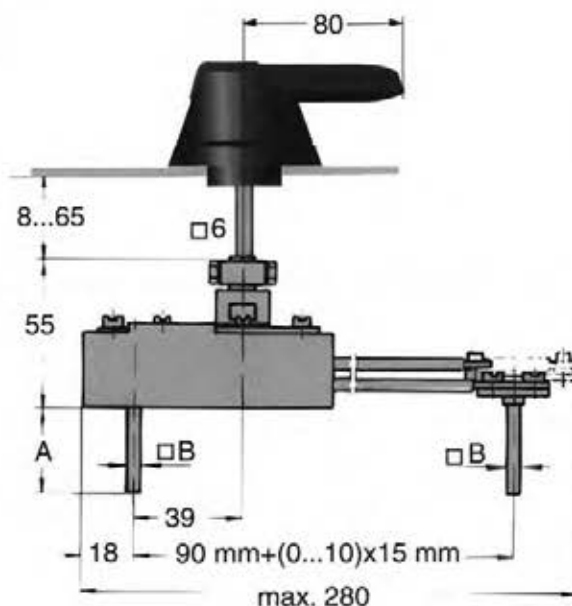
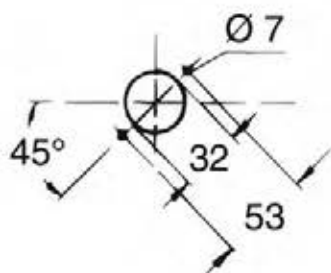
Dimensional drawings (mm)

By-pass mechanism OTZW 17



	For switch type
OTZW 17	OT 16E...125E

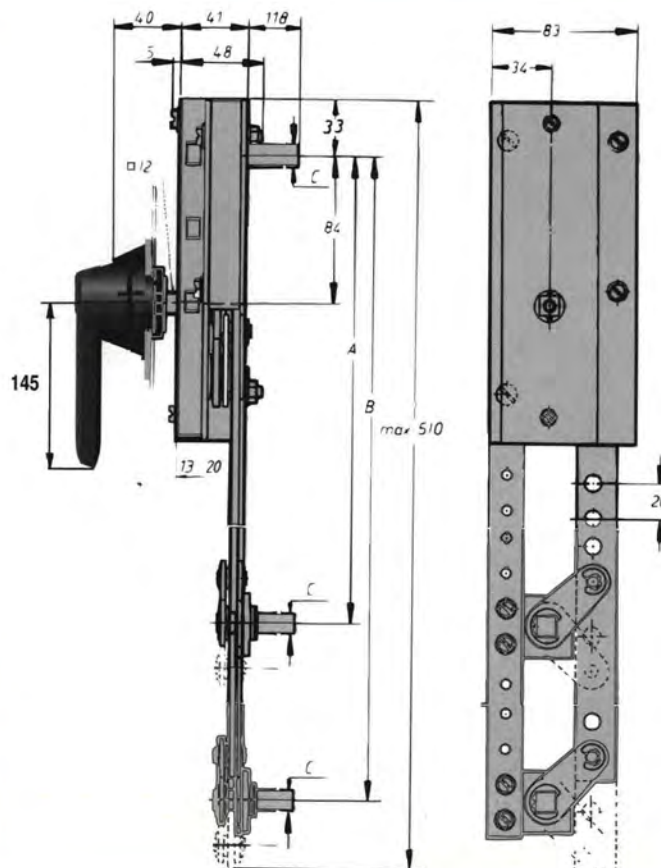
Changeover mechanism OESAZW 1, OTZW 6



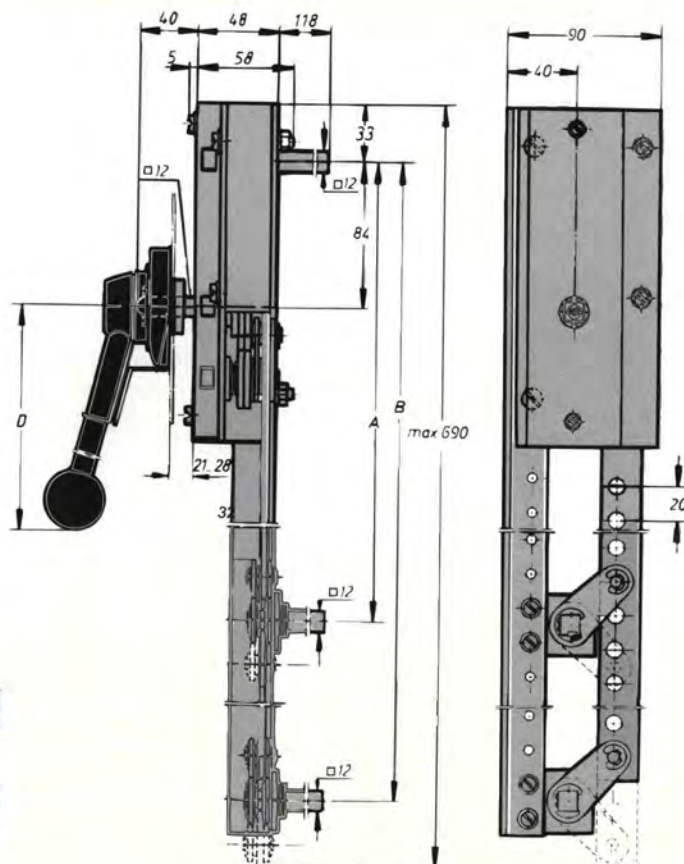
Changeover	For switch type	A	B
OTZW 6	OT 16E...125E	30	5
OESAZW 1	OT 125A...160E	116	6
	OS 32...63, OESA 32...160		

Switch fuses

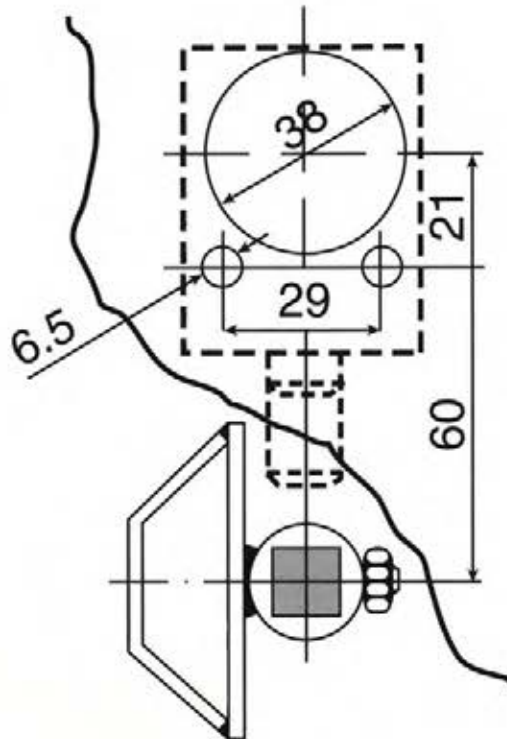
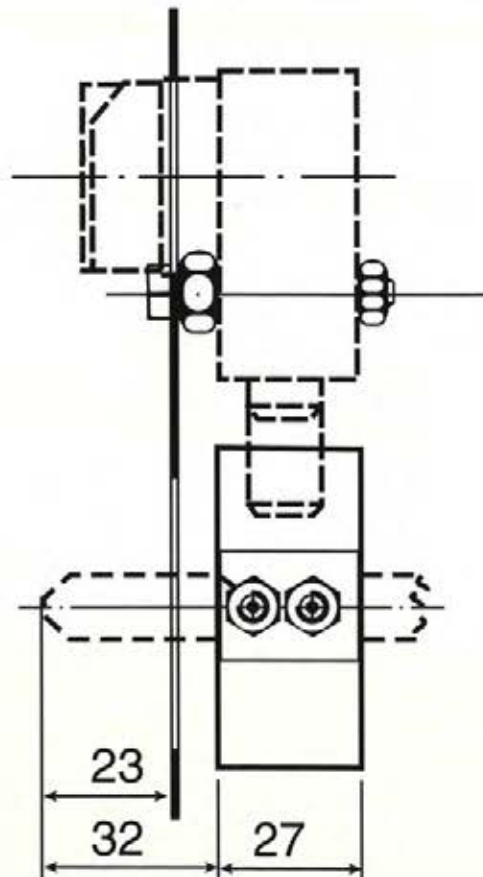
Load-break switches

NHP

Changeover	For switch type	A	B	C
OETLZW 11	OESA 200...400, OETL 400	210 + (0...11) x 20mm	—	12
OETLZW 20	OETL 200...315	210 + (0...11) x 20mm	—	8
Bypass				
OETLZW 21	OETL 200...315	210 + (0...9) x 20mm	210 + (0...9) x 20mm	8



Changeover	For switch type	A	B	D
OETLZW 12	OESA 630...800A, OETL 630...1600A	210 + (0...18) x 20mm	—	220mm
Bypass				
OETLZW 13	OESA 200...800A OETL 400...1600A	210 + (0...18) x 20mm	250 + (0...18) x 20mm	320mm

Strömberg**NHP****Castell, Lowe & Fletcher interlock and cam attachment
Dimensional diagrams (mm)****OETLZW 5, 16****FRONT VIEW****SIDE VIEW**

Switch fuses

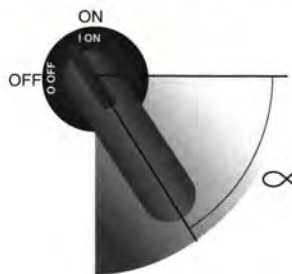
Load-break switches

Strömberg**NHP**

Switch fuses – OESA 32...160A

Auxiliary contact timing functions

Description – ON and OFF functions of auxiliary and main contacts

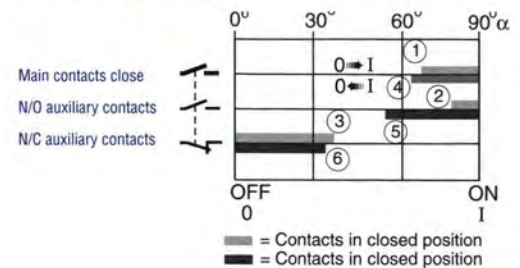


CLOSING

1. Main contacts close
2. N/O auxiliary contacts close
3. N/C auxiliary contacts open

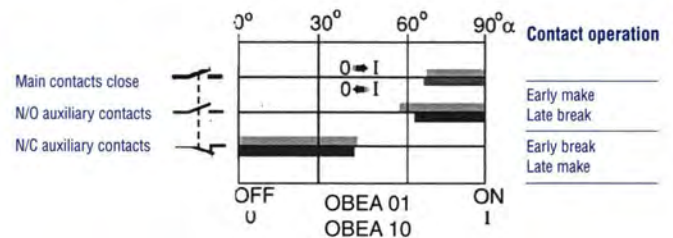
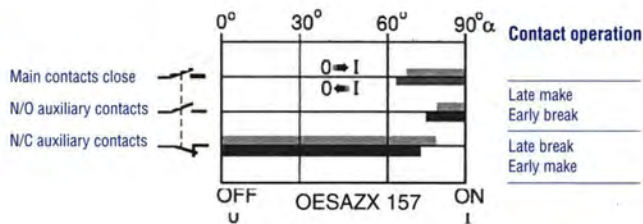
OPENING

4. Main contacts open
5. N/O auxiliary contacts open
6. N/C auxiliary contacts close



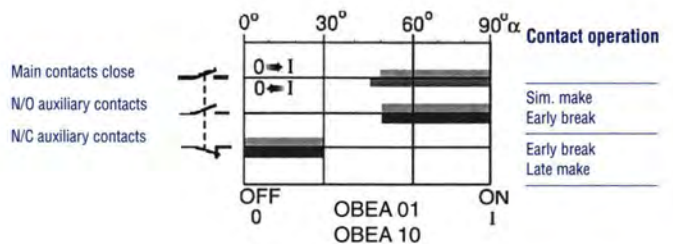
OESA mini 32A

Auxiliary contact	Configuration
OESAZX 157	1 x (changeover)
OESAZX 169 + OBEA 10	1 N/C
OESAZX 169 + OBEA 01	1 N/O



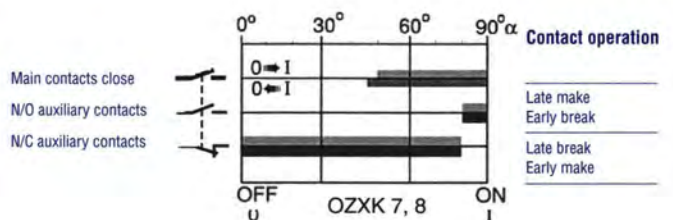
OESA 32...63A

Auxiliary contact	Configuration
OESA ZX252 + 2 x OBEA 10, 01	2 N/O - 2 N/C
OESA ZX252, 254 + 4 x OBEA 10, 01	4 N/O - 4 N/C
OZXK 7	1 x (changeover)
OZXK 8	2 x (changeover)



OESA 125...160A

Auxiliary contact	Configuration
OESA ZX250 + 2 x OBEA 10, 01	2 N/O - 2 N/C
OESA ZX250, 254 + 4 x OBEA 10, 01	4 N/O - 4 N/C
OZXK 7	1 x (changeover)
OZXK 8	2 x (changeover)



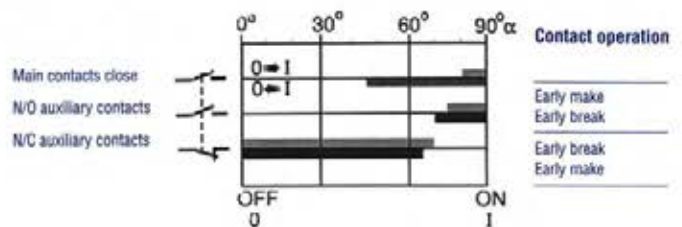
Strömberg**NHP**

Switch fuses – OESA 200...800A

Auxiliary contact timing functions

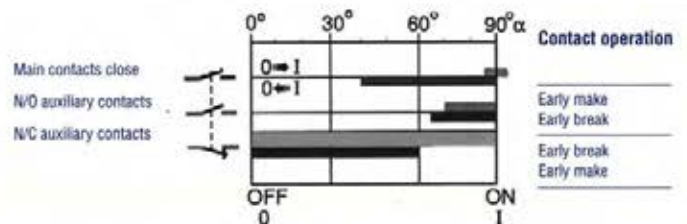
OESA 200A...400A

Auxiliary contact	Configuration
OZXX 1	1 N/O - 1 N/C
OZXX 2	2 N/O - 2 N/C
OZXX 3	4 N/O - 4 N/C
OZXX 4	2 N/O
OZXX 5	4 N/O



OESA 630A...800A

Auxiliary contact	Configuration
OZXX 1	1 N/O - 1 N/C
OZXX 2	2 N/O - 2 N/C
OZXX 3	4 N/O - 4 N/C
OZXX 4	2 N/O
OZXX 5	4 N/O

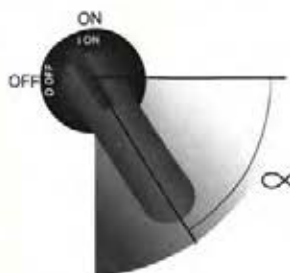


Strömberg**NHP**

Load-break switches – OT 16E...125E & OT 125A, 160E

Auxiliary contact timing functions

Description – ON and OFF functions of auxiliary and main contacts

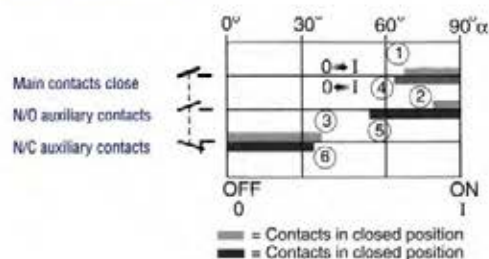


CLOSING

1. Main contacts close
2. N/O auxiliary contacts close
3. N/C auxiliary contacts open

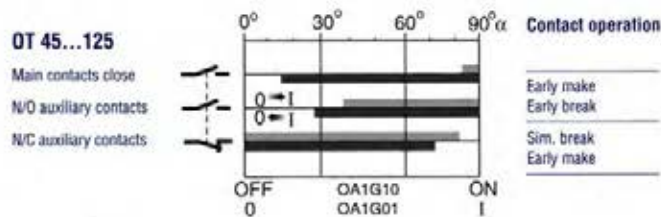
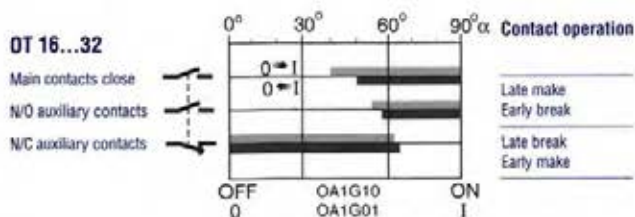
OPENING

4. Main contacts open
5. N/O auxiliary contacts open
6. N/C auxiliary contacts close



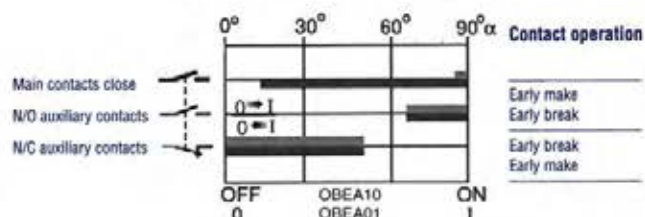
OT 16E,...125E

Auxiliary contact	Configuration
OA1G10	1 N/O
OA1G01	1 N/C



OT 125A, OT 160E

Auxiliary contact	Configuration
OEZNP1 + OBEA 10	1 N/O
OEZNP1 + OBEA 01	1 N/C



Strömberg

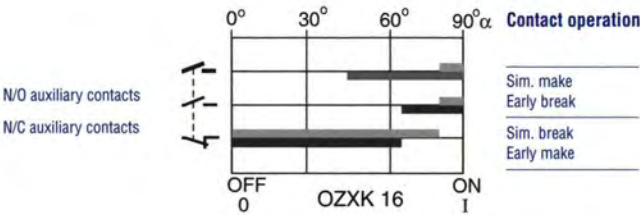
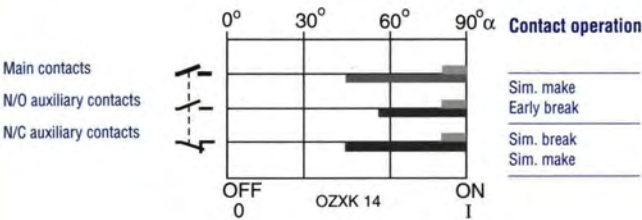
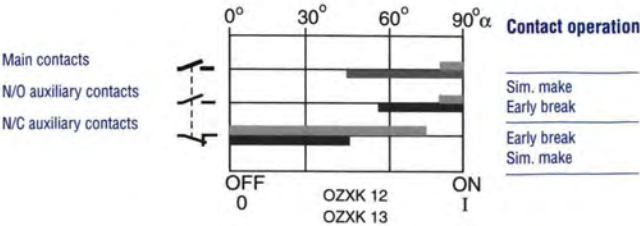
Load-break switches – OETL 200...3150

Auxiliary contact timing functions



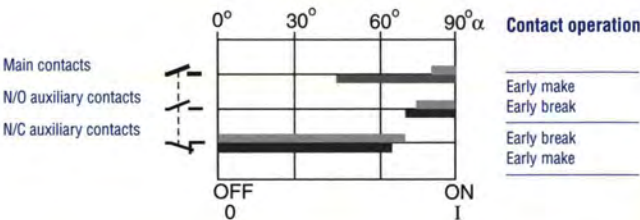
OETL 200, 250, 315K_

Auxiliary contact	Configuration
OZK 12	1 N/O - 1 N/C
OZK 13	2 N/O - 2 N/C
OZK 14	2 N/O OR 2 N/C
OZK 16	4 N/O - N/C



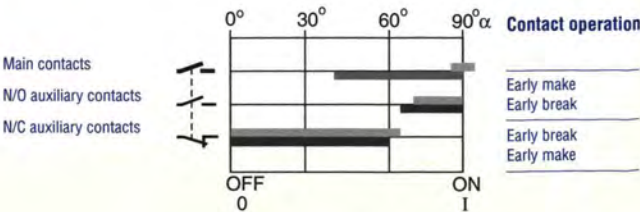
OETL 400D_, 630, 800K_

Auxiliary contact	Configuration
OZK 1	1 N/O - 1 N/C
OZK 2	2 N/O - 2 N/C
OZK 3	4 N/O - 4 N/C
OZK 4	2 N/O
OZK 5	4 N/O



OETL 1000, 1250, 1600, 2500, 3150K_

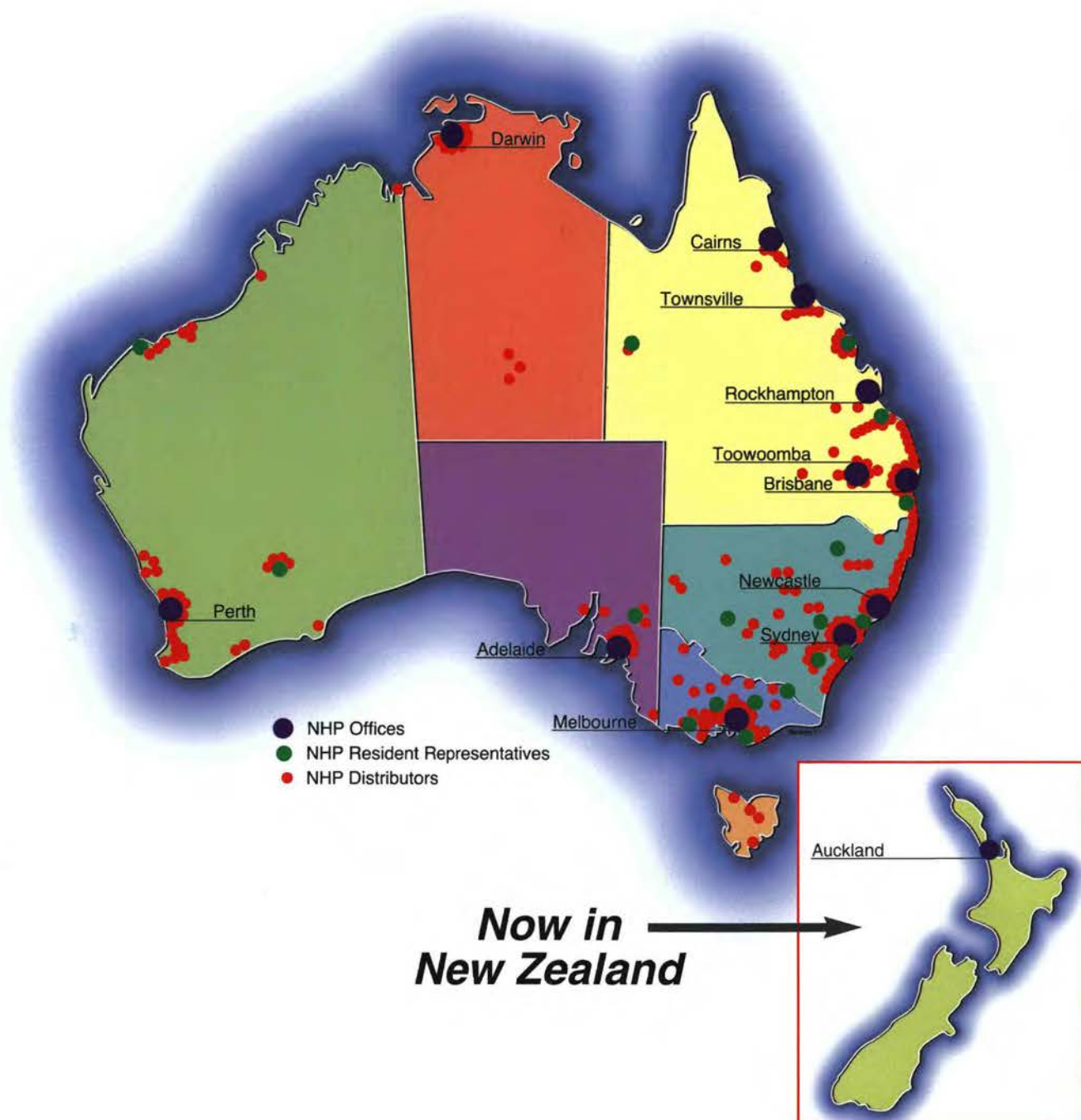
Auxiliary contact	Configuration
OZK 1	1 N/O - 1 N/C
OZK 2	2 N/O - 2 N/C
OZK 3	4 N/O - 4 N/C
OZK 4	2 N/O
OZK 5	4 N/O



Load-break switches



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FUSES*

Catalogue
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NHP ELECTRICAL ENGINEERING PRODUCTS PTY LTD



NHP was formed in 1968 for the purpose of manufacturing, importing and merchandising a wide range of specialised electrical switchgear, motor control gear and other, technical electrical products. At the time the company absorbed the technical merchandising activities of Johnson and Phillips Limited.

NHP is a wholly Australian owned company and represents a considerable number of overseas companies who manufacture complimentary equipment to the NHP programme, manufactured by NHP in Melbourne. The Head Office and Melbourne sales organisation is situated at Richmond, with branch offices in Sydney, Brisbane, Adelaide, Perth, Newcastle, Townsville, Rockhampton, Toowoomba, Cairns and Darwin.

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Due to this extensive national sales and service network the company is able to continue a policy of supplying an extensive range of technical electrical equipment, supported by substantial stocks and competent service back up on a national basis.

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Experienced engineers are also available to assist customers, throughout Australia and to advise on technical aspects and applications of equipment.

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The BS HRC fuse is silent operating and emission free, providing dramatic current and energy limitation characteristics, resulting in reliable back up protection, complimented by accurate discrimination, non deterioration in service and close overcurrent protection.



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Fuse-link terminology	4
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NNS-Type staggered contacts breaking capacity 80kA at 415V AC to BS 88: Part 6: 1988 Ref. F1

Current rating A		Overall length mm	Overall dia. mm	NHP Cat No.	MEM	GEC/Lawson	Siemens	Brush/Hawker	Bussman/Dorman Smith
Normal	Motor								
2	-	60	14	NNS2	2SN2	NS2	3NW NS2	2F06	NSD2
4	-			NNS4	4SN2	NS4	3NW NS4	4F06	NSD4
6	-			NNS6	6SN2	NS6	3NW NS6	6F06	NSD6
10	-			NNS10	10SN2	NS10	3NW NS10	10F06	NSD10
16	-			NNS16	16SN2	NS16	3NW NS16	16F06	NSD16
20	-			NNS20	20SN2	NS20	3NW NS20	20F06	NSD20
20	25			NNS 20M25	20SN2M25	NS20M25	3NW M25	20M25F06	NSD20M25
20	32			NNS 20M32	20SN2M32	NS20M32	3NW M32	20M32F06	NSD20M32
25	-			NNS25	25SN2	NS25	3NW NS25	25F06	NSD25
32	-			NNS32	32SN2	NS32	3NW NS32	32F06	NSD32

NES-Type staggered contacts breaking capacity 80kA at 415V AC to ASTA certified to BS 88: Part 6: 1988

20	-	68	17	NES20	20SP	-	-	-	ESD20
25	-			NES25	25SP	-	-	-	ESD25
32	-			NES32	32SP	-	-	-	ESD32
40	-			NES40	40SP	40ES	3NWES40	40G05	3SD40
50	-			NES50	50SP	50ES	3NWES50	50G05	ESD50
63	-			NES63	63SP	63ES	3NWES63	63G05	ESD63

**Industrial bolted pattern. Offset contacts ASTA certified to BS 88: Part 2: 1988.
Complies with IEC 269 Parts 1 and 2. Tested to 80kA at 415V AC**

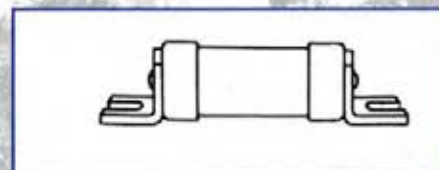
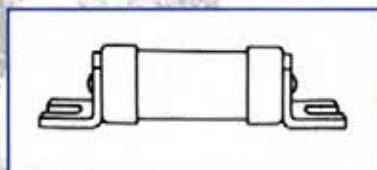
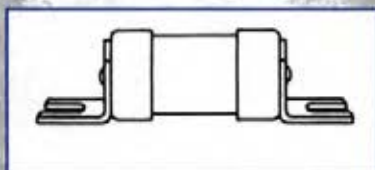
Current rating A		Fixing centres	BS88 ref	NHP Cat No.	MEM	GEC/Lawson	Siemens	Brush/Hawker	Bussman/Dorman Smith
Normal	Motor								
2	-	44.5	A1	NNIT2	2SA2	NIT2	3NWNIT2	2F21	NITD2
4	-			NNIT4	4SA2	NIT4	3NWNIT4	4F21	NITD4
6	-			NNIT6	6SA2	NIT6	3NWNIT6	6F21	NITD6
10	-			NNIT10	10SA2	NIT10	3NWNIT10	10F21	NITD10
16	-			NNIT16	16SA2	NIT16	3NW NIT16	16F21	NITD16
20	-			NNIT20	20SA2	NIT20	3NWNIT20	20F21	NITD20
20	25			NNIT20M25	20SA2M25	NIT20M25	3NWNIT20M25	20M25F21	NITD20M25
20	32			NNIT20M32	20SA2M32	NIT20M32	3NWNIT20M32	20M32F21	NITD20M32
25	-			NNIT25	25SA2	-	3NWNIT25	25F21	NITD25
32	-			NNIT32	32SA2	-	3NWNIT32	32F21	NITD32
32	40	73	A2	NNIT32M40	32SA2M40	-	3NWNIT32M40	-	-
32	50			NNIT32M50	32SA2M50	-	3NWNIT32M50	-	-
32	63			NNIT32M63	32SA2M63	-	3NWNIT32M63	-	-
2	-			NTIA2	2SB3	TIA2	3NWTIA2	2H07	AA02
4	-			NTIA4	4SB3	TIA4	3NWTIA4	4H07	AA04
6	-			NTIA6	6SB3	TIA6	3NWTIA6	6H07	AA06
10	-			NTIA10	10SB3	TIA10	3NWTIA10	10H07	AA010
16	-			NTIA16	16SB3	TIA16	3NWTIA16	16H07	AA016
20	-			NTIA20	20SB3	TIA20	3NWTIA20	20H07	AA020
25	-			NTIA25	25SB3	TIA25	3NWTIA25	25H07	AA025
32	-			NTIA32	32SB3	TIA32	3NWTIA32	32H07	AA032
32	40			NTIA32M40	32SB3M40	TIA32M40	3NWTIA32M40	32M40H07	AA032M40
32	50			NTIA32M50	32SB3M50	TIA32M50	3NWTIA32M50	32M50H07	AA032M50
32	63			NTIA32M63	32SB3M63	TIA32M63	3NWTIA32M63	32M63H07	AA032M63
35	-	73	A3	NTIS35	35SB4	TIS35	3NWTIS35	35K07	BA035
40	-			NTIS40	40SB4	TIS40	3NWTIS40	40K07	BA040
50	-			NTIS50	50SB4	TIS50	3NWTIS50	50K07	BA050
63	-			NTIS63	63SB4	TIS63	3NWTIS63	63K07	BA063
63	80			NTIS63M80	63SB4M80	TIS63M80	3NWTIS63M80	63M80K07	BA063M80
63	100			NTIS63M100	63SB4M100	TIS63M100	3NWTIS63M100	63M100K07	BA063M100
80	-			NOS80	80SO	OS80	3NWOS80	80K07R	OSD80
100	-			NOS100	100SO	OS100	3NWOS100	100K07R	OSD100
100	125			NOS100M125	-	OS100M125	-	100M125K07R	OSD100M125
100	160			NOS100M160	-	OS100M160	-	100M160K07R	OSD100M160
80	-	94	A4	NTCP80	80SD5	TCP80	3NWTCP80	80L14	CE080
100	-			NTCP100	100SD5	TCP100	3NWTCP100	100L14	CE0100
100	125			NTCP100M125	100SD5M125	TCP100M125	3NWTCP100M125	100M125L14	CE0100M125
100	160			NTCP100M160	100SD5M160	TCP100M160	3NWTCP100M160	100M160L14	CE0100M160
125	-			NTFP125	125SD6	TFP125	3NWTFP125	125M14	DE0125
160	-			NTFP160	160SD6	TFP160	3NWTFP160	160M14	DE0160
200	-			NTFP200	200SD6	TFP200	3NWTFP200	200M14	DE0200
200	250			NTFP200M250	200SD6M250	TFP200M250	-	200M250M14	DE0200M250

NHP Compact industrial bolted pattern. Centre contacts, ASTA certified to BS 88: Part 2: 1988.
Complies with IEC 269 parts 1 and 2. Tested to 80kA at 415V AC. *550V AC.

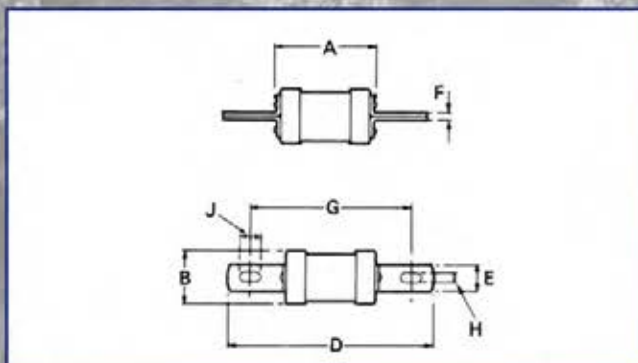
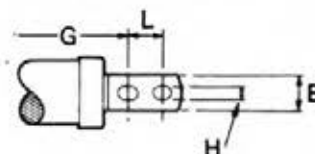
					Cross reference				
Current rating A		Fixing centres	BS88 ref	NHP Cat No.	MEM	GEC/Lawson	Siemens	Brush/Hawker	Bussman/Dorman Smith
Normal	Motor								
2	-	97	-	NTB2*	2SE3	TB2	3NWTB2	2K08	AC2
4	-			NTB4*	4SE3	TB4	3NWTB4	4K08	AC4
6	-			NTB6*	6SE3	TB6	3NWTB6	6K08	AC6
10	-			NTB10*	10SE3	TB10	3NWTB10	10K08	AC10
16	-			NTB16*	16SE3	TB16	3NWTB16	16K08	AC16
20	-			NTB20*	20SE3	TB20	3NWTB20	20K08	AC20
25	-			NTB25*	25SE3	TB25	3NWTB25	25K08	AC25
32	-			NTB32*	32SE3	TB32	3NWTB32	32K08	AC32
40	-			NTB40*	40SE3	TB40	3NWTB40	40K08	BC40
50	-			NTB50*	50SE3	TB50	3NWTB50	50K08	BC50
63	-			NTB63*	63SE3	TB63	3NWTB63	63K08	BC63
63	80			NTB63M80	63SE4M80	TB63M80	3NWTB63M80	-	-
63	100			NTB63M100	63SE4M100	TB63M100	3NWTB63M100	-	-
2	-	111	B1	NTBC2	2SF3	TBC2	3NW TBC2	2K09	AD2
4	-			NTBC4	4SF3	TBC4	3NW TBC4	4K09	AD4
6	-			NTBC6	6SF3	TBC6	3NW TBC6	6K09	AD6
10	-			NTBC10	10SF3	TBC10	3NW TBC10	10K09	AD10
16	-			NTBC16	16SF3	TBC16	3NW TBC16	16K09	AD16
20	-			NTBC20	20SF3	TBC20	3NW TBC20	20K09	AD20
25	-			NTBC25	25SF3	TBC25	3NW TBC25	25K09	AD25
32	-			NTBC32	32SF3	TBC32	3NW TBC32	32K09	AD32
40	-			NTBC40	40SF3	TBC40	3NW TBC40	40K09	AD40
50	-			NTBC50	50SF3	TBC50	3NW TBC50	50K09	AD50
63	-			NTBC63	63SF3	TBC63	3NW TBC63	63K09	AD63
63	80			NTBC63M80	63SF4M80	TBC63M80	3NW TBC63M80	-	-
63	100			NTBC63M100	63SF4M100	TBC63M100	3NW TBC63M100	-	-
80	-	111	B1	NTC80	80SF5	TC80	3NW TC80	80L09	CD80
100	-			NTC100	100SF5	TC100	3NW TC100	100L09	CD100
100	125			NTC100M125	100SF5M125	TC100M125	3NW TC100M125	100M125L09	CD100M125
100	160			NTC100M160	100SF5M160	TC100M160	3NW TC100M160	100M160L09	CD100M160
100	200			NTC100M200	100SF5M200				
125	-	111	B2	NTF125	125SF6	TF125	3NW TF125	125M09	DD125
160	-			NTF160	160SF6	TF160	3NW TF160	160M09	DD160
200	-			NTF200	200SF6	TF200	3NW TF200	200M09	DD200
200	250			NTF200M250	200SF6M250	TF200M250	3NW TF200M250	200M250M09	DD200M250
200	315			NTF200M315	200SF6M315	TF200M315	3NW TF200M315	200M315M09	
250	-	111	B3	NTKF250	250SF7	TKF250	3NW TKF250	250N09	ED250
315	-			NTKF315	315SF7	TKF315	3NW TKF315	315N09	ED315
315	400			NTKF315M400	315SF7M400		3NW TKF315M400		
250	-	133	-	NTKM250	250SG7	TKM250	3NW TKM250	250N11	EF250
315	-			NTKM315	315SG7	TKM315	3NW TKM315	315N11	EF315
355	-	111	B4	NTMF355	355SF8	TMF355	3NW TMF355	355P09	ED355
400	-			NTMF400	400SF8	TMF400	3NW TMF400	400P09	ED400
355	-	133/184	C1	NTM355	355SH8	TM355	3NW TM355	355P11	EF355
400	-			NTM400	400SH8	TM400	3NW TM400	400P11	EF400
450	-	133/184	C2	NTTM450	450SH9	TTM450	3NW TTM450	450R11	FF450
500	-			NTTM500	500SH9	TTM500	3NW TTM500	500R11	FF500
560	-			NTTM560	560SH9	TTM560	3NW TTM560	560R11	GF550
630	-			NTTM630	630SH9	TTM630	3NW TTM630	630R11	GF630
450	-	165/229	-	NTT450	450SY9	TT450	3NWTT450	450R12	FG450
500	-			NTT500	500SY9	TT500	3NWTT500	500R12	FG500
560	-			NTT560	560SY9	TT560	3NWTT560	560R12	FG560
630	-			NTT630	630SY9	TT630	3NWTT630	630R12	FG630
710	-	165/229	-	NTLT710	710SY10	TLT710	3NWTLT710	710S12	GG710
800	-			NTLT800	800SY10	TLT800	3NWTLT800	800S12	GG800
710	-	133/184	C3	NTLM710	710SH10	TLM710	3NW TLM710	700S11	GF710
800	-			NTLM800	800SH10	TLM800	3NW TLM800	800S11	GF800
1000	-	149	D1	NTXU1000	1000SJ11	TXU1000	-	1000U44	GH1000
1250	-			NTXU1250	1250SH11	TXU1250	-	1250U44	GH1250

Dimensions (mm)

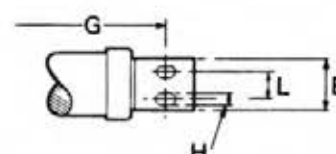
Fuse link type	A max. mm	B max. mm	D max. mm	E mm	F mm	G nom. mm	H mm	J mm
NNIT	36	14	55	11	0.8	44.5	4.8	-
NTIA NTIS	56	21	86	9	1.2	73	5.5	7.5
NTIS(M)	58	26	90	13	1.6	73	5.5	-
NOS	58	27	90	13	1.6	73	5.5	-
NTCP	62	27	110	19	2.4	94	8.7	-
NTCP(M)	62	30	110	19	2.4	94	8.7	-
NTFP	77	30	110	19	2.4	94	8.7	10.3
NTFP(M)	77	40	110	19	2.4	94	8.7	10.3

**Dimensions (mm)**

Fuse link type	A max. mm	B max. mm	D max. mm	E mm	F mm	G nom. mm	H mm	J mm	L mm
NTB	57	21	114	13	1.6	97	7.2	11	-
NTB...M...	57	26	116	13	1.6	97	7.2	11	-
NTBC	57	21	134	16	2.0	111	8.7	16	-
NTBC...M...	58	26	136	16	3.2	111	8.7	16	-
NTC	66	36	135	19	3.6	111	8.7	16	-
NTF	76	41	137	19	3.6	111	8.7	16	-
NTKF	76	51	137	26	4.0	111	8.7	16	-
NTMF	81	58	136	26	5.2	111	8.7	16	-
NTKM	76	51	158	26	4.0	133	8.7	16	-
NTM	81	58	210	26	5.2	133/184	10.3	16	25.4
NTTM	83	74	210	26	6.5	133/184	10.3	16	25.4
NTLM	84	82	210	26	10	133/184	10.3	16	25.4
NTT	83	74	267	38	6.5	165	10.3	16	32
NTLT	84	82	267	38	10	165	10.3	16	32
NTXU	83	100	198	63.5	9.5	149	14.3	19	32

NTT, NTLT, NTM,
NTTM, NTLM
types

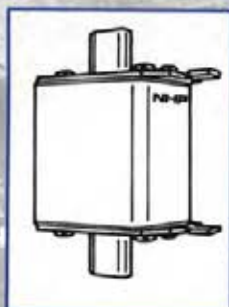
NTXU type



NHP COMPACT
FUSES

HRC DIN type fuse-links

(Also referred to as NH type)

DIN fuses
Cross reference guide

N-Type 600V AC *500V AC. Manufactured to DIN43620/1, IEC269-2-1. Rated breaking capacity 120kA r.m.s. Time current gL to VDE 0636/21. Characteristics gG to IEC 269-2-1.

All NHP Compact DIN fuses feature "pop up" blown fuse indication



				Cross reference			
Current rating A		Length mm	NHP Cat No.	MEM	GEC	Legrand	Bussman
SIZE 00	6*	78.5	N006	NHC 006	-	-	NHC00B
	10*	78.5	N0010	NHC 0010	NHG00C	-	NHC00B
	16*	78.5	N0016	NHC 0016	NHG00C	-	NHC00B
	20*	78.5	N0020	NHC 0020	NHG00C	-	NHC00B
	25*	78.5	N0025	NHC 0025	NHG00C	-	NHC00B
	32*	78.5	N0032	NHC 0032	NHG00C	-	NHC00B
	35*	78.5	N0035	NHC 0035	NHG00C	-	NHC00B
	40*	78.5	N0040	NHC 0040	NHG00C	-	NHC00B
	50*	78.5	N0050	NHC 0050	NHG00C	-	NHC00B
	63*	78.5	N0063	NHC 0063	NHG00C	-	NHC00B
	80*	78.5	N0080	NHC 0080	NHG00C	-	NHC00B
	100*	78.5	N00100	NHC 00100	NHG00C	-	NHC00B
	125*	78.5	N00125	NH00125	NHG00	163	NH 00B
	160*	78.5	N00160	NH00160	NHG00	163	NH 00B
SIZE 1	25	133.0	N125	NH 0125	NHG1	173	NH1B
	35	133.0	N135	NH 0135	NHG1	173	NH1B
	50	133.0	N150	NH 0150	NHG1	173	NH1B
	63	133.0	N163	NH 0163	NHG1	173	NH1B
	80	133.0	N180	NH 0180	NHG1	173	NH1B
	100	133.0	N1100	NH 01100	NHG1	173	NH1B
	125	133.0	N1125	NH 01125	NHG1	173	NH1B
	160	133.0	N1160	NH 01160	NHG1	173	NH1B
	200	133.0	N1200	NH 01200	NHG1	173	NH1B
	224*	133.0	N1225	NH 01224	NHG1	173	NH1B
	250*	133.0	N1250	NH 01250	NHG1	173	NH1B
SIZE 2	80	148.0	N280	NH 0280	NHG2	178	NH2B
	100	148.0	N2100	NH 02100	NHG2	178	NH2B
	125	148.0	N2125	NH 02125	NHG2	178	NH2B
	160	148.0	N2160	NH 02160	NHG2	178	NH2B
	200	148.0	N2200	NH 02200	NHG2	178	NH2B
	224	148.0	N2224	NH 02224	NHG2	178	NH2B
	250	148.0	N2250	NH 02250	NHG2	178	NH2B
	315	148.0	N2315	NH 02315	NHG2	178	NH2B
	355*	148.0	N2355	NH 02355	NHG2	178	NH2B
	400*	148.0	N2400	NH 02400	NHG2	178	NH2B
SIZE 3	315	150.0	N3315	NH 03315	NHG3	181	NH3B
	355	150.0	N3355	NH 03355	NHG3	181	NH3B
	400	150.0	N3400	NH 03400	NHG3	181	NH3B
	500	150.0	N3500	NH 03500	NHG3	181	NH3B
	630*	150.0	N3630	NH 03630	NHG3	181	NH3B

Our NHP DIN fuse extractor handle suits sizes 00 to 3 DIN fuses.

Slimline, the innovative new switch fuse system makes full use of the NHP DIN type fuse.



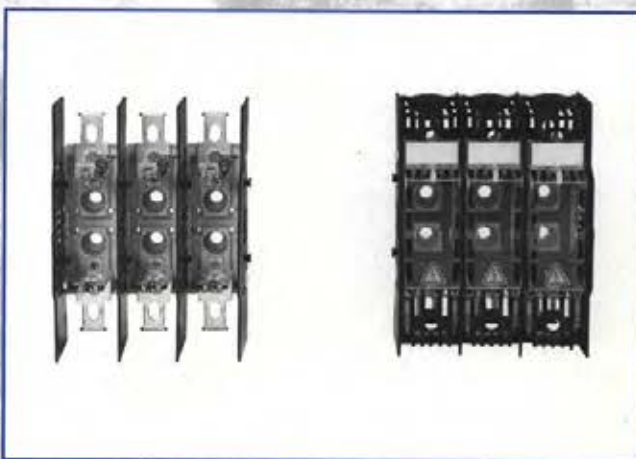
Slimline is a modular, space saving and fully type tested switch fuse and rack system which has proven benefits in its ease of use and economy due to the possibility of reducing overall switchboard size.

To find out more about Slimline, ask your nearest NHP office for a copy of publication SFL.

Stromberg OFAX DIN fuse bases

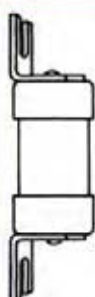
NHP has a range of single and three pole DIN fuse bases for size 00 and 1 DIN fuses.

Fully shrouded and open versions are available.



**NNS-Type staggered contacts breaking capacity 80kA at 415V AC to BS 88: Part 6: 1988 Ref. F1**

Current rating A		Overall length mm	Overall dia. mm	NHP Cat No.	MEM	GEC/Lawson	Siemens	Brush/Hawker	Bussman/Dorman Smith
Normal	Motor								
2	-	60	14	NNS2	2SN2	NS2	3NW NS2	2F06	NSD2
4	-			NNS4	4SN2	NS4	3NW NS4	4F06	NSD4
6	-			NNS6	6SN2	NS6	3NW NS6	6F06	NSD6
10	-			NNS10	10SN2	NS10	3NW NS10	10F06	NSD10
16	-			NNS16	16SN2	NS16	3NW NS16	16F06	NSD16
20	-			NNS20	20SN2	NS20	3NW NS20	20F06	NSD20
20	25			NNS 20M25	20SN2M25	NS20M25	3NW M25	20M25F06	NSD20M25
20	32			NNS 20M32	20SN2M32	NS20M32	3NW M32	20M32F06	NSD20M32
25	-			NNS25	25SN2	NS25	3NW NS25	25F06	NSD25
32	-			NNS32	32SN2	NS32	3NW NS32	32F06	NSD32

**NES-Type staggered contacts breaking capacity 80kA at 415V AC to ASTA certified to BS 88: Part 6: 1988**

20	68	17	NES20	20SP	-	-	-	ESD20
25			NES25	25SP	-	-	-	ESD25
32			NES32	32SP	-	-	-	ESD32
40			NES40	40SP	40ES	3NWES40	40G05	3SD40
50			NES50	50SP	50ES	3NWES50	50G05	ESD50
63			NES63	63SP	63ES	3NWES63	63G05	ESD63

**Industrial bolted pattern. Offset contacts ASTA certified to BS 88: Part 2: 1988.
Complies with IEC 269 Parts 1 and 2. Tested to 80kA at 415V AC**

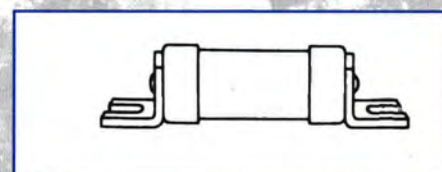
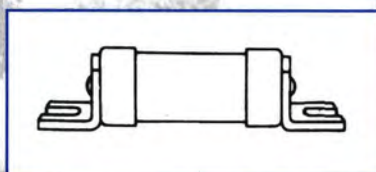
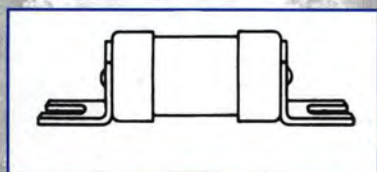
Current rating A		Fixing centres	BS88 ref	NHP Cat No.	MEM	GEC/Lawson	Siemens	Brush/Hawker	Bussman/Dorman Smith
Normal	Motor								
2	-	44.5	A1	NNIT2	2SA2	NIT2	3NWNIT2	2F21	NITD2
4	-			NNIT4	4SA2	NIT4	3NWNIT4	4F21	NITD4
6	-			NNIT6	6SA2	NIT6	3NWNIT6	6F21	NITD6
10	-			NNIT10	10SA2	NIT10	3NWNIT10	10F21	NITD10
16	-			NNIT16	16SA2	NIT16	3NW NIT16	16F21	NITD16
20	-			NNIT20	20SA2	NIT20	3NWNIT20	20F21	NITD20
20	25			NNIT20M25	20SA2M25	NIT20M25	3NWNIT20M25	20M25F21	NITD20M25
20	32			NNIT20M32	20SA2M32	NIT20M32	3NWNIT20M32	20M32F21	NITD20M32
25	-			NNIT25	25SA2	-	3NWNIT25	25F21	NITD25
32	-			NNIT32	32SA2	-	3NWNIT32	32F21	NITD32
32	40	73	A2	NNIT32M40	32SA2M40	-	3NWNIT32M40	-	-
32	50			NNIT32M50	32SA2M50	-	3NWNIT32M50	-	-
32	63			NNIT32M63	32SA2M63	-	3NWNIT32M63	-	-
2	-			NTIA2	2SB3	TIA2	3NWTIA2	2H07	AA02
4	-			NTIA4	4SB3	TIA4	3NWTIA4	4H07	AA04
6	-			NTIA6	6SB3	TIA6	3NWTIA6	6H07	AA06
10	-			NTIA10	10SB3	TIA10	3NWTIA10	10H07	AA010
16	-			NTIA16	16SB3	TIA16	3NWTIA16	16H07	AA016
20	-			NTIA20	20SB3	TIA20	3NWTIA20	20H07	AA020
25	-			NTIA25	25SB3	TIA25	3NWTIA25	25H07	AA025
32	-			NTIA32	32SB3	TIA32	3NWTIA32	32H07	AA032
32	40			NTIA32M40	32SB3M40	TIA32M40	3NWTIA32M40	32M40H07	AA032M40
32	50			NTIA32M50	32SB3M50	TIA32M50	3NWTIA32M50	32M50H07	AA032M50
32	63			NTIA32M63	32SB3M63	TIA32M63	3NWTIA32M63	32M63H07	AA032M63
35	-	73	A3	NTIS35	35SB4	TIS35	3NWTIS35	35K07	BA035
40	-			NTIS40	40SB4	TIS40	3NWTIS40	40K07	BA040
50	-			NTIS50	50SB4	TIS50	3NWTIS50	50K07	BA050
63	-			NTIS63	63SB4	TIS63	3NWTIS63	63K07	BA063
63	80			NTIS63M80	63SB4M80	TIS63M80	3NWTIS63M80	63M80K07	BA063M80
63	100			NTIS63M100	63SB4M100	TIS63M100	3NWTIS63M100	63M100K07	BA063M100
80	-			NOS80	80SO	OS80	3NWOS80	80K07R	OSD80
100	-			NOS100	100SO	OS100	3NWOS100	100K07R	OSD100
100	125			NOS100M125	-	OS100M125	-	100M125K07R	OSD100M125
100	160			NOS100M160	-	OS100M160	-	100M160K07R	OSD100M160
80	-	94	A4	NTCP80	80SD5	TCP80	3NWTCP80	80L14	CE080
100	-			NTCP100	100SD5	TCP100	3NWTCP100	100L14	CE0100
100	125			NTCP100M125	100SD5M125	TCP100M125	3NWTCP100M125	100M125L14	CE0100M125
100	160			NTCP100M160	100SD5M160	TCP100M160	3NWTCP100M160	100M160L14	CE0100M160
125	-			NTFP125	125SD6	TFP125	3NWTFP125	125M14	DE0125
160	-			NTFP160	160SD6	TFP160	3NWTFP160	160M14	DE0160
200	-			NTFP200	200SD6	TFP200	3NWTFP200	200M14	DE0200
200	250			NTFP200M250	200SD6M250	TFP200M250	-	200M250M14	DE0200M250

NHP Compact industrial bolted pattern. Centre contacts, ASTA certified to BS 88: Part 2: 1988.
Complies with IEC 269 parts 1 and 2. Tested to 80kA at 415V AC. *550V AC.

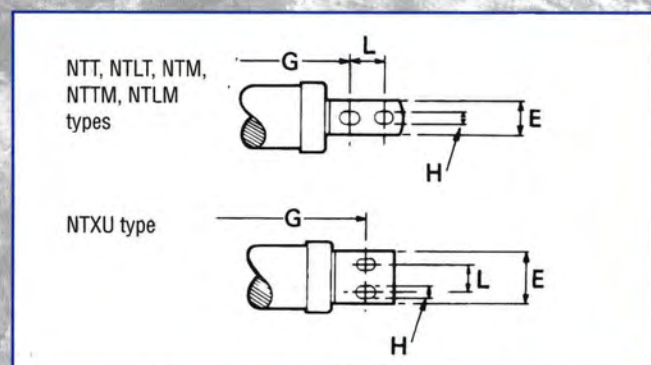
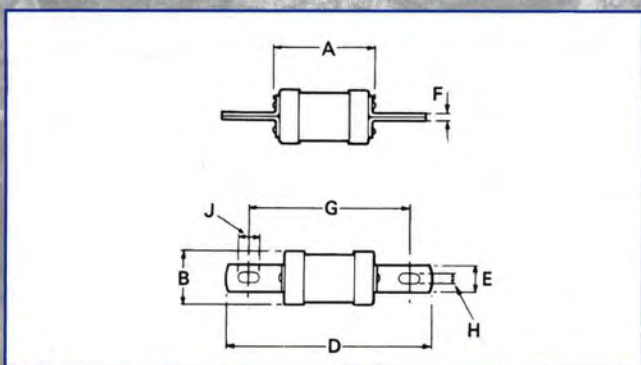
					Cross reference				
Current rating A		Fixing centres	BS88 ref	NHP Cat No.	MEM	GEC/Lawson	Siemens	Brush/Hawker	Bussman/Dorman Smith
Normal	Motor								
2	-	97	-	NTB2*	2SE3	TB2	3NWTB2	2K08	AC2
4	-			NTB4*	4SE3	TB4	3NWTB4	4K08	AC4
6	-			NTB6*	6SE3	TB6	3NWTB6	6K08	AC6
10	-			NTB10*	10SE3	TB10	3NWTB10	10K08	AC10
16	-			NTB16*	16SE3	TB16	3NWTB16	16K08	AC16
20	-			NTB20*	20SE3	TB20	3NWTB20	20K08	AC20
25	-			NTB25*	25SE3	TB25	3NWTB25	25K08	AC25
32	-			NTB32*	32SE3	TB32	3NWTB32	32K08	AC32
40	-			NTB40*	40SE3	TB40	3NWTB40	40K08	BC40
50	-			NTB50*	50SE3	TB50	3NWTB50	50K08	BC50
63	-	97	-	NTB63*	63SE3	TB63	3NWTB63	63K08	BC63
63	80			NTB63M80	63SE4M80	TB63M80	3NWTB63M80	-	-
63	100			NTB63M100	63SE4M100	TB63M100	3NWTB63M100	-	-
2	-	111	B1	NTBC2	2SF3	TBC2	3NW TBC2	2K09	AD2
4	-			NTBC4	4SF3	TBC4	3NW TBC4	4K09	AD4
6	-			NTBC6	6SF3	TBC6	3NW TBC6	6K09	AD6
10	-			NTBC10	10SF3	TBC10	3NW TBC10	10K09	AD10
16	-			NTBC16	16SF3	TBC16	3NW TBC16	16K09	AD16
20	-			NTBC20	20SF3	TBC20	3NW TBC20	20K09	AD20
25	-			NTBC25	25SF3	TBC25	3NW TBC25	25K09	AD25
32	-			NTBC32	32SF3	TBC32	3NW TBC32	32K09	AD32
40	-			NTBC40	40SF3	TBC40	3NW TBC40	40K09	AD40
50	-			NTBC50	50SF3	TBC50	3NW TBC50	50K09	AD50
63	-	111	B1	NTBC63	63SF3	TBC63	3NW TBC63	63K09	AD63
63	80			NTBC63M80	63SF4M80	TBC63M80	3NW TBC63M80	-	-
63	100			NTBC63M100	63SF4M100	TBC63M100	3NW TBC63M100	-	-
80	-	111	B1	NTC80	80SF5	TC80	3NW TC80	80L09	CD80
100	-			NTC100	100SF5	TC100	3NW TC100	100L09	CD100
100	125			NTC100M125	100SF5M125	TC100M125	3NW TC100M125	100M125L09	CD100M125
100	160			NTC100M160	100SF5M160	TC100M160	3NW TC100M160	100M160L09	CD100M160
100	200	111	B2	NTC100M200	100SF5M200				
125	-			NTF125	125SF6	TF125	3NW TF125	125M09	DD125
160	-			NTF160	160SF6	TF160	3NW TF160	160M09	DD160
200	-			NTF200	200SF6	TF200	3NW TF200	200M09	DD200
200	250	111	B3	NTF200M250	200SF6M250	TF200M250	3NW TF200M250	200M250M09	DD200M250
200	315			NTF200M315	200SF6M315	TF200M315	3NW TF200M315	200M315M09	
250	-	111	B3	NTKF250	250SF7	TKF250	3NW TKF250	250N09	ED250
315	-			NTKF315	315SF7	TKF315	3NW TKF315	315N09	ED315
315	400			NTKF315M400	315SF7M400		3NW TKF315M400		
250	-	133	-	NTKM250	250SG7	TKM250	3NW TKM250	250N11	EF5250
315	-			NTKM315	315SG7	TKM315	3NW TKM315	315N11	EF5315
355	-	111	B4	NTMF355	355SF8	TMF355	3NW TMF355	355P09	ED355
400	-			NTMF400	400SF8	TMF400	3NW TMF400	400P09	ED400
355	-	133/184	C1	NTM355	355SH8	TM355	3NW TM355	355P11	EF355
400	-			NTM400	400SH8	TM400	3NW TM400	400P11	EF400
450	-	133/184	C2	NTTM450	450SH9	TTM450	3NW TTM450	450R11	FF450
500	-			NTTM500	500SH9	TTM500	3NW TTM500	500R11	FF500
560	-			NTTM560	560SH9	TTM560	3NW TTM560	560R11	GF550
630	-	165/229	-	NTTM630	630SH9	TTM630	3NW TTM630	630R11	GF630
450	-			NTT450	450SY9	TT450	3NWTT450	450R12	FG450
500	-			NTT500	500SY9	TT500	3NWTT500	500R12	FG500
560	-			NTT560	560SY9	TT560	3NWTT560	560R12	FG560
630	-	165/229	-	NTT630	630SY9	TT630	3NWTT630	630R12	FG630
710	-	165/229	-	NTLT710	710SY10	TLT710	3NWTLT710	710S12	GG710
800	-			NTLT800	800SY10	TLT800	3NWTLT800	800S12	GG800
710	-	133/184	C3	NTLM710	710SH10	TLM710	3NW TLM710	700S11	GF710
800	-			NTLM800	800SH10	TLM800	3NW TLM800	800S11	GF800
1000	-	149	D1	NTXU1000	1000SJ11	TXU1000	-	1000U44	GH1000
1250	-			NTXU1250	1250SH11	TXU1250	-	1250U44	GH1250

NHP COMPACT
FUSES**HRC cartridge fuse-links***Dimensions***Dimensions (mm)**

Fuse link type	A max. mm	B max. mm	D max. mm	E mm	F mm	G nom. mm	H mm	J mm
NNIT	36	14	55	11	0.8	44.5	4.8	-
NTIA } NTIS }	56	21	86	9	1.2	73	5.5	7.5
NTIS(M)	58	26	90	13	1.6	73	5.5	-
NOS	58	27	90	13	1.6	73	5.5	-
NTCP	62	27	110	19	2.4	94	8.7	-
NTCP(M)	62	30	110	19	2.4	94	8.7	-
NTFP	77	30	110	19	2.4	94	8.7	10.3
NTFP(M)	77	40	110	19	2.4	94	8.7	10.3

**Dimensions (mm)**

Fuse link type	A max. mm	B max. mm	D max. mm	E mm	F mm	G nom. mm	H mm	J mm	L mm
NTB	57	21	114	13	1.6	97	7.2	11	-
NTB...M...	57	26	116	13	1.6	97	7.2	11	-
NTBC	57	21	134	16	2.0	111	8.7	16	-
NTBC...M...	58	26	136	16	3.2	111	8.7	16	-
NTC	66	36	135	19	3.6	111	8.7	16	-
NTF	76	41	137	19	3.6	111	8.7	16	-
NTKF	76	51	137	26	4.0	111	8.7	16	-
NTMF	81	58	136	26	5.2	111	8.7	16	-
NTKM	76	51	158	26	4.0	133	8.7	16	-
NTM	81	58	210	26	5.2	133/184	10.3	16	25.4
NTTM	83	74	210	26	6.5	133/184	10.3	16	25.4
NTLM	84	82	210	26	10	133/184	10.3	16	25.4
NTT	83	74	267	38	6.5	165	10.3	16	32
NTLT	84	82	267	38	10	165	10.3	16	32
NTXU	83	100	198	63.5	9.5	149	14.3	19	32



NHP COMPACT
FUSES

HRC DIN type fuse-links

(Also referred to as NH type)

DIN fuses
Cross reference guide

N-Type 600V AC *500V AC. Manufactured to DIN43620/1, IEC269-2-1. Rated breaking capacity 120kA r.m.s. Time current gL to VDE 0636/21. Characteristics gG to IEC 269-2-1.

All NHP Compact DIN fuses feature "pop up" blown fuse indication



				Cross reference			
Current rating A		Length mm	NHP Cat No.	MEM	GEC	Legrand	Bussman
SIZE 00	6*	78.5	N006	NHC 006	-	-	NHC00B
	10*	78.5	N0010	NHC 0010	NHG00C	-	NHC00B
	16*	78.5	N0016	NHC 0016	NHG00C	-	NHC00B
	20*	78.5	N0020	NHC 0020	NHG00C	-	NHC00B
	25*	78.5	N0025	NHC 0025	NHG00C	-	NHC00B
	32*	78.5	N0032	NHC 0032	NHG00C	-	NHC00B
	35*	78.5	N0035	NHC 0035	NHG00C	-	NHC00B
	40*	78.5	N0040	NHC 0040	NHG00C	-	NHC00B
	50*	78.5	N0050	NHC 0050	NHG00C	-	NHC00B
	63*	78.5	N0063	NHC 0063	NHG00C	-	NHC00B
	80*	78.5	N0080	NHC 0080	NHG00C	-	NHC00B
	100*	78.5	N00100	NHC 00100	NHG00C	-	NHC00B
	125*	78.5	N00125	NH00125	NHG00	163	NH 00B
	160*	78.5	N00160	NH00160	NHG00	163	NH 00B
SIZE 1	25	133.0	N125	NH 0125	NHG1	173	NH1B
	35	133.0	N135	NH 0135	NHG1	173	NH1B
	50	133.0	N150	NH 0150	NHG1	173	NH1B
	63	133.0	N163	NH 0163	NHG1	173	NH1B
	80	133.0	N180	NH 0180	NHG1	173	NH1B
	100	133.0	N1100	NH 01100	NHG1	173	NH1B
	125	133.0	N1125	NH 01125	NHG1	173	NH1B
	160	133.0	N1160	NH 01160	NHG1	173	NH1B
	200	133.0	N1200	NH 01200	NHG1	173	NH1B
	224*	133.0	N1225	NH 01224	NHG1	173	NH1B
	250*	133.0	N1250	NH 01250	NHG1	173	NH1B
SIZE 2	80	148.0	N280	NH 0280	NHG2	178	NH2B
	100	148.0	N2100	NH 02100	NHG2	178	NH2B
	125	148.0	N2125	NH 02125	NHG2	178	NH2B
	160	148.0	N2160	NH 02160	NHG2	178	NH2B
	200	148.0	N2200	NH 02200	NHG2	178	NH2B
	224	148.0	N2224	NH 02224	NHG2	178	NH2B
	250	148.0	N2250	NH 02250	NHG2	178	NH2B
	315	148.0	N2315	NH 02315	NHG2	178	NH2B
	355*	148.0	N2355	NH 02355	NHG2	178	NH2B
	400*	148.0	N2400	NH 02400	NHG2	178	NH2B
SIZE 3	315	150.0	N3315	NH 03315	NHG3	181	NH3B
	355	150.0	N3355	NH 03355	NHG3	181	NH3B
	400	150.0	N3400	NH 03400	NHG3	181	NH3B
	500	150.0	N3500	NH 03500	NHG3	181	NH3B
	630*	150.0	N3630	NH 03630	NHG3	181	NH3B

Our NHP DIN fuse extractor handle suits sizes 00 to 3 DIN fuses.

Slimline, the innovative new switch fuse system makes full use of the NHP DIN type fuse.

Stromberg OFAX DIN fuse bases

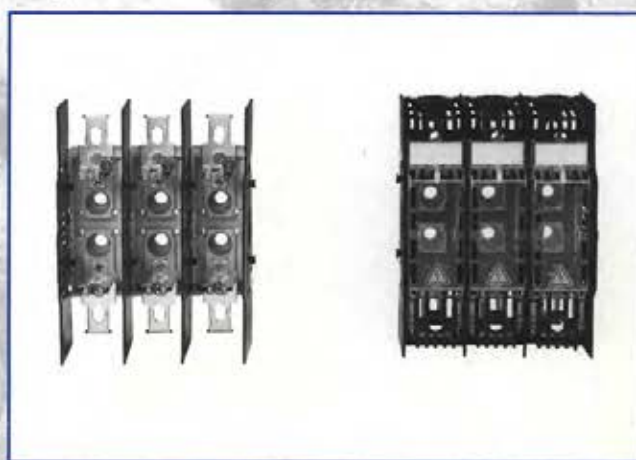
NHP has a range of single and three pole DIN fuse bases for size 00 and 1 DIN fuses.

Fully shrouded and open versions are available.



Slimline is a modular, space saving and fully type tested switch fuse and rack system which has proven benefits in its ease of use and economy due to the possibility of reducing overall switchboard size.

To find out more about Slimline, ask your nearest NHP office for a copy of publication SFL.





NHP Compact fuse gear includes a range of moulded HRC fuse fittings, designed to accept bolt-in and clip-in HRC fuse-links.

Each fuse fitting is fully shrouded to prevent accidental contact with live parts when inserting or withdrawing a carrier and once a fuse carrier has been completely removed.

The fuse carrier and base mouldings are manufactured from high quality thermosetting material finished in black.

NHP fuse fittings accept NHP Compact HRC fuse-links and are available in ratings of 20, 32, 63, 100 and 200 amp and can be supplied in front connected and front/busbar connected.

They are designed to comply with BS88: Part 2, 1988 and are suitable for systems up to 660V. Suitable HRC fuse-links are also to BS88: Part 2, 1988.

The NHP "NV" range of clip-in HRC fuse fittings are available in 20, 32 and 63 amp at 415V. These fuse fittings can be either screw fixed to a mounting panel or mounted directly on standard DIN rail. They comply with BS88: Part 1, 1988 and accept NHP NNS and NES clip-in HRC fuse-links to the same standard.

Clip-in type fuse fittings allow fuse-links to be replaced quickly and simply, as no tools are required. fuse-links are removed from the holder using side pressure on the fuse-link while replacement involves a simple push fit.

Terminal capacities

20 amp	6mm ²
32 amp	16mm ²
63 amp	35mm ²
100 amp	70mm ²
200 amp	150mm ²

Fuse fittings selection guide

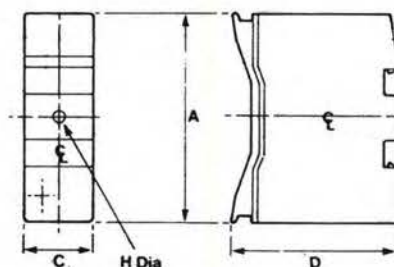
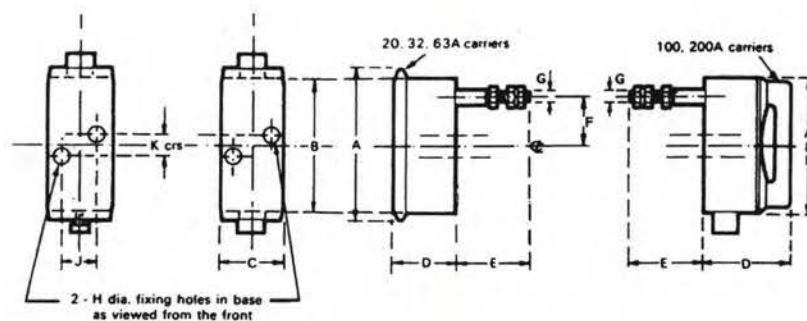
Complete fuse units (carriers and bases)

Current rating A	Colour	Cat. No. according to type of connection			Neutral Link Cat. No. No.		BS88 REF	Suitable NHP Compact Fuse-link	
		Front wired	Front/stud	Clip-in type Front/wired	Bolt-in	Clip-in		Bolt-in	Clip-in
20	Black	N20FW	N20SFW	NV20FW	20MFNL	32CLK	A1	NNIT 2-20	NNS2-20
32	Black	N32FW	N32SFW	NV32FW	32MFNL	32CLK	A2	NTIA 2-32	NNS2-32
63	Black	N63FW	N63SFW	NV63FW	63MFNL	63CLK	A2 A3	NTIA 2-32 NTIS 35-63	NES 20-63
100	Black	N100FW	N100SFW	—	100MFNL	—	— A4	NTB 2-63 NTCP 80-100 NTBC 2-63 NTC 80-100	—
200	Black	N200FW	N200SFW	—	200MFNL	—	B1 B1 B2	NTF 125-200	—

Note: ¹⁾ NTIA and NTIS fuses can be fitted to N100 fittings using adaptor 100MFLK
100A Neutral link is available for N100 fittings: Ref 100MFNL

Dimensions (mm)

Cat. No.	A	B	C	D	E	F	G	H	J	K	Hole dia.
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
N20	87	79	27	50	63	28	6	5.5	-	-	12
N32	109	101	31	62	60	39	6	5.5	12.7	6.4	12
N63	118	110	35	72	71	39.5	8	5.5	12.7	6.4	14.5
N100	154	154	54	108	80	58.5	10	6.5	19	22	18.5
N200	193	193	70	149	89	69	12	7	38	57	24.5
NV20 (clip-in)	75	-	25	57.7	-	-	-	5.5	-	-	12
NV32 (clip-in)	75	-	25	57.7	-	-	-	5.5	-	-	12
NV63 (clip-in)	88.7	-	31.5	66.34	-	-	-	5.5	-	-	14.5

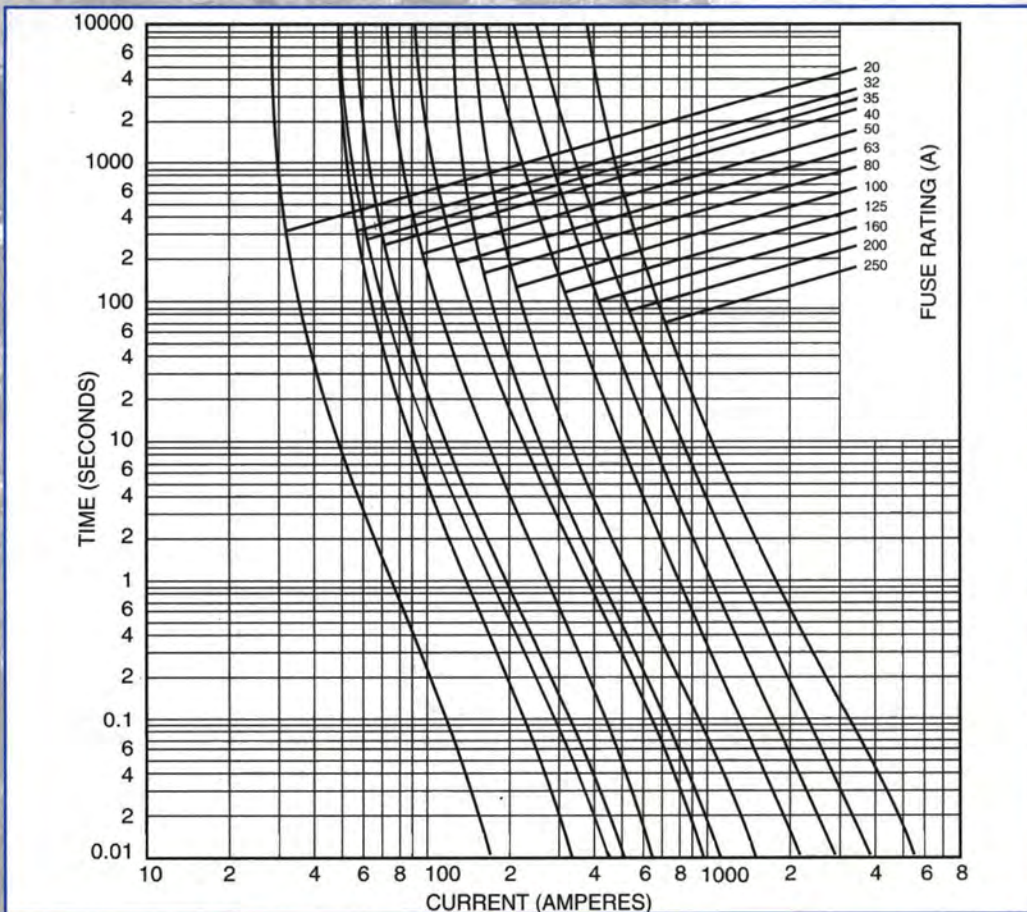
**NV range
Clip-in / front wired****Front wired****Front / stud wired**

Note: N20 and NV fuse fittings have a single fixing hole in the centre.

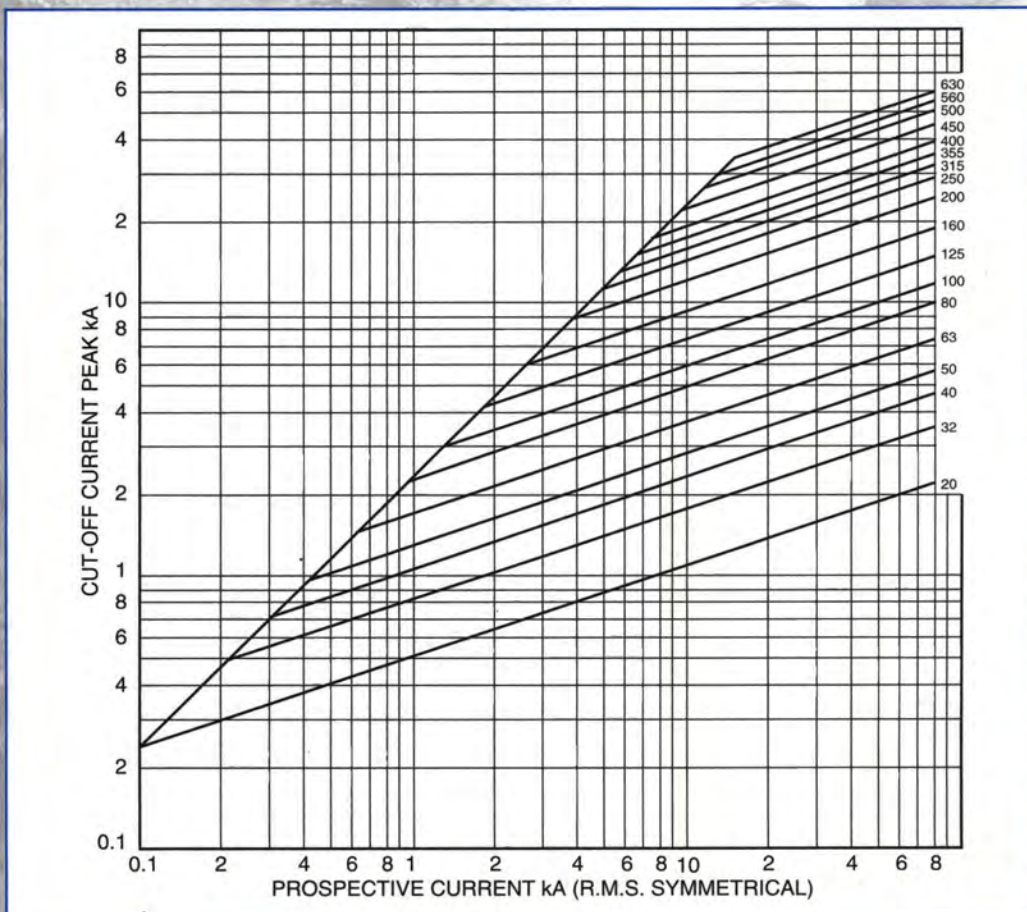
I²t characteristics			
Rating (amperes)	I²t pre-arcing	I²t total @ 240 volts	I²t total @ 415 volts
2	2	2	4
4	10	15	21
6	34	52	74
10	188	289	408
16	92	211	412
20	155	355	690
20M25	574	1084	1809
20M32	574	1561	2605
25	826	1084	1809
32	826	1561	2605
35	1200	2400	4100
32M40	2482	4416	7019
32M50	3305	5879	9345
32M63	5875	10452	16612
40	2482	4416	7019
50	3305	5879	9345
63	5875	10452	16612
80 & 63M80	7800	15500	26000
100 & 63M100	14000	28000	46000
125 & 100M125	30000	51000	75500
160 & 100M160	58500	99000	145000
200 & 100M200	120000	205000	300000
250 & 200M250	210000	360000	530000
315 & 200M315	270000	460000	680000
355	365000	620000	915000
400 & 315M400	480000	820000	1200000
450	755000	1300000	1900000
500	1100000	1850000	2700000
560	1200000	2400000	4000000
630	1550000	3100000	5150000
710	1903565	2992861	4306813
800	3820349	6006505	8643534
1000	7000000	1500000	16000000
1250	12000000	20500000	30000000

Fuse curves

BS fuse curves



**NHP Compact
BS fuses from 20
to 250 amps**



**NHP Compact
BS fuses cut-off
current data from
20 to 630 amps**



NHP Compact fuse gear includes a range of moulded HRC fuse fittings, designed to accept bolt-in and clip-in HRC fuse-links.

Each fuse fitting is fully shrouded to prevent accidental contact with live parts when inserting or withdrawing a carrier and once a fuse carrier has been completely removed.

The fuse carrier and base mouldings are manufactured from high quality thermosetting material finished in black.

NHP fuse fittings accept NHP Compact HRC fuse-links and are available in ratings of 20, 32, 63, 100 and 200 amp and can be supplied in front connected and front/busbar connected.

They are designed to comply with BS88: Part 2, 1988 and are suitable for systems up to 660V. Suitable HRC fuse-links are also to BS88: Part 2, 1988.

The NHP "NV" range of clip-in HRC fuse fittings are available in 20, 32 and 63 amp at 415V. These fuse fittings can be either screw fixed to a mounting panel or mounted directly on standard DIN rail. They comply with BS88: Part 1, 1988 and accept NHP NNS and NES clip-in HRC fuse-links to the same standard.

Clip-in type fuse fittings allow fuse-links to be replaced quickly and simply, as no tools are required. fuse-links are removed from the holder using side pressure on the fuse-link while replacement involves a simple push fit.

Terminal capacities

20 amp	6mm ²
32 amp	16mm ²
63 amp	35mm ²
100 amp	70mm ²
200 amp	150mm ²

Fuse fittings selection guide

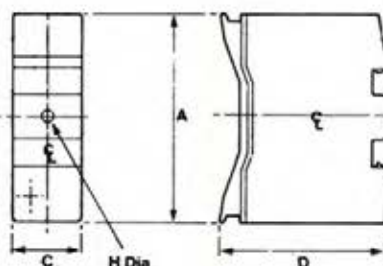
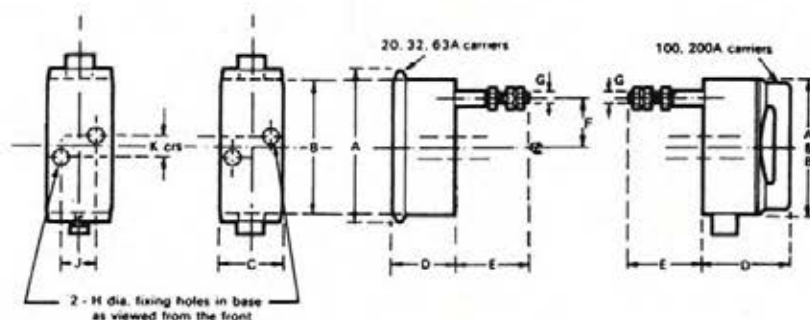
Complete fuse units (carriers and bases)

Current rating A	Colour	Cat. No. according to type of connection			Neutral Link Cal. No. No.		BS88 REF	Suitable NHP Compact Fuse-link	
		Front wired	Front/stud	Clip-in type Front/wired	Bolt-in	Clip-in		Bolt	Clip-in
20	Black	N20FW	N20SFW	NV20FW	20MFNL	32CLK	A1	NNIT 2-20	NNS2-20
32	Black	N32FW	N32SFW	NV32FW	32MFNL	32CLK	A2	NTIA 2-32	NNS2-32
63	Black	N63FW	N63SFW	NV63FW	63MFNL	63CLK	A2 A3	NTIA 2-32 NTIS 35-63	NES 20-63
100	Black	N100FW	N100SFW	—	100MFNL	—	—	NTB 2-63 NTCP 80-100 NTBC 2-63	—
200	Black	N200FW	N200SFW	—	200MFNL	—	A4 B1 B2	NTC 80-100 NTF 125-200	—

Note: 1) NTIA and NTIS fuses can be fitted to N100 fittings using adaptor 100MFLK
100A Neutral link is available for N100 fittings: Ref 100MFNL

Dimensions (mm)

Cat. No.	A	B	C	D	E	F	G	H	J	K	Hole dia.
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
N20	87	79	27	50	63	28	6	5.5	-	-	12
N32	109	101	31	62	60	39	6	5.5	12.7	6.4	12
N63	118	110	35	72	71	39.5	8	5.5	12.7	6.4	14.5
N100	154	154	54	108	80	58.5	10	6.5	19	22	18.5
N200	193	193	70	149	89	69	12	7	38	57	24.5
NV20 (clip-in)	75	-	25	57.7	-	-	-	5.5	-	-	12
NV32 (clip-in)	75	-	25	57.7	-	-	-	5.5	-	-	12
NV63 (clip-in)	88.7	-	31.5	66.34	-	-	-	5.5	-	-	14.5

**NV range
Clip-in / front wired****Front wired****Front / stud wired**

Note: N20 and NV fuse fittings have a single fixing hole in the centre.

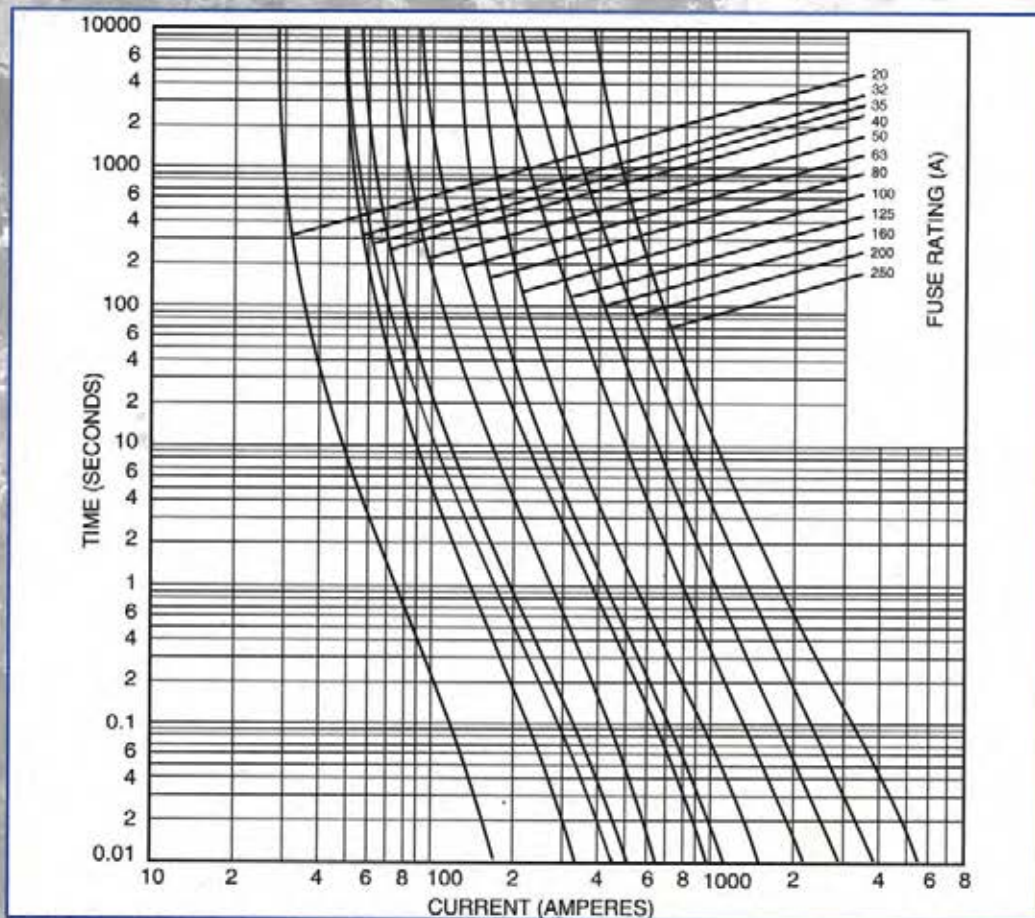
I²t characteristics

Rating (amperes)	I ² t pre-arcing	I ² t total @ 240 volts	I ² t total @ 415 volts
2	2	2	4
4	10	15	21
6	34	52	74
10	188	289	408
16	92	211	412
20	155	355	690
20M25	574	1084	1809
20M32	574	1561	2605
25	826	1084	1809
32	826	1561	2605
35	1200	2400	4100
32M40	2482	4416	7019
32M50	3305	5879	9345
32M63	5875	10452	16612
40	2482	4416	7019
50	3305	5879	9345
63	5875	10452	16612
80 & 63M80	7800	15500	26000
100 & 63M100	14000	28000	46000
125 & 100M125	30000	51000	75500
160 & 100M160	58500	99000	145000
200 & 100M200	120000	205000	300000
250 & 200M250	210000	360000	530000
315 & 200M315	270000	460000	680000
355	365000	620000	915000
400 & 315M400	480000	820000	1200000
450	755000	1300000	1900000
500	1100000	1850000	2700000
560	1200000	2400000	4000000
630	1550000	3100000	5150000
710	1903565	2992861	4306813
800	3820349	6006505	8643534
1000	7000000	1500000	16000000
1250	12000000	20500000	30000000

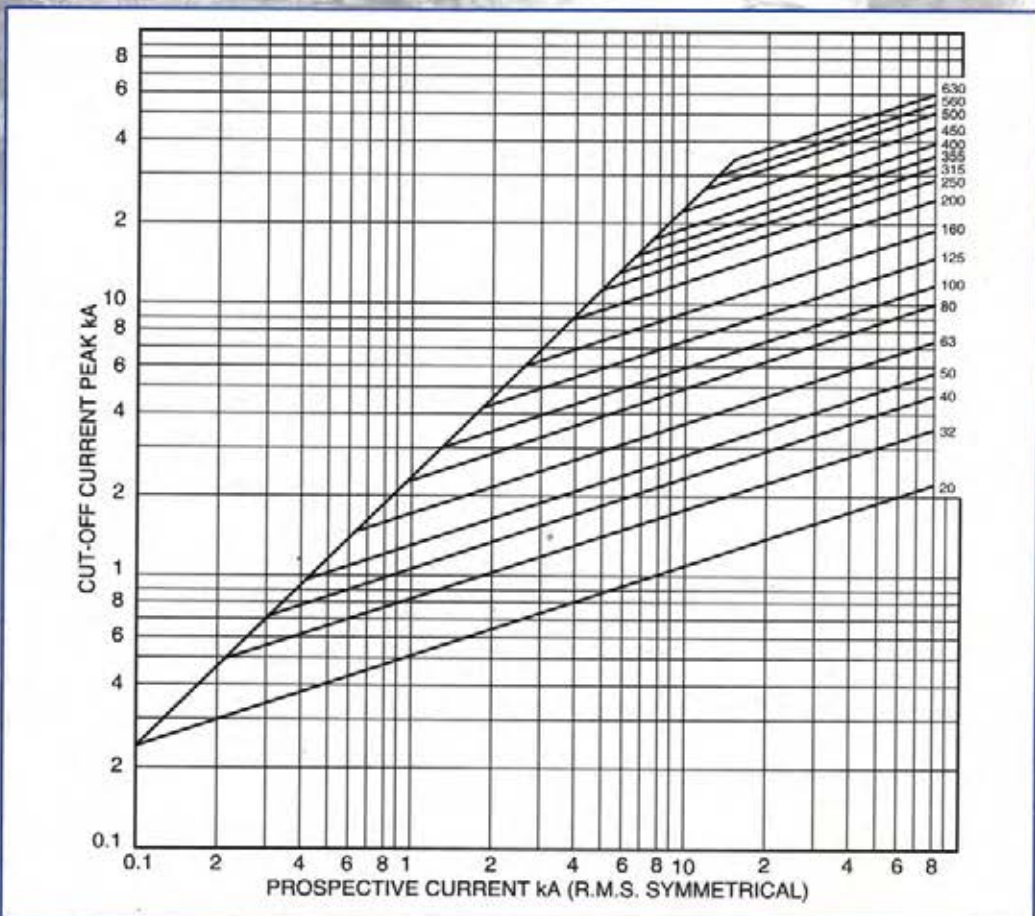
NHP COMPACT FUSES

Fuse curves

BS fuse curves



**NHP Compact
BS fuses from 20
to 250 amps**



**NHP Compact
BS fuses cut-off
current data from
20 to 630 amps**

Derating tables

Currents at various ambients:

Cat. No.	Maximum current at ambient temperature				
	40°C	45°C	50°C	55°C	60°C
NNIT2	2	2	2	2	2
NNIT4	4	4	4	4	4
NNIT6	6	6	6	6	6
NNIT8	8	8	8	8	8
NNIT10	10	10	10	10	10
NNIT16	16	16	16	16	16
NNIT20	20	20	20	20	20
NNIT25	25	25	25	25	25
NNIT32	32	32	32	30	28
NNIT20M25	20	20	20	20	20
NNIT20M32	20	20	20	20	20
NTIA2	2	2	2	2	2
NTIA4	4	4	4	4	4
NTIA6	6	6	6	6	6
NTIA8	8	8	8	8	8
NTIA10	10	10	10	10	10
NTIA16	16	16	16	16	16
NTIA20	20	20	20	20	20
NTIA25	25	25	25	25	25
NTIA32	32	32	31	29	27
NTIA32M40	32	32	32	32	29
NTIA32M50	32	32	32	32	32
NTIA32M63	32	32	32	32	32
NTIS40	40	40	40	39	36
NTIS50	50	50	50	49	45
NTIS63	63	63	63	62	58
NTIS63M80	63	63	63	63	63
NTIS63M100	63	63	63	63	63
NTCP80	80	80	80	80	78
NTCP100	100	100	100	100	96
NTCP100M125	125	122	115	108	100
NTCP100M160	100	100	100	100	100
NTC80	80	80	80	80	80
NTC100	100	100	100	100	95
NTC100M160	100	100	100	100	100
NTFP125	125	125	125	117	109
NTFP160	160	160	158	148	137
NTFP200	167	158	149	140	129
NTFP200M250	200	200	200	189	175
NTF125	125	125	125	125	117
NTF160	160	160	160	150	138
NTF200	200	199	188	176	163
NTF200M250	200	200	200	193	179
NTKF250	250	250	244	228	211
NTKF315	282	267	252	236	218
NTKM250	250	250	250	250	243
NTKM315	314	298	281	262	243
NTMF355	340	323	306	285	264
NTMF400	400	400	385	360	334
NTM355	355	355	335	314	290
NTM400	400	394	372	348	322
NTTM450	438	416	392	367	340
NTTM500	500	484	456	427	395
NTTM560	526	499	471	440	408
NTTM630	587	557	525	491	455
NTT450	450	444	419	392	363
NTT500	500	490	462	432	340
NTT630	569	540	509	476	441
NTLM710	670	636	599	561	519
NTLM800	741	703	663	620	574
NTLT710	679	644	607	568	526
NTLT800	773	733	692	647	599

Notes: Transformer and fluorescent lighting circuits: To cater for inrush currents, the fuse-link selected should have a rating approximately twice the transformer primary current; or the total current required by the maximum number of fluorescent lights to be switched simultaneously.

Capacitor circuits: Three-phase power factor correction capacitors also have transient high-inrush characteristics. In addition, fuse protection needs to take into account circuit harmonics. Practical experience has shown that a fuse-link rated at 50% higher than the rated capacitor current provides a satisfactory solution.

NHP COMPACT FUSES

Suggested specification

NHP Compact fuses

DIN fuses

- ◆ All HRC fuses shall be suitable for use on 415 volt systems and shall be ASTA 20 certified to BS88: Part 2 : 1988 and AS 2005.
- ◆ Cartridge barrels shall be extruded under vacuum to prevent the occurrence of air pockets.
- ◆ All fuse-links shall be subjected to a resistance test during the manufacturing process to prove correct assembly.
- ◆ Fuse caps and tags shall be mechanically connected and soldered to ensure reliability and maximum rigidity under fault conditions. End caps shall be press fitted onto precision ground barrels.
- ◆ Fuses shall be fitted internally with Kevlar™ discs to prevent burn back under fault conditions.
- ◆ Watts loss from fuses must be within the limits of the applicable standard.
- ◆ All fuses must be identified by indelible and non deteriorate printing on the barrels. Paper labels, which may fall off in time are not acceptable.
- ◆ All fuses must be filled with graded silica using a vibratory method to ensure correct filling.
- ◆ HRC fuses are to be NHP Compact, with a full range available from 2 to 1250A.

DIN fuses

- ◆ DIN fuses shall be manufactured to comply with DIN 43620-1 and IEC 269-2-1.
- ◆ All DIN fuses shall have a rated breaking capacity of 120kA RMS.
- ◆ All DIN fuses must incorporate an indicator for blown fuse identification.
- ◆ DIN fuses must be VDE marked to indicate conformity with VDE requirements.
- ◆ DIN fuse-links shall be NHP Compact with a full range available from 2 to 630A.

Fuse fittings

- ◆ Fuse fittings are to be fully shrouded to prevent accidental contact with live parts whilst inserting or withdrawing a carrier and shall be designed to accept BS fuses, either bolt in or clip-in models.
- ◆ Fuse fittings must comply with BS88 requirements and be suitable for use on systems upto 415V.
- ◆ Fuse fittings shall be NHP Compact with ratings available from 20 to 200A.

NHP ELECTRICAL ENGINEERING PRODUCTS PTY LTD

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SYDNEY: 30-34 Day St. North, Silverwater, NSW 2128
P.O. Box 6605, Silverwater, 2128

Phone: (02) 9748 3444 Fax: (02) 9648 4353

BRISBANE: 25 Turbo Drv., Coorparoo, Qld. 4151

P.O. Box 1127, Coorparoo DC, 4151

Phone: (07) 3891 6008 Fax: (07) 3891 6139

ADELAIDE: 50 Croydon Rd., Keswick, S.A. 5035

Phone: (08) 8297 9055 Fax: (08) 8371 0962

PERTH: 38-42 Railway Pde., Bayswater, W.A. 6053

Phone: (08) 9271 8666 Fax: (08) 9272 3906

NEWCASTLE: 575 Maitland Rd., Mayfield West,

N.S.W. 2304, P.O. Box 326, Mayfield, 2304

Phone: (02) 4960 2220 Fax: (02) 4960 2203

TOWNSVILLE: 62 Leyland St., Garbutt, Qld. 4814

Phone: (07) 4779 0700 Fax: (07) 4775 1457

ROCKHAMPTON: 208 Denison St., Qld. 4700

Phone: (07) 4927 2277 Fax: (07) 4922 2947

TOOWOOMBA: Cnr Carroll St. & Struan Crt., Qld. 4350

Phone: (07) 4634 4799 Fax: (07) 4633 1796

CAIRNS: 14/128 Lyons St., Bungalow, Qld. 4870

Phone: (07) 4035 6888 Fax: (07) 4035 6999

DARWIN: 3 Steele Str., Winnellie, N.T. 0820

P.O. Box 38558, Winnellie, 0820

Phone: (08) 8947 2666 Fax: (08) 8947 2049

AGENTS:

HOBART: H.M. Bamford (Hobart), 199 Harrington St.,
Tas. 7000 Phone: (03) 6234 9299 Fax: (03) 6231 1693

LAUNCESTON: H.M. Bamford (Launceston), 59 Garfield St.,
Tas. 7250 Phone: (03) 6344 8811 Fax: (03) 6344 4069

BURNIE: H.M. Bamford (Burnie), 6 Wellington St.,
Tas. 7320 Phone: (03) 6432 2588 Fax: (03) 6432 2580

NHP*Proudly Australian*

Erratum - Replacement for Page 7 Catalogue NF 1996 Edition

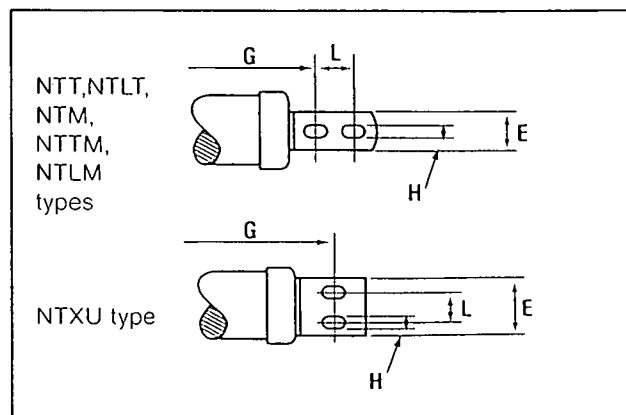
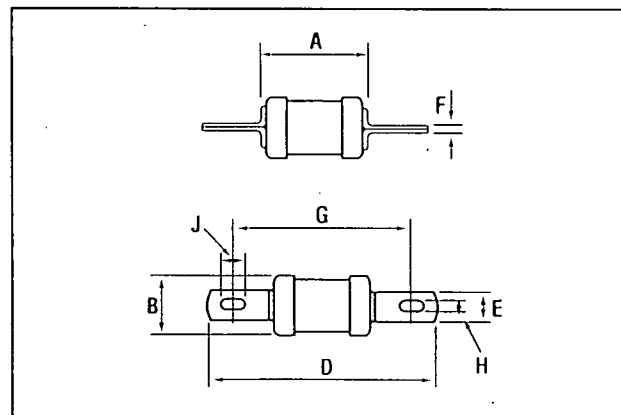
August 2001

NHF COMPACT FUSES

HRC cartridge fuse-links

Dimensions (mm)

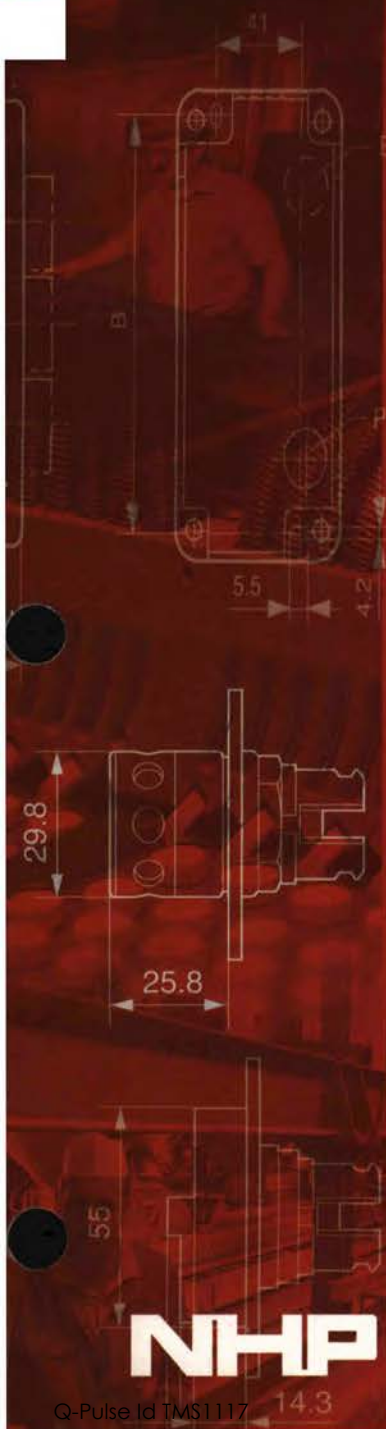
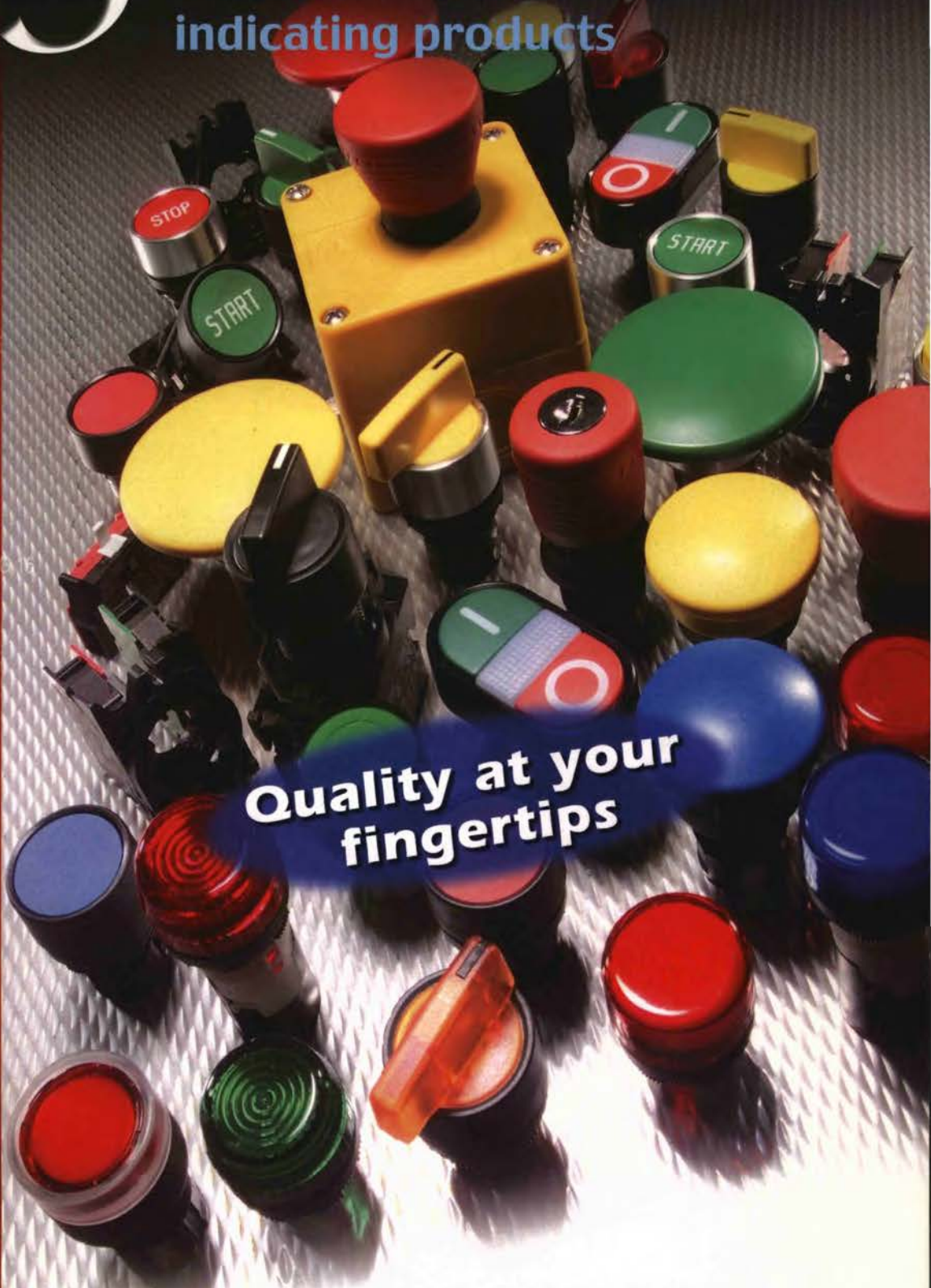
Fuse link type	A max. mm	B max. mm	D max. mm	E mm	F mm	G nom. mm	H mm	J mm	L mm
NNIT	36	14	55	11	0.8	44.5	4.8	-	-
NTIA } NTIS }	56	21	86	9	1.2	73	5.5	7.5	-
NTIS (M)	45	27	90	13	1.6	73	5.8	10	-
NOS	45	27	90	13	1.6	73	5.8	10	-
NTCP	48	27	111	16	3.2	94	9	-	-
NTCP(M)	48	30	111	19	3.2	94	9	-	-
NTFP	48	30	111	19	3.2	94	9	-	-
NTFP(M)	48	40	111	19	3.2	94	9	-	-
NTB	57	21	114	13	1.6	97	7.2	11	-
NTB(M)	57	26	116	13	1.6	97	7.2	11	-
NTBC	57	21	134	16	2.0	111	8.7	16	-
NTBC(M)	58	26	136	16	3.2	111	8.7	16	-
NTC	48	27	134	16	3.2	111	9	12.5	-
NTC(M)	48	30	137	19	3.2	111	9	12.5	-
NTF	48	30	137	19	3.2	111	9	12.5	-
NTF(M)	48	40	137	19	3.2	111	9	12.5	-
NTKF	48	40	137	19	3.2	111	9	12.5	-
NTKF(M)	51	40	138	25	5.0	111	9	12.5	-
NTMF	51	40	138	25	5.0	111	9	12.5	-
NTKM	48	40	159	19	3.2	133	10.5	14	-
NTM	51	40	211	25	5.0	133/184	10.5	14	25.4
NTTM (450-500A)	59	53	212	25	6.3	133/184	10.5	14	25.4
NTTM (560-630A)	59	63	212	25	6.3	133-184	10.5	14	25.4
NTLM	84	82	210	26	10	133/184	10.3	16	25.4
NTT	83	74	267	38	6.5	165/229	10.3	16	32
NTLT	84	82	267	38	10	165/229	10.3	16	32
NTXU	83	100	198	63.5	9.5	149	14.3	19	32



D5

Innovative 22.5 mm mounting industrial control and indicating products

**Quality at your
fingertips**



NHP

NHP was formed in 1968 for the purpose of manufacturing, importing and merchandising a wide range of specialised electrical switchgear, motor control and other technical electrical products for Australian industry; including mining and general industries, electrical contractors and government departments.

NHP is a wholly Australian owned company and exclusively represents a considerable number of overseas companies. These companies manufacture complementary equipment to the NHP programme, which includes products locally manufactured in Melbourne.



NHP Premises, Melbourne

The head office and Melbourne sales organisation is situated at Richmond, with branch offices in Sydney, Brisbane, Adelaide, Perth, Newcastle, Townsville, Rockhampton, Toowoomba, Cairns, Darwin and Hobart. The company also has a number of regional representatives to service country areas. NHP products are stocked and distributed through more than 500 centres, Australia wide.

The company has an office in Auckland and Christchurch, New Zealand primarily involved in the supply of circuit breakers and panelboards. The range is steadily growing in the enclosures, safety and control & switching products.

As an extensive national sales and service network, the



National Distribution Warehouse (5200sq metres)

company is able to continue a policy of supplying a vast range of technical electrical equipment, supported by substantial stocks and competent service on a national basis.

NHP has also built a large 5,200 square metre national distribution centre, the first stage of a potential three stage development, which ultimately will result in a 15,000 square metre warehouse and production facility. The facility is located in the middle of the freight corridor between Melbourne airport and the city's docks area to help ensure effective stock delivery and despatch.

NHP continues to be committed to providing an outstanding level of customer service and the staff have been trained over many years to provide a customer friendly environment and be seen to be 'easy to deal with'.

It is the ongoing policy of the company to improve both the range and quality of products and services available for the Australasian market. Experienced engineering, sales and management personnel continually visit world centres of excellence to ensure that the organisation keeps pace with technological advances, research and development and modern marketing techniques.



Sprecher + Schuh administrative building at Aarau

Sprecher + Schuh has been one of the leading manufacturers of high quality electrical equipment in Europe for many years. The company was founded by Carl Sprecher in 1900 in Aarau, Switzerland, but in 1993 the company was acquired by Rockwell International and now operates under the direction of Rockwell Automation.

The Sprecher + Schuh facility in Switzerland will continue to operate and develop products for world markets as a centre of

NHP has welcomed the acquisition of Sprecher + Schuh by Rockwell because international businesses in the electro-mechanical field requires very substantial volumes to minimise production costs. In manufacture there are ever increasing costs associated with advanced research and development technology, complicated tooling, and sophisticated automated production lines.

Rockwell is committed to providing substantial increases in funds available for R & D and the latest production techniques.

Rockwell/Sprecher + Schuh will be better able to achieve economies of scale and international growth as a result of the union.

The full range of Sprecher + Schuh equipment is readily available throughout Australia from the NHP organisation or NHP representatives and distributors.



Part of the low voltage factory at Aarau

excellence and will continue to produce low voltage control gear products, including the world famous Sprecher + Schuh contactor range.

In 1968 NHP was appointed the exclusive Australian agent for Sprecher + Schuh low voltage motor control gear products which were and continue to be primarily manufactured at the head office of the company in Aarau, Switzerland.

Since 1966 when Sprecher + Schuh equipment was introduced into the Australian market it has received remarkable acceptance from Australian industry. This has been largely due to the technical superiority of the products produced to traditional Swiss exacting standards of precision engineering. These high standards are the result of strict manufacturing controls and testing, and by the use of the latest high quality materials available. This high quality has resulted in remarkable reliability ensuring long life and excellent performance.

sprecher+
schuh

Rockwell Automation

The Ultimate in Motor Control

D5 - The Practical Alternative

The search for an electrical component that can precisely "fit the bill" for quality and aesthetics can often be a frustrating and time consuming job. This is even more the case with control and signalling equipment as it is constantly on view. Furthermore, it is often the quality of these components that sets the standard for the quality of the rest of the switchgear.

The Sprecher + Schuh D5 range is a universal modular system of attractive pushbutton switches, indicators and rotary switches for 22.5 mm mounting. The D5 range is designed to handle low to medium switching requirements of up to 240 V and 10 Amp.

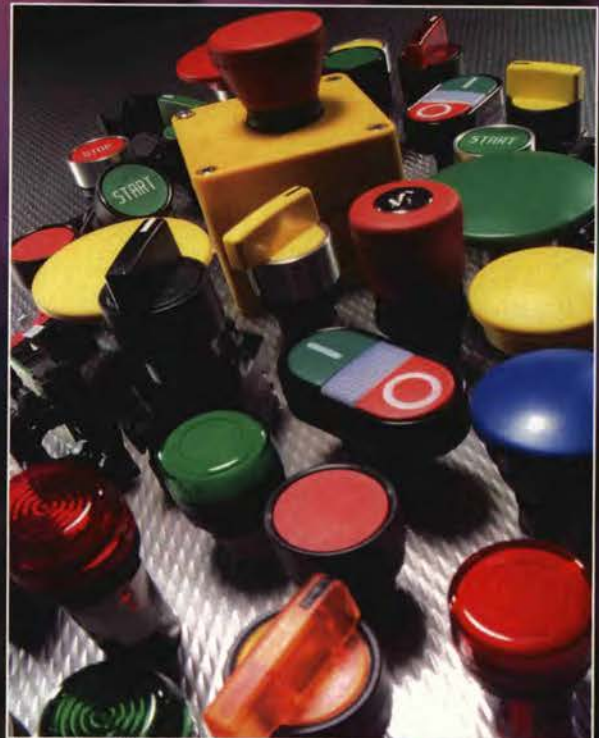
The range consists of different front bezel designs, lens arrangements and switching elements that can be assembled into a variety of different combinations. This flexibility ensures that there is a D5 product to suit most application requirements.

Functionality, an important aspect of any design, has also been built into the D5 range. Features such as ergonomically designed operators, efficient high illumination capabilities and positive operating action combine to ensure ease of use and operation. Snap in modular components and quick "snap to lock/twist to release" coupling latches, ensures fast and efficient installations without the need for extra tools.

To ensure longevity of operation the D5 range is constructed with chemical and corrosion resistant materials and includes water and dust resistant sealing to IP 66 standard. Colour coded and touch resistant contact elements are supplied with gold contacts for efficient low voltage operation and have an exclusive H type design which provides a self-cleaning operation on every switching cycle.

Safety is paramount in any application and for this reason Sprecher+Schuh offers a unique "Auto Break" contact system specifically designed for emergency stop applications.

Available in round and square variations in both plastic and metallic construction the Sprecher+Schuh D5 range combines flexibility and functionality with attractive designs and



Flexibility

- Three different choices of front element
- Plastic or metallic operators
- Latching and impulse operation
- Round or square variations
- Five different colour choices
- Maximum of six contact blocks
- Full voltage and transformer lamp blocks



Cat. No. D5P-F...



Cat. No. D5P-LFA...



Cat. No. D5Q-F3

Single rear
fixing nut

Twist to reset
coupling



Functional

- Ergonomic design
- Modular "snap in" components
- Tamperproof single rear fixing nut
- Snap lock/twist to release contact coupling latch
- Positive operating action
- Recessed anti rotating pin keeps front elements from rotating within the control panel
- Abrasion resistant legend on lens caps
- Compact dimensions

Contact Elements

- 10 A 240 V AC-15 rating
- IP 20 finger protection on terminals
- Gold contacts for superior low voltage operation
- H bridge design for self cleaning on every switching cycle
- Snap lock mounting onto coupling latch
- Optional screw connection available
- Colour coded casings with large graphics for easy identification of function
- Screw connections with contoured cable entry for trouble free wire guidance

Open view
H Bridge
contactsSnap in
contact blocks



Unique auto
break contact
blocks
Cat. No.
D53LX01S



Safety

- Unique "Auto Break" emergency contact system
- IP 20 finger protection on exposed terminals
- Free of cadmium and asbestos materials



Illumination

- Choice of five lens cap colours
- One piece eco-pilot lights
- Optically enhanced ribbed lenses for improved illumination
- Full voltage, central lamp test and transformer lamp blocks
- Selection of incandescent, neon and LED BA9S style lamps
- Choice of 50,000 or 100,000 hour BA9S LED lamps
- High output integrated LED lamp block to 240 V



Integrated LED lamp block

Cat. No. D5 3N



Robust

- Tested to IEC 947
- Water sealing tested to IP 66
- Reliable in both dusty and wet environments
- Tamperproof front ring and cap
- Continuous whipping contact system for improved reliability
- High mechanical and electrical design life
- Corrosion and chemical resistant materials used
- One piece operator construction



Pushbutton, illuminated

- Colours: green, red, yellow, blue and white
- Impulse or latching operation
- Round or square front elements
- Front ring available in grey, black or metallic



Rotary switch

- Short or long handle operator
- Illuminated or non illuminated
- Round or square front elements
- 2 and 3 position operation
- Front ring available in grey, black or metallic



Pushbuttons

- Colours: green, red, yellow, blue white and black
- Button flush or raised
- Impulse or latching operation
- Also available with 40 mm or 60 mm mushroom head
- Round or square front elements
- Front ring available in grey, black or metallic



Multi-function operator

- 2 or 3 functions in a minimum of space
- Impulse operation
- Indicator option
- Raised or flush operators



Rotary switch with ronis key

- Different lock variations available on request
- 2 and 3 position operation
- Front ring available in grey, black or metallic





Indicator lamp, round

- Colours: green, red, yellow, blue and white
- Engraving available
- Optically enhanced lens option
- Choice of incandescent, neon or LED illumination



Indicator lamp, square

- Colours: green, red, yellow, blue and white
- Engraving available



Potentiometer operating knob

- Scale incrementation 0...10, 360 °
- Accommodates standard shaft size
- For potentiometers with 6 mm spindle



Eco-Pilot light

- Direct wire
- Legend option
- Optically enhanced lens option



Emergency STOP button

- With or without key for unlocking
- Three sizes available
- Reset by turning clockwise
- Enclosed control stations available
- Autobreak contact option
- Choice of 30, 40 or 60 mm mushroom head





ORDERING SYSTEM 1

Complete standard units

Your guide to the most popular complete units with corresponding short form order numbers, is located on pages 11 to 17 of this catalogue.

These units are supplied in a single packet which includes front elements and latch with snap-on contact blocks or elements.



ORDERING SYSTEM 2

Front elements and back of panel subassemblies to your requirements

Pages 19 to 54 include products that require the ordering of only two components

- ① Pre-assembled front elements
- ② Pre-assembled latch and rear contact blocks/lamp elements

ORDERING SYSTEM 3

Individual components for custom requirements

Pages 55 through to 69 include individual component breakdowns to enable the ordering of products to suit individual specifications.

Accessories

A selection of D5 accessories and spare parts is provided on pages 71 to 76.

Technical information

Dimensions

A complete listing of approvals, ratings and technical specifications for D5 components is located on pages 77 to 94.





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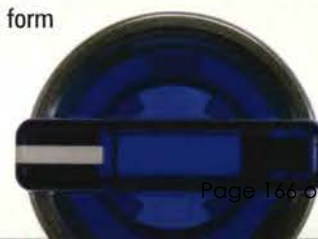
Pushbuttons - round & square	56-57
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CAT7 DOL Motor Starter

The only choice in Direct-On-Line motor starting

CAT 7 features

- IP 66
- Unique CEP7 electronic overload
- Wider current adjustment range - reduces inventory
- Rapid phase failure protection
- Increased tripping accuracy
- Available up to 11 kW in same enclosure

CAT 7K features

- IP 66
- Economical CT7K bi-metal overload
- Reliable thermal protection
- Phase failure protection to IEC 60947-4
- Available up to 7.5 kW

*Economical
bi-metal overload
OR
Superior
electronic overload*



Complete Standard units

D5 Complete Standard Units are a selection of complete panel mounted items compiled from the most popular operator types.

Complete Standard Units are supplied in one bag with one part number for your convenience.

Round and Square

Non illuminated pushbuttons

Illuminated pushbuttons

Multi- function pushbuttons

Round and Square

Pilot lights

Eco pilot lights

Eco pilot lights with enhanced lens

Round and Square

Rotary switches

Key operated rotary switches

Potentiometer dial

Emergency stop switches

Key operated emergency stop switches

Emergency stop switches with auto break contacts








Enclosed emergency stop switches

Multi-function operators

Complete panel mounted standard units

Now with colour coded contact block

- Protection class IP 66
- Individually packaged


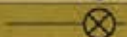
Description	Contact	Cat. No.
Pushbuttons		
Start (green)		D5P-F301W3LX10
Stop (red)		D5P-F402W3LX01
Reset (blue)		D5P-F607W3LX10
Green (blank)		D5P-F33LX10
Red (blank)		D5P-F43LX01
Blue (blank)		D5P-F63LX10
Stop (red extended)		D5P-E402W3LX01





Cat. No. D5P-F...
pushbutton with
plastic front ring

Illuminated pushbuttons

max 130 V, 3 W filament lamp or 230/240 V neon lamp (lamp not included) ¹⁾

Green		N/O	D5P-LF33DL0X10
Red		N/C	D5P-LF43DL0X01

with series diode and resistor element D5-RL7 for operating voltage 240 V AC
using 130 volt filament lamp (lamp not included) ²⁾

Green		N/O	D5P-LF33RL7X10
Red		N/C	D5P-LF43RL7X01

Pilot lights

max 130 V, 3 W filament lamp or 230/240 V neon lamp (lamp not included) ¹⁾ ²⁾ ³⁾

Green		D5P-P33DL0
Red		D5P-P43DL0
Yellow		D5P-P53DL0
Blue		D5P-P63DL0
Clear		D5P-P73DL0

with series diode and resistor element D5-RL7 for operating voltage
230/240 V AC using 130 volt filament lamp (lamp not included) ¹⁾ ²⁾ ³⁾

Green		D5P-P33RL7
Red		D5P-P43RL7
Yellow		D5P-P53RL7
Blue		D5P-P63RL7
Clear		D5P-P73RL7

- Notes:**
- ¹⁾ Lamps refer to page 76.
 - ²⁾ For spare lens caps refer page 79.
 - ³⁾ New integrated LED lamp block also available. Refer page 76.

NEW!



Cat. No. D5P-P...
pilot light

Complete panel mounted standard units

Now with colour coded contact block ¹⁾

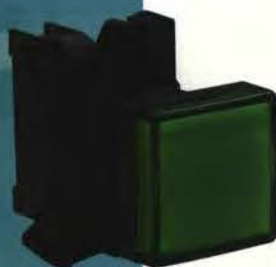
- Protection class IP 66
- Individually packaged



Cat. No. D5Q-F301W3LX10



Cat. No. D5Q-F402W3LX01





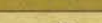


Cat. No. D5Q-P53RL7



Cat. No. D5Q-PM5DO

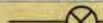



Cat. No. D5Q-SN223LX10

Description	Contact	Cat. No.
Pushbuttons		
Start (green)	 N/O	D5Q-F301W3LX10
Stop (red)	 N/C	D5Q-F402W3LX01
Green (blank)	 N/O	D5Q-F33LX10
Red (blank)	 N/C	D5Q-F43LX01
Stop (red extended)	 N/C	D5Q-E402W3LX01

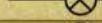
Illuminated pushbuttons

Max 130 V, 3 W filament lamp or 230/240 V neon lamp (lamp not included) ²⁾

Green	 N/O	D5Q-LF33DLOX10
Red	 N/C	D5Q-LF43DLOX01

Pilot lights

Max 130 V, 3 W filament lamp or 230/240 V neon lamp (lamp not included) ^{2) 3)}




Green		D5Q-P33DLO
Red		D5Q-P43DLO
Yellow		D5Q-P53DLO
Blue		D5Q-P63DLO
Clear		D5Q-P73DLO

With series diode and resistor element D5-RL7 for operating voltage



230/240 V AC using 130 volt filament lamp (lamp not included) ^{2) 3) 5)}

Green		D5Q-P33RL7
Red		D5Q-P43RL7
Yellow		D5Q-P53RL7
Blue		D5Q-P63RL7
Clear		D5Q-P73RL7

Eco-Pilot lights (lamp not included) ⁴⁾

Green		D5Q-PM3DO
Red		D5Q-PM4DO
Yellow		D5Q-PM5DO
Blue		D5Q-PM6DO
Clear		D5Q-PM7DO

Rotary switch

Black 90°		D5Q-SN223LX10
Black 2 x 60°		D5Q-SM323LX20

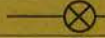

- Notes:**
- ¹⁾ Green (N/O), Red (N/C) and Blue (low voltage).
 - ²⁾ Lamps refer to page 76.
 - ³⁾ For spare lens caps refer page 84.
 - ⁴⁾ Max 110 V, 3 W. Use only neon lamps if 230/240 V is required.
 - ⁵⁾ Integrated LED available. Refer page 76.

Complete panel mounted standard units

- Protection class IP 66
- Individually packaged

Description	Contact	Cat. No.
-------------	---------	----------

Eco-pilot lights ^{1) 2)} (lamp not included)

Green		D5P-PM3D0
Red		D5P-PM4D0
Yellow		D5P-PM5D0
Blue		D5P-PM6D0
Clear		D5P-PM7D0

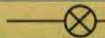


Cat. No. D5P-PM6D0





Cat. No. D5P-PLM3D0

Eco-pilot light with optically enhanced lens (lamp not included) ^{1) 2)}

Green		D5P-PLM3D0
Red		D5P-PLM4D0
Yellow		D5P-PLM5D0
Blue		D5P-PLM6D0
Clear		D5P-PLM7D0



Rotary switch

Black 90°		D5P-SN223LX10
Black 2 x 60°		D5P-SM323LX20



Cat. No. D5P-SM323LX20

Rotary switch with Ronis key

Black 90°		D5P-KN2R13LX10
Black 2 x 60°		D5P-KM3R43LX20

Cat. No.
D5P-KM3R434LX20

IP 65 Potentiometer dial

Scale divisions 0...10, 300°	D5P-POT
Legend size 2.5 mm (without potentiometer)	
for potentiometers with 6 mm spindle of 22.5 to 50 mm length	



Cat. No. D5P-POT

- Notes:**
- ¹⁾ Use non filament lamps, refer page 76.
 - ²⁾ For spare lens caps refer page 79.
 - ³⁾ For emergency stop pushbuttons only (without coupling plate and contact block) refer page 22.
 - ⁴⁾ Standard Ronis key is Cat. No. D5-AKR 3825. For optional key numbers refer page 77.

Complete panel mounted standard units

Safety "Auto Break" emergency stop operators

Emergency stop stations are one of the most important components in a control system and one in which absolute reliability is required in an emergency situation. Once the mushroom head is actuated a set of contacts are broken and electrical supply to the system is broken, immediately shutting down affected machinery.

This typical emergency situation is reliant on the correct mechanical connection between the operator and the contact block. Normally, if the connection of contact blocks and operators is severed due to vibration or other factors such as incorrect installation the contact block will remain closed and the system continues to run.

Thus the emergency stop operator becomes ineffective and more importantly unsafe.

The new D5 "Auto Break" contact safety system consists of a set of two contact blocks, a normally closed contact and a specially designed auto break normally open contact which are wired in series. If the contact block, for any reason, becomes separated from the emergency stop operator, the failsafe mechanism in the normally open contact is tripped and will automatically open the control circuit. See table this page.

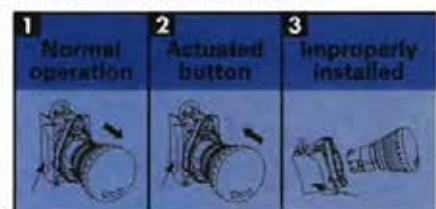
1. The mounting of an emergency stop operator to the contact blocks creates a maintained pressure on the "Auto Break" normally open contact, which when mounted correctly automatically closes the contact.

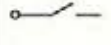


2. In this state the emergency stop will continue to operate normally. That is, the downward operation of the operator causes the normally closed contact to open as per a standard emergency stop operator.

3. The "Auto Break" contact system differs in that if either of the contact

blocks, for any reason, becomes separated from the emergency stop operator, the pressure on the "Auto Break" mechanism is removed from the normally open contact, which causes the contact to trip and automatically open the control circuit.

Because the "Auto Break" normally open contact is wired in series with the normally closed contact block it will open the circuit and immediately shut down the system being controlled. This system is monitored at all times therefore ensuring constant and maintained safety.

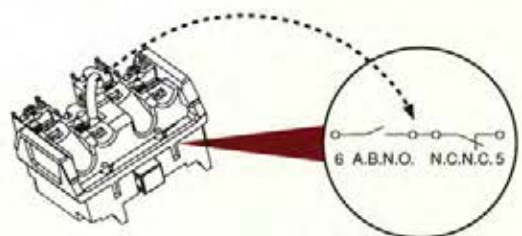


	1 Normal operation	2 Actuated button	3 Improperly installed
 Auto break normally open contact block	X	X	0
 Normally closed contact block	X	0	X
	X	0	0

Note: X=closed 0=open

Features of emergency stop operators with "Auto Break" contact blocks

- A choice of 30, 40 and 60 mm mushroom head operators supplied complete with contact blocks
- Available in twist to reset and key reset variations
- Maintained security of circuit regardless of conditions
- Failsafe mechanism
- H-type bridges for compatibility in switching low currents
- IP 20 touch protection on contacts
- Same dimensions as standard D5 contact block
- Compatible with D5 accessories and enclosures



Emergency stop operators

Complete standard Emergency Stop pushbuttons with normally closed contact block (Reset by turning clockwise)

Description	Plastic operator Cat. No.	Metal operator Cat. No.
60 mm red twist to reset operator	D5P-MTS643LX01	D5M-MTS643LX01
40 mm red twist to reset operator	D5P-MTS443LX01	D5M-MTS443LX01
30 mm red twist to reset operator	D5P-MTS343LX01	D5M-MTS343LX01

Complete standard key operated Emergency Stop pushbuttons with normally closed contact block (Reset by turning clockwise)

Description	Plastic operator Cat. No.	Metal operator Cat. No.
60 mm red twist to reset operator	D5P-MKR643LX01	D5M-MKR643LX01
40 mm red twist to reset operator	D5P-MKR443LX01	D5M-MKR443LX01
30 mm red twist to reset operator	D5P-MKR343LX01	D5M-MTS343LX01

Complete Emergency Stop pushbuttons (Reset by turning clockwise) with safety "Auto Break" contact blocks

Description	Plastic operator Cat. No.	Metal operator Cat. No.
60 mm red twist to reset operator	D5P-MTS643LX01S	D5M-MTS643LX01S
40 mm red twist to reset operator	D5P-MTS443LX01S	D5M-MTS443LX01S
30 mm red twist to reset operator	D5P-MTS343LX01S	D5M-MTS343LX01S

Complete key operated Emergency Stop pushbuttons (Reset by turning clockwise) with "Auto Break" contact blocks

Description	Plastic operator Cat. No.	Metal operator Cat. No.
60 mm red twist to reset operator	D5P-MKR643LX01S	D5M-MKR643LX01S
40 mm red twist to reset operator	D5P-MKR443LX01S	D5M-MKR443LX01S
30 mm red twist to reset operator	D5P-MKR343LX01S	D5M-MKR343LX01S

Spare "Auto Break" contact block and coupling plate

Description	Plastic operator Cat. No.
"Auto Break" contact block and coupling plate	D5-3LX01S

Plastic enclosures with emergency stop pushbutton fitted (Yellow, complete with 1 N/C contact)

Description	Plastic operator Cat. No.
Reset: turn clockwise (ø 40 mm)	D5-1PYP5A1
Reset: release with key, then turn clockwise (ø 40 mm)	D5-1PYP6A1

Metal enclosures with emergency stop pushbutton fitted (Yellow, complete with 1 N/C contact)

Description	Plastic operator Cat. No.
Reset: turn clockwise (ø 40 mm) with plastic operator	D5-1MYP5A1
Reset: release with key, then turn clockwise (ø 40 mm) with plastic operator	D5-1MYP6A1
Reset: turn clockwise (ø 40 mm) with metal operator	D5-1MYMA1
	D5-1MYM6A1



Cat. No.
D5P-MTS643LX01



Cat. No.
D5P-MKR643LX01



Cat. No.
D5PMTS443LX01S



Cat. No.
D5PMKR443LX01S



Cat. No.
D53LX01S



Cat. No. D5-1PYP5A1



Cat. No. D5-1MYP6A1

Complete panel mounted standard units

Multi-function pushbuttons

- Protection class IP 40 ²⁾
- Individually packaged

Time saving	● Central nut fixing
Space efficient	● Snap fitting of components
Economical	● 2 or 3 functions in a minimum of space
Flexible	● Single 22.5 mm hole mounting
	● Negates need for 3 separate devices
	● Less mounting time
	● Uses same rear elements as D5
	● Choice of illuminated/standard 2 and 3 button types
	● Choice of inscriptions and colours available
	● 2 contact levels possible
	● IP 66 when fitted with optional protective cover ²⁾



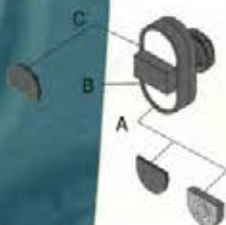
Cat. No.
D5P-U2C213LX11



Cat. No.
D5P-LU2B213DLOX11



Cat. No.
D5P-U3A113LX21



Cat. No. D5-200

Position ²⁾	Description	Contact	Cat. No.
Standard dual pushbuttons (black front ring)			
F	O-I (stop/start)		D5P-U2B213LX11
A	O-I (raised stop/start)		D5P-U2C213LX11

Illuminated dual pushbuttons (black front ring) ¹⁾ max. 130 V, 3 W filament lamp or 230/240 V neon lamp (lamp not included)

F	O-I (stop/start)		D5P-LU2B213DLOX11
A	O-I (raised stop/start)		D5P-LU2C213DLOX11

With series diode and resistor element D5-RL7 for operating ¹⁾ voltage 230/240 V AC using 130 volt filament lamp (lamp not included)

F	O-I (stop/start)		D5P-LU2B213RL7X11
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Triple pushbuttons

B	I-O-II		D5P-U3A113LX21
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Accessories

Protective boot (IP 66)

Flush (IP 66) (C)	D5-AUB3
Position A extended IP 66 ²⁾	D5-AUB2
Position B extended IP 66 ²⁾	D5-AUB1

Legend plate carrier

For snap-in legend plates (30 x 50 mm) IP 65	D5-200
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- Notes: ¹⁾ Lamps refer page 76.
²⁾ IP 66 when fitted with optional cover.
³⁾ Position refers to Protective Boot IP 66.

CAS7 and CSS7

**Safety contactors
and control relays**

NEW



**Tamper proof for
Industrial Safety**

- Category B4 endorsement
- Positively guided/mechanically linked contacts
- SUVA third party certification
- Front mounted auxiliary contact
- Protective cover to prevent manual operation
- Red contact housing for easy identification
- AC and DC operated coils
- Double break contacts

Front elements and back of panel subassemblies to your requirements

D5 front elements and back of panel subassemblies can be ordered to your requirements. A two part component ordering system is provided for your convenience.

① Pre-assembled front elements

Includes round and square, illuminated and non-illuminated elements and plastic or metal bodies with a choice of front ring.

+

② Pre-assembled latch and rear elements

Includes a choice of pre-assembled contacts and lamp blocks, supplied complete in one bag with coupling plate (latch).

Illuminated or non illuminated pushbutton operators

Flush pushbutton operators
Extended pushbutton operators
Guarded pushbutton operators
Engraved pushbutton operators
Latched pushbutton operators

Selector/jog pushbutton operators
Emergency stop operators pilot lights

Standard pilot lights

Eco pilot lights
Eco pilot lights with enhanced lens
Illuminated or non illuminated mushroom pushbutton operators
40mm or 60mm impulse mushroom operators
40mm or 60mm Push/Pull mushroom operators
40mm or 60mm Push/Twist and pull to reset mushroom operators

Illuminated or non illuminated rotary switch operators.

2 position short handle rotary switches
3 position short handle rotary switches
2 position long handle rotary switches
3 position long handle rotary switches
2 position key operated rotary switches
3 position key operated rotary switches

Pushbuttons front and rear elements



Cat. No. D5P-F...



Cat. No. D5M-E...



Cat. No. D5P-G...



Cat. No. D5-3LX...

Description	Plastic P/B with plastic front ring Cat. No.	Plastic P/B with metal front ring Cat. No.	Metal P/B with metal front ring Cat. No.
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Standard pushbuttons – pre-assembled front elements ¹⁾

White	D5P-F1	D5S-F1	D5M-F1
Black	D5P-F2	D5S-F2	D5M-F2
Green	D5P-F3	D5S-F3	D5M-F3
Red	D5P-F4	D5S-F4	D5M-F4
Yellow	D5P-F5	D5S-F5	D5M-F5
Blue	D5P-F6	D5S-F6	D5M-F6
No cap	D5P-F9	D5S-F9	D5M-F9

Extended pushbuttons ²⁾

White	D5P-E1	D5S-E1	D5M-E1
Black	D5P-E2	D5S-E2	D5M-E2
Green	D5P-E3	D5S-E3	D5M-E3
Red	D5P-E4	D5S-E4	D5M-E4
Yellow	D5P-E5	D5S-E5	D5M-E5
Blue	D5P-E6	D5S-E6	D5M-E6
No cap	D5P-F9	D5S-F9	D5M-F9

Guarded pushbuttons ²⁾

White	D5P-G1	D5S-G1	D5M-G1
Black	D5P-G2	D5S-G2	D5M-G2
Green	D5P-G3	D5S-G3	D5M-G3
Red	D5P-G4	D5S-G4	D5M-G4
Yellow	D5P-G5	D5S-G5	D5M-G5
Blue	D5P-G6	D5S-G6	D5M-G6
No cap	D5P-G9	D5S-G9	D5M-G9

+

Pre-assembled clip-on rear elements with coupling plate ¹⁾

	Cat. No.
1 N/O (Green)	D5-3LX10
1 N/C (Red)	D5-3LX01
1 N/O and 1 N/C	D5-3LX11

Notes: ¹⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 74.

²⁾ D5M-E and D5M-G are provided as a kit of two parts.

Square pushbuttons front and rear elements

- Protection class IP 66
- Individually packaged

Plastic P/B with
plastic front ring
Cat. No.

Description

Standard pushbuttons - pre-assembled front elements

White	D5Q-F1
Black	D5Q-F2
Green	D5Q-F3
Red	D5Q-F4
Yellow	D5Q-F5
Blue	D5Q-F6
No cap	D5Q-F9

Extended pushbuttons



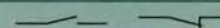
White	D5Q-E1
Black	D5Q-E2
Green	D5Q-E3
Red	D5Q-E4
Yellow	D5Q-E5
Blue	D5Q-E6
No cap	D5Q-F9

Guarded pushbuttons

White	D5Q-G1
Black	D5Q-G2
Green	D5Q-G3
Red	D5Q-G4
Yellow	D5Q-G5
Blue	D5Q-G6
No cap	D5Q-G9



Pre-assembled clip-on rear elements with coupling plate

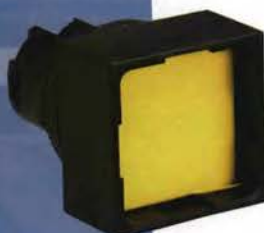
1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11



Cat. No. D5Q-F3



Cat. No. D5Q-E6



Cat. No. D5Q-G5



Cat. No. D5-3LX...

Pushbuttons front and rear elements

- Protection class IP 66
- Individually packaged

Description	Plastic P/B with plastic Fr/ring Cat. No.	Plastic P/B with metal Fr/ring Cat. No.	Metal P/B with metal Fr/ring Cat. No.
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



Standard engraved pushbuttons – pre-assembled front elements

Green 'I'	D5P-F306W	D5S-F306W	D5M-F306W
Red 'O'	D5P-F405W	D5S-F405W	N/A
Green 'START'	D5P-F301W	D5S-F301W	D5M-F301W
Red 'STOP'	D5P-F402W	D5S-F402W	D5M-F402W
Green 'ON'	D5P-F303W	D5S-F303W	D5M-F303W
Red 'OFF'	D5P-F404W	D5S-F404W	D5M-F404W
Black →	D5P-F208W	D5S-F208W	D5M-F208W
Red 'O' Extended	D5P-E405W	D5S-E405W	D5M-E405W

Latched pushbuttons – pre-assembled front elements




White	D5P-FA1	D5S-FA1	D5M-FA1
Black	D5P-FA2	D5S-FA2	D5M-FA2
Green	D5P-FA3	D5S-FA3	D5M-FA3
Red	D5P-FA4	D5S-FA4	D5M-FA4
Yellow	D5P-FA5	D5S-FA5	D5M-FA5
Blue	D5P-FA6	D5S-FA6	D5M-FA6

Selector jog operators




White	D5P-SJ21	D5S-SJ21	D5M-SJ21 
Black	D5P-SJ22	D5S-SJ22	D5M-SJ22 
Green	D5P-SJ23	D5S-SJ23	D5M-SJ23 
Red	D5P-SJ24	D5S-SJ24	D5M-SJ24 
Yellow	D5P-SJ25	D5S-SJ25	D5M-SJ25 
Blue	D5P-SJ26	D5S-SJ26	D5M-SJ26 






Pre-assembled clip-on rear elements with coupling plate ¹⁾

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

Emergency stop pushbutton (reset by turning clockwise) ²⁾

Colour red, Ø 60 mm		D5P-MTS64
Colour red, Ø 40 mm		D5P-MTS44
Colour red, Ø 30 mm		D5P-MTS34

Emergency stop pushbutton with key release (key reset by turning clockwise) ^{2) 3)}

Colour red, Ø 60 mm		D5P-MKR64
Colour red, Ø 40 mm		D5P-MKR44
Colour red, Ø 30 mm		D5P-MKR34

Notes: ¹⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.

²⁾ For emergency stop pushbuttons complete with coupling plate and contact block refer page 16. For enclosed emergency stop pushbuttons refer page 16.

³⁾ Standard Ronis key is Cat. No. D5-AKR 3825. For optional key numbers refer page 77.

 Available on Indent only.

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Cat. No. D5M-F301W



Cat. No. D5P-FA...



Cat. No. D5S-SJ24



Cat. No. D5-3LX...



Cat. No. D5P-MTS44

Square pushbuttons front and rear elements

- Protection class IP 66
- Individually packaged

Plastic P/B
plastic front ring
Cat. No.

Description

Standard engraved pushbuttons – pre-assembled front elements

Green 'I'	D5Q-F306W
Red 'O'	D5Q-F405W
Green 'START'	D5Q-F301W
Red 'STOP'	D5Q-F402W
Green 'ON'	D5Q-F303W
Red 'OFF'	D5Q-F404W
Black →	D5Q-F208W
Red 'O' Extended	D5Q-E405W

Latched pushbuttons – pre-assembled front elements




White	D5Q-FA1
Black	D5Q-FA2
Green	D5Q-FA3
Red	D5Q-FA4
Yellow	D5Q-FA5
Blue	D5Q-FA6
No cap	D5Q-FA9

Mushroom operators (ø 40 mm) – pre-assembled front elements

Black	D5Q-M2
Green	D5Q-M3
Red	D5Q-M4
Yellow	D5Q-M5
Blue	D5Q-M6

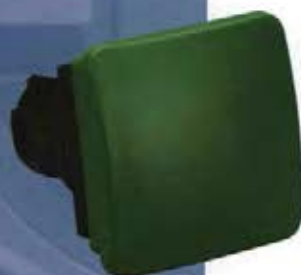


Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11



Cat. No. D5Q-F301W



Cat. No. D5Q-M3



Cat. No. D5-3LX...

Illuminated pushbuttons front and rear elements

- Protection class IP 66
- Individually packaged



Cat. No. D5P-LF...



Cat. No. D5S-LE...



Cat. No. D5S-LG...



Cat. No. D5P-LFA...



Cat. No. D5P-LF306B



Cat. No. D5-3DLOX...

Description	Plastic P/B with plastic Fr/ring Cat. No.	Plastic P/B with metal Fr/ring Cat. No.	Metal P/B with metal Fr/ring Cat. No.
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Standard illuminated pushbuttons – pre-assembled front elements

Green	D5P-LF3	D5S-LF3	D5M-LF3
Red	D5P-LF4	D5S-LF4	D5M-LF4
Yellow	D5P-LF5	D5S-LF5	D5M-LF5
Blue	D5P-LF6	D5S-LF6	D5M-LF6
Clear	D5P-LF7	D5S-LF7	D5M-LF7

Extended illuminated pushbuttons – pre-assembled front elements

Green	D5P-LE3	D5S-LE3	D5M-LE3
Red	D5P-LE4	D5S-LE4	D5M-LE4
Yellow	D5P-LE5	D5S-LE5	D5M-LE5
Blue	D5P-LE6	D5S-LE6	D5M-LE6
Clear	D5P-LE7	D5S-LE7	D5M-LE7




Guarded illuminated pushbuttons – pre-assembled front elements

Green	D5L-L63 	D5S-LG3	D5M-LG3
Red	D5L-L64 	D5S-LG4	D5M-LG4
Yellow	D5L-L65 	D5S-LG5	D5M-LG5
Blue	D5L-L66 	D5S-LG6	D5M-LG6
Clear	D5L-L67 	D5S-LG7	D5M-LG7

Latched illuminated pushbuttons – pre-assembled front elements

Green	D5P-LFA3	D5S-LFA3	D5M-LFA3
Red	D5P-LFA4	D5S-LFA4	D5M-LFA4
Yellow	D5P-LFA5	D5S-LFA5	D5M-LFA5
Blue	D5P-LFA6	D5S-LFA6	D5M-LFA6
Clear	D5P-LFA7	D5S-LFA7	D5M-LFA7

Standard engraved illuminated pushbuttons – pre-assembled front elements

Green 'I'	D5P-LF306B	D5S-LF306B	D5M-LF306B 
Red 'O'	D5P-LF405B	D5S-LF405B	D5M-LF405B 
Green 'START'	D5P-LF301B	D5S-LF301B	D5M-LF301B
Red 'STOP'	D5P-LF402B	D5S-LF402B	D5M-LF402B
Red 'O' Extended	D5P-LE405B	D5S-LE405B	D5M-LE405B 




Pre-assembled clip-on rear elements with coupling plate ¹⁾ ²⁾ ³⁾

1 N/O (Green)			D5-3DLOX10
1 N/C (Red)			D5-3DLOX01
1 N/O and 1 N/C			D5-3DLOX11

Notes: ¹⁾ For operating voltage 230/240 V AC using 130 V, 3 W filament lamp, order separately, coupling plate D5-A2L series diode and resistor element **D5-3R7** and contact block **D5-3LX10**. Refer pages 72.

²⁾ Order lamps separately refer page 76.

³⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.

 Available Active 10/12/2014

Square Illuminated pushbuttons front and rear elements

- Protection class IP 66
- Individually packaged

Plastic P/B
plastic front ring
Cat. No.

Description

Standard illuminated pushbuttons – pre-assembled front elements

Green	D5Q-LF3
Red	D5Q-LF4
Yellow	D5Q-LF5
Blue	D5Q-LF6
Clear	D5Q-LF7
No lens	D5Q-LF9

Extended illuminated pushbuttons – pre-assembled front elements

Green	D5Q-LE3
Red	D5Q-LE4
Yellow	D5Q-LE5
Blue	D5Q-LE6
Clear	D5Q-LE7
No lens	D5Q-LE9

Latched illuminated pushbuttons – pre-assembled front elements




Green	D5Q-LFA3
Red	D5Q-LFA4
Yellow	D5Q-LFA5
Blue	D5Q-LFA6
Clear	D5Q-LFA7
No lens	D5Q-LFA9

Standard engraved illuminated pushbuttons – pre-assembled front elements

Green 'I'	D5Q-LF306B
Red 'O'	D5Q-LF405B
Green 'START'	D5Q-LF301B
Red 'STOP'	D5Q-LF402B
Red Ext 'O'	D5Q-LE405B



Pre-assembled clip-on rear elements with coupling plate ^{1) 2)}

1 N/O (Green)		D5-3DLOX10
1 N/C (Red)		D5-3DLOX01
1 N/O and 1 N/C		D5-3DLOX11

Notes: ¹⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate **D5-A2L**, series diode and resistor **D5-3R7** and contact block **D5-3LX10**. Refer pages 72 and 73.

²⁾ Order lamps separately refer page 76.



Cat. No. D5Q-LF3



Cat. No. D5Q-LE3



Cat. No. D5Q-LFA3



Cat. No. D5Q-LF402B



Cat. No. D5-3DLOX10

Reset operators front and rear elements

- Protection class IP 66
- Individually packaged

**Plastic operator
with plastic front ring
Cat. No.**

Description

Flush reset operators (plastic)

Blue 'RESET' without rod	D5P-R607W
Blue 'R' without rod	D5P-R611W
Without colour cap and rod	D5P-R9



Cat. No. D5P-R611W

**Metal operator
with metal front ring
Cat. No.**

Flush reset operators (metal)

Blue 'RESET' without rod	D5M-R607W
Blue 'R' without rod	D5M-R611W
Without colour cap and rod	D5M-R9



Reset Rods

Rod lengths (mm)	Rod length adjustability	
38	34...52	D5-ATR01
53	50...67	D5-ATR02
69	65...83	D5-ATR03
84	80...98	D5-ATR04
99	95...113	D5-ATR05
114	110...128	D5-ATR06
130	126...144	D5-ATR07
145	141...159	D5-ATR08
312 ¹⁾	34...326	D5-ATR19

Note: ¹⁾ Available as a continuous thread, can be set at any length.



Cat. No. D5-ATR...

Square reset operators

● Protection class IP 66



Cat. No. D5Q-R607W



Cat. No. D5-ATR...



Cat. No. D5Q-N8

Description

Flush reset operators (square)

Description	Plastic P/B plastic front ring Cat. No.
Blue 'RESET' without rod	D5Q-R607W
Blue 'R' without rod	D5Q-R611W
Without colour cap and rod	D5Q-R9

+

Reset rods

Rod length (mm)	Rod length adjustability	Cat. No.
36	34...52	D5-ATR01
51	50...67	D5-ATR02
66	65...83	D5-ATR03
81	80...98	D5-ATR04
97	95...113	D5-ATR05
112	110...128	D5-ATR06
127	126...144	D5-ATR07
142	141...159	D5-ATR08
312 ')	34...326	D5-ATR19

Blanking plug

Square blanking plug with fixing nut used to fill 22.5 mm ø mounting hole	D5Q-N8
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Note: ') Available as a continuous thread, can be set at any length.

Mushroom operators front and rear elements

- Protection class IP 66
- Individually packaged

Standard mushroom operators

Description	Plastic operator with plastic front ring Cat. No.	Plastic operator with metal front ring Cat. No.	Metal operator with metal front ring Cat. No.
Mushroom operators (ø 40 mm) – pre-assembled front elements ¹⁾			
Black	D5P-M2	D5S-M2	D5M-M2
Green	D5P-M3	D5S-M3	D5M-M3
Red	D5P-M4	D5S-M4	D5M-M4
Yellow	D5P-M5	D5S-M5	D5M-M5
Blue	D5P-M6	D5S-M6	D5M-M6

Mushroom operators (ø 60 mm) – pre-assembled front elements ¹⁾

Black	D5P-MJ2	D5S-MJ2	D5M-MJ2
Green	D5P-MJ3	D5S-MJ3	D5M-MJ3
Red	D5P-MJ4	D5S-MJ4	D5M-MJ4
Yellow	D5P-MJ5	D5S-MJ5	D5M-MJ5
Blue	D5P-MJ6	D5S-MJ6	D5M-MJ6



Pre-assembled clip-on rear elements with coupling plate ²⁾

	Cat. No.
1 N/O (Green)	D5-3LX10
1 N/C (Red)	D5-3LX01
1 N/O and 1 N/C	D5-3LX11

Illuminated mushroom operators

Description	Cat. No.	Cat. No.
-------------	----------	----------

Plastic operator with metal front ring

	ø 40 mm	ø 60 mm
Green	D5S-LM3	D5S-LMJ3
Red	D5S-LM4	D5S-LMJ4
Yellow	D5S-LM5	D5S-LMJ5
Blue	D5S-LM6	D5S-LMJ6

Metal operator with metal front ring

	ø 40 mm	ø 60 mm
Green	D5M-LM3	D5M-LMJ3
Red	D5M-LM4	D5M-LMJ4
Yellow	D5M-LM5	D5M-LMJ5
Blue	D5M-LM6	D5M-LMJ6



Pre-assembled clip-on rear elements with coupling plate ^{2) 3) 4)}


1 N/O (Green)		D5-3DLOX10
1 N/C (Red)		D5-3DLOX01
1 N/O and 1 N/C		D5-3DLOX11

Notes: ¹⁾ For emergency stop pushbuttons see pages 16 and 22.


²⁾ For metal rear elements and screw down 2 across blocks for D5M operators refer page 78.

³⁾ Order lamps separately refer page 76.

⁴⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate **D5-A2L**, series diode and resistor **D5-3R7** and contact block **D5-3LX10**. Refer pages 72 and 73.



Cat. No. D5P-M...




Cat. No. D5S-MJ5



Cat. No. D5-3LX10



Cat. No. D5S-LM...



Cat. No. D5-3DLOX...

Mushroom operators front and rear elements

Push/Pull mushroom operators ¹⁾

- Protection class IP 66
- Individually packaged

Mushroom operator push/pull

Description ¹⁾	Plastic op. with metal Fr/ring Cat. No. Ø 40 mm	Plastic op. with metal Fr/ring Cat. No. Ø 60 mm	Metal op. with metal Fr/ring Cat. No. Ø 40 mm	Metal op. with metal Fr/ring Cat. No. Ø 60 mm
Black	D5S-MP22	D5S-MJP22	D5M-MP22	D5M-MJP22
Green	D5S-MP23	D5S-MJP23	D5M-MP23	D5M-MJP23
Red	D5S-MP24	D5S-MJP24	D5M-MP24	D5M-MJP24
Yellow	D5S-MP25	D5S-MJP25	D5M-MP25	D5M-MJP25
Blue	D5S-MP26	D5S-MJP26	D5M-MP26	D5M-MJP26

Illuminated mushroom operator push/pull

Green	D5S-LMP23	D5S-LMJP23	D5M-LMP23	D5M-LMJP23
Red	D5S-LMP24	D5S-LMJP24	D5M-LMP24	D5M-LMJP24
Yellow	D5S-LMP25	D5S-LMJP25	D5M-LMP25	D5M-LMJP25
Blue	D5S-LMP26	D5S-LMJP26	D5M-LMP26	D5M-LMJP26

Pre-assembled clip-on rear elements with coupling plate (for D5S/M - MP/MJP types)

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

Pre-assembled clip-on rear elements with coupling plate (for D5S/M -LMP/LMJP types) ²⁾ ³⁾

1 N/O		D5-3DLOX10
1 N/C		D5-3DLOX01
1 N/O and 1 N/C		D5-3DLOX11

Description	Plastic operator with plastic Fr/ring Cat. No.	Plastic operator with metal Fr/ring Cat. No.	Metal operator with metal Fr/ring Cat. No.
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Mushroom operator 40 mm push-pull/twist to release ¹⁾

Black	D5P-MT2	D5S-MT2	D5M-MT2
Green	D5P-MT3	D5S-MT3	D5M-MT3
Red	D5P-MT4	D5S-MT4	D5M-MT4
Yellow	D5P-MT5	D5S-MT5	D5M-MT5
Blue	D5P-MT6	D5S-MT6	D5M-MT6

Mushroom operator 60 mm push-pull/twist to release

Black	D5P-MJT2	D5S-MJT2	D5M-MJT2
Red	D5P-MJT4	D5S-MJT4	D5M-MJT4
Yellow	D5P-MJT5	D5S-MJT5	D5M-MJT5

Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

Notes: ¹⁾ For emergency stop pushbuttons see pages 16 and 22.

²⁾ For operating voltage 230/240 V AC using 130 V, 3 W filament lamp, order separately, coupling plate **D5-A2L**, series diode and resistor element **D5-3R7** and contact block **D5-3XL10**. Refer pages 72 & 73.

³⁾ Order lamps separately refer pages 76.

⁴⁾ For metal rear elements and screwdown 2 across contact blocks for D5M operators refer page 78.



Cat. No. D5S-MP...



Cat. No. D5P-MT4



Cat. No. D5P-MJT4



Cat. No. D5-3LX...

Joy sticks and wobble sticks

● Individually packaged

Joy stick operators

Metal switch with metal front ring

Type	Without latch	With latch ³⁾
2 position stayput	D5M-JM2	D5M-JLM2
2 position spring return	D5M-JR2	D5M-JLR2
4 position stayput	D5M-JM4	D5M-JLM4
4 position spring return	D5M-JR4	D5M-JLR4



Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20



Cat. No. D5M-JLM2



Cat. No. D5-3LX11



2 position joystick

4 position joystick

Joystick position ¹⁾	Contacts ²⁾							
	N/O LHS	N/C LHS	N/O RHS	N/C RHS	N/O LHS	N/C LHS	N/O RHS	N/C RHS
up			Not applicable		Closed	Open	Open	Open
down			Not applicable		Open	Closed	Open	Open
central	Open	Open	Open	Open	Open	Open	Open	Open
left	Open	Closed	Closed	Open	Open	Open	Closed	Open
right	Closed	Open	Open	Closed	Open	Open	Open	Closed

Notes: ¹⁾ Joystick position refers to the position of the joystick as if looking at it from head-on.
²⁾ Contact position refers to being viewed from the rear of the coupling plate.
³⁾ Latch requires actuation in order to move joy stick into position.

Wobble stick operators

Plastic switch with plastic front ring

Metal switch with metal front ring

Operating stick	Cat. No.	Cat. No.
Red plastic	D5P-W4	D5M-W4
Shiny aluminium	-	D5M-W8



Pre-assembled clip-on rear elements with coupling plate (used with Wobble and Joy sticks)

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20



Cat. No. D5M-W4



Cat. No. D5-3LX11

Pilot lights

- Protection class IP 66
- Individually packaged



Cat. No. D5P-P...



Cat. No. D5M-PL...



Cat. No. D5-3DLO



Cat. No. D5P-PLM6D0



Cat. No. DL3-15

Description	Standard lens cap & diffuser Cat. No.	Standard lens cap & diffuser/metal body Cat. No.
-------------	--	---

Standard pilot lights – pre-assembled front elements ⁵⁾

Green	D5P-P3	D5M-P3
Red	D5P-P4	D5M-P4
Yellow	D5P-P5	D5M-P5
Blue	D5P-P6	D5M-P6
Clear	D5P-P7	D5M-P7

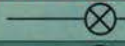
Description	No diffuser possible plastic body Cat. No.	No diffuser possible metal body Cat. No.
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Optically enhanced Pilot lights – pre-assembled front element ⁵⁾

Green	D5P-PL3	D5M-PL3
Red	D5P-PL4	D5M-PL4
Yellow	D5P-PL5	D5M-PL5
Blue	D5P-PL6	D5M-PL6
Clear	D5P-PL7	D5M-PL7



Pre-assembled clip-on rear elements with coupling plate ¹⁾ ²⁾ ⁵⁾

Standard		D5-3DL0
With series diode and resistor 230/240 V AC		D5-3RL7

Eco-pilot lights

Description	Contact	Standard Cat. No.	Optically enhanced Cat. No.
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Complete Eco-pilot light ²⁾ ³⁾ ⁵⁾

Green		D5P-PM3D0	D5P-PLM3D0
Red		D5P-PM4D0	D5P-PLM4D0
Yellow		D5P-PM5D0	D5P-PLM5D0
Blue		D5P-PM6D0	D5P-PLM6D0
Clear		D5P-PM7D0	D5P-PLM7D0

DL 3-15 indicator lamps

Indicator lamp full voltage ⁷⁾
for BA 15d lamp ⁶⁾

Standard lens cap & diffuser/metal body Cat. No.

Green/red/yellow	DL3-15-GRY-M
Blue	DL3-15-B-M
White (clear)	DL3-15-W-M

Notes: ¹⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate **D5-A2L**, series diode and resistor **D5-3R7** and contact block **D5-3LX10**. Refer pages 72 and 73.

²⁾ Order lamps separately refer page 76.

³⁾ Max. 110 V, 3 W, use only neon lamps if 230/240 V is required. For lamps refer page 76.

⁴⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.

⁵⁾ For spare lens caps refer page 79.

⁶⁾ Lamps refer page 76.

⁷⁾ For use in metal enclosures.

Square pilot lights

- Protection class IP 66
- Individually packaged

Plastic body with standard lens cap and diffuser
Cat. No.



Description

Standard pilot lights – pre-assembled front elements ⁴⁾

Green	D5Q-P3
Red	D5Q-P4
Yellow	D5Q-P5
Blue	D5Q-P6
Clear	D5Q-P7



Pre-assembled clip-on rear elements with coupling plate ^{1) 2)}

Standard		D5-3DLO
With series diode and resistor 230/240 V AC		D5-3RL7

Description

Cat. No.

Complete Eco-pilot lights (lamp not included) ^{2) 3) 4)}

Green	D5Q-PM3DO
Red	D5Q-PM4DO
Yellow	D5Q-PM5DO
Blue	D5Q-PM6DO
Clear	D5Q-PM7DO

Notes: ¹⁾ For operating voltage 230/240 V AC using 130 V, 3 W filament lamp, order separately, coupling plate **D5-A2L**, series diode and resistor **D5-3R7** and contact block **D5-3LX10**. Refer pages 72 and 73.

²⁾ Order lamps separately refer page 76.

³⁾ Max. 110 V, 3 W, use only neon lamps if 240 V is required. For lamps refer page 76.

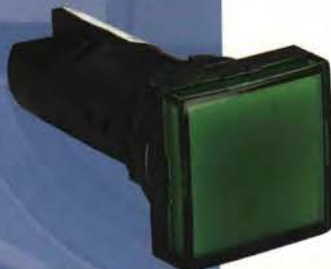
⁴⁾ For spare lens caps refer page 79.



Cat. No. D5Q-P4



Cat. No. D5-3DLO



Cat. No. D5Q-PM3DO

2 position rotary switch - front & rear elements

With short operator

- Protection class IP 66
- Individually packaged



Cat. No. D5M-SM...



Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal operator with metal front ring ³⁾ Cat. No.
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Stayput 60° – 2 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SM22	D5S-SM22	D5M-SM22
Green	D5P-SM23	D5S-SM23	D5M-SM23
Red	D5P-SM24	D5S-SM24	D5M-SM24
Yellow	D5P-SM25	D5S-SM25	D5M-SM25
Blue	D5P-SM26	D5S-SM26	D5M-SM26



Stayput 90° – 2 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SN22	D5S-SN22	D5M-SN22
Green	D5P-SN23	D5S-SN23	D5M-SN23
Red	D5P-SN24	D5S-SN24	D5M-SN24
Yellow	D5P-SN25	D5S-SN25	D5M-SN25
Blue	D5P-SN26	D5S-SN26	D5M-SN26



Spring return from left 60° – 2 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SL22	D5S-SL22	D5M-SL22
Green	D5P-SL23	D5S-SL23	D5M-SL23
Red	D5P-SL24	D5S-SL24	D5M-SL24
Yellow	D5P-SL25	D5S-SL25	D5M-SL25
Blue	D5P-SL26	D5S-SL26	D5M-SL26



Spring return from right 60° – 2 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SR22	D5S-SR22	D5M-SR22
Green	D5P-SR23	D5S-SR23	D5M-SR23
Red	D5P-SR24	D5S-SR24	D5M-SR24
Yellow	D5P-SR25	D5S-SR25	D5M-SR25
Blue	D5P-SR26	D5S-SR26	D5M-SR26

+

Pre-assembled clip-on rear elements with coupling plate ²⁾

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

Notes: ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).

²⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.

³⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).



Cat. No. D5-3LX...

2 position square rotary switch - front & rear elements

- Protection class IP 66
- Individually packaged

With short operator

Plastic switch with
plastic front ring
Cat. No.

Description

Stayput 60° – 2 position rotary switch with short operator



Black (std.) ¹⁾	D5Q-SM22
Green	D5Q-SM23
Red	D5Q-SM24
Yellow	D5Q-SM25
Blue	D5Q-SM26

Stayput 90° – 2 position rotary switch with short operator



Black (std.) ¹⁾	D5Q-SN22
Green	D5Q-SN23
Red	D5Q-SN24
Yellow	D5Q-SN25
Blue	D5Q-SN26

Spring return from left 60° – 2 position rotary switch with short operator



Black (std.) ¹⁾	D5Q-SL22
Green	D5Q-SL23
Red	D5Q-SL24
Yellow	D5Q-SL25
Blue	D5Q-SL26



Spring return from right 60° – 2 position rotary switch with short operator



Black (std.) ¹⁾	D5Q-SR22
Green	D5Q-SR23
Red	D5Q-SR24
Yellow	D5Q-SR25
Blue	D5Q-SR26



Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

Note: ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).

Cat. No. D5Q-S...

Cat. No. D5-3LX...

2 position rotary switch - front & rear elements

With long operator

- Protection class IP 66
- Individually packaged



Cat. No. D5P-H...



Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ³⁾ Cat. No.
-------------	--	--	--

Stayput 60° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HM22	D5S-HM22	D5M-HM22
Green	D5P-HM23	D5S-HM23	D5M-HM23
Red	D5P-HM24	D5S-HM24	D5M-HM24
Yellow	D5P-HM25	D5S-HM25	D5M-HM25
Blue	D5P-HM26	D5S-HM26	D5M-HM26



Stayput 90° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HN22	D5S-HN22	D5M-HN22
Green	D5P-HN23	D5S-HN23	D5M-HN23
Red	D5P-HN24	D5S-HN24	D5M-HN24
Yellow	D5P-HN25	D5S-HN25	D5M-HN25
Blue	D5P-HN26	D5S-HN26	D5M-HN26



Spring return from left 60° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HL22	D5S-HL22	D5M-HL22
Green	D5P-HL23	D5S-HL23	D5M-HL23
Red	D5P-HL24	D5S-HL24	D5M-HL24
Yellow	D5P-HL25	D5S-HL25	D5M-HL25
Blue	D5P-HL26	D5S-HL26	D5M-HL26



Spring return from right 60° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HR22	D5S-HR22	D5M-HR22
Green	D5P-HR23	D5S-HR23	D5M-HR23
Red	D5P-HR24	D5S-HR24	D5M-HR24
Yellow	D5P-HR25	D5S-HR25	D5M-HR25
Blue	D5P-HR26	D5S-HR26	D5M-HR26

Pre-assembled clip-on rear elements with coupling plate ²⁾

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

- Notes:** ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).
- ²⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.
- ³⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).



Cat. No. D5-3LX...

2 position square rotary switch - front & rear elements

- Protection class IP 66
- Individually packaged

With long operator

Plastic switch with
plastic front ring
Cat. No.

Description

Stayput 60° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5Q-HM22
Green	D5Q-HM23
Red	D5Q-HM24
Yellow	D5Q-HM25
Blue	D5Q-HM26



Cat. No. D5Q-H...

Stayput 90° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5Q-HN22
Green	D5Q-HN23
Red	D5Q-HN24
Yellow	D5Q-HN25
Blue	D5Q-HN26



Spring return from left 60° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5Q-HL22
Green	D5Q-HL23
Red	D5Q-HL24
Yellow	D5Q-HL25
Blue	D5Q-HL26






Spring return from right 60° – 2 position rotary switch with long operator

Black (std.) ¹⁾	D5Q-HR22
Green	D5Q-HR23
Red	D5Q-HR24
Yellow	D5Q-HR25
Blue	D5Q-HR26



Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

Note: ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).



Cat. No. D5-3LX...

3 position rotary switch - front & rear elements

- Protection class IP 66
- Individually packaged

With short operator

Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ¹⁾ Cat. No.
Stayput 60° – 3 position rotary switch with short operator			
Black (std.) ¹⁾	D5P-SM32	D5S-SM32	D5M-SM32
Green	D5P-SM33	D5S-SM33	D5M-SM33
Red	D5P-SM34	D5S-SM34	D5M-SM34
Yellow	D5P-SM35	D5S-SM35	D5M-SM35
Blue	D5P-SM36	D5S-SM36	D5M-SM36



Cat. No. D5P-S...

Spring return from left 60° – 3 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SL32	D5S-SL32	D5M-SL32
Green	D5P-SL33	D5S-SL33	D5M-SL33
Red	D5P-SL34	D5S-SL34	D5M-SL34
Yellow	D5P-SL35	D5S-SL35	D5M-SL35
Blue	D5P-SL36	D5S-SL36	D5M-SL36



Spring return from right 60° – 3 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SR32	D5S-SR32	D5M-SR32
Green	D5P-SR33	D5S-SR33	D5M-SR33
Red	D5P-SR34	D5S-SR34	D5M-SR34
Yellow	D5P-SR35	D5S-SR35	D5M-SR35
Blue	D5P-SR36	D5S-SR36	D5M-SR36



Spring return from left and right 60° – 3 position rotary switch with short operator

Black (std.) ¹⁾	D5P-SB32	D5S-SB32	D5M-SB32
Green	D5P-SB33	D5S-SB33	D5M-SB33
Red	D5P-SB34	D5S-SB34	D5M-SB34
Yellow	D5P-SB35	D5S-SB35	D5M-SB35
Blue	D5P-SB36	D5S-SB36	D5M-SB36



+

Pre-assembled clip-on rear elements with coupling plate ²⁾

1 N/O and 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20

Notes: ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).

²⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.

³⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).



Cat. No. D5-3LX11...

3 position square rotary switch - front & rear elements

- Protection class IP 66
- Individually packaged

With short operator

Plastic switch with
plastic front ring
Cat. No.

Description

Stayput 60° – 3 position rotary switch with short operator



Black (std.) '1)	D5Q-SM32
Green	D5Q-SM33
Red	D5Q-SM34
Yellow	D5Q-SM35
Blue	D5Q-SM36

Cat. No. D5Q-S...



Spring return from left 60° – 3 position rotary switch with short operator

Black (std.) '1)	D5Q-SL32
Green	D5Q-SL33
Red	D5Q-SL34
Yellow	D5Q-SL35
Blue	D5Q-SL36



Spring return from right 60° – 3 position rotary switch with short operator

Black (std.) '1)	D5Q-SR32
Green	D5Q-SR33
Red	D5Q-SR34
Yellow	D5Q-SR35
Blue	D5Q-SR36



Spring return from left and right 60° – 3 position rotary switch with short operator

Black (std.) '1)	D5Q-SB32
Green	D5Q-SB33
Red	D5Q-SB34
Yellow	D5Q-SB35
Blue	D5Q-SB36



Pre-assembled clip-on rear elements with coupling plate

1 N/O and 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20

Note: '1) Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).

Cat. No. D5-3LX11...

3 position rotary switch - front & rear elements

- Protection class IP 66
- Individually packaged

With long operator

Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ³⁾ Cat. No.
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Stayput 60° – 3 position rotary switch with long operator

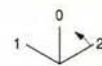
Black (std.) ¹⁾	D5P-HM32	D5S-HM32	D5M-HM32
Green	D5P-HM33	D5S-HM33	D5M-HM33
Red	D5P-HM34	D5S-HM34	D5M-HM34
Yellow	D5P-HM35	D5S-HM35	D5M-HM35
Blue	D5P-HM36	D5S-HM36	D5M-HM36

Cat. No. D5P-H...



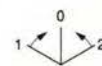
Spring return from left 60° – 3 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HL32	D5S-HL32	D5M-HL32
Green	D5P-HL33	D5S-HL33	D5M-HL33
Red	D5P-HL34	D5S-HL34	D5M-HL34
Yellow	D5P-HL35	D5S-HL35	D5M-HL35
Blue	D5P-HL36	D5S-HL36	D5M-HL36



Spring return from right 60° – 3 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HR32	D5S-HR32	D5M-HR32
Green	D5P-HR33	D5S-HR33	D5M-HR33
Red	D5P-HR34	D5S-HR34	D5M-HR34
Yellow	D5P-HR35	D5S-HR35	D5M-HR35
Blue	D5P-HR36	D5S-HR36	D5M-HR36



Spring return from left and right 60° – 3 position rotary switch with long operator

Black (std.) ¹⁾	D5P-HB32	D5S-HB32	D5M-HB32
Green	D5P-HB33	D5S-HB33	D5M-HB33
Red	D5P-HB34	D5S-HB34	D5M-HB34
Yellow	D5P-HB35	D5S-HB35	D5M-HB35
Blue	D5P-HB36	D5S-HB36	D5M-HB36

Pre-assembled clip-on rear elements with coupling plate ²⁾

1 N/O and 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20

- Notes:**
- ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).
 - ²⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.
 - ³⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).

Cat. No. D5-3LX11...

3 position square rotary switch - front & rear elements

- Protection class IP 66
- Individually packaged

With long operator

Description

Plastic switch with plastic front ring
Cat. No.

Stayput 60° – 3 position rotary switch with long operator



Black (std.) ¹⁾	D5Q-HM32
Green	D5Q-HM33
Red	D5Q-HM34
Yellow	D5Q-HM35
Blue	D5Q-HM36

Spring return from left 60° – 3 position rotary switch with long operator



Black (std.) ¹⁾	D5Q-HL32
Green	D5Q-HL33
Red	D5Q-HL34
Yellow	D5Q-HL35
Blue	D5Q-HL36

Spring return from right 60° – 3 position rotary switch with long operator



Black (std.) ¹⁾	D5Q-HR32
Green	D5Q-HR33
Red	D5Q-HR34
Yellow	D5Q-HR35
Blue	D5Q-HR36

Spring return from left and right 60° – 3 position rotary switch with long operator



Black (std.) ¹⁾	D5Q-HB32
Green	D5Q-HB33
Red	D5Q-HB34
Yellow	D5Q-HB35
Blue	D5Q-HB36

+

Pre-assembled clip-on rear elements with coupling plate

1 N/O and 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20

Note: ¹⁾ Black knob is standard and supplied complete as a front operator individually packaged. Other knob colours are supplied as a kit of 2 parts (knob & front operator mechanism).

Cat. No. D5Q-H...

Cat. No. D5-3LX11...

2 position illuminated rotary switch - front & rear elements

With short operator

● Protection class IP 66

Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ⁵⁾ Cat. No.
-------------	--	--	--

Stayput 60° – 2 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSM23	D5S-LSM23	D5M-LSM23
Red	D5P-LSM24	D5S-LSM24	D5M-LSM24
Yellow	D5P-LSM25	D5S-LSM25	D5M-LSM25
Blue	D5P-LSM26	D5S-LSM26	D5M-LSM26

Cat. No. D5P-LS...

Stayput 90° – 2 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSN23	D5S-LSN23	D5M-LSN23
Red	D5P-LSN24	D5S-LSN24	D5M-LSN24
Yellow	D5P-LSN25	D5S-LSN25	D5M-LSN25
Blue	D5P-LSN26	D5S-LSN26	D5M-LSN26

Spring return from left 60° – 2 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSL23	D5S-LSL23	D5M-LSL23
Red	D5P-LSL24	D5S-LSL24	D5M-LSL24
Yellow	D5P-LSL25	D5S-LSL25	D5M-LSL25
Blue	D5P-LSL26	D5S-LSL26	D5M-LSL26

Spring return from right 60° – 2 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSR23	D5S-LSR23	D5M-LSR23
Red	D5P-LSR24	D5S-LSR24	D5M-LSR24
Yellow	D5P-LSR25	D5S-LSR25	D5M-LSR25
Blue	D5P-LSR26	D5S-LSR26	D5M-LSR26

Pre-assembled clip-on rear elements with coupling plate ²⁾ ³⁾ ⁴⁾

1 N/O (Green)			D5-3DL0X10
1 N/C (Red)			D5-3DL0X01
1 N/O and 1 N/C			D5-3DL0X11

Cat. No. D5-3DL0X...

- Notes:**
- ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
 - ²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
 - ³⁾ Order lamps separately refer page 76.
 - ⁴⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.
 - ⁵⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).

2 position illuminated rotary switch - front & rear elements

● Protection class IP 66

With short operator

Plastic switch with plastic front ring
Cat. No.

Description

Stayput 60° – 2 position illuminated rotary switch with short operator ¹⁾



Green	D5Q-LSM23
Red	D5Q-LSM24
Yellow	D5Q-LSM25
Blue	D5Q-LSM26

Stayput 90° – 2 position illuminated rotary switch with short operator ¹⁾



Green	D5Q-LSN23
Red	D5Q-LSN24
Yellow	D5Q-LSN25
Blue	D5Q-LSN26

Spring return from left 60° – 2 position illuminated rotary switch with short operator ¹⁾



Green	D5Q-LSL23
Red	D5Q-LSL24
Yellow	D5Q-LSL25
Blue	D5Q-LSL26

Spring return from right 60° – 2 position illuminated rotary switch with short operator ¹⁾



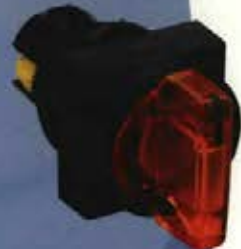
Green	D5Q-LSR23
Red	D5Q-LSR24
Yellow	D5Q-LSR25
Blue	D5Q-LSR26

+

Pre-assembled clip-on rear elements with coupling plate ²⁾ ³⁾

1 N/O (Green)			D5-3DL0X10
1 N/C (Red)			D5-3DL0X01
1 N/O and 1 N/C			D5-3DL0X11

- Notes: ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
³⁾ Order lamps separately refer page 76.



Cat. No. D5Q-LS...



Cat. No. D5-3DL0X...

2 position illuminated square rotary switch - front & rear elements

With long operator

● Protection class IP 66



Cat. No. D5M-LHM...



Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ⁵⁾ Cat. No.
-------------	--	--	--

Stayput 60° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHM23	D5S-LHM23	D5M-LHM23
Red	D5P-LHM24	D5S-LHM24	D5M-LHM24
Yellow	D5P-LHM25	D5S-LHM25	D5M-LHM25
Blue	D5P-LHM26	D5S-LHM26	D5M-LHM26

Stayput 90° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHN23	D5S-LHN23	D5M-LHN23
Red	D5P-LHN24	D5S-LHN24	D5M-LHN24
Yellow	D5P-LHN25	D5S-LHN25	D5M-LHN25
Blue	D5P-LHN26	D5S-LHN26	D5M-LHN26

Spring return from left 60° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHL23	D5S-LHL23	D5M-LHL23
Red	D5P-LHL24	D5S-LHL24	D5M-LHL24
Yellow	D5P-LHL25	D5S-LHL25	D5M-LHL25
Blue	D5P-LHL26	D5S-LHL26	D5M-LHL26

Spring return from right 60° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHR23	D5S-LHR23	D5M-LHR23
Red	D5P-LHR24	D5S-LHR24	D5M-LHR24
Yellow	D5P-LHR25	D5S-LHR25	D5M-LHR25
Blue	D5P-LHR26	D5S-LHR26	D5M-LHR26

Pre-assembled clip-on rear elements with coupling plate ²⁾ ³⁾ ⁴⁾

1 N/O (Green)			D5-3DL0X10
1 N/C (Red)			D5-3DL0X01
1 N/O and 1 N/C			D5-3DL0X11

- Notes:**
- ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
 - ²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
 - ³⁾ Order lamps separately refer page 76.
 - ⁴⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.
 - ⁵⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).



Cat. No. D5-3DL0X...

2 position illuminated square rotary switch - front & rear elements

● Protection class IP 66

With long operator

Plastic switch with
plastic front ring
Cat. No.

Description

Stayput 60° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHM23
Red	D5Q-LHM24
Yellow	D5Q-LHM25
Blue	D5Q-LHM26

Stayput 90° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHN23
Red	D5Q-LHN24
Yellow	D5Q-LHN25
Blue	D5Q-LHN26

Spring return from left 60° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHL23
Red	D5Q-LHL24
Yellow	D5Q-LHL25
Blue	D5Q-LHL26

Spring return from right 60° – 2 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHR23
Red	D5Q-LHR24
Yellow	D5Q-LHR25
Blue	D5Q-LHR26

+

Pre-assembled clip-on rear elements with coupling plate ^{2) 3)}

1 N/O (Green)			D5-3DL0X10
1 N/C (Red)			D5-3DL0X01
1 N/O and 1 N/C			D5-3DL0X11

- Notes:**
- ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
 - ²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
 - ³⁾ Order lamps separately refer page 76.

Cat. No. D5Q-LH...

Cat. No. D5-3DL0X...

3 position illuminated rotary switch - front & rear elements

With short operator

● Protection class IP 66

Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ¹⁾ Cat. No.
-------------	--	--	--

Stayput 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSM33	D5S-LSM33	D5M-LSM33
Red	D5P-LSM34	D5S-LSM34	D5M-LSM34
Yellow	D5P-LSM35	D5S-LSM35	D5M-LSM35
Blue	D5P-LSM36	D5S-LSM36	D5M-LSM36



Spring return from left 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSL33	D5S-LSL33	D5M-LSL33
Red	D5P-LSL34	D5S-LSL34	D5M-LSL34
Yellow	D5P-LSL35	D5S-LSL35	D5M-LSL35
Blue	D5P-LSL36	D5S-LSL36	D5M-LSL36



Spring return from right 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSR33	D5S-LSR33	D5M-LSR33
Red	D5P-LSR34	D5S-LSR34	D5M-LSR34
Yellow	D5P-LSR35	D5S-LSR35	D5M-LSR35
Blue	D5P-LSR36	D5S-LSR36	D5M-LSR36



Spring return from left and right 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5P-LSB33	D5S-LSB33	D5M-LSB33
Red	D5P-LSB34	D5S-LSB34	D5M-LSB34
Yellow	D5P-LSB35	D5S-LSB35	D5M-LSB35
Blue	D5P-LSB36	D5S-LSB36	D5M-LSB36



+

Pre-assembled clip-on rear elements with coupling plate ²⁾ ³⁾ ⁴⁾

1 N/O and 1 N/C			D5-3DLOX11
2 N/O (Green)			D5-3DLOX20

- Notes:**
- ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
 - ²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
 - ³⁾ Order lamps separately refer page 76.
 - ⁴⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer to page 78.
 - ⁵⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).

Cat. No. D5P-LS...

Cat. No. D5-3DLOX11

3 position illuminated square rotary switch - front & rear elements

● Protection class IP 66

With short operator

Plastic switch with plastic front ring
Cat. No.

Description

Stayput 60° – 3 position illuminated rotary switch with short operator ¹⁾



Green	D5Q-LSM33
Red	D5Q-LSM34
Yellow	D5Q-LSM35
Blue	D5Q-LSM36



Cat. No. D5Q-LS...



Spring return from left 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5Q-LSL33
Red	D5Q-LSL34
Yellow	D5Q-LSL35
Blue	D5Q-LSL36



Spring return from right 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5Q-LSR33
Red	D5Q-LSR34
Yellow	D5Q-LSR35
Blue	D5Q-LSR36



Spring return from left and right 60° – 3 position illuminated rotary switch with short operator ¹⁾

Green	D5Q-LSB33
Red	D5Q-LSB34
Yellow	D5Q-LSB35
Blue	D5Q-LSB36

+

Pre-assembled clip-on rear elements with coupling plate ²⁾ ³⁾

1 N/O and 1 N/C		D5-3DLOX11
2 N/O (Green)		D5-3DLOX20

- Notes: ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
³⁾ Order lamps separately refer page 76.



Cat. No. D5-3DL0X11

3 position illuminated rotary switch - front & rear elements

With long operator

● Protection class IP 66



Cat. No. D5P-LH...



Description	Plastic switch with plastic front ring Cat. No.	Plastic switch with metal front ring Cat. No.	Metal switch with metal front ring ³⁾ Cat. No.
-------------	--	--	--

Stayput 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHM33	D5S-LHM33	D5M-LHM33
Red	D5P-LHM34	D5S-LHM34	D5M-LHM34
Yellow	D5P-LHM35	D5S-LHM35	D5M-LHM35
Blue	D5P-LHM36	D5S-LHM36	D5M-LHM36



Spring return from left 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHL33	D5S-LHL33	D5M-LHL33
Red	D5P-LHL34	D5S-LHL34	D5M-LHL34
Yellow	D5P-LHL35	D5S-LHL35	D5M-LHL35
Blue	D5P-LHL36	D5S-LHL36	D5M-LHL36



Spring return from right 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHR33	D5S-LHR33	D5M-LHR33
Red	D5P-LHR34	D5S-LHR34	D5M-LHR34
Yellow	D5P-LHR35	D5S-LHR35	D5M-LHR35
Blue	D5P-LHR36	D5S-LHR36	D5M-LHR36



Spring return from left and right 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5P-LHB33	D5S-LHB33	D5M-LHB33
Red	D5P-LHB34	D5S-LHB34	D5M-LHB34
Yellow	D5P-LHB35	D5S-LHB35	D5M-LHB35
Blue	D5P-LHB36	D5S-LHB36	D5M-LHB36



Pre-assembled clip-on rear elements with coupling plate ²⁾ ³⁾ ⁴⁾

1 N/O and 1 N/C		D5-3DL0X11
2 N/O (Green)		D5-3DL0X20

- Notes:
- ¹⁾ Provided as a kit of 2 parts (knob and operator mechanism).
 - ²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
 - ³⁾ Order lamps separately refer page 76.
 - ⁴⁾ For metal rear elements and screw down 2 across contact blocks for D5M operators refer page 78.
 - ⁵⁾ Metal switch supplied as a kit of 2 parts (knob and front operator mechanism).



Cat. No. D5-3DL0X11

3 position illuminated square rotary switch - front & rear elements

● Protection class IP 66

With long operator

Plastic switch with
plastic front ring
Cat. No.

Description



Stayput 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHM33
Red	D5Q-LHM34
Yellow	D5Q-LHM35
Blue	D5Q-LHM36



Cat. No. D5Q-LH...



Spring return from left 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHL33
Red	D5Q-LHL34
Yellow	D5Q-LHL35
Blue	D5Q-LHL36



Spring return from right 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHR33
Red	D5Q-LHR34
Yellow	D5Q-LHR35
Blue	D5Q-LHR36



Spring return from left and right 60° – 3 position illuminated rotary switch with long operator ¹⁾

Green	D5Q-LHB33
Red	D5Q-LHB34
Yellow	D5Q-LHB35
Blue	D5Q-LHB36

+

Pre-assembled clip-on rear elements with coupling plate ^{2) 3)}

1 N/O and 1 N/C			D5-3DL0X11
2 N/O (Green)			D5-3DL0X20

- Notes:**
- ¹⁾ Provided as a kit of 2 parts (knob and front operator mechanism).
 - ²⁾ For operating voltage 230/240 V AC using 130 V 3 W filament lamp, order separately, coupling plate D5-A2L, series diode and resistor D5-3R7 and contact block D5-3LX10. Refer pages 72 and 73.
 - ³⁾ Order lamps separately refer page 76.





Cat. No. D5-3DL0X11


2 position rotary key switch - front & rear elements

With Ronis key ¹⁾

● Protection class IP 66

	Description	Key switch with plastic fr/ring Cat. No.	Key switch with metal fr/ring Cat. No.	Metal key switch with metal fr/ring Cat. No.
	Stayput 60° – 2 position rotary switch with Ronis key			
	Key removable left	D5P-KM2R1 ²⁾	D5S-KM2R1 ²⁾	D5M-KM2R1 ²⁾
	Key removable right	D5P-KM2R2 ²⁾	D5S-KM2R2 ²⁾	D5M-KM2R2 ²⁾
	Key removable both	D5P-KM2R3 ²⁾	D5S-KM2R3 ²⁾	D5M-KM2R3 ²⁾




	Stayput 90° – 2 position rotary switch with Ronis key			
	Key removable left	D5P-KN2R1 ²⁾	D5S-KN2R1 ²⁾	D5M-KN2R1 ²⁾
	Key removable right	D5P-KN2R2 ²⁾	D5S-KN2R2 ²⁾	D5M-KN2R2 ²⁾
	Key removable both	D5P-KN2R3 ²⁾	D5S-KN2R3 ²⁾	D5M-KN2R3 ²⁾

	Spring return from left 60° – 2 position rotary switch with Ronis key			
	Key removable right	D5P-KL2R2 ²⁾	D5S-KL2R2 ²⁾	D5M-KL2R2 ²⁾

	Spring return from right 60° – 2 position rotary switch with Ronis key			
	Key removable left	D5P-KR2R1 ²⁾	D5S-KR2R1 ²⁾	D5M-KR2R1 ²⁾

+

Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

- Notes: ¹⁾ Standard Ronis key is Key No. 3825.
For optional key numbers refer page 77.
- ²⁾ Cat. no. can be ordered with optional Ronis key lock numbers - available ex-stock. See page 77 for optional Ronis key lock number and ordering example.
- ³⁾ Cat. no. can be ordered with optional key lock numbers - available as indent items, allow 6 to 8 weeks delivery. See page 77 for optional Ronis key lock numbers and ordering example.



Cat. No. D5P-K....



Cat. No. D5-3LX....

2 position square rotary key switch - front & rear elements

- Protection class IP 66

With Ronis key ¹⁾

Key switch with plastic front ring
Cat. No. ²⁾

Description



Stayput 60° – 2 position rotary switch with Ronis key

Key removable left	D5Q-KM2R1
Key removable right	D5Q-KM2R2
Key removable both	D5Q-KM2R3

Cat. No. D5Q-KM2...



Stayput 90° – 2 position rotary switch with Ronis key

Key removable left	D5Q-KN2R1
Key removable right	D5Q-KN2R2
Key removable both	D5Q-KN2R3



Spring return from left 60° – 2 position rotary switch with Ronis key

Key removable right	D5Q-KL2R2
---------------------	-----------






Spring return from right 60° – 2 position rotary switch with Ronis key

Key removable left	D5Q-KR2R1
--------------------	-----------



Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

- Notes:**
- ¹⁾ Standard Ronis key is Key No. 3825.
For optional key numbers refer page 77.
 - ²⁾ Cat. no. can be ordered with optional Ronis key lock numbers - available as indent items, allow 6 to 8 weeks delivery. See page 77 for optional key lock numbers and ordering example.

Cat. No. D5-3LX...

3 position rotary key switch - front & rear elements

With Ronis key ¹⁾

● Protection class IP 66

	Description	Key switch with plastic fr/ring Cat. No.	Key switch with metal fr/ring Cat. No.	Metal key switch with metal fr/ring Cat. No.
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Stayput 60° – 2 position rotary switch with Ronis key

Key removable left	D5P-KM2R1 ²⁾	D5S-KM2R1 ²⁾	D5M-KM2R1 ³⁾
Key removable right	D5P-KM2R2 ²⁾	D5S-KM2R2 ²⁾	D5M-KM2R2 ³⁾
Key removable both	D5P-KM2R3 ²⁾	D5S-KM2R3 ²⁾	D5M-KM2R3 ³⁾

Stayput 90° – 2 position rotary switch with Ronis key

Key removable left	D5P-KN2R1 ²⁾	D5S-KN2R1 ²⁾	D5M-KN2R1 ³⁾
Key removable right	D5P-KN2R2 ²⁾	D5S-KN2R2 ²⁾	D5M-KN2R2 ³⁾
Key removable both	D5P-KN2R3 ²⁾	D5S-KN2R3 ²⁾	D5M-KN2R3 ³⁾

Spring return from left 60° – 2 position rotary switch with Ronis key



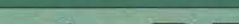
Key removable right	D5P-KL2R2 ²⁾	D5S-KL2R2 ²⁾	D5M-KL2R2 ³⁾
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Spring return from right 60° – 2 position rotary switch with Ronis key

Key removable left	D5P-KR2R1 ²⁾	D5S-KR2R1 ²⁾	D5M-KR2R1 ³⁾
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Pre-assembled clip-on rear elements with coupling plate

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O and 1 N/C		D5-3LX11

- Notes: ¹⁾ Standard Ronis key is Key No. 3825.
For optional key numbers refer page 77.
- ²⁾ Cat. no. can be ordered with optional Ronis key lock numbers - available ex-stock. See page 77 for optional Ronis key lock number and ordering example.
- ³⁾ Cat. no. can be ordered with optional Ronis key lock numbers - available as indent items, allow 6 to 8 weeks delivery. See page 77 for optional Ronis key lock numbers and ordering example.



Cat. No. D5P-K...



Cat. No. D5-3LX...

3 position square rotary key switch - front & rear elements

● Protection class IP 66

With Ronis key ¹⁾

Key switch with plastic front ring
Cat. No. ²⁾

Description



Stayput 60° – 3 position rotary switch with Ronis key
"key removable position"

Left	D5Q-KM3R1
Right	D5Q-KM3R2
All	D5Q-KM3R3
Centre	D5Q-KM3R4
Left & centre	D5Q-KM3R5
Left & right	D5Q-KM3R6
Centre & right	D5Q-KM3R7

Spring return from left 60° – 3 position rotary switch with Ronis key
"key removable position"



Right	D5Q-KL3R2
Centre	D5Q-KL3R4
Centre & right	D5Q-KL3R7

Spring return from right 60° – 3 position rotary switch with Ronis key
"key removable position"



Left	D5Q-KR3R1
Centre	D5Q-KR3R4
Left & centre	D5Q-KR3R5

Spring return from left and right 60° – 3 position rotary switch with Ronis key
"key removable position"



Centre	D5Q-KB3R4
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Pre-assembled clip-on rear elements with coupling plate

1 N/O and 1 N/C	 	D5-3LX11
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- Notes: ¹⁾ Standard Ronis key is Key No. 3825.
For optional key numbers refer page 77.
²⁾ Cat. no. can be ordered with optional Ronis key lock numbers - available as indent items, allow 6 to 8 weeks delivery. See page 77 for optional key lock numbers and ordering example.



Cat. No. D5Q-KM3...



Cat. No. D5-3LX11

Pushbutton stations complete



Cat. No. D5-1P301W



Cat. No. D5-2PB



Cat. No. D5-1PYP5A1



Cat. No. D5-1MYP6A1

Description	Contact	Engraving	Cat. No.
Single pushbutton enclosure – grey plastic enclosure ^{1) 3)}			
Green start pushbutton	1 N/O	START	D5-1P301W
Red stop pushbutton	1 N/C	STOP	D5-1P402W
Rotary switch 2 position with black operator	1 N/O	OFF-ON	D5-1PHM22
Key rotary switch 2 position Ronis key – key removable in OFF position (left)	1 N/O	OFF-ON	D5-1PKM2R1

2 pushbutton enclosure – grey plastic enclosure ^{1) 3)}

Green start pushbutton	1 N/O	START	D5-2PB
Red stop pushbutton	1 N/C	STOP	
Green start pushbutton	1 N/O	START	D5-2PBE
Red 30 mm emerg.stop p/b (emergency stop-reset by turning clockwise)	1 N/C	NON	
Green start pushbutton	1 N/O	START	D5-2PBEK
Red 30 mm emerg.stop p/b (emergency stop-key reset by turning clockwise)	1 N/C	NON	

3 pushbutton enclosure – grey plastic enclosure ^{1) 3)}

Green start pushbutton	1 N/O	START	D5-2PB-PL3
Red stop pushbutton	1 N/C	STOP	
Green pilot light			
Optically enhanced 240 volt supplied via resistor block 130 volt Ba9 lamp supplied			
Red stop pushbutton	1 N/C	STOP	D5-3PB
Blank N/O pushbutton	1 N/O	non ²⁾	
Blank N/O pushbutton	1 N/O	non ²⁾	

Plastic enclosure with emergency stop pushbutton – yellow enclosure, 1 N/C contact

Reset: turn clockwise (ø 40 mm)	D5-1PYP5A1
Reset: release with key, then turn clockwise (ø 40 mm)	D5-1PYP6A1

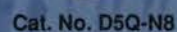
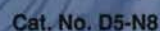
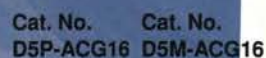
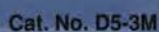
Metal enclosure with emergency stop pushbutton – painted yellow enclosure, 1 N/C contact

Reset: turn clockwise (ø 40 mm) with plastic operator	D5-1MYP5A1
Reset: release with key, then turn clockwise (ø 40 mm) with plastic operator	D5-1MYP6A1
Reset: turn clockwise (ø 40 mm) with metal operator	D5-1MYM5A1
Reset: release with key, then turn clockwise (ø 40 mm) with metal operator	D5-1MYM6A1

- Notes:** ¹⁾ Also available to order with aluminium enclosures.
²⁾ Order inscription separately refer page 79.
³⁾ 5 button enclosure or special assembly available on request.

- Individually packaged

Cat. No. D5-2P



Note: 1) Legend plates refer page 80 to 82.

Individual Components

Individual components are available for customising pushbuttons and signalling equipment to suit your specific needs.

All components are supplied separately in one bag with one part number for your convenience

Round and Square

Non illuminated pushbuttons
illuminated pushbuttons

Multi-function pushbuttons

Round and Square

Pilot lights

Eco pilot lights

Eco pilot lights with enhanced lens

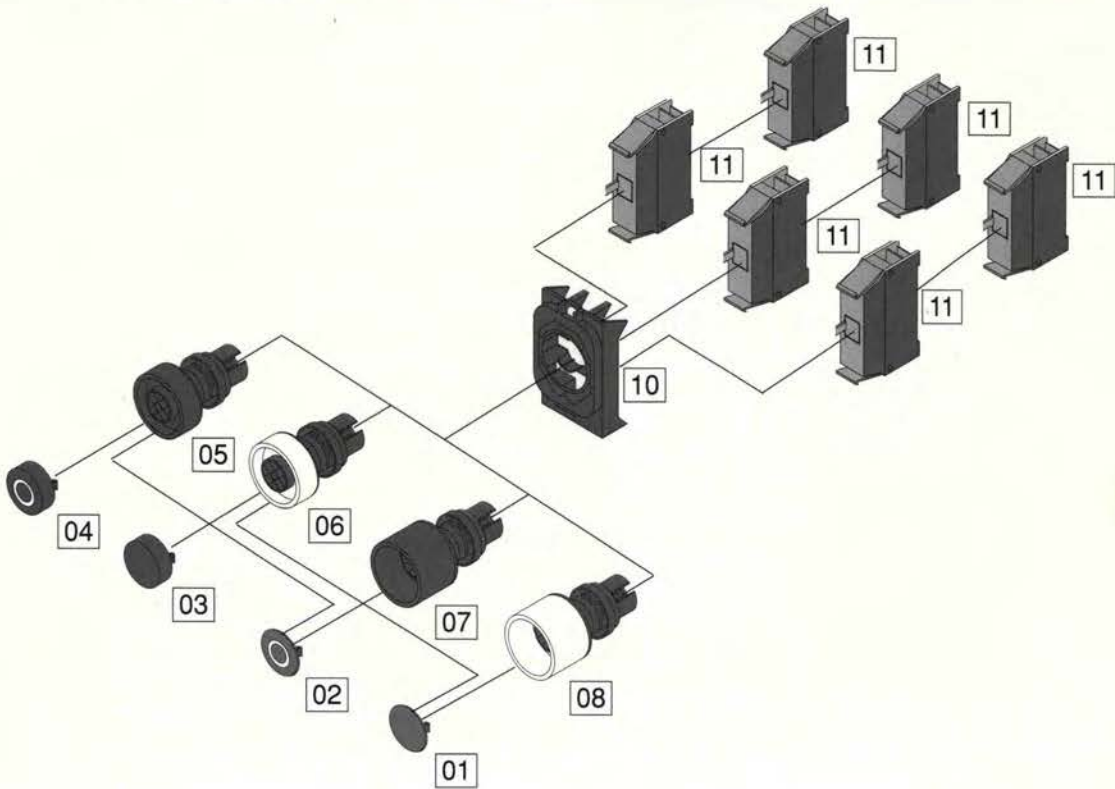
Round and Square

Rotary switches

Key operated rotary switches

Standard pushbuttons

● Individual parts

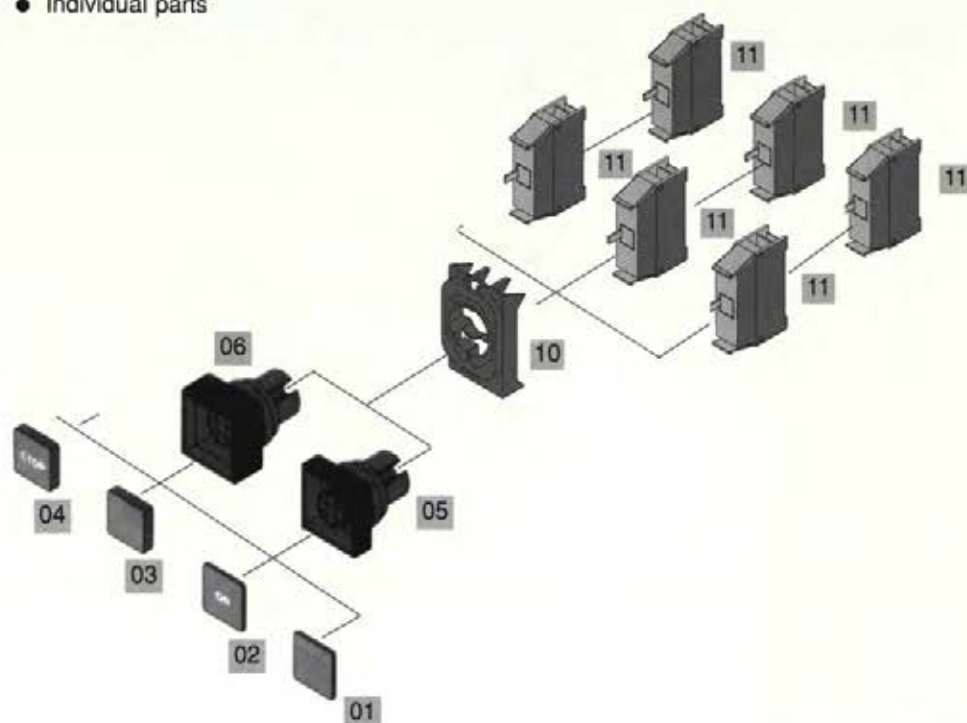


Individual part		Cat. No.	Individual part		Cat. No.
01 colour caps ')	White	D5-AF1	05 Flush plastic operator standard		D5P-F9
	Black	D5-AF2	Flush plastic operator latched		D5P-FA9
	Green	D5-AF3	06 Flush plastic operator with metal front ring-standard		D5S-F9
	Red	D5-AF4			
	Yellow	D5-AF5	Flush plastic operator with metal front ring-latched		D5S-FA9
	Blue	D5-AF6	07 Guarded plastic operator with plastic front ring		D5P-G9
02 legend colour caps ')	Green 'I'	D5-AF306W	08 Guarded plastic operator with metal front ring		D5S-G9
	Green 'START'	D5-AF301W	10 Coupling plate		D5-A3L
	Green 'ON'	D5-AF303W			
	Red 'O'	D5-AF405W	11 Contact blocks	— 1 N/O (Green)	D5-3X10
	Red 'STOP'	D5-AF402W		— 1 N/C (Red)	D5-3X01
03 extended colour caps ')	White	D5-AE1	— 1 N/O E.M.		D5-3X10E
	Black	D5-AE2	— 1 N/C L.B.		D5-3X01L
	Green	D5-AE3			
	Red	D5-AE4			
	Yellow	D5-AE5			
04 extended legend colour caps ')	Blue	D5-AE6			
	Red 'O'	D5-AE4HY910W			
	Red 'STOP'	D5-AE4HE02W			
04 extended legend colour caps ')	Red 'OFF'	D5-AE4HE04W			

Notes: The D5 pushbutton series is also available with metal body D5M-...
) Additional legend colour caps refer pages 79.

Standard square pushbuttons

• Individual parts

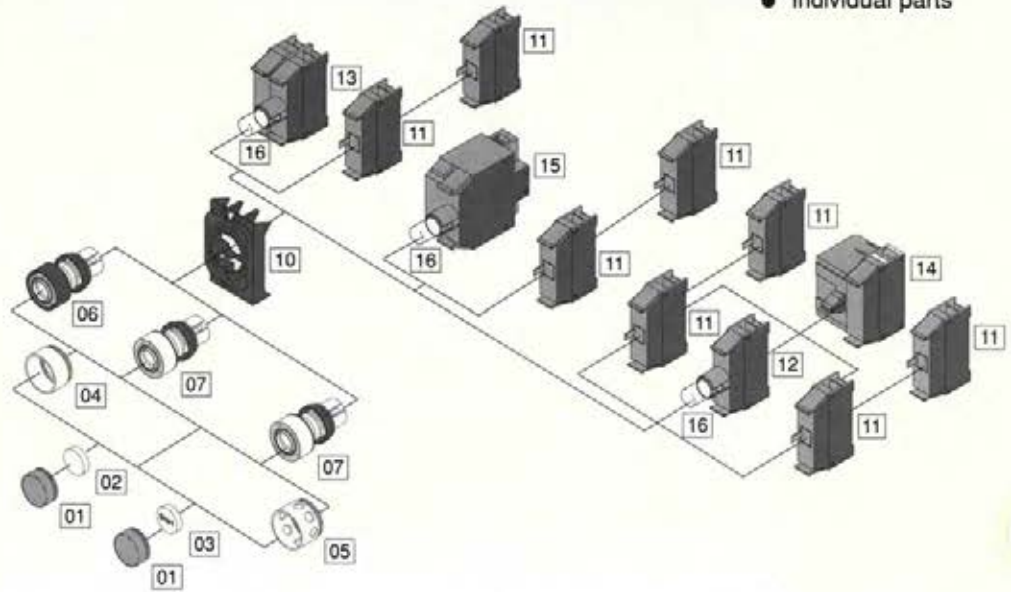










Individual part	Cat. No.	Individual part	Cat. No.
01 Colour caps ¹⁾		05 Flush plastic operator	
White	D5Q-AF1	standard	D5Q-F9
Black	D5Q-AF2	Flush plastic operator	
Green	D5Q-AF3	latched	D5Q-FA9
Red	D5Q-AF4	06 Guarded plastic operator	D5Q-G9
Yellow	D5Q-AF5	10 Coupling plate	D5-A3L
Blue	D5Q-AF6	11 Contact blocks	
02 Legend colour caps ¹⁾		— 1 N/O (Green)	D5-3X10
Green 'I'	D5Q-AF306W	— 1 N/C (Red)	D5-3X01
Green 'START'	D5Q-AF301W	— 1 N/O E.M.	D5-3X10E
Green 'ON'	D5Q-AF303W	— 1 N/C L.B.	D5-3X01L
Red 'O'	D5Q-AF405W		
Red 'STOP'	D5Q-AF402W		
Red 'OFF'	D5Q-AF404W		
03 Extended colour caps ¹⁾			
White	D5Q-AE1		
Black	D5Q-AE2		
Green	D5Q-AE3		
Red	D5Q-AE4		
Yellow	D5Q-AE5		
Blue	D5Q-AE6		
04 Extended legend colour caps ¹⁾			
Red 'O'	D5QAE4HY910W		
Red 'STOP'	D5Q-AE4HE02W		
Red 'OFF'	D5Q-AE4HE04W		

Note: ¹⁾ Additional legend colour caps refer page 79.

Illuminated pushbuttons

● Individual parts



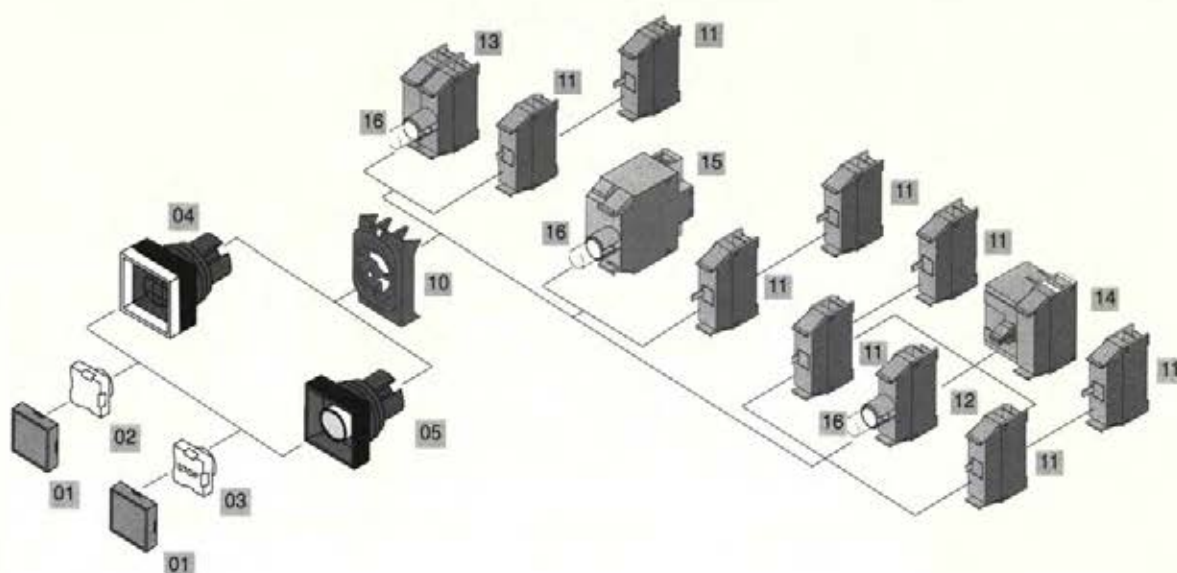
Individual part			Cat. No.	Individual part			Cat. No.
01 colour caps ¹⁾	Green	D5-ALF3	12	Lamp elements		D5-3D0	
	Red	D5-ALF4		with diode and resistor 230/240 V AC		D5-3R7	
	Yellow	D5-ALF5	13	Lamp elements with central lamp test		D5-3DD0	
	Blue	D5-ALF6		with diode and resistor 230/240 V AC		D5-3RDD7	
	Clear	D5-ALF7					
02 Diffuser blank			D5-AD2				
03 Refer page 83. Legend diffuser							
04 Clear plastic front ring (for flush illuminated operators)			D5-ALB1			14 Transformer block 50/60 Hz for mounting on lamp elements Primary Secondary	
05 Guarded plastic front ring (for guarded illuminated operators)			D5-ALG1				
			110...240 V 6 V 1.2 VA D5-3TS5				
			220...240 V 6 V 1.2 VA D5-3TS7				
			380...415 V 6 V 1.2 VA D5-3TS10				
06 Flush illuminated plastic operator - Standard			D5P-LF9			440...480 V 6 V 1.2 VA D5-3TS12	
Latched			D5P-LFA9			220...240 V 24 V 1.2 VA D5-3THS7	
07 Flush illuminated plastic operator with metal front ring - Standard			D5S-LF9			15 Transformer 50/60 Hz with Ba9s lamp holder Primary Secondary	
Latched			D5S-LFA9				
10 Coupling plate			D5-A3L				
11 Contact blocks			220...240 V 24 V 1.2 VA D5-3TH7				
 1 N/O (Green)			400 V 24 V 1.2 VA D5-3TH10				
 1 N/C (Red)			16 Incandescent lamps				
 1 N/O E.M.			1.2 W 6, 12, 24, 36, 48, 60 V BA9S-I3...V-1.2W				
 1 N/C L.B.			2 W 12, 24, 36, 48, 60 V BA9S-I3...V-2W				
			2.4 W (long life) BA9S-I3130V-2.4W				
			2.6 W BA9S-I3130V-2.6W				
			16 Neon lamps				
			110 V...127 V clear BA9S-CN3-110V				
			220 V...240 V clear BA9S-CN3-240V				

Notes: The D5 pushbutton series is also available with metal body D5M-...

¹⁾ Additional legend colour caps refer pages 79.

Illuminated square pushbuttons

● Individual parts

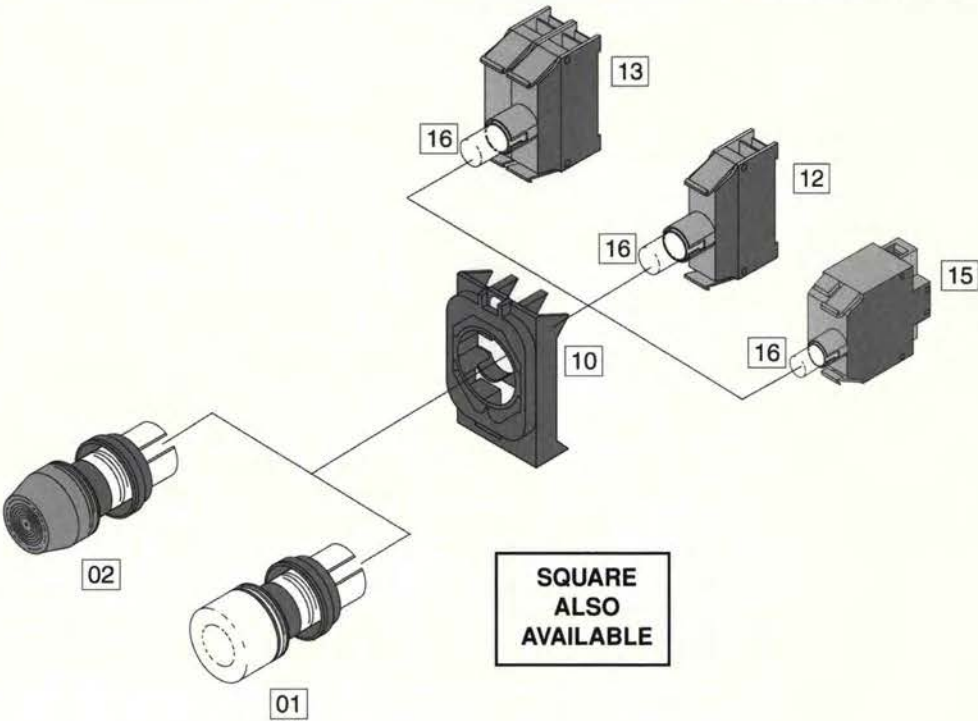





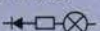
Individual part	Cat. No.	Individual part	Cat. No.
01 Colour caps ¹⁾		13 Lamp elements with central lamp test	D5-3DD0
Green	D5Q-ALF3	with diode and resistor 230/240 V AC	D5-3RDD7
Red	D5Q-ALF4		
Yellow	D5Q-ALF5		
Blue	D5Q-ALF6		
Clear	D5Q-ALF7		
02 Diffuser blank	D5Q-AD2	14 Transformer block	
03 Legend diffusers		50/60 Hz for mounting on lamp elements	
refer page 83		Primary Secondary	
04 Flush illuminated operator		110...120 V 6 V 1.2 VA	D5-3TS5
Standard	D5Q-LF9	220...240 V 6 V 1.2 VA	D5-3TS7
Latched	D5Q-LFA9	380...415 V 6 V 1.2 VA	D5-3TS10
05 Extended illuminated operator	D5Q-LE9	440...480 V 6 V 1.2 VA	D5-3TS12
10 Coupling plate	D5-A3L	220...240 V 24 V 1.2 VA	D5-3THS7
11 Contact blocks		15 Transformer 50/60 Hz with Ba9S lamp holder	
1 N/O (Green)	D5-3X10	Primary Secondary	
1 N/C (Red)	D5-3X01	110...120 V 6 V 1.2 VA	D5-3T5
1 N/O E.M.	D5-3X10E	220...240 V 6 V 1.2 VA	D5-3T7
1 N/C L.B.	D5-3X01L	220...240 V 24 V 1.2 VA	D5-3TH7
12 Lamp elements	D5-3DO	400 V 24 V 1.2 VA	D5-3TH10
With diode and resistor 230/240 V AC	D5-3R7	16 Incandescent lamps	
		1.2 W 6, 12, 24, 36, 48, 60 V	BA9S-I3...V-1.2W
		2 W 12, 24, 36, 48, 60 V	BA9S-I3...V-2W
		2.4 W (long life)	BA9S-I3130V-2.4W
		2.6 W	BA9S-I3130V-2.6W
		16 Neon lamps	
		110 V...127 V clear	BA9S-CN3-110V
		220 V...240 V clear	BA9S-CN3-240V

Note: ¹⁾ Additional legend colour caps refer page 79.

Pilot lights round and square

● Individual parts

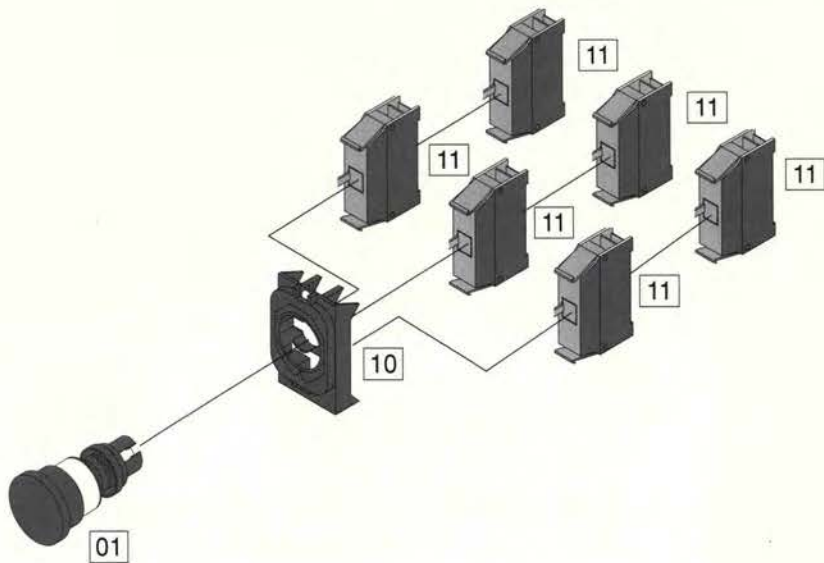


Individual part			Cat. No.	Individual part			Cat. No.
01	Round Plastic front element including diffuser	Green	D5P-P3	13	Lamp elements with central lamp test		D5-3DD0
		Red	D5P-P4		with diode and		D5-3RDD7
		Yellow	D5P-P5		resistor 230/240 V AC		
		Blue	D5P-P6	15	Transformer elements		
		Clear	D5P-P7		50/60 Hz with lamp element		
	Square Plastic front element including diffuser	Green	D5QP-P3	Primary		Secondary	D5-3T5
		Red	D5QP-P4	110...120 V	6 V	1.2 VA	
		Yellow	D5QP-P5	220...240 V	6 V	1.2 VA	D5-3T7
		Blue	D5QP-P6	16	Incandescent lamps		
		Clear	D5QP-P7		1.2 W 6, 12, 24, 36, 48, 60 V BA9S-I3...V-1.2W		
refer page 79 and			2 W 12, 24, 36, 48, 60 V			BA9S-I3...V-2W	
02	Plastic front element optically enhanced	Green	D5P-PL3	2.4 W (long life)		BA9S-I3130V-2.4W	
		Red	D5P-PL4	2.6 W		BA9S-I3130V-2.6W	
		Yellow	D5P-PL5	16	Neon lamps		
		Blue	D5P-PL6		110 V...127 V clear	BA9S-CN3-110V	
		Clear	D5P-PL7		220 V...240 V clear	BA9S-CN3-240V	
10	Coupling plate 		D5-A3L				
12	Lamp elements with diode and resistor 230/240 V AC		D5-3D0				
			D5-3R7				

Note: The D5 pushbutton series is also available with metal body D5M-...

Standard mushroom operators

● Individual parts

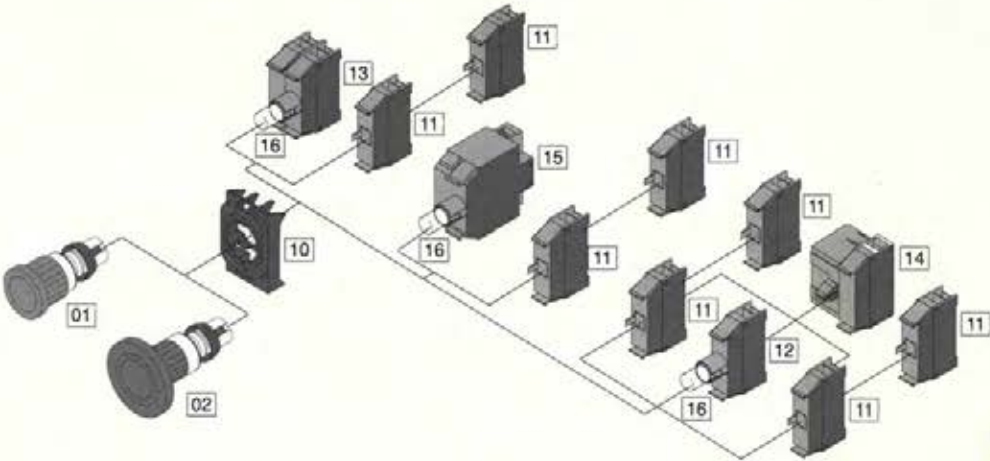










Individual part	Cat. No.	Individual part	Cat. No.
01 Plastic operator with plastic mushroom ø 40 mm		01 Plastic operator with metal front ring with plastic mushroom ø 60 mm	
Black	D5P-M2	Black	D5S-MJ2
Green	D5P-M3	Green	D5S-MJ3
Red	D5P-M4	Red	D5S-MJ4
Yellow	D5P-M5	Yellow	D5S-MJ5
Blue	D5P-M6	Blue	D5S-MJ6
01 Plastic operator with metal front ring with plastic mushroom ø 40 mm		01 Plastic operator with plastic mushroom ø 40 mm with black plastic front ring	D5P-MT4
Black	D5S-M2	Plastic operator with plastic mushroom ø 40 mm with metal front ring	D5S-MT4
Green	D5S-M3		
Red	D5S-M4		
Yellow	D5S-M5		
Blue	D5S-M6		
01 Plastic operator with plastic mushroom ø 60 mm		10 Coupling plate	D5-A3L
Black	D5P-MJ2	11 Contact blocks	
Green	D5P-MJ3	1 N/O (Green)	D5-3X10
Red	D5P-MJ4	1 N/C (Red)	D5-3X01
Yellow	D5P-MJ5	1 N/O E.M.	D5-3X10E
Blue	D5P-MJ6	1 N/C L.B.	D5-3X01L

Note: The D5 pushbutton series is also available with metal body D5M-...

Illuminated mushroom operators

● Individual parts

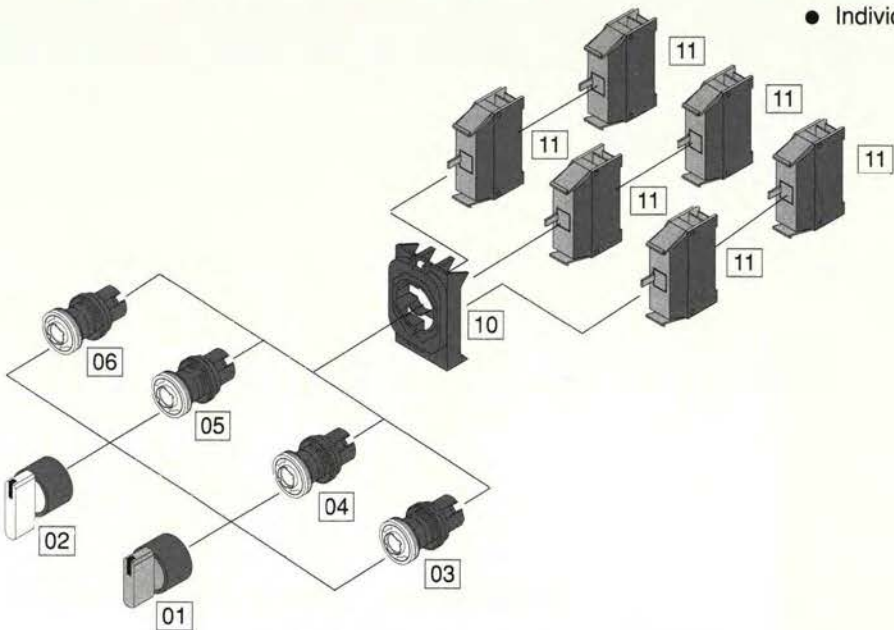


Individual part	Cat. No.	Individual part	Cat. No.
01 Illuminated plastic operator with plastic mushroom head ø 40 mm & metal front ring		12 Lamp elements 	D5-3D0
Green	D5S-LM3	with diode and resistor 230/240 V AC 	D5-3R7
Red	D5S-LM4	13 Lamp elements with central lamp test 	D5-3DD0
Yellow	D5S-LM5	with diode and resistor 230/240 V AC 	D5-3RDD7
Blue	D5S-LM6	14 Transformer elements 50/60 Hz for mounting on lamp elements	
01 Illuminated plastic operator with plastic mushroom head ø 60 mm & metal front ring		Primary Secondary	
Green	D5S-LMJ3	110...120 V 6 V 1.2 VA	D5-3TS5
Red	D5S-LMJ4	220...240 V 6 V 1.2 VA	D5-3TS7
Yellow	D5S-LMJ5	380...415 V 6 V 1.2 VA	D5-3TS10
Blue	D5S-LMJ6	440...480 V 6 V 1.2 VA	D5-3TS12
10 Coupling plate	D5-A3L	220...240 V 24 V 1.2 VA	D5-3THS7
11 Contact blocks		15 Transformer elements 50/60 Hz with lamp element	
 1 N/O (Green)	D5-3X10	Primary Secondary	
 1 N/C (Red)	D5-3X01	110...120 V 6 V 1.2 VA	D5-3T5
 1 N/O E.M.	D5-3X10E	220...240 V 6 V 1.2 VA	D5-3T7
 1 N/C L.B.	D5-3X01L	220...240 V 24 V 1.2 VA	D5-3TH7
		400 V 24 V 1.2 VA	D5-3TH10
		16 Incandescent lamps	
		1.2 W 6, 12, 24, 36, 48, 60 V	BA9S-I3...V-1.2W
		2 W 12, 24, 36, 48, 60 V	BA9S-I3...V-2W
		2.4 W (long life)	BA9S-I3130V-2.4W
		2.6 W	BA9S-I3130V-2.6W
		16 Neon lamps	
		110 V...127 V clear	BA9S-CN3-110V
		220 V...240 V clear	BA9S-CN3-240V

Note: The D5 pushbutton series is also available with metal body D5M-...

Standard 2 or 3 position rotary switch operators

● Individual parts

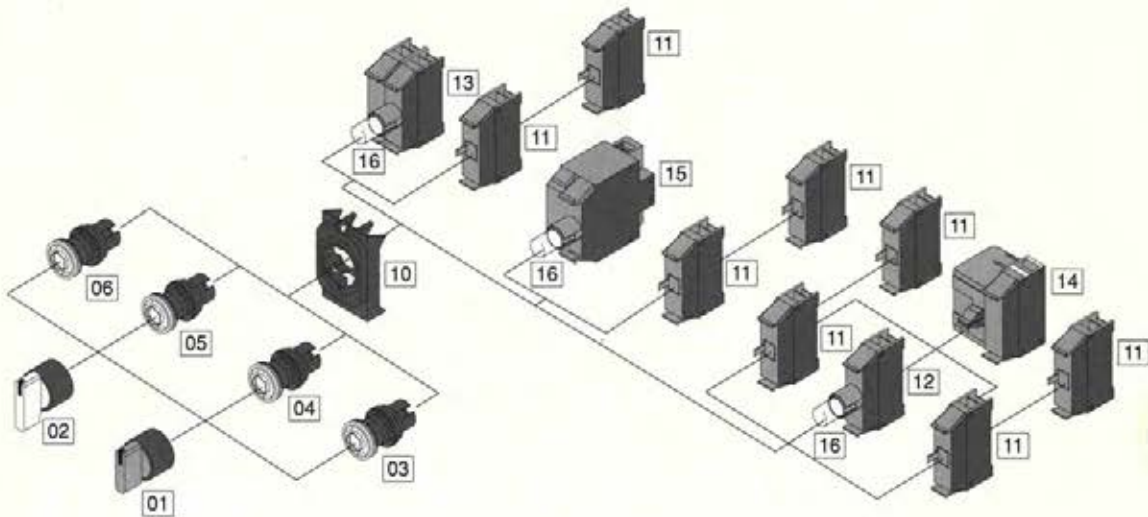


Individual part	Cat. No.	Individual part	Cat. No.
01 Short operator with black plastic front ring		Front elements 2 positions	
White	D5P-AS1	03 Plastic operator stayput 60°	D5P-SM29
Black	D5P-AS2	04 Plastic operator stayput 90°	D5P-SN29
Green	D5P-AS3	05 Plastic operator spring return from left 60°	D5P-SL29
Red	D5P-AS4	06 Plastic operator spring return from right 60°	D5P-SR29
Yellow	D5P-AS5	Front elements 3 positions	
Blue	D5P-AS6	03 Plastic operator stayput 60°	D5P-SM39
01 Short operator with metal front ring		04 Plastic operator spring return from left 60°	D5P-SL39
White	D5M-AS1	05 Plastic operator spring return from right 60°	D5P-SR39
Black	D5M-AS2	06 Plastic operator spring return from left & right 60°	D5P-SB39
Green	D5M-AS3	10 Coupling plate	
Red	D5M-AS4	11 Contact blocks	
Yellow	D5M-AS5	1 N/O (Green)	D5-3X10
Blue	D5M-AS6	1 N/C (Red)	D5-3X01
02 Long operator with black plastic front ring		1 N/O E.M.	D5-3X10E
White	D5P-AH1	1 N/C L.B.	D5-3X01L
Black	D5P-AH2		
Green	D5P-AH3		
Red	D5P-AH4		
Yellow	D5P-AH5		
Blue	D5P-AH6		
02 Long operator with metal front ring			
White	D5M-AH1		
Black	D5M-AH2		
Green	D5M-AH3		
Red	D5M-AH4		
Yellow	D5M-AH5		
Blue	D5M-AH6		

Note: The D5 pushbutton series is also available with metal body D5M-...
Active 10/12/2014

Illuminated 2 or 3 position rotary switch operators

● Individual parts



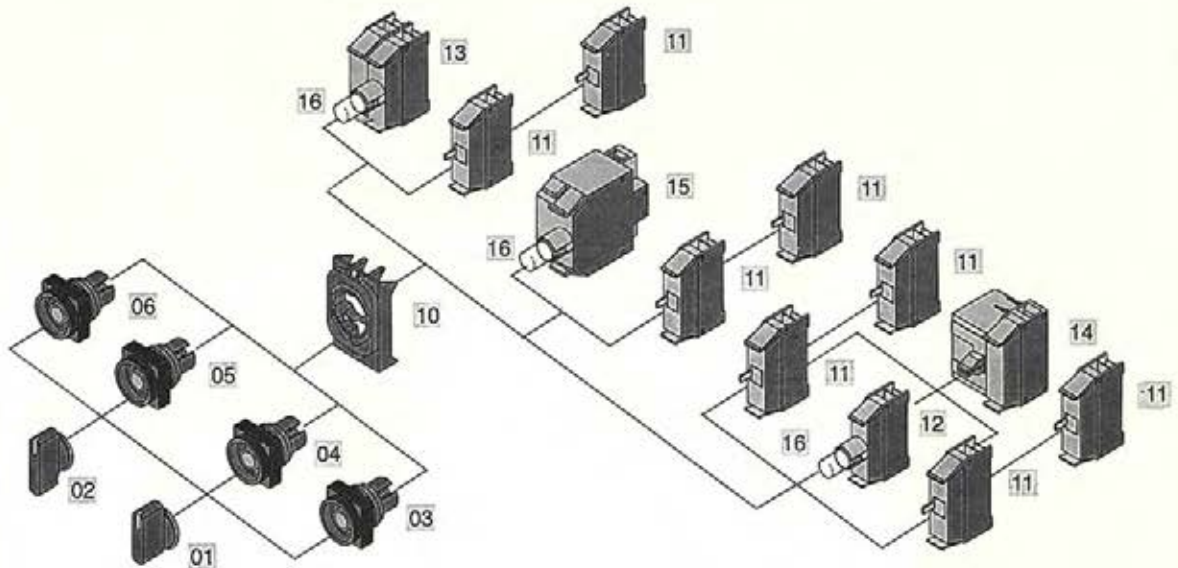
Individual part	Cat. No.	Individual part	Cat. No.
01 Illuminated short operator with black plastic front ring		02 Illuminated long operator with black plastic front ring	
White	D5P-ALS1	White	D5P-ALH1
Green	D5P-ALS3	Green	D5P-ALH3
Red	D5P-ALS4	Red	D5P-ALH4
Yellow	D5P-ALS5	Yellow	D5P-ALH5
Blue	D5P-ALS6	Blue	D5P-ALH6
01 Illuminated short operator with metal front ring		02 Illuminated long operator with metal front ring	
White	D5M-ALS1	White	D5M-ALH1
Green	D5M-ALS3	Green	D5M-ALH3
Red	D5M-ALS4	Red	D5M-ALH4
Yellow	D5M-ALS5	Yellow	D5M-ALH5
Blue	D5M-ALS6	Blue	D5M-ALH6

Continued next page

Note: The D5 pushbutton series is also available with metal body D5M-...

Complete panel mounted standard units

● Individual parts








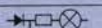


Individual part	Cat. No.	Individual part	Cat. No.
01 Short operator		Front elements 2 positions	
White	D5Q-AS1	03 Plastic operator stayput 60°	D5Q-SM29
Black	D5Q-AS2	04 Plastic operator stayput 90°	D5Q-SN29
Green	D5Q-AS3	05 Plastic operator spring return from left 60°	D5Q-SL29
Red	D5Q-AS4	06 Plastic operator spring return from right 60°	D5Q-SR29
Yellow	D5Q-AS5	Front elements 3 positions	
Blue	D5Q-AS6	03 Plastic operator stayput 60°	D5Q-SM39
02 Long operator		04 Plastic operator spring return from left 60°	D5Q-SL39
White	D5Q-AH1	05 Plastic operator spring return from right 60°	D5Q-SR39
Black	D5Q-AH2	06 Plastic operator spring return from left and right 60°	D5Q-SB39
Green	D5Q-AH3	10 Coupling plate	D5-A3L
Red	D5Q-AH4	11 Contact blocks	
Yellow	D5Q-AH5	— 1 N/O (Green)	D5-3X10
Blue	D5Q-AH6	— 1 N/C (Red)	D5-3X01
		— 1 N/O E.M.	D5-3X10E
		— 1 N/C L.B.	D5-3X01L

Illuminated 2 or 3 position rotary switch operators

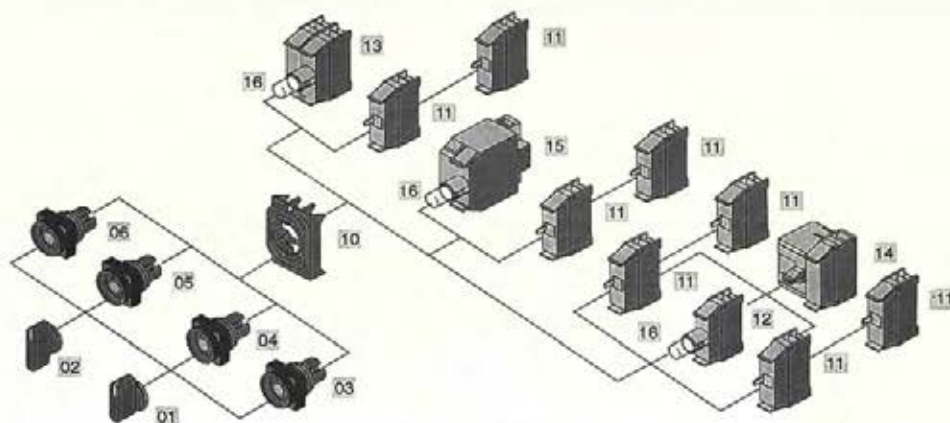
● Individual parts

Continued from previous page

Individual part	Cat. No.	Individual part	Cat. No.
Front elements 2 positions		10 Coupling plate	D5-A3L
03 Illuminated plastic operator stayput 60°	D5P-LSM29	11 Contact blocks	
04 Illuminated plastic operator stayput 90°	D5P-LSN29	 1 N/O (Green)	D5-3X10
05 Illuminated plastic operator spring return from left 60°	D5P-LSL29	 1 N/C (Red)	D5-3X01
06 Illuminated plastic operator spring return from right 60°	D5P-LSR29	 1 N/O E.M.	D5-3X10E
Front elements 3 positions		 1 N/C L.B.	D5-3X01L
03 Illuminated plastic operator stayput 60°	D5P-LSM39	12 Lamp elements 	D5-3D0
04 Illuminated plastic operator spring return from left 60°	D5P-LSL39	with diode and 	
05 Illuminated plastic operator spring return from right 60°	D5P-LSR39	resistor 230/240 V AC	D5-3R7
06 Illuminated plastic operator spring return from left and right 60°	D5P-LSB39	13 Lamp elements with central lamp test 	D5-3DD0
		with diode and 	
		resistor 230/240 V AC	D5-3RDD7
		14 Transformer elements	
		50/60 Hz for mounting on lamp elements	
		Primary Secondary	
		110...120 V 6 V 1.2 VA	D5-3TS5
		220...240 V 6 V 1.2 VA	D5-3TS7
		380...415 V 6 V 1.2 VA	D5-3TS10
		440...480 V 6 V 1.2 VA	D5-3TS12
		220...240 V 24 V 1.2 VA	D5-3THS7
		15 Transformer elements	
		50/60 Hz with lamp element	
		Primary Secondary	
		110...120 V 6 V 1.2 VA	D5-3T5
		220...240 V 6 V 1.2 VA	D5-3T7
		220...240 V 24 V 1.2 VA	D5-3TH7
		400 V 24 V 1.2 VA	D5-3TH10
		16 Incandescent lamps	
		1.2 W 6, 12, 24, 36, 48, 60	BA9S-I3...V-1.2W
		2 W 12, 24, 36, 48, 60	BA9S-I3...V-2W
		2.4 W (long life)	BA9S-I3130V-2.4W
		2.6 W	BA9S-I3130V-2.6W
		17 Neon lamps	
		110 V...127 V clear	BA9S-CN3-110V
		220 V...240 V clear	BA9S-CN3-240V

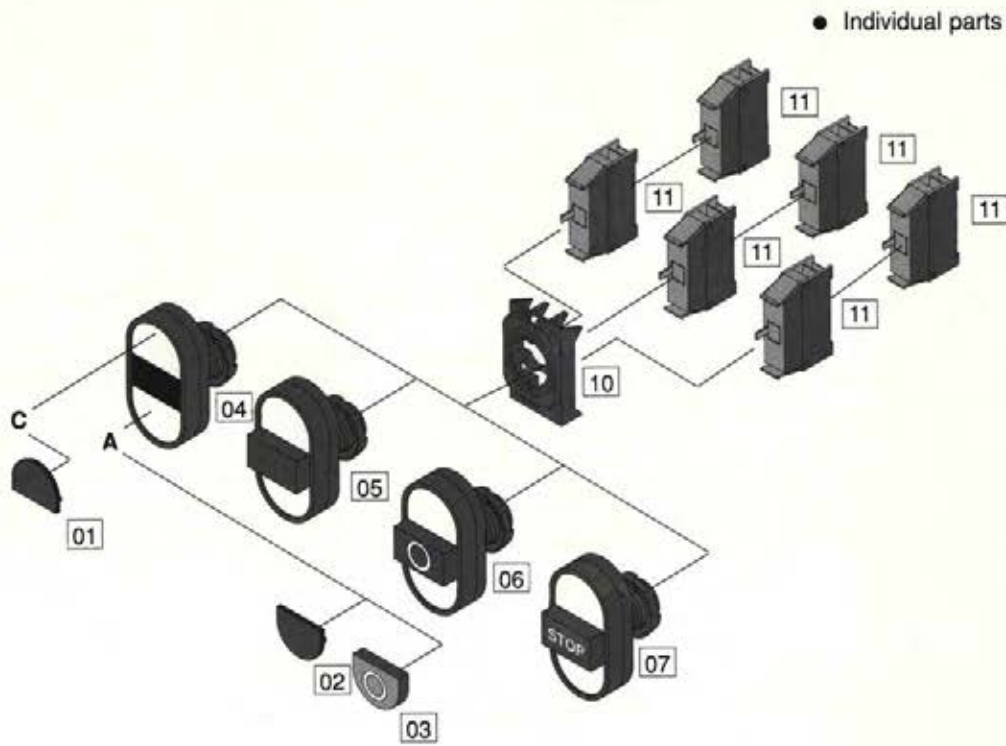
Note: The D5 pushbutton series is also available with metal body D5M-...

Complete panel mounted standard units



Individual part	Cat. No.	Individual part	Cat. No.
01 Illuminated short operator		10 Coupling plate	D5-A3L
White	D5Q-ALS1	11 Contact blocks	
Green	D5Q-ALS3	1 N/O (Green)	D5-3X10
Red	D5Q-ALS4	1 N/C (Red)	D5-3X01
Yellow	D5Q-ALS5	1 N/O E.M.	D5-3X10E
Blue	D5Q-ALS6	1 N/C L.B.	D5-3X01L
02 Illuminated long operator		12 Lamp elements	D5-3DO
White	D5Q-ALH1	With diode and resistor 230/240 V AC	D5-3R7
Green	D5Q-ALH3	13 Lamp elements with central lamp test	D5-3DD0
Red	D5Q-ALH4	with diode and resistor 230/240 V AC	D5-3RDD7
Yellow	D5Q-ALH5	14 Transformer block	
Blue	D5Q-ALH6	50/60 Hz for mounting on lamp elements	
Front elements 2 positions		Primary Secondary	
03 Illuminated plastic operator stayput 60°	D5Q-LSM29	110...120 V 6 V 1.2 VA	D5-3TS5
04 Illuminated plastic operator stayput 90°	D5Q-LSN29	220...240 V 6 V 1.2 VA	D5-3TS7
05 Illuminated plastic operator spring return from left 60°	D5Q-LSL29	380...415 V 6 V 1.2 VA	D5-3TS10
06 Illuminated plastic operator spring return from right 60°	D5Q-LSR29	440...480 V 6 V 1.2 VA	D5-3TS12
Front elements 3 positions		220...240 V 24 V 1.2 VA	D5-3THS7
03 Illuminated plastic operator stayput 60°	D5Q-LSM39	15 Transformer 50/60 Hz with Ba9S lamp holder	
04 Illuminated plastic operator spring return from left 60°	D5Q-LSL39	Primary Secondary	
05 Illuminated plastic operator spring return from right 60°	D5Q-LSR39	110...120 V 6 V 1.2 VA	D5-3T5
06 Illuminated plastic operator spring return from left and right 60°	D5Q-LSB39	220...240 V 6 V 1.2 VA	D5-3T7
		220...240 V 24 V 1.2 VA	D5-3TH7
		400 V 24 V 1.2 VA	D5-3TH10
		16 Incandescent lamps	
		1.2 W 6, 12, 24, 36, 48, 60 V	BA9S-I3...V-1.2W
		2 W 12, 24, 36, 48, 60 V	BA9S-I3...V-2W
		2.4 W (long life)	BA9S-I3-130V-2.4W
		2.6 W	BA9S-I3-130V-2.6W
		16 Neon lamps	
		110 V...127 V clear	BA9S-CN3-110V
		220 V...240 V clear	BA9S-CN3-240V

Standard multi-function operators

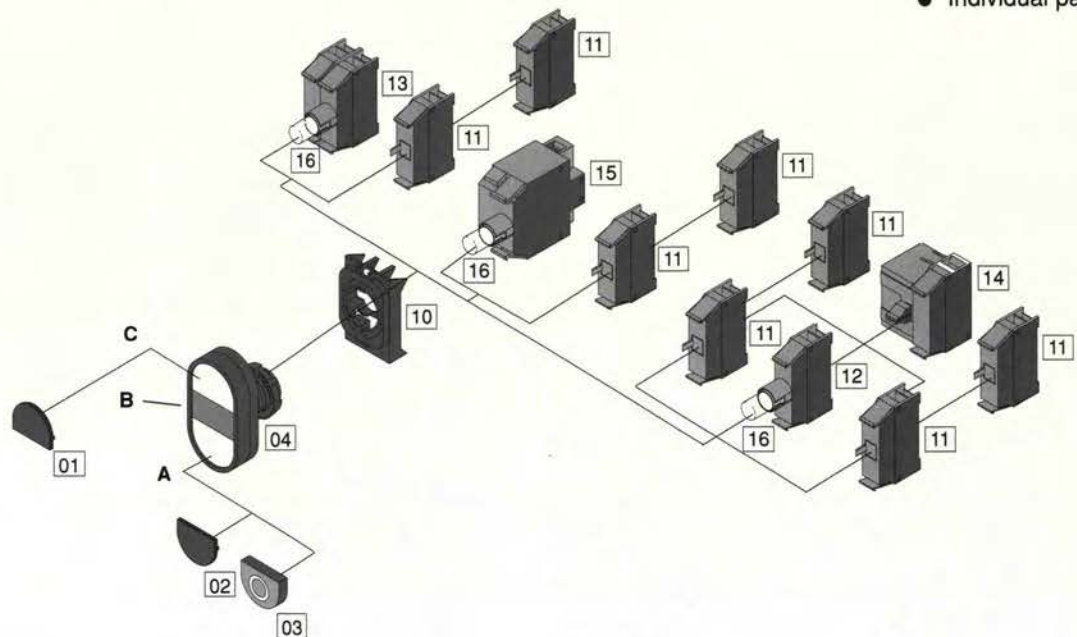






Individual part	Cat. No.	Individual part	Cat. No.
01 Colour cap pos. C ¹⁾ Green	D5-AFU3	07 Front element with pushbutton on pos. B red extended 'STOP' Plastic black	D5P-U3X03
02 Colour cap pos. A ¹⁾ Green	D5-AFU3	10 Coupling plate	D5-A3L
Red	D5-AFU4	11 Contact blocks	
03 Colour cap pos. A ¹⁾ Red extended	D5-AEU4	1 N/O (Green)	D5-3X10
04 Front element with blanking cap black without colour caps Plastic black	D5P-U2X	1 N/C (Red)	D5-3X01
05 Front element with pushbutton on pos. B red extended blank Plastic black	D5P-U3X00	1 N/O E.M.	D5-3X10E
06 Front element with pushbutton on pos. B red extended 'O' Plastic black	D5P-U3X01	1 N/C L.B.	D5-3X01L

Note: ¹⁾ Additional colour caps refer page 80.

Illuminated multi-function operators

● Individual parts



Individual part	Cat. No.	Individual part	Cat. No.
01 Colour cap pos. C ¹⁾ Green	D5-AFU3	13 Lamp elements with central lamp test 	D5-3DD0
Illuminated insert pos. B	DM3-CI	with diode and resistor 230/240 V AC 	D5-3RDD7
02 Colour cap pos. A ¹⁾ Green	D5-AFU3	14 Transformer elements 50/60 Hz for mounting on lamp elements	
Red	D5-AFU4	Primary Secondary	
03 Colour cap pos. A ¹⁾ Red extended	D5-AEU4	110...120 V 6 V 1.2 VA	D5-3TS5
04 Front element with lens cap without colour caps Plastic black	D5P-LU2X	220...240 V 6 V 1.2 VA	D5-3TS7
10 Coupling plate	D5-A3L	380...415 V 6 V 1.2 VA	D5-3TS10
11 Contact blocks		440...480 V 6 V 1.2 VA	D5-3TS12
1 N/O (Green)	D5-3X10	220...240 V 24V 1.2 VA	D5-3THS7
1 N/C (Red)	D5-3X01	15 Transformer elements 50/60 Hz with lamp element	
1 N/O E.M.	D5-3X10E	Primary Secondary	
1 N/C L.B.	D5-3X01L	110...120 V 6 V 1.2 VA	D5-3T5
12 Lamp elements 	D5-3D0	220...240 V 6 V 1.2 VA	D5-3T7
with diode and resistor 230/240 V AC 	D5-3R7	220...240 V 24 V 1.2 VA	D5-3TH7
		400 V 24 V 1.2 VA	D5-3TH10
		16 Incandescent lamps	
		1.2 W 6, 12, 24, 36, 48, 60 V	BA9S-I3...V-1.2W
		2 W 12, 24, 36, 48, 60 V	BA9S-I3...V-2W
		2.4 W (long life)	BA9S-I3130V-2.4W
		2.6 W	BA9S-I3130V-2.6W
		17 Neon lamps	
		110 V...127 V clear	BA9S-CN3-110V
		220 V...240 V clear	BA9S-CN3-240V

Note: ¹⁾ Additional colour caps
refer page 80.

sprecher+
schuh *The ultimate
in pushbuttons*

NHP

Full voltage,
superior brightness
and long life

D5-3N

Integrated LED Lamp Blocks

- 5 Colour choices
- Available in voltages up to 240 V AC

- 11 year lamp life (100,000 hours)
- Maintenance free

- Vibration and shock resistant
- Snap lock fit to existing D5 coupling latch

- Superior illumination qualities
- IP 20 finger protection on live components

- Clear identification of function
- Suitable for use with existing D5 illuminated operators and pilot lights



Accessories

A selection of accessories and spare parts to cater for individual application requirements

Coupling plates

Panel mount contact blocks

Base mount contact blocks

Lamp elements

Padlocking attachments and locking covers to suit pushbuttons and selector switches

Adaptor rings

Lock nuts

Legend plate carriers

Emergency stop rings

Sealing caps

Incandescent lamps

Neon lamps

LED lamps

Integrated lamp block

Ronis key locks

Spare keys and non standard locks

Legend plates

Engraved lens diffusers

Special engraving

Metal coupling plates

Metal contact blocks

Metal lamp blocks

Engraved legend plates



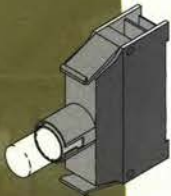
Rear elements - panel mounting



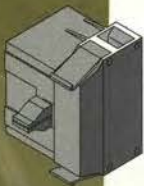
Cat. No. D5-A3L



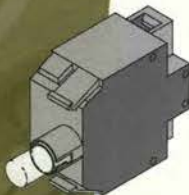
Cat. No. D5-3X...



Cat. No. D5-3D0



Cat. No. D5-3TS...



Cat. No. D5-3T...

Description

Cat. No.

Coupling plate

3 elements in 1 contact level

D5-A3L

Colour coded contact blocks
(max. two contact levels)Contact block
case colours

1 N/O	Green		D5-3X10
1 N/C	Red		D5-3X01
1 N/O E.M.	Green		D5-3X10E
1 N/C L.B.	Red		D5-3X01L
1 N/O Low Voltage (Gold contacts)	Blue		D5-3X10V
1 N/C Low Voltage (Gold contacts)	Blue		D5-3X01V

Lamp elements ¹⁾

Standard



D5-3D0

With diode and resistor 230/240 V AC ²⁾

D5-3R7

using 130 volt lamp

Integrated LED lamp block type D53N. See page 76

NEW!

Lamp elements with central lamp test ¹⁾

With central lamp test



D5-3DD0

With diode and resistor 230/240 V AC ²⁾

D5-3RDD7

using 130 volt lamp

Transformer elements 50/60 Hz (for mounting on lamp elements)

Primary

Secondary

110...120 V	6 V	1.2 VA	D5-3TS5
220...240 V	6 V	1.2 VA	D5-3TS7
380...415 V	6 V	1.2 VA	D5-3TS10
440...480 V	6 V	1.2 VA	D5-3TS12
220...240 V	24 V	1.2 VA	D5-3THS7

Transformer elements 50/60 Hz with lamp element ¹⁾

Primary

Secondary

110...120 V	6 V	1.2 VA	D5-3T5
220...240 V	6 V	1.2 VA	D5-3T7
220...240 V	24 V	1.2 VA	D5-3TH7
400 V	24 V	1.2 VA	D5-3TH10





Notes: ¹⁾ Order lamps separately refer page 76.²⁾ To be used with 130 volt incandescent lamp 2.4-2.6 W only - not suitable with LEDs.

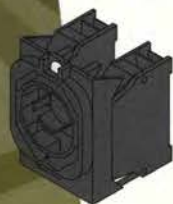
Rear elements - panel / base mounting

Pre-assembled rear elements (panel mount)

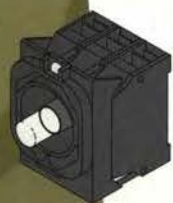
Description Cat. No.

Pre-assembled clip-on rear elements with coupling plate and contact block

1 N/O (Green)		D5-3LX10
1 N/C (Red)		D5-3LX01
1 N/O + 1 N/C		D5-3LX11
2 N/O (Green)		D5-3LX20

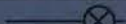


Cat. No. D5-3LX...





Cat. No. D5-3DL0X...

Lamp element and contact block ¹⁾

1 N/O		D5-3DL0X10
1 N/C		D5-3DL0X01
1 N/O + 1 N/C		D5-3DL0X11
2 N/O		D5-3DL0X20




Lamp element ¹⁾

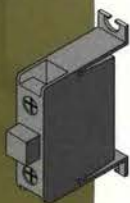
Standard		D5-3DL0
With series diode and resistor 230/240V AC		D5-3RL7

Base mounting – 3 across

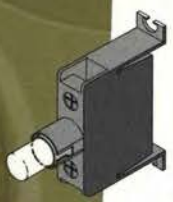
Description Cat. No.

Base mounting – 3 across and contact block

1 N/O (Green)		D5-3BX10
1 N/C (Red)		D5-3BX01
1 N/C L.B. (late break contact)		D5-3BX01L
1 N/O E-M (early make contact)		D5-3BX10E



Cat. No. D5-3BX...



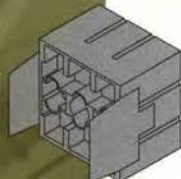
Cat. No. D5-3DB0

Lamp element ¹⁾

Standard		D5-3DB0
With series diode and resistor 230/240 V AC		D5-3RB7

Spacer

For fixing the base mounting elements in enclosures (spare part) D5-A3BA



Cat. No. D5-A3BA

Note: ¹⁾ Order lamps separately refer page 76.

Padlocking attachments

● Type 304 stainless steel ²⁾



Cat. No. D5-AFL1



Cat. No. D5-AEL1



Cat. No. D5-AML1



Cat. No. D5-AL01



Cat. No. D5-AMRG



Cat. No. D5-ASL2...



Cat. No. D5-ASL3...

Description

Cat. No.

Padlocking attachments for pushbutton operators

Flush standard padlocking attachment ¹⁾

D5-AFL1

Extended standard padlocking attachment ¹⁾

D5-AEL1

Mushroom padlocking attachment ¹⁾
(suitable for 40 mm mushroom operators)

D5-AML1 ³⁾

Locking cover
(for use on flush, extended, guarded and latched Pushbuttons, short knob selector switches and potentiometer operators)

D5-AL01

40 mm protective ring
(for use on 2 position push-pull operators only)

D5-AMRG

2 position selector switch padlocking attachment

Right lock position

D5-ASL2R

Left lock position

D5-ASL2L

3 position selector switch padlocking attachment

Left lock position

D5-ASL3L

Centre lock position

D5-ASL3C

Right lock position

D5-ASL3R

Left/centre lock position

D5-ASL3LC

Right/centre lock position

D5-ASL3RC

Notes: ¹⁾ When the operator is activated – N/C contacts are held open.
– N/O contacts may or may not be held open.
– N/C.L.B. contacts may or may not be held closed.
– N/O.E.M. contacts are held closed.

²⁾ D5 padlocking attachments can be used in wet or harsh environments including salt air.

³⁾ Not suitable for push-pull 40 mm / 60 mm mushroom operators.

Active 10/12/2014

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General accessories



Cat. No. D5-AHA...

Cat. No.
D5-AR1Cat. No.
D5-AR2Cat. No.
D5-AW2Cat. No.
D5-ALR1

Cat. No. D5-ALC1



Cat. No. D5-120



Cat. No. D5-15YE112



Cat. No. D5-AB7

Description

Cat. No.

Adaptor ring

Allows a 22.5 mm pushbutton operator to be installed into a panel with existing 30.5 mm mounting holes

Shiny metal IP 66	D5-AHA1
Black metal IP 66	D5-AHA2

Lock nuts

For fixing front elements

Plastic	D5-AR1
Metal	D5-AR2

Mounting ring tool

Plastic	D5-AW2
---------	--------

Lens/lamp removal tool

To remove incandescent lamps or neon lamps and for fixing the lens

Plastic	D5-ALR1
---------	---------

Anti-rotation washer

Metal	D5-ALC1
-------	---------

Legend plate carrier (without legend plate)

To snap-in legend plates

30 x 40 mm IP 66	D5-110
30 x 50 mm IP 66	D5-120
30 x 50 mm IP 65 round edge	D5-150

Legend plate carrier for multi-function operators

To snap in legend plates

30 x 50 mm IP 65	D5-200
------------------	--------

Legend plates ¹⁾

For legend plate carriers

D5-110 IP 66 (legend 27 x 6 mm)	D5-17BE100
D5-120 IP 66 (legend 27 x 16 mm)	D5-18BE100
D5-150 IP 65 round edge (legend 26 x 15 mm)	D5-30AE100

Legend plate (self-adhesive) for surface mounting onto enclosures

19 x 19 mm IP 66	D5-19AE100
------------------	------------

Emergency stop rings

Blank 60 mm diameter	D5-15Y
Blank 90 mm diameter	D5-16Y
Printed 'Emergency Stop' 60 mm diameter	D5-15YE112
Printed 'Emergency Stop' 90 mm diameter	D5-16YE112

Sealing caps

For flush pushbuttons	IP 66	D5-AB7
For multi-function operators	Flush IP 66	D5-AUB3
	Pos. A extended IP 66	D5-AUB2
	Pos. B extended IP 66	D5-AUB1

Note: ¹⁾ Refer page 81 and 82 for standard engraved legend plates.

Complete panel mounted standard units

Incandescent lamps for use with full-voltage lamp block

Ba9S Style for full-voltage lamp blocks D5-3D0 and D5-3DB0

Nominate voltage 6, 12, 24, 36, 48, 60V - eg Ba9S-I36 V-1.2 W = 6 V.

Description	Cat. No.
1.2 watts	BA9S-I3...V-1.2W
2 watts	BA9S-I3...V-2W

Incandescent lamps for use with resistor diode lamp block

Ba9S Style for full-voltage lamp blocks D5-3R7 and D5-3RL7

Description	Cat. No.
130 V 2.4 W (long life expectancy)	BA9S-I3-130V-2.4W
130 V 2.6 W	BA9S-I3-130V-2.6W

Neon lamps for use with resistor diode lamp block

Ba9S Style for full-voltage lamp blocks D5-3R7 and D5-3RL7

Description	Cat. No.
110 V...127 V clear	BA9S-CN3-110V
220 V...240 V clear	BA9S-CN3-240V

Integrated LED lamp blocks - extended life (100,000+ hours)

Available colours **Red (R), Green (G), Amber (A), Blue (B), White (W)**

Insert corresponding letter at the end of part number eg. D5-3NL3R = RED

Voltage	Approximate permissible leakage current	Description	Cat. No.
24 V AC/DC	3 mA	Lamp block with operator latch	D5-3NL3_
120 V AC	3 mA	Lamp block with operator latch	D5-3NL5_
240 V AC	3 mA	Lamp block with operator latch	D5-3NL7_
24 V AC/DC	3 mA	Lamp block without operator latch	D5-3N3_
120 V AC	3 mA	Lamp block without operator latch	D5-3N5_
240 V AC	3 mA	Lamp block without operator latch	D5-3N7_

LED lamps - Extended life (100,000+ hours) for use with full-voltage lamp block (supplied with built-in shunt resistor)

Ba9S Style for full-voltage lamp blocks D5-3D0 and D5-3DB0

Description	Red Cat. No.	Green Cat. No.	Yellow Cat. No.	Blue Cat. No.
6 V AC/DC	D5-N65R	D5-N65G	D5-N65Y	D5-N65B
12 V AC/DC	D5-N141R	D5-N141G	D5-N141Y	D5-N141B
24 V AC/DC	D5-N157R	D5-N157G	D5-N157Y	D5-N157B
32 V AC/DC	D5-N363R	D5-N363G	D5-N363Y	D5-N363B
48 V AC/DC	D5-N48R	D5-N48G	D5-N48Y	D5-N48B
130 V AC/DC	D5-N321R	D5-N321G	D5-N321Y	D5-N321B

LED multi-chip lamps - Extended life (50,000+ hours) for use with full-voltage lamp block

Ba9S Style for full-voltage lamp blocks D5-3D0 and D5-3DB0

Description	Red Cat. No.	Green Cat. No.	Yellow Cat. No.	Blue Cat. No.
8 V AC/DC	BA9S-RL-M-8V ¹⁾	BA9S-GL-M-8V ¹⁾	BA9S-YL-M-8V ¹⁾	
12 V AC/DC	BA9S-RL-M-12V	BA9S-GL-M-12V	BA9S-YL-M-12V	
24 V AC/DC	BA9S-RL-M-24V	BA9S-GL-M-24V	BA9S-YL-M-24V	
48 V AC/DC	BA9S-RL-M-48V	BA9S-GL-M-48V	BA9S-YL-M-48V	
110 V AC/DC	BA9S-RL-M-110V	BA9S-GL-M-110V	BA9S-YL-M-110V	
240 V AC	BA9S-RL-A-240V	BA9S-GL-A-240V		BA9S-BL-A-240V

Notes: ¹⁾ 8 Volt LED lamps suitable for use with D5 transformer

²⁾ Nett price only
Active 10/12/2014

Cat. No. BA9S-I3...V-1.2W



Cat. No. D5-3N7W



Cat. No. D5N65G



Cat. No. BA9S-RL-24V

Ronis key locks

Optional ronis key/lock numbers

(For use with rotary switches on pages 49 to 52 inclusive)

Key No.	Key code	Key No.	Key code
3825	R (Standard)	4001	27R
3801	01R	4002	28R
3802	02R	4003	29R
3803	03R	4004	30R
3804	04R	4005	31R
3805	05R	4006	32R
3806	06R	4007	33R

Ordering instructions for key switch with special lock numbers

Insert key code in Catalogue Number shown on pages 49 to 52.

Eg.

D5P-KM2R1

Standard key 3825

D5P-KM2R1-01R

Optional key 3801

Spare Ronis key numbers

Key No.	Key code	Cat. No.
3825	R (Standard)	D5-AKR3825
3801	01R	D5-AKR3801
3802	02R	D5-AKR3802
3803	03R	D5-AKR3803
3804	04R	D5-AKR3804
3805	05R	D5-AKR3805
3806	06R	D5-AKR3806

Master key for code R (standard)...06R

Key No.	Key code	Cat. No.
3910	53R	D5-AKR3910 (STD-06R) MASTER

Key No.	Key code	Cat. No.
4001	27R	D5-AKR4001
4002	28R	D5-AKR4002
4003	29R	D5-AKR4003
4004	30R	D5-AKR4004
4005	31R	D5-AKR4005
4006	32R	D5-AKR4006
4007	33R	D5-AKR4007

Master key for code 27R...33R

Key No.	Key code	Cat. No.
3920	54R	D5-AKR3920 (27R-33R) MASTER

Master key for code R (standard)...33R

Key No.	Key code	Cat. No.
3901	55R	D5-AKR3901 (STD-33R) MASTER

2 across screw down rear elements



Cat. No. D5-A2L

Contact block
Cat. No. D5-2X01Lamp holder
Cat. No. D5-2DLOTransformer module
Cat. No. D5-2TL5Dovetail interlock
Cat. No. D5-A2DT



Description

Cat. No.

Screw down rear elements and metal coupling plate ¹⁾


Coupling plate for rear elements	D5-A2L
Ground (earthing) screw	D5-AGS1

Contact blocks

1 N/O (Green)		D5 - 2X10
1 N/C (Red)		D5 - 2X01
Auto break latch and contacts		D5 - 2LX01LS

1 N/O Low voltage (Blue)		D5 - 2X10V
1 N/C Low voltage (Blue)		D5 - 2X01V

Lamp holder (without lamp)		D5 - 2DLO ²⁾
----------------------------	---	-------------------------

Lamp holder (resistor type) for 230/240 volt supply and 130 volt lamp		D5 - 2RL7 ³⁾
--	---	-------------------------

Transformer module 110 volt ³⁾	D5 - 2TL5 ³⁾
Transformer module 230/240 volt ³⁾	D5 - 2TL7 ³⁾

Dovetail interlock	D5- A2DT
Provides extra stability by interlocking levels of contact blocks	


Notes: ¹⁾ For use with D5M metal front elements. Can also be used with standard plastic operators.

²⁾ Includes D5 - A2L coupling plate.

³⁾ Use 6 volt 1.2 watt lamp.


Engraving / legend colour caps

Description		Cat. No. Round	Cat. No. Square
Two colour moulded colour cap for pushbuttons			
START	Green – text white	D5-AF301W	D5Q-AF301W
STOP	Red – text white	D5-AF402W	D5Q-AF402W
ON	Green – text white	D5-AF303W	D5Q-AF303W
OFF	Red – text white	D5-AF404W	D5Q-AF404W
I	Green – text white	D5-AF306W	D5Q-AF306W
O	Red – text white	D5-AF405W	D5Q-AF405W
RESET	Blue – text white	D5-AF607W	D5Q-AF607W
R	Blue – text white	D5-AF611W	D5Q-AF611W
→ ')	Black – text white	D5-AF208W	D5Q-AF208W

	Colour cap for flush pushbutton black - text white ²⁾	Diffuser for illum. pushbutton text black ²⁾	Diffuser for pilot lights text black ²⁾
Hot stamped			
ON		D5-AD2HE03B	D5-AD3HE03B
OFF		D5-AD2HE04B	D5-AD3HE04B
UP	D5-AF2HE12W	D5-AD2HE12B	
DOWN	D5-AF2HE13W	D5-AD2HE13B	
OPEN	D5-AF2HE05W	D5-AD2HE05B	
CLOSE	D5-AF2HE14W	D5-AD2HE14B	
RAISE	D5-AF2HE15W	D5-AD2HE15B	
LOWER	D5-AF2HE16W	D5-AD2HE16B	
RIGHT	D5-AF2HE17W	D5-AD2HE17B	
LEFT	D5-AF2HE18W	D5-AD2HE18B	
FORWARD	D5-AF2HE09W	D5-AD2HE09B	
REVERSE	D5-AF2HE10W	D5-AD2HE10B	
FAST	D5-AF2HE19W	D5-AD2HE19B	
SLOW 	D5-AF2HE20W	D5-AD2HE20B	
SET-UP	D5-AF2HE21W	D5-AD2HE21B	
RUN	D5-AF2HE22W	D5-AD2HE22B	D5-AD3HE22B
START		D5-AD2HE01B	D5-AD3HE01B
STOP		D5-AD2HE02B	D5-AD3HE02B
HOLD	D5-AF2HE23W	D5-AD2HE23B	D5-AD3HE23B
AUTO	D5-AF2HE24W	D5-AD2HE24B	D5-AD3HE24B
Blank diffuser Rnd.		D5-AD2	D5-AD3
Blank diffuser Squ.		D5Q-AD2	D5Q-AD3

	Cat. No. Round	Cat. No. Square
Colour cap extended (red – text white)		
STOP	D5-AE4HE02W	D5Q-AE4HE02W
OFF	D5-AE4HE04W	D5Q-AE4HE04W

Lens cap for pilot lights		
Green standard lens cap	D5-AP3	D5Q-AP3
Red standard lens cap	D5-AP4	D5Q-AP4
Yellow standard lens cap	D5-AP5	D5Q-AP5
Blue standard lens cap	D5-AP6	D5Q-AP6
Clear standard lens cap	D5-AP7	D5Q-AP7

Notes: ¹⁾ Rotation of 90° = →, ↓, ←, ↑
²⁾ For square variations add D5Q to part number
 Available on indent only.

Active 10/12/2014

Engraving / legend colour caps for multi-function operators

Description	Pos. C Green symbol White text	Pos. A Green symbol White text	Pos. A Red symbol White text	Pos. A extended Red symbol White text
→	D5-AFUC3PY700W			
←		D5-AFUA3PY700W		
+	D5-AFUC3PY730W	D5-AFUA3PY730W		
-	D5-AFUC3PY731W	D5-AFUA3PY731W		
I	D5-AFUC3PY909W	D5-AFUA3PY909W		
II	D5-AFUC3PY602W	D5-AFUA3PY602W		
↑	D5-AFUC3PY712W			
↓		D5-AFUA3PY713W		
O			D5-AFUA4PY910W	D5-AEUA4PY910W
UP	D5-AFUC3PE12W			
DOWN		D5-AFUA3PE13W		
RIGHT	D5-AFUC3PE17W			
LEFT		D5-AFUA3PE18W		
FORWARD	D5-AFUC3PE09W			
REVERSE		D5-AFUA3PE10W		
START	D5-AFUC3PE01W			
STOP			D5-AFUA4PE02W	D5-AEUA4PE04W

Legend plates with symbol

Description	Plastic black, inscription white, for legend plate carrier D5-110 30x40 mm ¹⁾	Plastic black, inscription white, for legend plate carrier D5-120 30x50 mm ²⁾	Aluminium, inscription black, for legend plate carrier D5-150 & D5-200 30x50 mm ³⁾
O · I	D5-17BU231L	D5-18BU231L	D5-30AU231L
I · II	D5-17BU229L	D5-18BU229L	D5-30AU229L
I O II	D5-17BU234L	D5-18BU234L	D5-30AU234L
O · I	D5-17BU255L	D5-18BU255L	D5-30AU255L
← O I	D5-17BU252L	D5-18BU252L	D5-30AU252L
← O →	D5-17BU253L	D5-18BU253L	D5-30AU253L
O →	D5-17BU256L	D5-18BU256L	D5-30AU256L

Notes: ¹⁾ Legend plate size 27 x 6 mm.
²⁾ Legend plate size 27 x 16 mm.
³⁾ Legend plate size 26 x 15 mm.

Engraving / legend plates with text

Description	Plastic black, inscription white, for legend plate carrier D5-110 30 x 40 mm ¹⁾	Plastic black, inscription white, for legend plate carrier D5-120 30 x 50 mm ²⁾	Aluminium, inscription black, for legend plate carrier D5-150 & D5-200 30 x 50 mm ³⁾
AUTO	D5-17BE101	D5-18BE101	
CLOSE	D5-17BE107	D5-18BE107	
DOWN	D5-17BE110	D5-18BE110	
EMERGENCY STOP	D5-17BE112	D5-18BE112	
FAULT	D5-17BE113	D5-18BE113	
FAST	D5-17BE114	D5-18BE114	
FORWARD	D5-17BE120	D5-18BE120	
HAND	D5-17BE126	D5-18BE126	
HIGH	D5-17BE129	D5-18BE129	
IN	D5-17BE132	D5-18BE132	
INCH	D5-17BE134	D5-18BE134	
JOG	D5-17BE138	D5-18BE138	
LEFT	D5-17BE145	D5-18BE145	
LOW	D5-17BE148	D5-18BE148	
LOWER	D5-17BE152	D5-18BE152	
OFF	D5-17BE163	D5-18BE163	
ON	D5-17BE166	D5-18BE166	
OPEN	D5-17BE170	D5-18BE170	
OUT	D5-17BE173	D5-18BE173	
RAISE	D5-17BE182	D5-18BE182	
REVERSE	D5-17BE188	D5-18BE188	
RIGHT	D5-17BE191	D5-18BE191	
SLOW	D5-17BE201	D5-18BE201	
START	D5-17BE208	D5-18BE208	
STOP	D5-17BE212	D5-18BE212	
UP	D5-17BE223	D5-18BE223	
I O AUTO	D5-17BU250L	D5-18BU250L	D5-30AU250L
HAND O AUTO	D5-17BU251L	D5-18BU251L	D5-30AU251L
MAN O AUTO	D5-17BE238K	D5-18BE238 K	D5-30AE238K
ON OFF AUTO	D5-17BE300	D5-18BE300	D5-30AE300
MAN AUTO	D5-17BE301	D5-18BE301	D5-30AE301
HAND AUTO	D5-17BE127	D5-18BE127	D5-30AE127
FORW. OFF REV.	D5-17BE261	D5-18BE261	D5-30AE261
SET-UP RUN	D5-17BE302	D5-18BE302	D5-30AE302
FORW. REV.	D5-17BE303	D5-18BE303	D5-30AE303
UP DOWN	D5-17BE224	D5-18BE224	D5-30AE224
OFF ON	D5-17BE165	D5-18BE165	D5-30AE165
STOP START	D5-17BE305	D5-18BE305	D5-30AE305
BLANK LEGEND PLATE	D5-17BE100	D5-18BE100	D5-30AE100

Notes: ¹⁾ Legend plate size 27 x 6 mm.

²⁾ Legend plate size 27 x 16 mm.

³⁾ Legend plate size 26 x 15 mm.

Engraving / legend plates with text

Description			Plastic black, inscription white, for legend plate carrier D5-110 30 x 40 mm *)	Plastic black, inscription white, for legend plate carrier D5-120 30 x 50 mm *)
HIGH	LOW		D5-17BE130	D5-18BE130
INCH	REVERSE		D5-17BE135K	D5-18BE135K
JOG	FORWARD		D5-17BE255	D5-18BE255
JOG	REVERSE		D5-17BE256	D5-18BE256
JOG	RUN		D5-17BE142	D5-18BE142
LEFT	RIGHT		D5-17BE146	D5-18BE146
OFF	ON		D5-17BE165	D5-18BE165
OPEN	CLOSE		D5-17BE171	D5-18BE171
RAISE	LOWER		D5-17BE183	D5-18BE183
SLOW	FAST		D5-17BE204	D5-18BE204
UP	DOWN		D5-17BE224	D5-18BE224
FORWARD	STOP	REVERSE	D5-17BE254K	D5-18BE254K
HAND	OFF	AUTO	D5-17BE128K	D5-18BE128K
JOG	STOP	RUN	D5-17BE144K	D5-18BE144K
FORWARD	OFF	REVERSE	D5-17BE261	D5-18BE261K
LOW	OFF	HIGH	D5-17BE150K	D5-18BE150K
RAISE	OFF	LOWER	D5-17BE184K	D5-18BE184K
SLOW	OFF	FAST	D5-17BE205K	D5-18BE205K
SLOW	OFF	START	D5-17BE207K	D5-18BE207K

Legend plates (self adhesive) for surface mounting into enclosures

(aluminium, size 19 x 19 mm, inscription black)

Description	Cat. No.
BLANK *)	D5-19AE100
II	D5-19AU230L
O	D5-19AU228L
I	D5-19AU229L
STOP	D5-19AE212
START	D5-19AE208

Notes: *) Non standard engraving available on request.

*) Legend plate size 27 x 6 mm.

*) Legend plate size 27 x 16 mm.

Technical information and dimensions

A complete listing of approvals, ratings and technical specifications for D5 components

Technical specifications front elements
Technical specifications contact blocks

Contact block ratings

Lamp block ratings

Dimensions

Pushbutton front elements

Dimensions

Pilot lights
Mushroom operators
Selector switches

Dimensions

Square push button operators
Square pilot lights
Square selector switches

Dimensions

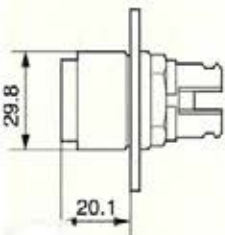
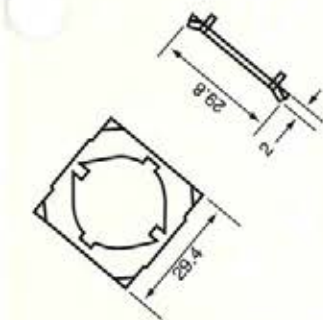
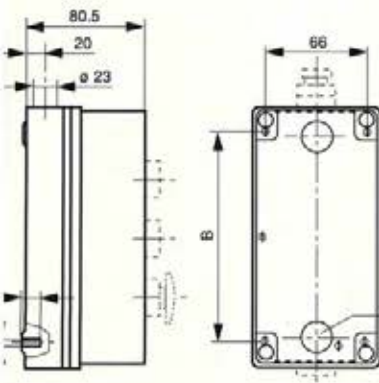
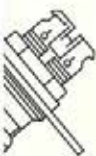
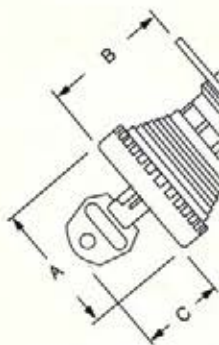
Special switches

Dimensions

Accessories
Contact blocks

Dimensions

Enclosures



Technical information

Control and indicating units D5



General technical information

Front elements

Degree of protection according to IEC 529, DIN 40 050

Pushbuttons, Mushroom operators,
Selector switch operators
Potentiometer operator
Multi-function operators without sealing cap
Multi-function operators with sealing cap
Joy sticks and wobble sticks

Plastic operators (D5P/S)

IP 66 (NEMA Type 4/4X/13)
IP 65
IP 40
IP 66
IP 66

Metal operators (D5M/B)

all IP 66 (NEMA Type 4/13)

Mechanical design life

Pushbuttons
Momentary mushroom operators,
Selector jog, Selector switches
Special mushroom operators
Multi-function operators
Joysticks

10 000 000 Cycles

10 000 000 Cycles

500 000 Cycles

500 000 Cycles

100 000 Cycles

100 000 Cycles

3 000 000 Cycles

3 000 000 Cycles

100 000 Cycles (in each direction)

Vibration (assembled to panel)

Frequencies 10...2000 Hz
Displacement 1.52 mm (peak-peak)

max. 10 G

max. 10 G

Shock

1/2 sine wave (no damage)

100G, 11 ms

100G, 11 ms

Temperature range

Storage

-25 °C...+55 °C max. 70 °C/24h

-25 °C...+55 °C max. 70 °C/24h

Operating

-25 °C...+55 °C

-25 °C...+55 °C

Humidity

50 %...95 % RH from 25 °C...60 °C

50 %...95 % RH from 25 °C...60 °C

Back of panel components

Standard contact block ratings 3-Across style NEMA A600,Q600
600 V AC
AC 15, DC 13 to IEC 947-5

Low Voltage contact block ratings

17...24 VDC, 5 mA

Thermal current

10 A max. continuous current without enclosure (40 °C)
6 A with enclosure (60 °C)

Insulation category

Group C, 500 V to VDE 0110
600 V UL, CSA

Terminal marking

Conforming to CENELEC EN 50013

Terminals

0.75...2.5 mm²
Min. 1 x #18...12 AWG
Max. 2 x #14 AWG or 1 x #12AWG

Short circuit protection

10 A slow (DT,gl)

Electrical shock protection

IP 2X (touch protection)

Vibration (assembled to panel)

Frequencies 10...2000 Hz
Displacement 1.52 mm (peak-peak) max. 10 G max. 6 h

3-Across style

Shock

1/2 sine wave (no damage) 100G, 11 ms

Contact block mechanical design

5 000 000 Cycles

Temperature range

Storage

-25 °C...+55 °C max. 70 °C/24h

Operating

-5 °C...+55 °C

Humidity

40 °C / 95 % RH / 56 days
23 °C, 83 % / 40 °C, 93 % 20 cycles

Approvals

UL Listed / CSA Certified
SEV, CEBEC, DEMKO, NEMKO,
SEMKO, Seti, Germanischer
Lloyd, Bureau Veritas, Maritime
Register of shipping, Lloyds
register of shipping

Standard conformity

IEC 204-1, 337;SEV 1005,1093;
VDE 0113, 0660 part 201;
BS 4794; CEE 24; UL 486E

Technical information

Contact blocks (colour coded)



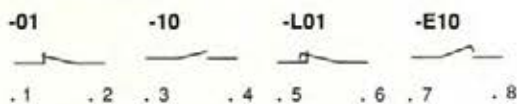
D5-3X...
for panel mounting



D5-3BX...
for base mounting

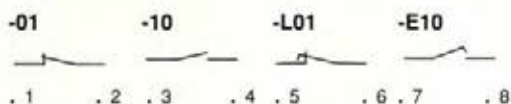
Versions

Front mounting



- ◆ Snap-on coupling plate
- ◆ 2 contact levels
- ◆ up to 3 contact blocks per contact level

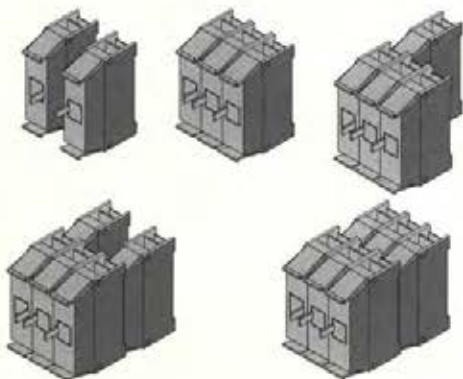
Base mounting



- ◆ Snap onto the inside of the enclosure base or onto a hat rail, r secure with two screwed fixing straps
- ◆ 3 contact blocks in one contact level possible

Possibilities to combine (Panel mounting)

Maximum of 6 contact blocks can be combined



Technical information

Rated thermal current I_{th}
without enclosure (ambient 40 °C) 10 A
with enclosure (ambient 60 °C) 6 A

Rated operating voltage U_e 690 V AC

- Panel or base mounting
- Small overall depth
- Simple snap-on contacts
- Easy to wire
- Self-cleaning contacts
- N/O - Green
- N/C - Red
- Low voltage - Blue

Technical information, continued

Rated operating current I_e

	24 V	48 V	110 V	220 V	230/240 V
AC 1				10 A	10 A
AC 15	8 A	8 A	6 A	3 A	3 A
	380 V	400 V	415 V	500 V	690 V

AC 1					
AC 15	2.5 A	2 A	2.2 A	1.5 A	0.75 A

Rated operating current I_e , continued

	24 V	48 V	110 V	125 V	220 V
DC 13					
-01, -10	3 A	1.5 A	0.2 A	0.6 A	0.1 A
-01, -E10	1.3 A	0.4 A	0.13 A	0.13 A	65 mA
DC 13	250 V	400 V	440 V	500 V	600 V
-01, -10	0.3 A	0.2 A	0.04 A	0.15 A	0.13 A
-01, -E10	65 mA	26 mA	26 mA		

Short-circuit withstand

without welding

10 A slow (DT, gG)

Switching rate

6000 operations/hour

Fuse rating

permissible rated current	fast (D, gF)	16 A
	slow (DT, gG)	10 A

Electrical life

AC-11	0.1 A	1 A	2 A	3 A
No. of operations (million)	10	3	1	0.5

Contact duty

electronic circuit (H-type- bridges)

positive opening \rightarrow for: D5-3X01
D5-3BX01

Contact travel

D5-...

800 E-...

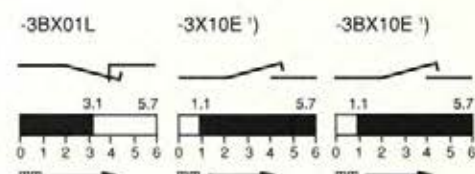
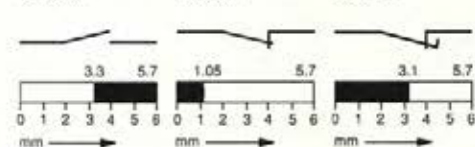
-3X10

-3BX10

-3X01

-3BX01

-3X01L



□ open

■ closed

¹⁾ in preparation

Terminal marking

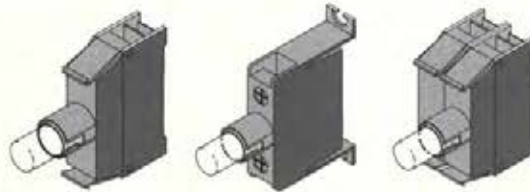
Terminals

according to DIN EN 50 013

0.75...2.5 mm² 18...12 AWG

Technical information

Lamp elements

D5-3D0,
D5-3R...D5-3DB0,
D5-3RB...D5-3DD0
D5-3RDD...

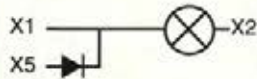
Versions

D5-3D0, D5-3R...



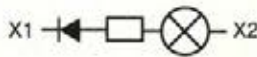
Standard element
Operating voltage max.
250 V

D5-3DD0



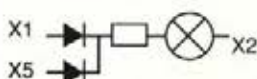
With central lamp test
Operating voltage max. 250 V

D5-3DB0, D5-3RB...



With series diode and
resistor 220 V AC or
240 V AC supply.
Use incandescent lamp
130 V / 2.4 W

D5-3RDD...



With central lamp test
With series diode and resistor
220 V AC or 240 V AC supply.
Use incandescent lamp
130 V / 2.4 W

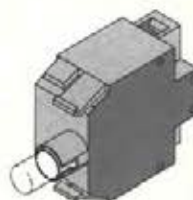
Technical information

Lamp socket	Ba 9s
Lamp ratings max.	2 W (2.6 W for pilot lights)
Terminal marking	according to DIN EN 50 013
Terminals	0.75...2.5 mm ²

Transformers



D5-3TS...



D5-3T... (without clear lamp)



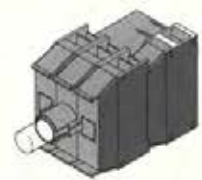
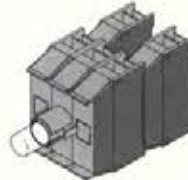
Technical information

Performance	max. 1.2 VA, 50 / 60 Hz
Terminal marking	according to DIN EN 50 013
Terminals	0.75...2.5 mm ²
Lamp socket	Ba 9s

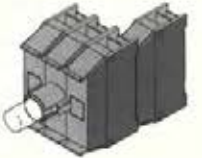
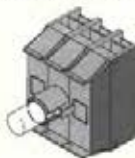
- Panel or base mounting
- Small overall depth
- Easy to wire
- Self-cleaning contacts

Possibilities to combine

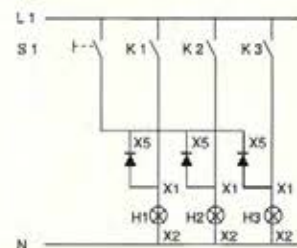
D5-3D0, D5-3R... can be combined with maximum 4 contact blocks or 2 contact blocks and one transformer.



D5-3DD0, D5-3RDD... are to be combined with maximum 2 contact blocks



Central lamp test



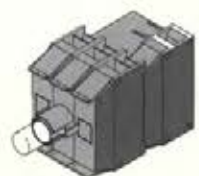
Variants

Primary voltage [V]	Secondary voltage [V]
110...120	6
220...240	6
380...415	6
440...480	6
220...240	24

Possibilities to combine

Transformers D5-3TS... may be combined with one lamp holder D5-3D0 or D5-3R... and maximum 2 contact blocks.

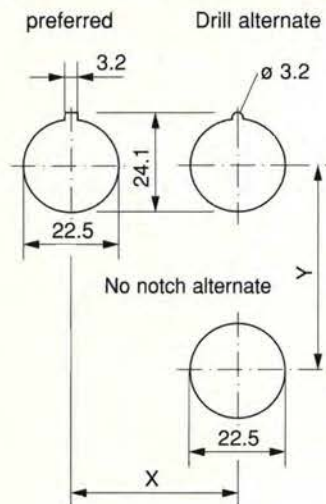
Transformers D5-3T... cannot be combined.



Dimensions (mm)

Dimensions (mm)

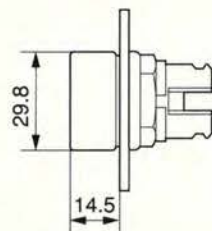
Planning example for panel (hole distances)



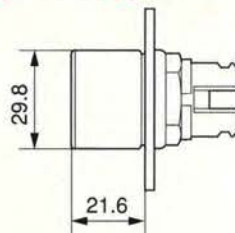
Front element	Legend plate carrier used	X	Y
Pushbutton	Any	30	50
Mushroom operators 40 mm	Any	40	50
Mushroom operators 60 mm	Any	60	60
Selector jog	Any	48	50
Any	60 mm diameter	60	60
Any	90 mm diameter	90	90

Panel thickness range 1...6 mm
Maximum panel thickness reduced when
optional legend plate holders are used

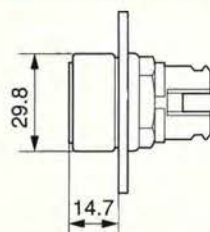
Standard momentary pushbutton flush (eg. D5P-F1)



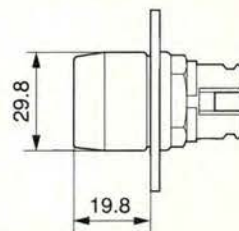
Standard momentary pushbutton guarded (eg. D5P-G1)



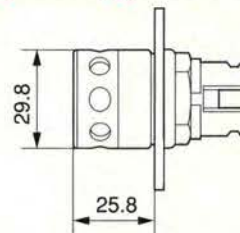
Standard maintained pushbutton flush (eg. D5P-FA1)



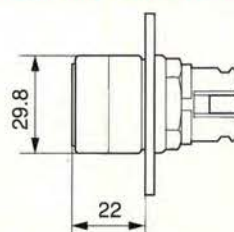
Illuminated momentary pushbutton flush (eg. D5P-LF3)



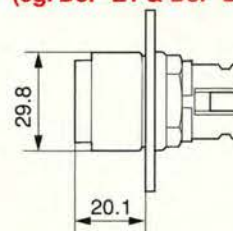
Illuminated momentary pushbutton guarded (eg. D5S-LG3)



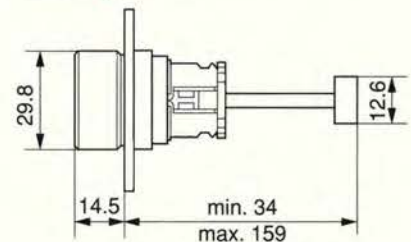
Illuminated maintained pushbutton flush (eg. D5P-LFA3)



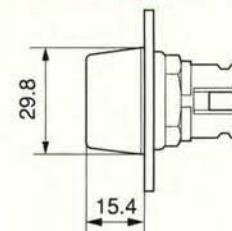
Standard and illuminated momentary pushbutton extended (eg. D5P-E1 & D5P-LE3)



Standard reset operator (eg. D5P-R607W with D5-ATR...)

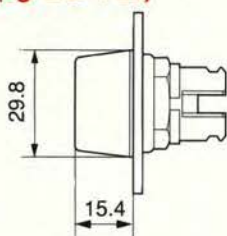


Pilot light standard (eg. D5P-P3)

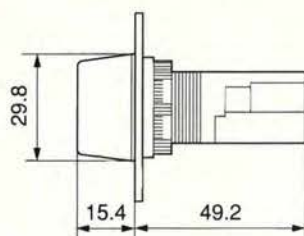


Dimensions (mm)

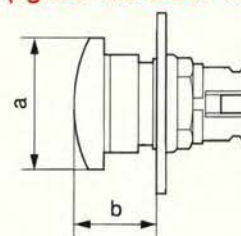
Pilot light optically enhanced (eg. D5P-PL3)



Eco-Pilot light standard (eg. D5P-PM3DO)

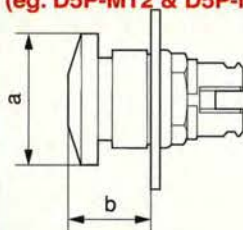


Standard momentary mushroom operator 40 mm and 60 mm (eg. D5P-M2 & D5P-MJ2)



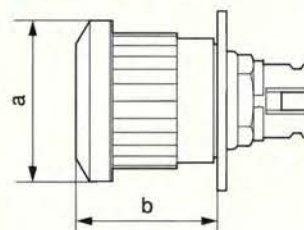
a	b "out"	b "in"
40	27	22.8
60	27	22.8

Standard momentary mushroom operator push-pull/twist to release 40 mm and 60 mm (eg. D5P-MT2 & D5P-MJT2)



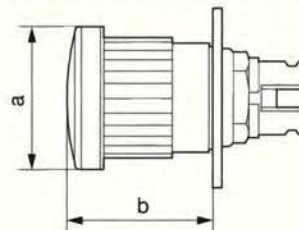
a	b "out"	b "in"
40	27	22.8
60	27	22.8

Standard momentary mushroom operator push-pull 40 mm and 60 mm (eg. D5S-MP22 & D5S-MJP22)



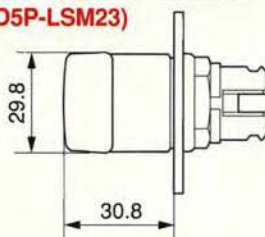
a	b "out"	b "in"
40	37.9	32.9
60	37.9	32.9

Illuminated momentary mushroom operator 40 mm and 60 mm (eg. D5S-LM3 & D5S-LMJ3)

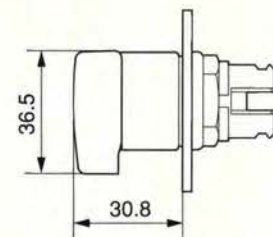


a	b "out"	b "in"
40	37.9	33.2
60	37.9	33.2

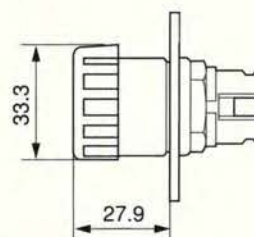
Standard and illuminated 2 and 3 pos. selector switch operator with standard knob (eg. D5P-SM22 & D5P-LSM23)



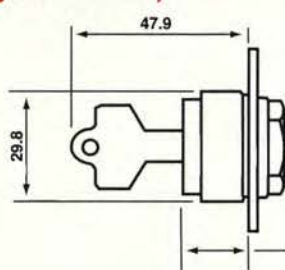
Standard and illuminated 2 and 3 pos. selector switch operator with lever (eg. D5P-HM22 & D5P-LHM23)



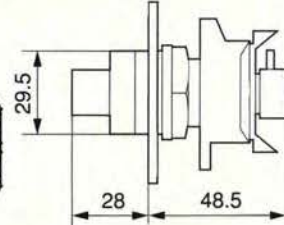
Standard selector jog operator (eg. D5P-SJ21)



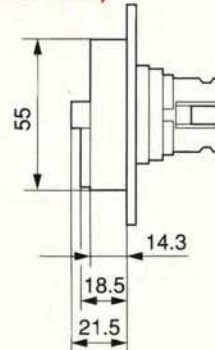
Key operated selector switch operator (eg. D5P-KM2R1)



Potentiometer operator (D5P-POT)



Standard and illuminated multi-function operator (eg. D5P-U2X)

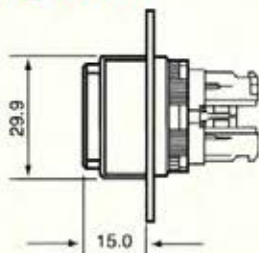


Dimensions (mm)

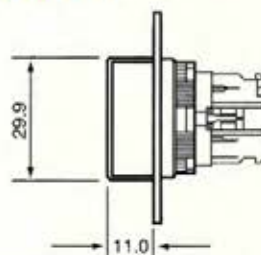
Square pushbuttons

Dimensions (mm)

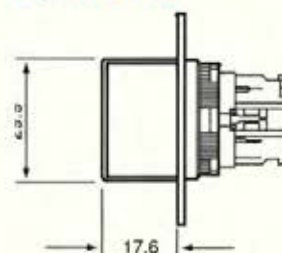
Standard pushbutton, extended
(eg. D5Q-E1)



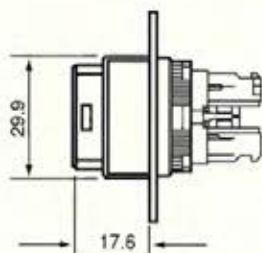
Standard pushbutton, flush
(eg. D5Q-F1)



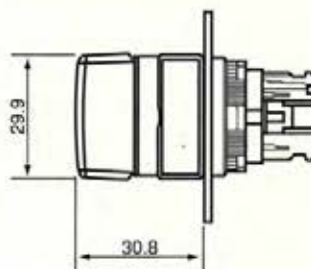
Illuminated pushbutton, flush
(eg. D5Q-LF3)



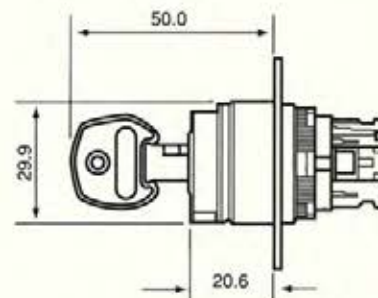
Illuminated pushbutton, extended
(eg. D5Q-LE3)



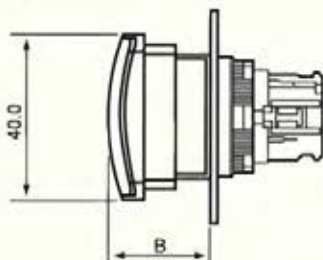
Standard and illuminated selector switch operator with standard knob
(eg. D5Q-SM22 & D5Q-LSM23)



Key operated selector switch operator
(eg. D5Q-KM2R1)

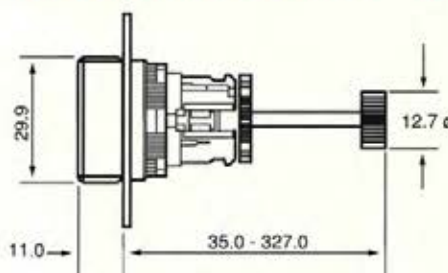


Standard mushroom operator
(eg. D5Q-M2)

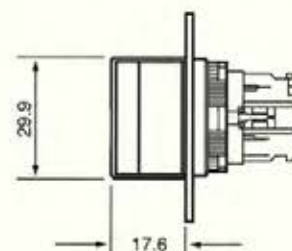


B	
OFF	ON
24.4	19.6

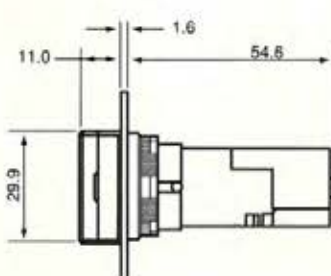
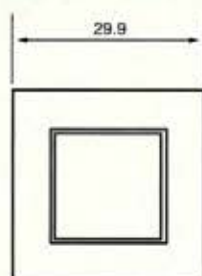
Reset operator
(eg. D5Q-R607W with D5-ATR...)



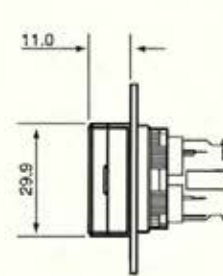
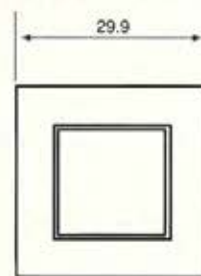
Standard pushbutton, guarded
(eg. D5Q-G1)



Eco-Pilot light standard
(eg. D5Q-PM3DO)

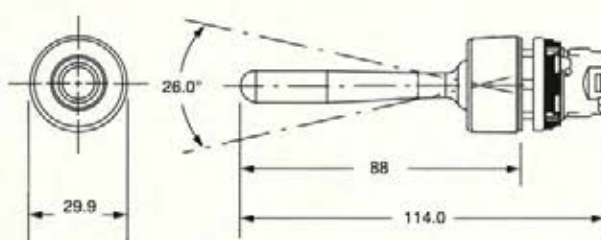


Pilot light standard
(eg. D5Q-P3)

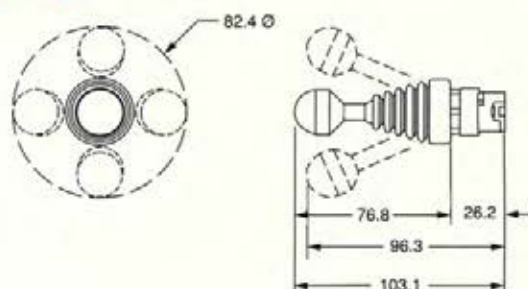


Dimensions (mm)

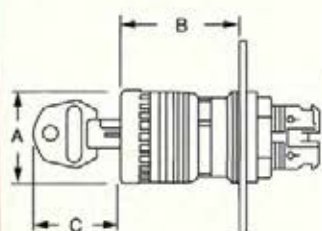
Wobble stick operator



**Joy stick operator
(eg. D5M-JM2)**

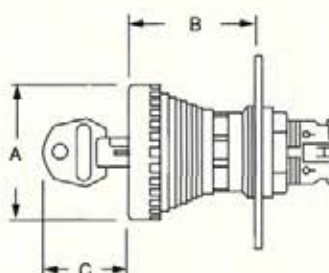


**EMERGENCY STOP operator
ø 30 mm
(Type D5P-MTS34 &
D5P-MKR34)**



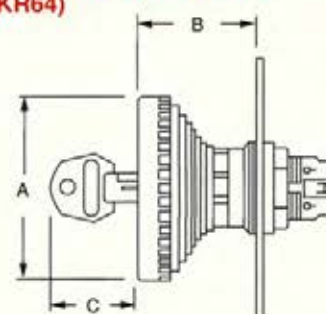
A	B		C
	OFF	ON	
30	41	36	27

**EMERGENCY STOP operator
ø 40 mm
(Type D5P-MTS44 &
D5P-MKR44)**



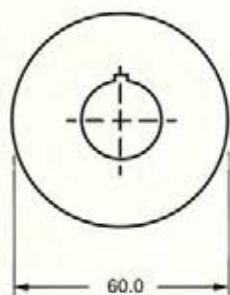
A	B		C
	OFF	ON	
40	41	36	27

**EMERGENCY STOP operator
ø 60 mm
(Type D5P-MTS64 & D5P-
MKR64)**

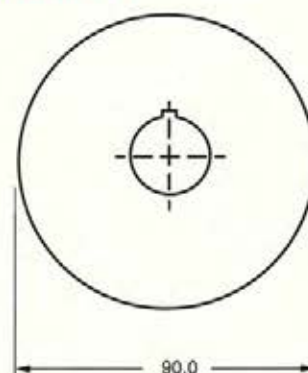


A	B		C
	OFF	ON	
60	41	36	27

**EMERGENCY STOP ring
ø 60 mm
(Type D5-15Y)**



**EMERGENCY STOP ring
ø 90 mm
(Type D5-16Y)**

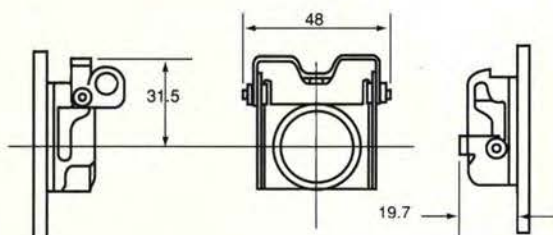


Dimensions (mm)

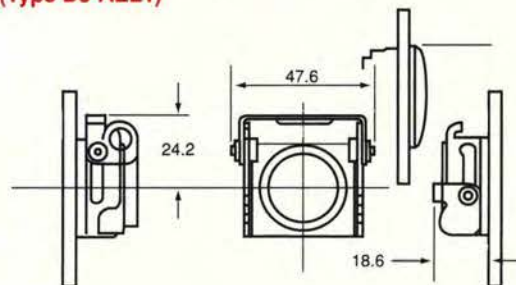
Accessories

Dimensions in mm ¹⁾

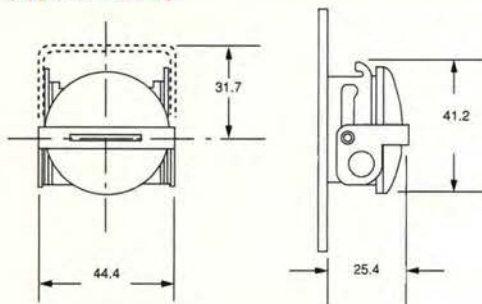
Locking attachment
for flush standard pushbutton
(Type D5-AFL1)



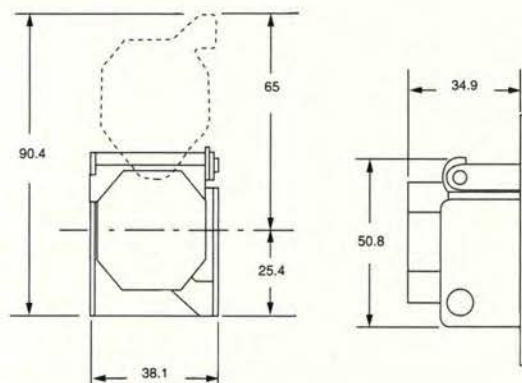
Locking attachment
for extended standard pushbutton
(Type D5-AEL1)



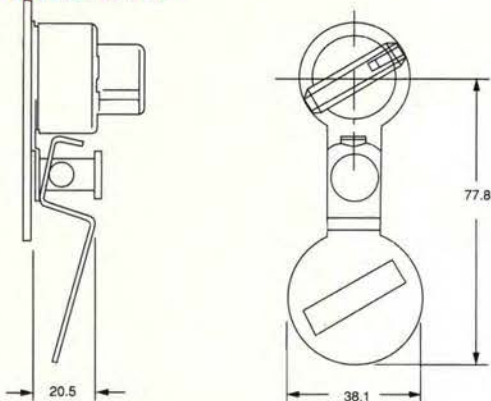
Locking attachment
for mushroom operator \varnothing 40 mm
(Type D5-AML1)



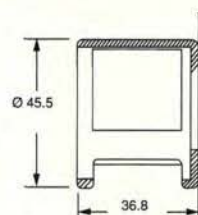
Locking attachment
for pushbuttons
for standard knob selector switch operators
for potentiometer drive operator
(Type D5-AL01)



Locking attachment ²⁾
for 2 position selector switch operator
(eg. D5-ASL2R)



Protective ring
for push-pull mushroom operator \varnothing 40 mm
(Type D5-AMRG)



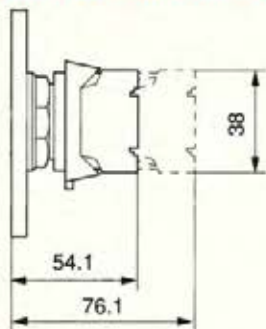
Notes: ¹⁾ Maximum size of padlock that can be used is 6 mm in diameter.

²⁾ This locking attachment may interfere with the operation of operators located mounted beneath.

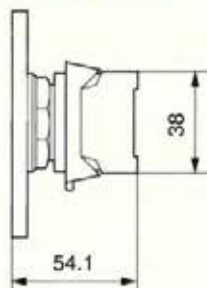
Dimensions (mm)

Back of panel components for front (panel) mounting (3-Across)

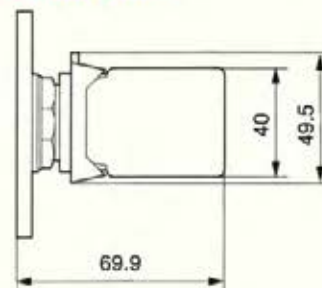
Contact blocks including coupling plate (maximum 2 contact levels)



Lamp element including coupling plate

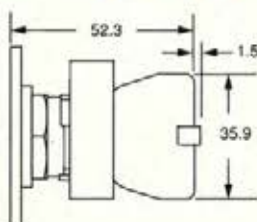


Transformer including coupling plate

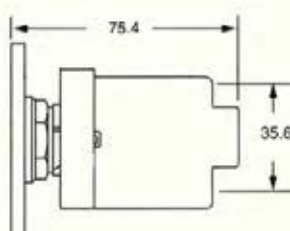


2-Across

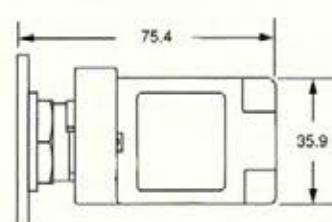
Contact block "low voltage" including coupling plate



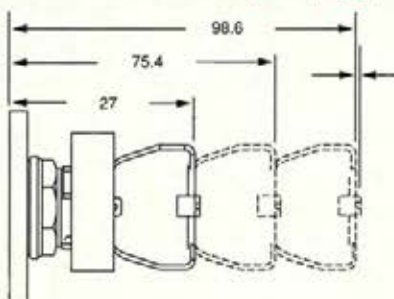
Lamp element including coupling plate



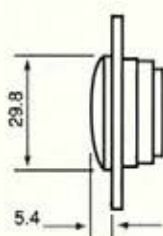
Transformer element including coupling plate



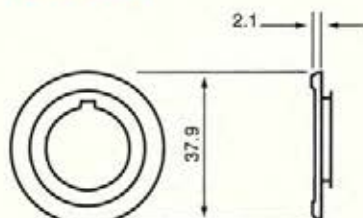
Contact block including coupling plate (max. 3 contact levels)



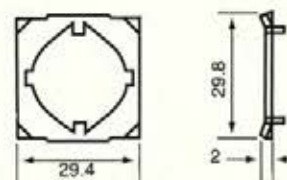
Blanking plug
(Type D5-N8-series B)



Adaptor ring
(eg. D5-AHA1)



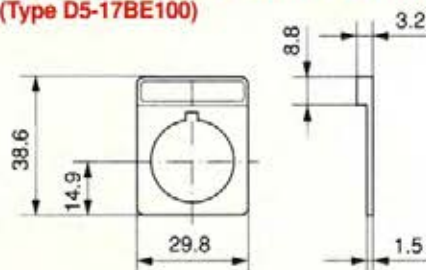
Anti rotation washer
(Type D5-ALC1)



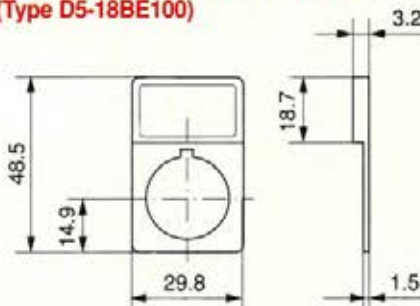
Dimensions (mm)

Back of panel components for front (panel) mounting (3-across)

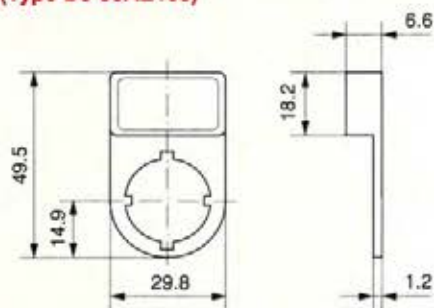
Legend plate carrier D5 110 30 x 40 mm IP 66
(Type D5-17BE100)



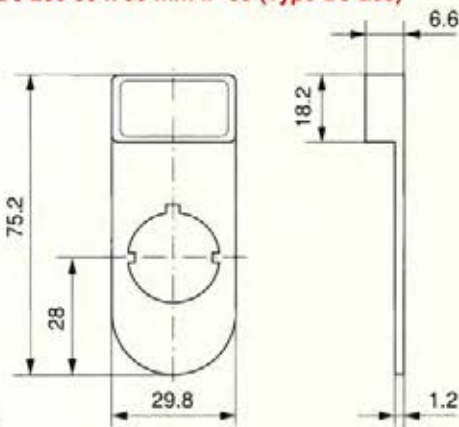
Legend plate carrier D5 12030 x 50 mm IP 66
(Type D5-18BE100)



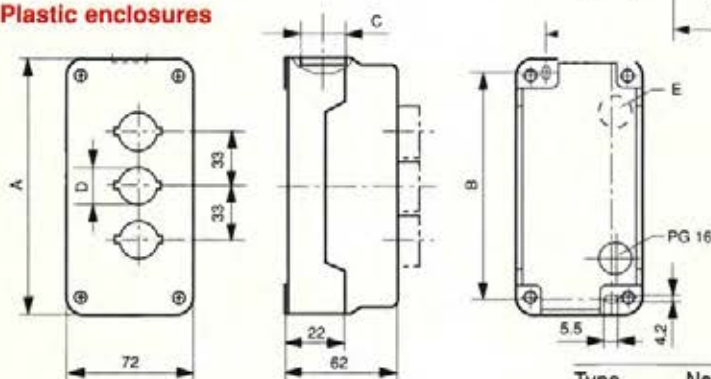
Legend plate carrier D5 15030 x 50 mm IP 65
(Type D5-30AE100)



Legend plate carrier for multi-function operator
D5 200 30 x 50 mm IP 65 (Type D5-200)

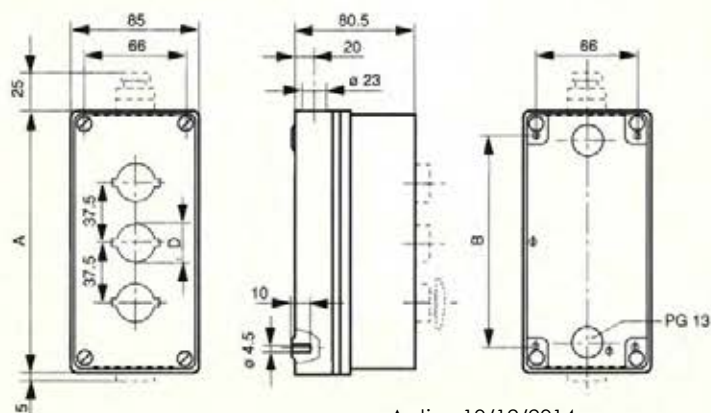


Plastic enclosures



Type	No. of holes	A	B	C	D	E
D5-1P(Y)	1	72	59	PG11+PG16	22.5	-
D5-2P	2	105	92	PG11+PG16	22.5	-
D5-3P	3	138	125	PG11+PG16	22.5	PG16
D5-5P	5	215	184	PG16+PG21	22.5	PG16

Aluminium enclosures



Type	No. of holes	A	B	D
D5-1M(Y)	1	99	62	22.5
D5-1M	2	137	100	22.5
D5-1M	3	174	137	22.5
D5-1M	5	249	212	22.5

Ordering

Please photocopy this page and supply with your order

Complete enclosures for surface mounting

Enclosures for surface mounting
plastic or aluminium

Order form

Ordering information for special enclosures for surface mounting

Customer:

Originator:

Date:

Positions

E
D
C
B
A



Design	Qty.	No. of flush holes	flush mount.	surface mount.	horizont.	vertical	top	bottom
--------	------	--------------------	--------------	----------------	-----------	----------	-----	--------

Enclosure for surface mounting

Plastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Aluminium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Cable gland

Plastic							<input type="checkbox"/>	<input type="checkbox"/>
Metal							<input type="checkbox"/>	<input type="checkbox"/>

Blanking plug

plastic							<input type="checkbox"/>	<input type="checkbox"/>
---------	--	--	--	--	--	--	--------------------------	--------------------------

Position of holes Cat. No.

E	
D	
C	
B	
A	

Ordering example

Plastic enclosure for surf. mounting with 5 controls

Pos. E: Pilot light
D5P-P5
see page 31

Pos. D: Pushbutton
D5S-F306 W
see page 22

Pos. C: Pushbutton
D5S-E405 W
see page 22

Pos. B:
Key operated selector switch
D5P-KN2R1
see page 49

Pos A: Blanking plug
D5-N8 Series B
see page 54

Back of panel components
for surface mounting see
page 73

Order legend plates
separately,
see page 82

Design	Qty.	No. of flush holes	flush mount.	surface mount.	horizont.	vertical	top	bottom
--------	------	--------------------	--------------	----------------	-----------	----------	-----	--------

Enclosure for surface mounting

Plastic	1	5	X			X		
Aluminium								

Cable gland

Plastic							X	
Metal								

Blanking plug

plastic								
---------	--	--	--	--	--	--	--	--

Position of holes Cat. No.

E	D5P-P5
D	D5S-F306W
C	D5S-E405W
B	D5P-KN2R1
A	D5-N8 Series B

The Superior Combination

KT 7 •• Automatic Type "2" •• CA 7

- *Minimum 50 kA up to 45 A*
- *Rotary handle*
- *No contactor over-sizing*
- *Thermal & short circuit protection*
- *Short circuit indication*
- *Padlockable handles available*
- *Front or side accessories*



- *Common 4 - 45 kW accessories*
- *Complete range of wiring accessories*
- *Compact size*
- *AC or DC coils*
- *Side or top mounted auxiliary contacts*
- *Coil mounted interface & timers available*

Using standard components, compact motor starters are constructed in minutes into a single module. "Isolation, short circuit protection, overload protection and motor switching in a single package"



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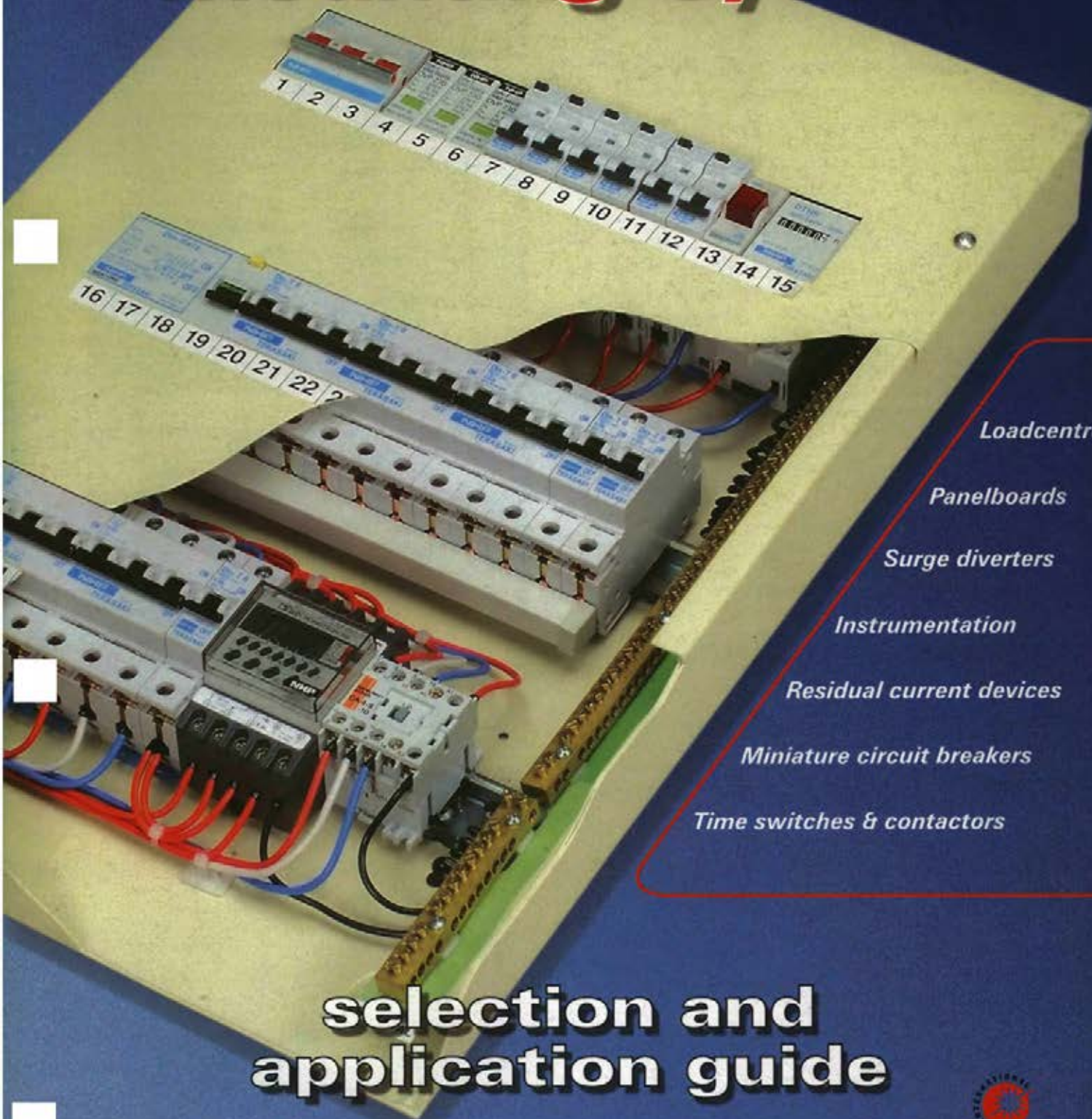
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NHP
TERASAKI Din-T

Catalogue
DIN-SG
November 1998

The DIN rail Mounting System



Loadcentres

Panelboards

Surge diverters

Instrumentation

Residual current devices

Miniature circuit breakers

Time switches & contactors

selection and application guide

NHP ELECTRICAL ENGINEERING PRODUCTS PTY LTD



NHP TERASAKI DIN rail Mounting System

Company overview

NHP was formed in 1968 for the purpose of manufacturing, importing and merchandising a wide range of specialised electrical switchgear, motor control gear and other technical electrical products for Australian industry.

NHP is a wholly Australian owned company and exclusively represents a considerable number of overseas companies. These companies manufacture complementary equipment to the NHP programme, which includes locally manufactured products in Melbourne.

The head office and Melbourne sales organisation is situated at Richmond, with branch offices in Sydney, Brisbane, Adelaide, Perth, Newcastle, Townsville, Rockhampton, Toowoomba, Cairns and Darwin.

The company is also represented by agents in Hobart, Launceston and Burnie. NHP products are stocked and distributed through more than 500 centres Australia wide.

Due to this extensive national sales and service network, the company is able to continue a policy of supplying an extensive range of technical electrical equipment, supported by substantial stocks and competent service on a national basis.

All branch offices and agents are connected to the on-line computer network centred in Melbourne. Experienced engineers are also available to assist customers, throughout Australia and to advise on all technical aspects and application requirements of equipment.

NHP is a supplier to the full spectrum of industry which uses industrial type electrical equipment including, mining and general industries, electrical contractors and government departments.

It is the continuing policy of the company to improve both the range and quality of products and services available for the Australian market. Experienced engineering and management personnel continually visit world centres to ensure that the organisation keeps pace with technological advances, research and development and modern marketing techniques.

DIN-T miniature circuit breakers

In 1987 NHP introduced this excellent range of NHP-Terasaki DIN-T MCBs for the Australian market. These breakers have been eminently successful in the field of industrial circuit protection and offer very high performance, outstanding reliability resulting from high standards of manufacture.

In a market where there are a number of low performance products, they have established their own substantial market and are the leading DIN-type circuit breakers in the industrial market.

The products are supported by a very wide range of options, accessories and specialised types.

These products are another example of the broad range of quality products offered by the company.



Melbourne Premises



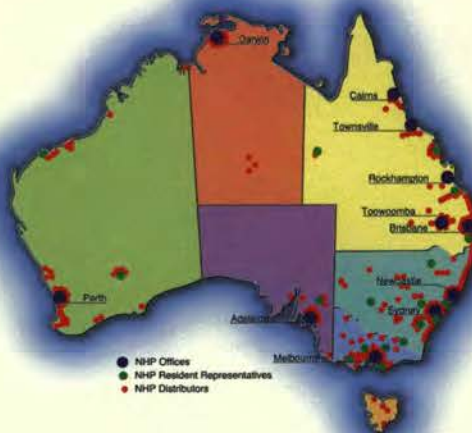
Sydney Premises



Brisbane Premises

NHP

Proudly Australian



NHP TERA SAKI DIN rail Mounting System

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NHP TERASAKI DIN rail Mounting System

Din-T MCB general features

Advantages of the Din-T series miniature circuit breakers

- Complies to IEC 898 and IEC 947.
- Approval number N13374, N13753 and N11649.
- Short-circuit breaking capacity of 6, 10 and 15kA at 415V AC.
- Rated current range from 0.5A up to 125A.
- Silver graphite (AgC) contacts.
- Input connection by lifting terminal with capacity of up to 35mm² giving fast and practical connection.
- Output terminals offer finger and hand protection with a capacity of up to 25mm².
- A new design of snap fixing with two stop locations, for normal DIN rail mounting.



Brief description

The Din-T range are inverse time delayed thermal and instantaneous magnetic trip, current limiting type miniature circuit breakers suitable for mounting in NHP distribution boards, loadcentres and insulated consumer units.

Operation

The Din-T series of miniature circuit breakers offer protection from thermal overload and short circuit.

Tripping characteristic

'C' curve (5-10 In) are available for control and protection of general purpose loads such as lighting, socket outlets and small motors etc.

'D' curve (10-20 In) are available for control and protection of loads with increased transient inrush currents, such as motor starting applications and transformers.

Trip free mechanism

The Din-T series of miniature circuit breakers have a quick-make and quick-break type mechanism which can be locked or sealed in the "on" or "off" position. By design the trip free mechanism ensures the contacts of the MCB open in case of an overload or short circuit fault whilst the toggle is locked or sealed in the 'ON' position.

Mounting

Din-T miniature circuit breakers conveniently snap-on to standard 35mm DIN rail or can be installed on NHP's range of 'ND' and DIN-SAVER chassis busbars.

Thermal protection

Thermal protection is provided by a bi-metallic element. In the case of an overload fault, distortion of the bi-metallic element, proportional to the current, activates the tripping mechanism opening the MCB contacts.

Short circuit protection

The Din-T series are current limiting type miniature circuit breakers. In the case of a short circuit condition an electromagnet propels a plunger against the contacts, the contacts commence to open, an arc is formed across the contacts. The arc is directed into the arc chamber where the arc is split, cooled and eventually extinguished. The fault current is interrupted in a very short time, approximately 2 milliseconds resulting in very low let through energy.

Arc blow-out system

Din-T miniature circuit breakers incorporate an arc blow out system which forces the arc away from the moving contact towards the arc chamber via the arc runner. Thus the fault current bypasses the bi-metallic element protecting it from exposure to the full fault current. This ensures thermal calibration of the MCB is not effected when returned to service after a fault condition.

NHP TERASAKI DIN rail Mounting System

Din-T MCB general features

Din-T Series 6, 10, 10H and 15

NHP offers an unparalleled choice of DIN rail mounted miniature circuit breakers (MCBs). This comprehensive selection is based on the Din-T6, 10, 10H and 15 series and the accessories which convert these ranges into a flexible system for protection, control, switching and monitoring. These are high performance devices using the latest developments in circuit protection to be able to reliably offer power distribution solutions for the most demanding

conditions involving high short circuit currents and selectivity with feeder or back-up protection.

The Din-T MCBs have been designed and certified to meet many international standards and specifications including IEC, CEE, NBN, VDE, BD, AS in particular, IEC 898 and IEC 947. A truly international range of high performance devices from a group with an international reputation for high quality and technical innovation.



NHP TERA SAKI DIN rail Mounting System

Din-T MCB general features

Some of the advantages



Input terminal

The input box terminal which is designed as a "lift terminal" is suitable for fork type busbar as well as cable or pin type busbar. It is delivered already opened so that loosening of the terminal screws is not necessary. For the connection of single or multiple-wire conductors, the terminal box is moved



down by applying pressure to the screw head and accommodates conductors up to a maximum of $1 \times 35\text{mm}^2$ or $2 \times 16\text{mm}^2$. (In the same way a combined connection of busbar and feeder line is possible without additional terminals).



Output terminal

The output terminal is designed as a box terminal with captive terminal screw and is finger and hand safe. The terminal is already open during delivery allowing multiple-wire conductors with cross sections of up to $1 \times 25\text{mm}^2$ or $2 \times 10\text{mm}^2$.



Protection cap

Simple snap-on cap for the "lift terminal" can be fixed on to the MCB in order to obtain the IP 20 protection against finger contact. For the Australian market these are supplied as standard (Din-T10 and 15 only).



Padlock bracket

Allows padlocking in the "on" or "off" position. Trip free mechanism guarantees interruption of supply in a fault condition even when locked in the "on" position.



Sealing

In both switching positions the handles can be protected against manual switching by means of sealing. Interruption in case of faults is guaranteed by means of a trip free mechanism.



Snap-on fixing

The newly developed snap-on fixing has an additional stop location which permits slight movement and alignment of the MCB during assembly on the rail. For fixing of the MCB on the DIN rail the device is easily disengaged by simply pressing the spring clip.

NHP TERASAKI DIN rail Mounting System

New products update



Din-Saver distribution centre – smaller, lighter, stronger, faster

40% smaller and 60% lighter than a standard panelboard, stronger one piece base construction and faster to wire. Din-Saver distribution centres are a flexible, easy to install, cost effective and good quality alternative. Din-Saver is designed specifically for distribution of general light and power and is suitable in residential, commercial and light industrial installations.

Din-Saver is available in two styles, vertical and horizontal. Vertical style is available complete with unique 160Amp type tested chassis and main switch in 24, 40 and 48 pole models and the horizontal style is supplied with conventional horizontal standard DIN rail mounting in 45 and 60 pole models. All five models are supplied ready to fit NHP Din-T MCBs and wire.

For further information refer page 35.

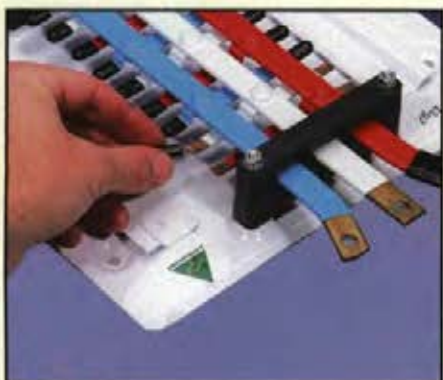


Din-Safe single pole width MCB/RCD (DRCB)

The Din-Safe single pole width MCB/RCD compliments the highly successful Din-T range of MCBs. The revolutionary design of the NHP DRCB combines the traditional functions, thermal overload and short circuit protection, of a miniature circuit breaker together with earth leakage protection in a single (18mm wide) module. The unique feature of a single pole width provides significant space saving opportunities when designing and selecting distribution boards and enclosures for new installations and also means the DRCB is ideally suited for retrofitting into existing NHP Din-T MCB enclosures where earth leakage protection of individual circuits was not previously considered.

The DRCB is available in 10, 16, 20 and 32 amps, 30mA sensitivity and 6kA interrupting capacity making it suitable for single phase applications in residual, commercial and light industrial installations.

For further information refer page 14.



ND chassis

The NHP ND chassis range has been improved to provide a sound platform on which to apply the growing range of NHP Din-T MCBs and RCDs. The new features include:-

- Precision built steel pan – powder coated white to aid visibility during fitout.
- All MCB tee-offs are stripped ready for MCB attachment.
- One set of power feeds stripped.
- Chassis provided with easy to remove insulating caps on all stripped tee-offs and power feeds to prevent inadvertent contact with live parts.

For further information refer page 37.

NHP TERA SAKI DIN rail Mounting System

New products update



"D" curve MCBs

"D" curve MCBs are now available to compliment NHP's range of Din-T "C" curve MCBs including Din-T 6, 10 and 10H. The "D" curve MCBs will fit NHP's range of ND 250A and ND 300A chassis and are compatible with the full range of accessories ie., RCDs, shunt trips and auxiliary contacts etc., as used with the existing range of "C" curve MCBs.

"D" curve MCBs have a 10-20 x I_n instantaneous magnetic trip characteristic to allow for higher transient inrush currents associated with motor and transformer applications.

For further information refer pages 9, 10 and 11.



Din-T surge diverters

Din-T surge diverters are becoming an essential part of every electrical installation. The protection they offer against voltage spikes and surges is essential to modern day electronic and electrical equipment. Voltage spikes can be caused by various conditions in the electrical network.

For further information refer page 23.



Din-Safe-R4DEL earth leakage relays

Introducing NHP's next generation of Din-Safe-R DIN rail mounted earth leakage relays, known as the Delta (DEL) range. The Din-Safe-R4DEL range of earth leakage relays has selectable tripping sensitivity and tripping time delay and when combined with a ring current transformer are suitable for providing earth fault protection of entire portions of an electrical distribution network or discrete electrical equipment.

For further information refer pages 18 and 19.



Din-Safe-M clip on residual current device

NHP now offers a harmonised range of 32amp Din-Safe-M clip on RCDs to suit the entire range of Din-T MCBs ie, Din-T6, 10 and 15.

These new units also provide a remote trip facility via the voltage free contacts C1 & C2.

For further information refer pages 16 and 17.

NHP TERA SAKI DIN rail Mounting System




Din-T6 series – 6kA MCBs

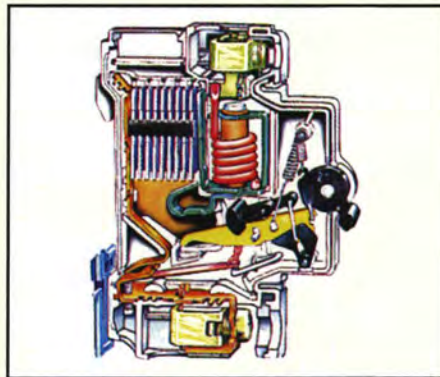
- Standard IEC 898.
- Approval No. N13374.
- Short circuit interrupting capacity 6kA.
- Current ratings 2 - 63 amps.
- Rated voltage 240/415 volts AC.
- Available in 1, 2 and 3 pole.
- "C" curve (5-10 In).
- "D" curve (10-20 In).
- DIN rail mounting.
- Suits ND and Din-Saver chassis.
- General purpose light and power distribution.








"C" curve (5-10 In) "D" curve (10-20 In)

Single pole 6kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
2	DIN-T6102C	 DIN-T6102D
4	DIN-T6104C	 DIN-T6104D
6	DIN-T6106C	 DIN-T6106D
10	DIN-T6110C	DIN-T6110D
16	DIN-T6116C	DIN-T6116D
20	DIN-T6120C	DIN-T6120D
25	DIN-T6125C	DIN-T6125D
32	DIN-T6132C	DIN-T6132D
40	DIN-T6140C	DIN-T6140D
50	DIN-T6150C	DIN-T6150D
63	DIN-T6163C	DIN-T6163D




Double pole 6kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
2	DIN-T6202C	 DIN-T6202D
4	DIN-T6204C	 DIN-T6204D
6	DIN-T6206C	 DIN-T6206D
10	DIN-T6210C	 DIN-T6210D
16	DIN-T6216C	 DIN-T6216D
20	DIN-T6220C	DIN-T6220D
25	DIN-T6225C	DIN-T6225D
32	DIN-T6232C	DIN-T6232D
40	DIN-T6240C	DIN-T6240D
50	DIN-T6250C	DIN-T6250D
63	DIN-T6263C	DIN-T6263D

Triple pole 6kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
2	DIN-T6302C	DIN-T6302D
4	DIN-T6304C	DIN-T6304D
6	DIN-T6306C	DIN-T6306D
10	DIN-T6310C	DIN-T6310D
16	DIN-T6316C	DIN-T6316D
20	DIN-T6320C	DIN-T6320D
25	DIN-T6325C	DIN-T6325D
32	DIN-T6332C	DIN-T6332D
40	DIN-T6340C	DIN-T6340D
50	DIN-T6350C	DIN-T6350D
63	DIN-T6363C	DIN-T6363D

Notes: Please note that by design the LINE side of Din-T6, 10, 10H and 15 MCBs is on the "off" (bottom) side of the unit.
Din-T6 series MCB is suitable for mounting side attached accessories AUX & ALM contacts, shunt and undervoltage trips and Din-Safe-M RCDs.
Refer page 38 for dimensions.
 Available on indent only.

NHP TERA SAKI DIN rail Mounting System

Din-T10 series – 10kA MCBs

- Standard IEC 898.
- Approval No. N13753.
- Short circuit interrupting capacity 10kA.
- Current ratings 0.5 - 63 amps.
- Rated voltage 240/415 volts AC.
- Available in 1, 2, 3 and 4 pole.
- "C" curve (5-10 In).
- "D" curve (10-20 In).
- DIN rail mounting.
- Suits ND and Din-Saver chassis.
- General purpose light and power distribution.



"C" curve (5-10 In) "D" curve (10-20 In)

Single pole 10kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
0.5	DIN-T10105C	<input type="checkbox"/> DIN-T10105D
1	DIN-T10101C	<input type="checkbox"/> DIN-T10101D
2	DIN-T10102C	<input type="checkbox"/> DIN-T10102D
3	<input type="checkbox"/> DIN-T10103C	<input type="checkbox"/> DIN-T10103D
4	DIN-T10104C	<input type="checkbox"/> DIN-T10104D
6	DIN-T10106C	<input type="checkbox"/> DIN-T10106D
10	DIN-T10110C	DIN-T10110D
16	DIN-T10116C	DIN-T10116D
20	DIN-T10120C	DIN-T10120D
25	DIN-T10125C	DIN-T10125D
32	DIN-T10132C	DIN-T10132D
40	DIN-T10140C	
50	DIN-T10150C	
63	DIN-T10163C	

Triple pole 10kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
0.5	DIN-T10305C	<input type="checkbox"/> DIN-T10305D
1	DIN-T10301C	<input type="checkbox"/> DIN-T10301D
2	DIN-T10302C	<input type="checkbox"/> DIN-T10302D
3	<input type="checkbox"/> DIN-T10303C	<input type="checkbox"/> DIN-T10303D
4	DIN-T10304C	<input type="checkbox"/> DIN-T10304D
6	DIN-T10306C	<input type="checkbox"/> DIN-T10306D
10	DIN-T10310C	DIN-T10310D
16	DIN-T10316C	DIN-T10316D
20	DIN-T10320C	DIN-T10320D
25	DIN-T10325C	DIN-T10325D
32	DIN-T10332C	DIN-T10332D
40	DIN-T10340C	
50	DIN-T10350C	
63	DIN-T10363C	

Double pole 10kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
0.5	DIN-T10205C	<input type="checkbox"/> DIN-T10205D
1	DIN-T10201C	<input type="checkbox"/> DIN-T10201D
2	DIN-T10202C	<input type="checkbox"/> DIN-T10202D
3	<input type="checkbox"/> DIN-T10203C	<input type="checkbox"/> DIN-T10203D
4	DIN-T10204C	<input type="checkbox"/> DIN-T10204D
6	DIN-T10206C	<input type="checkbox"/> DIN-T10206D
10	DIN-T10210C	DIN-T10210D
16	DIN-T10216C	DIN-T10216D
20	DIN-T10220C	DIN-T10220D
25	DIN-T10225C	DIN-T10225D
32	DIN-T10232C	DIN-T10232D
40	DIN-T10240C	
50	DIN-T10250C	
63	DIN-T10263C	

Four pole 10kA

Amps	Cat. No. "C" Curve	Cat. No. "D" Curve
6	DIN-T10406C	DIN-T10406D
10	DIN-T10410C	DIN-T10410D
16	DIN-T10416C	DIN-T10416D
20	DIN-T10420C	DIN-T10420D
25	DIN-T10425C	DIN-T10425D
32	DIN-T10432C	DIN-T10432D
40	DIN-T10440C	
50	DIN-T10450C	
63	DIN-T10463C	

Notes: Please note that by design the LINE side of Din-T6, 10, 10H and 15 MCBs is on the "off" (bottom) side of the unit.
Din-T10 series MCB is suitable for mounting side attached accessories AUX & ALM contacts, shunt and undervoltage trips and Din-Safe-M RCDs.
☐ Available on indent only.
IP 20 finger protection cover standard on input terminal.
Refer page 38 for dimensions.

NHP TERA SAKI DIN rail Mounting System

Din-T10H series – 10kA MCBs (80A - 125A)

- Standard IEC947-2.
- Short circuit interrupting capacity 10kA.
Current range 80-125 amps 1, 2, 3 and 4 pole.
- DIN rail mounting.
- Suits ND300AH chassis.
- Suitable for industrial applications.
- 1.5 modules wide (27mm) per pole.



“C” curve (5-10 In) “D” curve (10-20 In)

Single pole 10kA

Amps	Cat. No. “C” Curve	Cat. No. “D” Curve
80	DIN-T10H180C	DIN-T10H180D
100	DIN-T10H1100C	DIN-T10H1100D
125	DIN-T10H1125C	DIN-T10H1125D

Triple pole 10kA

Amps	Cat. No. “C” Curve	Cat. No. “D” Curve
80	DIN-T10H380C	DIN-T10H380D
100	DIN-T10H3100C	DIN-T10H3100D
125	DIN-T10H3125C	DIN-T10H3125D

Double pole 10kA

Amps	Cat. No. “C” Curve	Cat. No. “D” Curve
80	DIN-T10H280C	DIN-T10H280D
100	DIN-T10H2100C	DIN-T10H2100D
125	DIN-T10H2125C	DIN-T10H2125D

Four pole 10kA

Amps	Cat. No. “C” Curve	Cat. No. “D” Curve
80	DIN-T10H480C	DIN-T10H480D
100	DIN-T10H4100C	DIN-T10H4100D
125	DIN-T10H4125C	DIN-T10H4125D

Din-T15 series – 15kA (6A - 63A)

- Standards IEC 947-2.
- Current ratings 6 - 63 amps 1, 2, 3 and 4 pole.
- Rated voltage 240/415 volts AC.
- “C” curve (5 - 10 In).
- DIN rail mount, suits ND chassis.
- Suitable for industrial applications.



Single pole

Amps	Icu	Cat. No.
6	25	DIN-T15106
10	25	DIN-T15110
16	25	DIN-T15116
20	20	DIN-T15120
25	15	DIN-T15125
32	15 ¹⁾	DIN-T15132
40	10 ¹⁾	DIN-T15140
50	10 ²⁾	DIN-T15150
63	10 ²⁾	DIN-T15163

Double pole

Icu	Cat. No.
25	DIN-T15206
25	DIN-T15210
25	DIN-T15216
25	DIN-T15220
25	DIN-T15225
25	DIN-T15232
12.5 ¹⁾	DIN-T15240
12.5 ²⁾	DIN-T15250
12.5 ²⁾	DIN-T15263

Triple pole

Icu	Cat. No.
25	DIN-T15306
25	DIN-T15310
25	DIN-T15316
25	DIN-T15320
25	DIN-T15325
25	DIN-T15332
12.5 ¹⁾	DIN-T15340
12.5 ²⁾	DIN-T15350
12.5 ²⁾	DIN-T15363

Four pole

Icu	Cat. No.
25	DIN-T15406
25	DIN-T15410
25	DIN-T15416
25	DIN-T15420
25	DIN-T15425
25	DIN-T15432
12.5 ¹⁾	DIN-T15440
12.5 ²⁾	DIN-T15450
12.5 ²⁾	DIN-T15463

Notes: Please note that by design the LINE side of Din-T6, 10, 10H and 15 MCBs is on the “off” (bottom) side of the unit.

¹⁾ Icu = 22kA when each pole connected with cable: 1.25m of 10mm² or 1.9m of 16mm².

²⁾ Icu = 22kA when each pole connected with cable: 4.0m of 10mm² or 6.2m of 16mm².

Available on indent only.
Refer page 38 for dimensions.

NHP TERASAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe protection in action

How Din-Safe provides the protection solution

Both the speed with which the RCD responds, and its tripping sensitivity to a dangerous level of residual current, are critical specifications. This is because the severity of an electric shock is directly related to (a) the duration of the contact with a live appliance, (b) the magnitude of the current and (c) the current's path through the body. The closer this path is to the heart, the worse the result.

Din-Safe RCDs operate on the electromagnetic principle of a balanced circuit. Through a toroidal transformer, the RCD continually monitors the magnetic field of the active and neutral conductors as current passes through the protected circuit.

Under normal conditions, these magnetic fields are equal. But under abnormal conditions, such as when a fault causes current

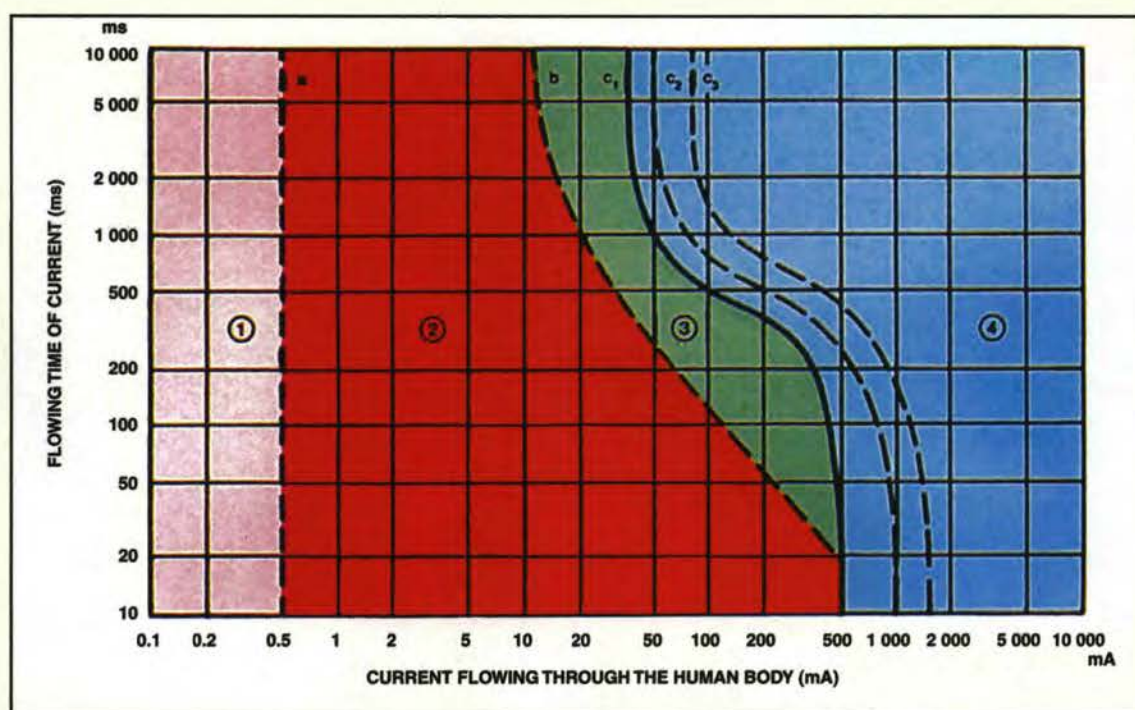
to flow from the active conductor to earth, the residual current will increase the magnetic field of the active conductor.

The Din-Safe RCD detects the imbalance current through the toroidal transformer and automatically cuts off the electricity supply to the protected circuit.

Fast operation

Din-Safe RCDs operate well within the safe operating time helping to prevent any dangerous consequences.

The table below shows the four zones of physiological effects on the human body when subjected to increasing residual current with increased duration of current flow. Clearly fast operation time as well as sensitivity of the RCD is significant in helping to prevent injury.



Time/current zone of alternating current effects on people (15 to 100Hz)

Zones of physiological effects

Zone ① Normally no effect or consequences.

Zone ② Normally no dangerous consequences.

Zone ③ Normally no organic damage. Possibility of muscle contraction, breathing difficulties and perturbation of heart beat including atrial fibrillation with temporary lack of cardiac pulsation without ventricular fibrillation. This increases with the magnitude of current and time of exposure.

Zone ④ In addition to Zone 3 effects, probable ventricular fibrillation increasing to 5% (C1) up to 50% (C2) and above (C3) increasing with magnitude of current and time of exposure which can stop breathing function and heart beat and cause severe burns.

Note: The above information is based on international testing and represents the typical effects to an average person; the actual effects may vary.

NHP TERA SAKI DIN rail Mounting System

Residual current devices (RCDs)

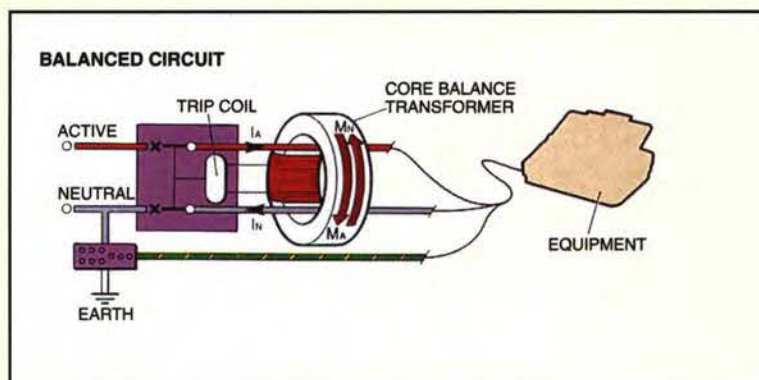
Din-Safe protection in action

Safe condition

- No residual current.
- Single phase.
- 240V connection.
- Magnetic field is balanced and is zero.
- No output from secondary winding to signal trip circuit.

$$I_A = I_N$$

$$M_A = M_N$$

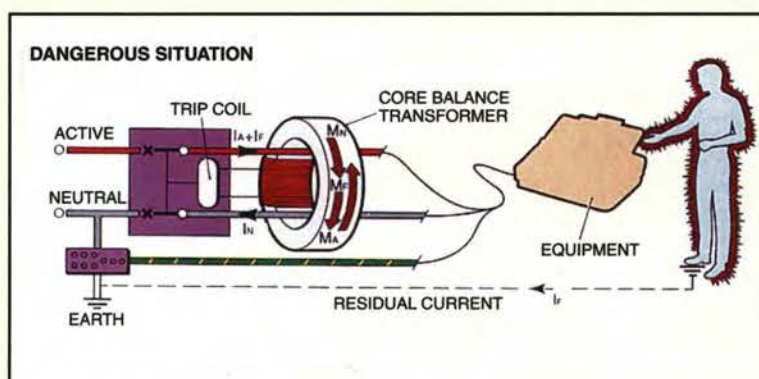


Unsafe condition

- Residual current is flowing.
- Resultant magnetic field produces current in secondary winding.
- Trip coil is energised.

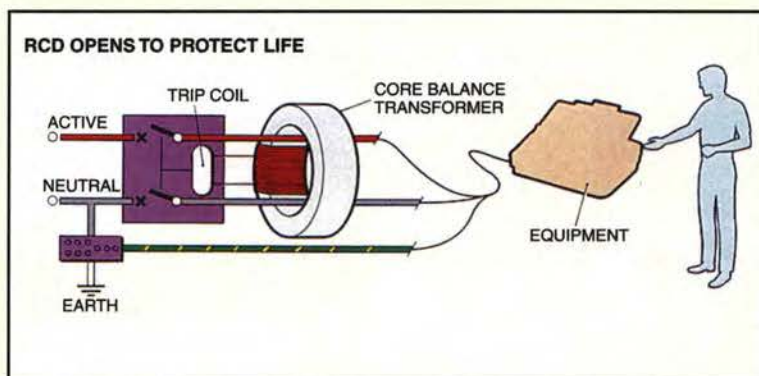
$$I_A + I_F > I_N$$

$$M_A + M_F > M_N$$



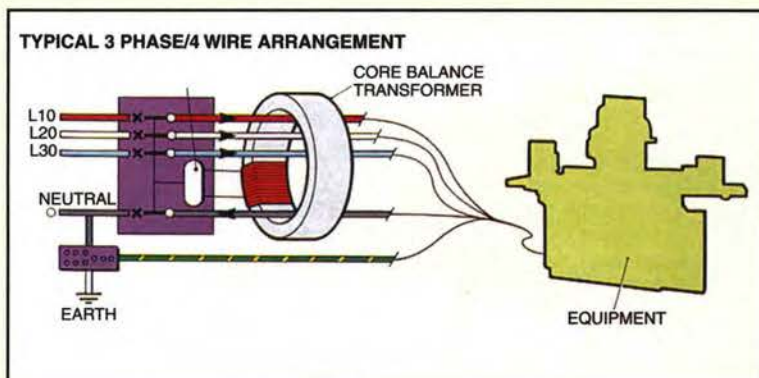
Trip circuit activated

- RCD switch opens



3 phase 415 volt connection

- Principal of operation is the same as single phase.



NHP TERA SAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe single pole width MCB/RCD (DRCB)

- Standards IEC1009, IEC898.
- Approval No. N14929.
- Voltage 240V 50Hz.
- Interrupting capacity 6kA.
- Sensitivity 30mA.
- Current rating 10, 16, 20 and 32 amps.
- Magnetic tripping characteristics 'C' curve (5-10 In)
- Over current, short circuit and earth leakage protection.



Application

The Din-Safe single pole width residual current circuit breaker (DRCB) will fit the standard ND chassis incorporated in the NHP range of NDB/NPP panelboards. The DRCBs revolutionary design makes it possible to provide a DIN format MCB complete with earth leakage protection in 18mm wide

module, thereby allowing a greater number of devices to be fitted into an enclosure. The DRCB is suitable for residential, commercial and light industrial applications and can be included in new installations or retrofitted into existing NHP Din-T panelboards.

Ampere rating	Module (18mm)	Voltage	Short circuit capacity	Trip Sensitivity	Cat. No.
10	1	240	6kA	30mA	DRCB1030
16	1	240	6kA	30mA	DRCB1630
20	1	240	6kA	30mA	DRCB2030
32	1	240	6kA	30mA	DRCB3230

Loss of supply neutral

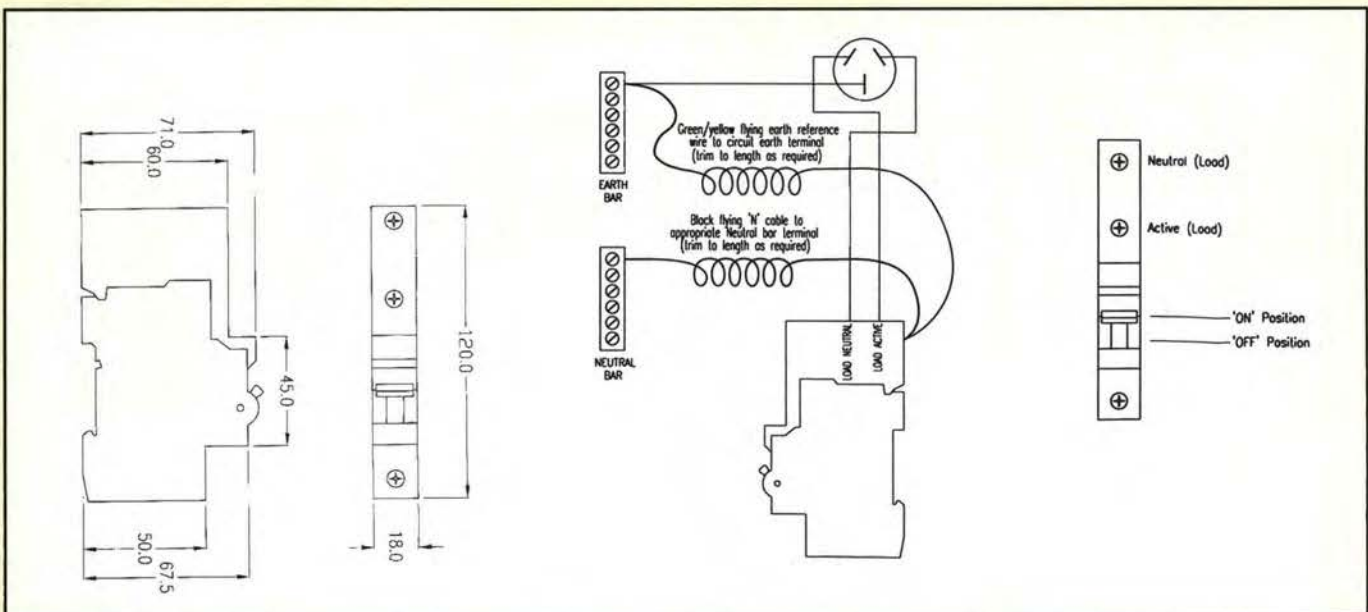
Under loss of supply neutral conditions the DRCB will continue to provide earth leakage protection. Connection of the green/yellow flying earth reference wire to the circuit earth

terminal, ensures that upon detection of an earth leakage fault with loss of supply neutral, the DRCB will continue to operate within its normal characteristics.

Dimensions (mm)

Connection diagram

Toggle indication



NHP TERASAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe MCBs

- Standards, IEC 898, AS 3190.
- Approval No. 11649.
- Mines Department approved – MDA 11360.
- Voltage rating 240V 50Hz.
- Current rating 10, 16, 20, 25, 32 & 40 amps.
- Sensitivity 30mA and 10mA (20 amp only).
- Interrupting capacity 10kA.
- Magnetic tripping characteristics 'C' curve (5-10 In).



Din-Safe MCB is a residual current circuit breaker offering thermal overload, short circuit and earth leakage protection in one integral unit. Din-Safe MCBs are suitable for DIN rail mounting or mounting on the NHP ND chassis (special type).

Din-Safe MCBs are suitable for use in residential, commercial and light industrial applications for the protection of personnel and equipment.

Poles	Amp rating	Trip voltage	Phase	Trip sensitivity ¹⁾	Cat. No.
2	10	240	1 + N	30mA	DSMCB1030
2	16	240	1 + N	30mA	DSMCB1630
2	20	240	1 + N	10mA	DSMCB2010
2	20	240	1 + N	30mA	DSMCB2030
2	25	240	1 + N	30mA	DSMCB2530
2	32	240	1 + N	30mA	DSMCB3230
2	40	240	1 + N	30mA	DSMCB4030

Din-Safe safety switches

- Standard AS 3190.
- Approval No. 11649.
- Mines department approval No. MDA11360.
- Current ratings 40, 63 and 80 amps; 2 and 4 pole.
- Voltage rating 240/415V AC.
- Use as main switch.
- DIN rail mount.



Safety switches are residual current devices that provide protection against earth faults. Over current devices such as fuses and miniature circuit breakers do not protect human beings from electrocution, they only protect equipment against faults of higher magnitude. Because residual current (or earth

leakage) flows at such a low level an over current device may take minutes to operate or it may not operate at all. By using a safety switch, dangerous earth leakage currents are prevented from flowing, hence increased protection against electrocution, equipment damage and fire.

Poles	Amp rating	Trip voltage	Phase	Trip sensitivity ¹⁾	Cat. No.
2	40	240	1P + N	30mA	DIN-SAFE 2-40-30
2	40	240	1P + N	100mA	¹⁾ DIN-SAFE 2-40-100
2	63	240	1P + N	30mA	DIN-SAFE 2-63-30
2	63	240	1P + N	100mA	DIN-SAFE 2-63-100
2	80	240	1P + N	30mA	DIN-SAFE 2-80-30
2	80	240	1P + N	100mA	DIN-SAFE 2-80-100
4	40	415	3P + N	30mA	DIN-SAFE 4-40-30
4	63	415	3P + N	30mA	DIN-SAFE 4-63-30
4	63	415	3P + N	100mA	¹⁾ DIN-SAFE 4-63-100
4	80	415	3P + N	100mA	DIN-SAFE 4-80-100

Notes: ¹⁾ MDA approval for 30mA unit only.

¹⁾ Available on indent only.

NHP TERASAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe-M modules with MCB combination units

- Standard AS 3190.
- Approval No. N11974.
- Mines Department approval - MDA 11158.
- Sensitivity 30, 100 and 300mA.
- Test button clearly marked.
- Remote tripping.
- Visual trip indication.
- DIN rail mount when clipped to Din-T MCB.
- Suitable for mounting on ND & DIN-SAVER busbar chassis.



Application

The NHP range of Din-Safe-M modules are designed to simply clip onto the left hand side of a Din-T MCB. The resulting combination provides protection against overload, short circuit and earth leakage faults. The Din-Safe-M range is suitable for use in commercial and industrial applications.


The combined Din-T MCB and Din-Safe-M unit has two operating toggles which indicate the cause of tripping:

In the case of overload or short circuit (not to earth) the MCB toggle trips, the Din-Safe toggle remains in the on position.

In the case of an earth leakage fault both toggles will move to the tripped or "OFF" position.

Pressing the test button simulates an earth leakage fault ensuring correct operation of MCB and RCD components. Periodic operation of the test button is recommended.

Din-Safe-M modules to suit Din-T10 and 15

Sensitivity ¹⁾	Amps ²⁾	Phase	Width Modules ³⁾	Cat. No.
30mA	63	1P + N	2	DIN-SAFE-M16330 1P+N
	63	3P + N	3	DIN-SAFE-M36330 3P+N
	63	3P	3	DIN-SAFE-M36330 3P
100mA	63	1P + N	2	DIN-SAFE-M163100 1P+N
	63	3P + N	3	DIN-SAFE-M363100 3P+N
	63	3P	3	 DIN-SAFE-M363100 3P
300mA	63	1P + N	2	DIN-SAFE-M163300 1P+N
	32	3P + N	2	DIN-SAFE-M332300 3P+N
	63	3P + N	3	DIN-SAFE-M363300 3P+N

Din-Safe-M modules to suit Din-T6, 10 and 15 MCBs (≤32 amps)

Sensitivity ¹⁾	Amps ²⁾	Phase	Width Modules ³⁾	Cat. No.
30mA	32	1P + N	2	DIN-SAFE-M13230 1P+N
	32	3P + N	2	DIN-SAFE-M33230 3P+N
100mA	32	1P + N	2	DIN-SAFE-M132100 1P+N
	32	3P + N	2	DIN-SAFE-M332100 3P+N

Installed dimensions

Type	Without MCB fitted Neutral not switched	MCB fitted Neutral not switched	MCB fitted Neutral switched ⁴⁾
1P + N 32/63A	2 modules (36mm)	3 modules (54mm)	4 modules (72mm)
3P + N 32A	2 modules (36mm)	5 modules (90mm)	6 modules (108mm)
3P + N 63A	3 modules (54mm)	6 modules (108mm)	7 modules (126mm)
3P 63A	3 modules (54mm)	6 modules (108mm)	N/A


Notes: ¹⁾ Mines department approval for 30mA only.

²⁾ Refers to maximum rating of MCB.

³⁾ "Modules" width does not include connected MCB.

⁴⁾ 1P + N and 3P + N types have a neutral "pigtail", unswitched neutral.

Switching of neutral can be achieved by attaching 2 or 4 pole MCB to Din-Safe-M and connecting pigtail to load terminal of MCB and supply neutral to the line side of the MCB.

 Available on indent only.

NHP TERA SAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe-M modules with MCB combination units



Remote tripping

The Din-Safe-M unit has the facility for remote tripping. By connecting a voltage free switch or pushbutton across terminals C1 and C2, the unit can be tripped remotely. An in-built contact prevents burn-out of the tripping coil by interrupting the coil current after tripping.

Assembly

All parts required to complete the combined MCB/RCD are supplied with the Din-Safe-M unit including connection clips, terminal caps and assembly instructions.

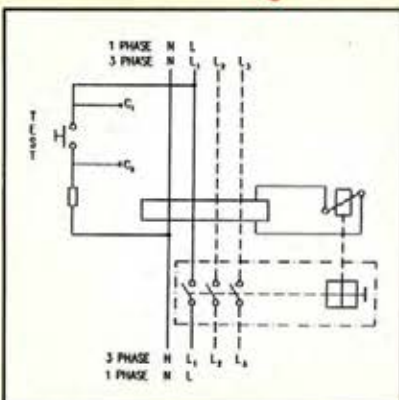
To assemble the Din-T MCB and Din-Safe-M follow these steps:

- Care should be taken to check the selection of the MCB and RCD components prior to assembly as the unit can not be separated without rendering the Din-Safe unit unserviceable.
- Place the MCB and RCD units on a flat surface ensuring that both toggles are in the "ON" position.
- Slide the two units towards each other inserting the busbars from the RCD into MCB tunnel terminals.
- When pushing the units together care should be taken to ensure the RCD tripping pin engages correctly into the side of the MCB (do not use undue force).
- With the two units correctly positioned push down connecting clips locking units together.
- Tighten the connections between MCB and RCD and fit insulating covers supplied.
- With power applied check unit operation with "TEST" button provided before connecting load.
- Din-Safe-M modules must be reset before MCB is tuned on. If main neutral and protected neutral connections are reversed, the unit will trip as soon as load is applied.

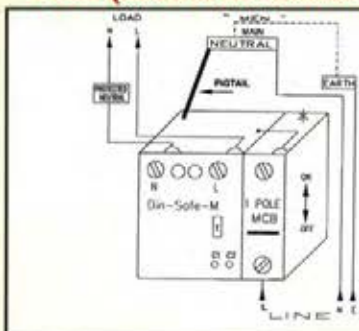


Fitting Din-T aux/alm switches or Din-T shunt trip to the right hand side of the combined unit is not affected and will function as normal.

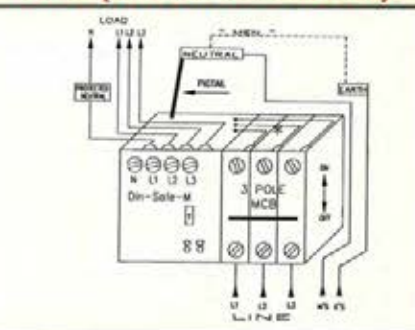
Connection diagram



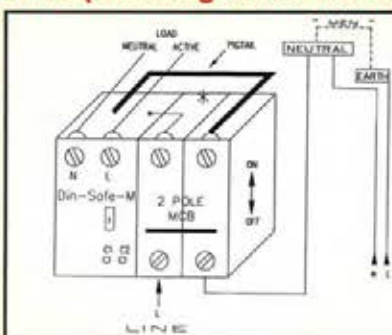
Din-Safe-M 1P+N with 1 pole MCB (neutral not switched)



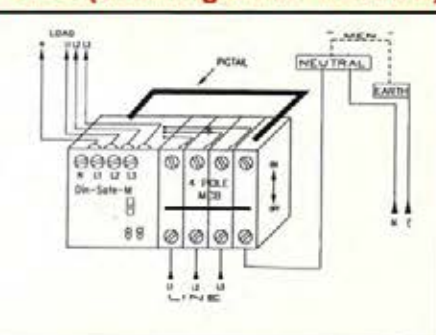
Din-Safe-M 3P+N with 3 pole MCB (neutral not switched)



Din-Safe-M 1P+N with 2 pole MCB (switching active + neutral)



Din-Safe-M 3P+N with 4 pole MCB (switching active + neutral)



NHP TERA SAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe-R core balance earth leakage relays

- Standard IEC 755.
- Adjustable $I\Delta n$ 0.03 - 9.43 amps.
- Adjustable trip time 0 - 9.25 seconds.
- Field selectable negative and positive security.
- Instantaneous LED display as % $I\Delta n$.



Applications

Din-Safe-R relays (DSR) combined with a ring current transformer (toroid) provide earth leakage protection of electrical distribution systems and discrete electrical equipment.

The adjustable trip current and trip time of the DSR provide the ideal solution where vertical selectivity (discrimination) of earth leakage devices is required for an entire installation.

Relay type	Features
Din-Safe-R4DEL 110/240V & 240/415V	Din rail mounting Adjustable time 6 steps addable: - 0, 0.25, 0.5, 1, 2.5 and 5 sec Adjustable $I\Delta n$ 6 steps addable: - 0.03, 0.1, 0.3, 1, 3 and 5 amp Local reset TRIP 1 C/O and 1 N/O contact
Din-Safe-R6DEL 110/240V & 240/415V	Din rail mounting Adjustable time 6 steps addable: - 0, 0.25, 0.5, 1, 2.5 and 5 sec Adjustable $I\Delta n$ 6 steps addable: - 0.03, 0.1, 0.3, 1, 3 and 5 amp Local reset TRIP 2 C/O contacts MAINS FAILURE 1 C/O contact 60% PRE-TRIP 1 C/O contact

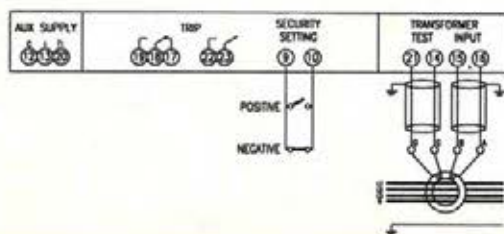
Technical data

Aux. voltage	110/240 and 240/415 Volt 50/60Hz
Contact rating	
Trip	5A-250V AC pf=1; 5A-30V DC
60% $I\Delta n$ ¹⁾	0.5A-220V AC pf=0.4; 1A-24V DC
Power fail ¹⁾	0.5A-220V AC pf=0.4; 1A-24V DC
Indication	
Supply healthy	green LED
Relay tripped	red LED
% $I\Delta n$	amber LEDs 15, 30, 45 & 60%
Test	Test relay function and toroid connections
IP rating	IP40 front frame; IP20 terminals
Operating temp.	-10°C to +55°C

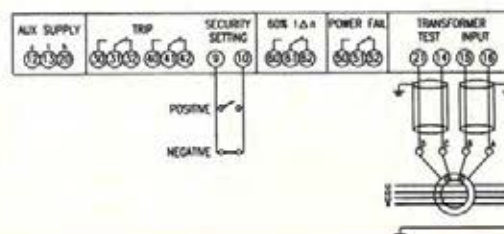
Notes: ¹⁾ DSR6DEL models only.

Panel mount models also available refer publication CPB.

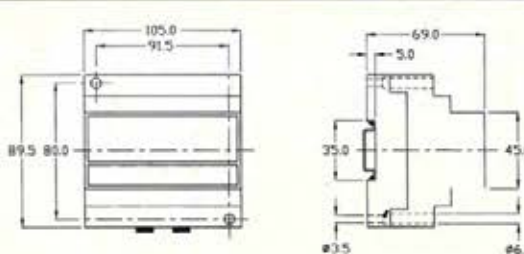
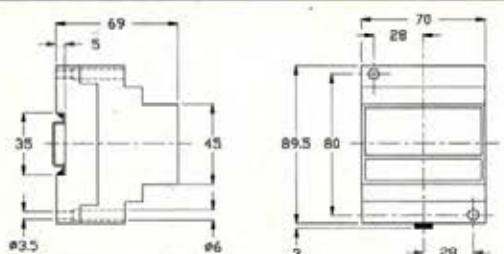
DSR4DEL Wiring diagram



DSR6DEL Wiring diagram



Dimensions (mm)



NHP TERA SAKI DIN rail Mounting System

Residual current devices (RCDs)

Din-Safe-R Delta ring current transformers

- Closed-core ring current-transformer for residual current devices.
- Wide range of conductor sizes and current ranges are available.

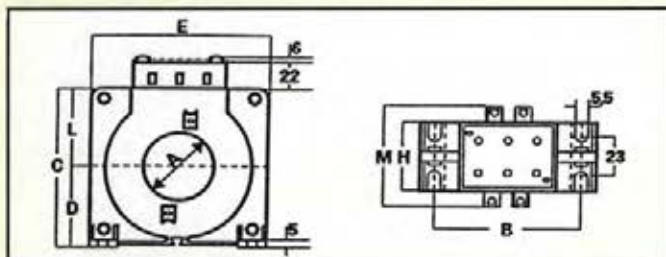


Applications

When connected with residual current relays (DELTA series) it allows detection of leakage currents towards earth caused by insulation breakdown on electrical equipment.

Ordering and dimension details

Dimensions (mm)								I Δ n Min.	I Max.	Weight	Cat. No.
A	B	C	D	E	H	L	M	(A)	(A)	(g)	
35	75	85	42	92	36	43	56	0.03	150	250	DSR35DEL
80	108	132	67	125	36	65	56	0.03	300	400	DSR80DEL
110	148	170	86	165	36	84	56	0.1	600	560	DSR110DEL
140	177	206	104	200	36	102	56	0.3	1200	750	DSR140DEL
210	270	295	150	290	44	145	64	0.3	1800	1280	DSR210DEL



Working principle

Supply conductors cross the toroid creating a magnetic field proportional to current flow.

The vector sum of the currents (and relevant magnetic fluxes) is zero, even when an imbalanced 3 phase load is experienced.

A leakage towards earth on one or more conductors after the toroid causes an imbalance in the vector sum, with a value proportional to the leakage current.

This imbalance is detected by the toroid and sent to the residual current relay.

Ring current transformer - relay connection

Preferably the connection should be made with shielded cable, this is very important when high-sensitivity residual current relays ($I\Delta n \leq 0.1A$) are used.

Attention must be paid to the distance between the ring transformer and residual current relay so as to be as short as possible and ensure maximum segregation from power conductors or other devices that may induce noise on the system. In case a shielded cable cannot be used, use twisted pair conductors to connect the current transformer to the residual current relay. The maximum distance allowed between relay and toroid is five (5) metres.

Choice of transformer

A suitable toroid shall be selected according to lowest value of residual current to be detected and the hole diameter through which shall pass all the active conductors and neutral (where applicable) of the system to be protected.

Specifications

Primary/secondary measuring ratio: 1/700

Primary circuit: supply conductors to be protected that pass through toroid hole.

Maximum voltage of primary circuit: 1000V

$I\Delta n$ minimum: ($I\Delta n$ lowest value that can be set on the earth leakage relay connected with the toroid) see table above.

I maximum: highest permanent working current: (values shown in above table are valid only for conductors passing exactly in the middle of the toroid).

I Δ th short circuit thermal current: 20kA/1 second

$I\Delta$ yn dynamic current: 40kA/0.05 second

Test winding/secondary measuring voltage ratio: 70/700

Insulation tests (IEC 185)

Insulation voltage rating: 0.72kV

AC test voltage: 3kV r.m.s. 50Hz/1 minute

Considered circuits: measuring winding and test windings

AC test voltage: 0.8kV r.m.s. 50Hz/1 minute

Considered circuits: measuring and test windings

Working conditions

Reference temperature: 20°C \pm 5°C

Nominal range temperature (IEC 755-1008, DIN-VDE 0664, CE123-18): -5...40°C

Limit temperature range: -10...55°C

Limit temperature range for storage: -40...70°C

Connections: screw terminals with protection terminal cover (sealable).

Housing material: self-extinguishing ABS

Mounting: screw type

NHP TERA SAKI DIN rail Mounting System

Electrical accessories

Shunt trip for Din-T MCBs

- Coupled to left or right side of Din-T MCB.
- Modular width – 18mm.
- Tunnel terminals identical to Din-T MCB.
- Field assembly.

Application

- Emergency stop.
- Isolation of socket outlets.

Operation

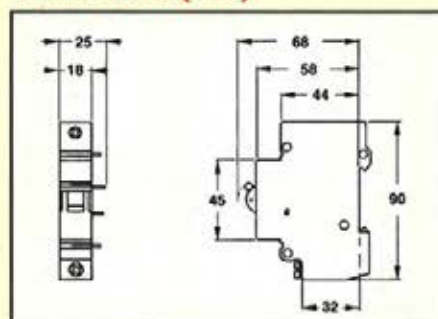
The Din-T shunt trip will fit either right or left side of Din-T6, 10 and 15 MCBs, on Din-T10H MCBs the shunt trip can only be fitted on the left side.

The Din-T shunt trip makes it possible to remotely trip the coupled MCB by energising the terminals of the shunt module.

An inbuilt contact in series with the coil prevents burn out if voltage remains - manual resetting of the MCB is required.



Dimensions (mm)



Rated voltage	Closing current	Operating time	Coil impedance	Cat. No.
110 to 415V AC	0.3A @ 110V	10ms	ca. 29 Ohm	DINTSHT110415U
110 to 125V DC	0.6A @ 240V	4ms		
	1A @ 415V	2ms		
24 to 60V AC	2A @ 48V	4ms	ca. 24 Ohm	DINTSHT2460U
24 to 48V DC	1A @ 24V	10ms		

Undervoltage trip for Din-T MCBs

- Suitable for Din-T6, 10 and 15 MCBs.
- Operating threshold 60% of nominal voltage.
- Time delay adjustable 0-300msec.
- Coupled to left or right side of Din-T MCB.
- Modular width – 18mm.
- Field assembly.

Operation

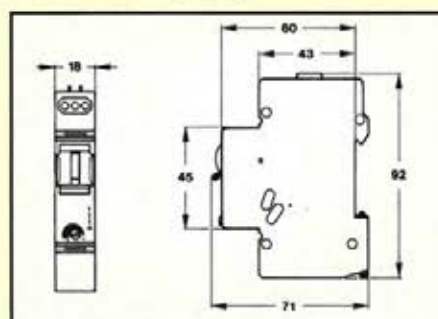
The Din-T undervoltage trip provides tripping of the MCB when the connected supply voltage drops below 60% of the operating voltage.

Nuisance tripping can be eliminated by the inbuilt time delay, adjustable up to 300 milliseconds.

Manual resetting of the MCB is required.



Dimensions (mm)



Voltage	MCB type	Cat. No.
240V 50Hz	Din-T10, 10H/15	DTUVT240
230V 50Hz	Din-T6	DTUVT6230

NHP TERASAKI DIN rail Mounting System

Electrical accessories

Auxiliary and alarm contacts for Din-T MCBs

- Auxiliary contacts are supplied as a kit for fitting to MCBs.
- Field assembly.
- Suitable for Din-T6, 10, 10H and 15 MCBs.

H = Auxiliary switch – indicates MCB status ON or OFF

S = Alarm switch – indicates MCB status tripped

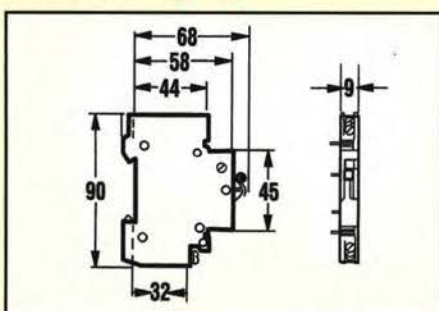
H/S = Changeable between auxiliary and alarm switch

Function	Din-T6	Din-T10	Din-T15	Din-T10H	Cat. No.
H	✓	✓	✓	✗	DINTHU
H & H/S	✓	✓	✓	✗	DINTHHSU
H/S	✓	✓	✓	✗	DINTHSU
S (with test)	✓	✓	✓	✗	DINTSU
H & H/S	✗	✗	✗	✓	DINT10HHS

	H	S I/C test	H/S	H+H/S
Position of auxiliary and alarm switch				
MCB On				
MCB Off				
MCB Tripped				

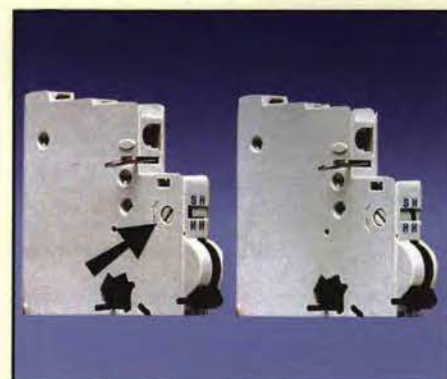
Voltage	AC 11	DC 11
240V AC	5 amp	-
415V AC	3 amp	-
24V DC	-	4 amp
48V DC	-	2 amp
60V DC	-	1 amp
110V DC	-	0.7 amp
220V DC	-	0.5 amp

Dimensions (mm)



Changeable auxiliary/alarm (H/S)

Using a small screwdriver, a cam on the side of the unit can be changed to alter the function from auxiliary to alarm contact. A small indication line on the front of the unit indicates the set function, H for auxiliary and S for alarm. When the unit is fixed to the MCB the adjustment is concealed, to change the function the accessory must be removed from the MCB.



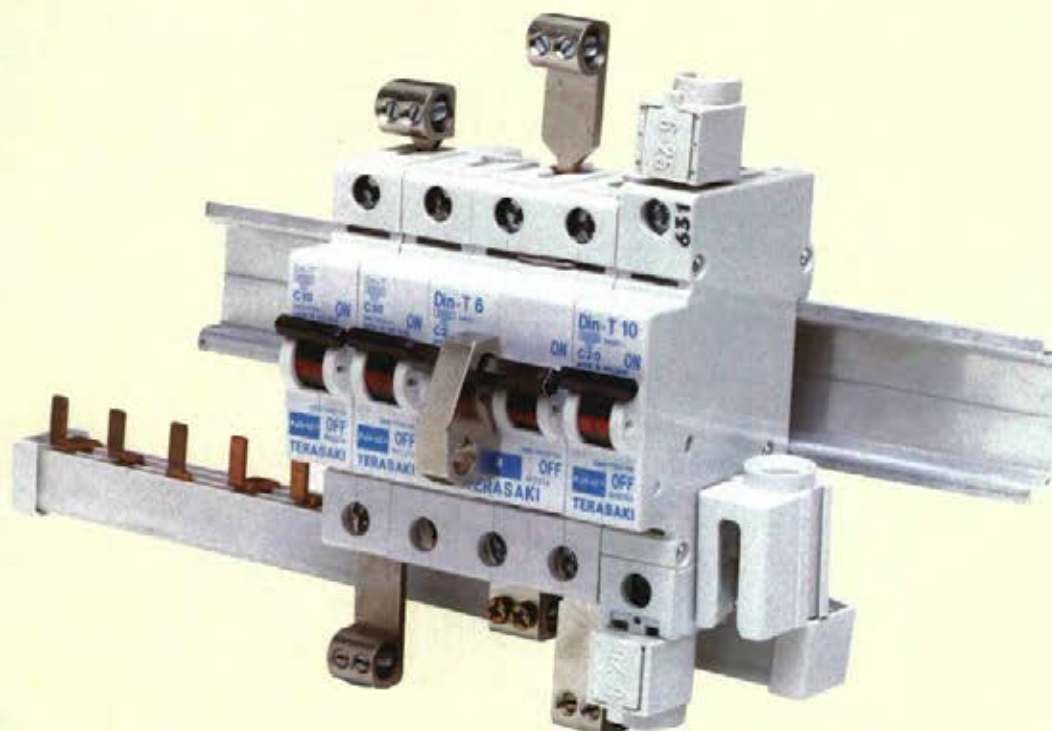
Fitting details

When coupling an auxiliary element to the side of an MCB both handles must be in an identical position. Bring the MCB and auxiliary unit together carefully and fix together by means of the two spring clips provided.



NHP TERA SAKI DIN rail Mounting System

Accessories and cable lugs for Din-T MCBs



Description	Cat. No.
Lateral pin terminal 35mm ² (short type)	DTTLT35PN
Lateral pin terminal 35mm ² (long type)	DTTLT35LPN
Din-T lock dog	DTLD
Lateral spade terminal 35mm ² (short type)	DTTLT35SP
Lateral spade terminal 35mm ² (long type)	DTTLT35LSP
Axial spade terminal 25mm ² (insulated)	DTTAX25SP
Axial pin terminal 25mm ² (insulated)	DTTAX25PN
35mm ² main terminals	DTCF35
Pole filler	DTPF
Tee-off cap	DTTOC
ICL busbars	Refer page 31
ICL end caps	Refer page 31



DTTLT35PN



DTTLT35LPN



DTTLT35SP



DTTLT35LSP



DTTOC



DTCF35



Din-T lock dog



DTPF



DTAX25PN



DTTAX25SP

NHP TERA SAKI DIN rail Mounting System

Din-T surge diverters

- Standard IEC99.1.
- Zinc oxide varistor with a specific "breakdown" voltage.
- Replace module without power outage.
- Visual indication flag.
- Auxiliary switch for remote indication.

Description	Cat. No.
Din-T surge diverter 230V with base	DOVP2301P
Replacement module	DOVP230MOD
Auxiliary switch	DOVPAUX

Din-T surge diverters offer affordable protection against over-voltage spikes. Using a zinc oxide varistor with a specific "breakdown" voltage. The modular design ensures compact installation features. The plug in varistor module can easily be replaced without interrupting the mains supply. An optional auxiliary signal contact is available to provide remote indication of the status of the varistor.



We take for granted the reliability and integrity of our electricity supply. But the fact is dangerous power surges do occur, without protection your sensitive and often highly sophisticated electronic equipment could suffer substantial damage.

A surge diverter is recommended to protect your equipment from potentially catastrophic effects of a severe electrical surge.

A surge may result from:

- Lightning strikes causing induced voltages on the power supply network.
- Switching of large inductive electrical loads on the power network.
- During restoration of power after a supply failure, the voltage can surge until loads are stabilised.

How does a Din-T surge diverter work?

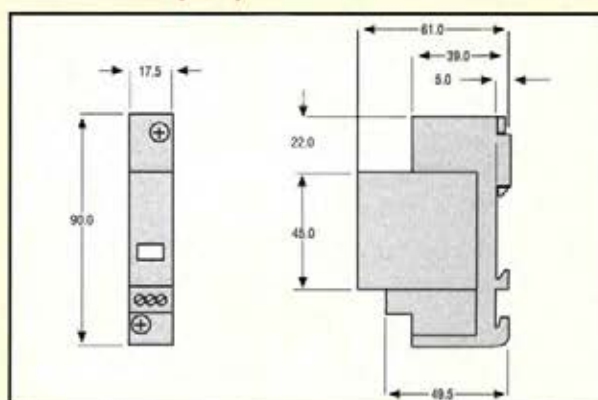
A surge diverter is connected between active and earth. When supply voltage is below the breakdown level, the varistor remains non-conductive. But when the breakdown voltage is exceeded, the varistor becomes conductive, directing the increasing voltage to earth preventing damage to installed equipment. For more information refer catalogue DSD.



Technical data

Cat. No.	DOVP231P
Rated voltage	230-250V
Max. operational voltage (AC)	275V
Max. operational voltage (DC)	350V
Rated impulse current (ISn)	15kA
Max. impulse current (ISmax) 8/20µs	40kA
Energy absorption (Wmax)	550J
Residual voltage (Ur)	≤1.3kV
Power dissipation (Pmax)	1.4W
Response time (ta)	25ns
Varistor voltage (ΔVv) mA	430V
Tolerance (Vv) mA	K=+10%
Max. clamping voltage (V) (i)	710V 300
Capacitance voltage (C) 1kHz	2700pF
Resistance to earth (installed)	0.3MΩ
Max. fuse back-up	100amps
Temperature range	-40°C to +60°C
Cable connection size	4-25mm ²
Standard	IEC99.1
Cat. No.	DOVP AUX
Contact type	1changeover
Contact rating	2amp 250V AC
Cable connection size	1.5mm ²

Dimensions (mm)



NHP TERASAKI DIN rail Mounting System

Modular changeover switches

General features

Din-Modular switches have the same profile as Din-T MCBs. These switches have double break contacts and comply to IEC 947.3 with regard to isolating duty. The switch housing is self extinguishing material with very high mechanical strength and allows operation in 50°C ambient with a 95% relative humidity.

In	Diagram	Poles	Modules	Cat. No.
				Without off position
32A		1	1	DIN-TCO321 I-II
32A		2	1	DIN-TCO322 I-II
				With off position
32A		1	1	DIN-TCO321 I-O-II
32A		2	1	DIN-TCO322 I-O-II



Impulse switches

A Din-T impulse switch is an electromagnetically operated switch with stable open or closed contacts. To change contact status a minimum pulse duration of 0.05 sec is required. Din-T impulse switch coils are continuously rated but it is not recommended to be used in a way that allows continuous energisation. Din-T impulse switches can be used for central control of heating and lighting applications in conjunction with time clocks and PLCs.

In	Poles	Mods	Coil volts	Diagram	Cat. No.
16A	1	1	240V AC		DIN-T511
16A	2	1	240V AC		DIN-T512
16A	2	1	240V AC		DIN-T711



Notes: Voltages: 12, 24, 48 AC; 12, 24 DC.
Other coil voltages available on indent.

Din-T pilot lights & pushbuttons

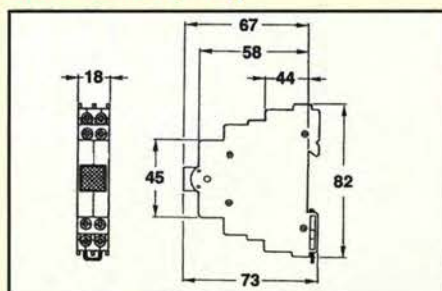
Modular style pushbutton with illuminated circuit and pilot lights. Lenses in red, green, orange or clear ordered separately. Pushbutton contact rating 16amps.

Description	Poles	Mods	Cat. No.
Pilot light	1	1	DTPL
Lens red	-	-	DTLRD
Lens green	-	-	DTLGR
Lens orange	-	-	DTLOR
Lens clear	-	-	DTLCL
Lamp 240V (neon)	-	-	DTLP240
Lamp 24V (incandescent)	-	-	DTLP24
Pushbutton (ILL) ¹⁾	1	1	DTPB771
Pushbutton	1	1	DTPB691

Note: ¹⁾ Illuminated pushbuttons 240 volt only.



Dimensions (mm)



NHP TERASAKI DIN rail Mounting System

Din-T hour run counter

The Din-T hour run counter indicates the number of hours an appliance has been working and is suitable as an aid for scheduling and performing maintenance. The Din-T hour run counter is DIN rail mounted.

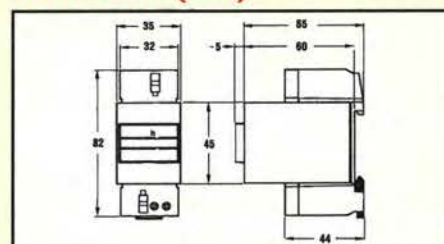
Description	Cat. No.
Din-T hour run counter	DTHR

Technical data

Synchronous motor drive	
Supply voltage:	230/240V 50Hz
Consumption:	1VA
Terminal capacity:	2.5mm ²
Time range:	99,999.99 hours
Protection degree:	IP 20
Ambient operating temperature:	-20°C to +55°C
Permanent visual display:	Non-resettable



Dimensions (mm)



Sprecher + Schuh CA 4 contactors

- Standards AS 3947-4 with world wide approvals.
- DIN rail mounting.
- Contactors can be mechanically interlocked.
- Large range of snap on accessories ¹⁾.
- Protection cover allows mounting adjacent to Din-T MCBs.
2.5 modules wide.

Applications

Sprecher + Schuh CA 4 contactors are ideally suited for heating, lighting, hot water and storage heating applications.



Maximum current rating (amps) at 415 volts

Cat. No. ¹⁾	CA4-5-10 ²⁾			CA4-9-10 ²⁾			CA4-9-M40 ^{2) 3)}	
Contacts in parallel ⁴⁾	1	2	3	1	2	3	1	4
Heating loads AC 1								
Amps per phase 40°C (A)	20	34	50	20	34	50	20	64
Amps per phase 60°C (A)	16	27	40	16	27	40	16	51
Lighting loads								
Tungsten per phase (A)	4	-	-	7	-	-	7	-
Fluorescent 40°C (A)	18	30	45	18	30	45	18	57
Fluorescent 60°C (A)	14.5	24	35	14.5	24	35	14.5	45
Motor loads								
Amps 415V AC 3 (A)		5.3			9			9
kW 60°C (kW)		2.6			4.5			4.5
Width (modules 18mm)		2.5			2.5			2.5

Accessories

Description	Cat. No.
Bridging link 2 pole	CB4-2
Bridging link 3 pole	CB4-3
Bridging link 4 pole	CB4-4
Protection cover (DIN cutout)	CA4-PC

Notes: ¹⁾ For further information refer NHP Part A catalogue.

²⁾ Supplied with 1 N/O auxiliary contact. For 1 N/C auxiliary contact specify "01" instead of "10".

³⁾ M40 denotes 4 pole contactor.

⁴⁾ Parallel contacts by using CB4 bridging links.

NHP TERASAKI DIN rail Mounting System

Flash time switches

Micromat 13000 series

Day or week and combined day/week cycle time switches for DIN rail mounting.



Micromat Cat. No. QSR13301

Monotron 200 series

Electronic weekly cycle time switch in 1 or 2 channel versions for DIN rail mounting.



Monotron 200 Cat. No. RES23302

Specifications	Micromat	Monotron 200
Movement	Quartz	Electronic
Supply - voltage/frequency	240V AC/50-60Hz	240V AC/50-60Hz
Contacts	1 changeover	1 or 2 changeover
Resistive load	16A/250V AC	16A/250V AC
Operating temperature	-10°C to +45°C	-10°C to +50°C
Programming steps		1 minute
- day dial	15 minutes	-
- week dial	2 hours	-
Minimum interval		1 minute
- day dial	15 minutes	-
- week dial	2 hours	-
Accuracy		1 sec/24 hr
- day dial	1 minute 30 sec.	-
- week dial	10 minutes	-
Override	Manual	Timed (1 hr to 27 days)
Reserve	200 hours	3 years
Programming capacity	48 "on" and 48 "off" per day or 42 "on" and 42 "off" per week	10 "on" and 10 "off" per day or 140 per week by grouping commands

Cycle	Reserve	Programme interval	Min. interval between	Contact rating	Contact configuration	Cat. No.
Micromat						
24hr	-	15 min	15 min	16A	1 C/O	QSR13303 ¹⁾
24hr	-	15 min	15 min	16A	1 C/O	QSR13301
24hr	200hr	15 min	15 min	16A	1 C/O	RES13302
7 day	200hr	2hr	2hr	16A	1 C/O	RES13372
24hr +	200hr	15 min +	15 min +	16A	1 C/O	RES13252
7 days		2hr	2hr			
Monotron 200						
7 days/1 chan	3 yrs	1 min	1 min	16A	1 C/O	RES23801
7 days/2 chan	3 yrs	1 min	1 min	16A	2 C/O	RES23802

Notes: ¹⁾ QSR13303 is an economy version and has no clock face or hands.

A full range of Flash time switches are available, refer NHP Part B Price List.

NHP TERA SAKI DIN rail Mounting System

RAIL DIN Instruments

IME RAIL DIN instruments are an exciting new concept in instrumentation which offers a choice of conventional analogue, or digital display, in a RAIL DIN mounted housing. The IME design of RAIL DIN equipment occupies four DIN modules (eg. same space as four Din-T 1 pole circuit breakers),

and offers an economical and convenient system for applications such as metering in starters and distribution centres. The RAIL DIN equipment is simple to install and has an inherent IP 52 degree of casing protection.



Nemo – Multifunction modular meter

Nemo's flexibility offers you the opportunity to select the right meter to best suit your application, with both DIN rail and panel mount versions the correct combinations are ensured for your power monitoring requirements.

Nemo as standard can measure:- Phase and linked voltages, phase currents, frequency, power factor, all powers (watts, Vars, VA) and maximum demand in a meter that measures energy.

The following version also offer these additional measures and outputs:

Description	Cat. No.
Stand alone no energy or outputs	Nemo.../20
Total and partial active energy with pulse and CM485 output	Nemo.../21
Total active and total reactive energy with pulse, CM485 and Uno/Quattro output	Nemo.../25
No display, all energies must include a CM485 module	XT-EM

Nemo output modules:-

CM485 communications module (Modbus/Jbus)	CM485
RS485 to RS232 convertor	PC485
Single analogue output module	Uno
Four channel analogue output module	Quattro

Notes: For further details refer to Part 'B' or technical catalogue NEMO. Instruction video also available. Integrated communication versions also available on request. If panel mounted is required add 144 to Cat. No. eg. Nemo 144/25



NHP TERA SAKI DIN rail Mounting System

RAIL DIN Instruments

RAIL DIN analogue meters AC and DC

- Accuracy class 1.5.
- Working voltage 600V.
- Test voltage 2kV.
- Self extinguishing housing.



Overload withstand

Ammeters: 10 x rated current for 1 second
1.2 x rated current indefinitely

Voltmeters: 2 x rated voltage for 1 second
1.2 x rated voltage indefinitely

RAIL DIN analogue meters (AC)

Range	Cat. No.
Direct connect ammeters D4E-AAC-2 times overscale	
0.1A	D4E-AAC 1AV
0-2.5A	D4E-AAC-2.5A
0-5A	D4E-AAC-5A
0-10A	D4E-AAC-10A
0-15A	D4E-AAC-15A
0-20A	D4E-AAC-20A
0-25A	D4E-AAC-25A
0-30A	D4E-AAC-30A
0-40A	D4E-AAC-40A
0-50A	D4E-AAC-50A
0-60A	D4E-AAC-60A

CT operated ammeters D4E-ACT ¹⁾

5A 5 times overscale	D4E-ACT 5A 5X ²⁾
5A 2 times overscale	D4E-ACT 5A 2X ²⁾
1A 5 times overscale	D4E-ACT 1A 5X ²⁾
1A 2 times overscale	D4E-ACT 1A 2X ²⁾

Direct connect voltmeters D4E-VAC

0-50V	D4E-VAC 50V
0-150V	D4E-VAC 150V
0-300V	D4E-VAC 300V
0-500V	D4E-VAC 500V

VT operated voltmeter D5E-VVT

For use with 110V VT	D4E-VVT 110V
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Frequency meter D4FI

Range 45-55Hz 240V	D4FI
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RAIL DIN analogue meters (DC) ³⁾

Range	Cat. No.
Direct connect ammeters D4M-ADC ³⁾	
0-1mA to 0-8mA	D4M-ADC M1 ⁴⁾
0-10mA to 0-800mA	D4M-ADC M2 ⁴⁾
1, 5, 10, 15, 25, 40A	D4M-ADC ⁵⁾

Shunt connected ammeters D4M-ADC ³⁾

0-10A to 0-1200A 50mV	D4M-ADC 5 ⁴⁾ ⁵⁾
0-20A to 0-2000A 75mV	D4M-ADC 7 ⁴⁾ ⁵⁾

Direct connect DC voltmeter D4M-VDC

0-0.5V to 0-600V	D4M-VDC V ⁴⁾
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Direct connect AC (rectified) voltmeter D4M-VAC

0-10V to 0-600V	D4M-VAC ⁴⁾
-----------------	-----------------------

Non-standard caption

For meter scale requiring non standard caption, please add the suffix "S" to the Cat. No. followed by the range required.
Eg. A 0-10mA ammeter in a DIN rail housing, scaled 0-500 RPM will have Cat. No. D4M-ADC M2 S / input 0-10mA scale 0-500PM.

Flush mounting kits for RAIL DIN meters

Description	Cat. No.
DIN flush mounting kit	FD4
DIN flush mounting kit	FD8

IP54 protection hinged window

Description	Dimensions (mm)		Cat. No.
	opening	external	
Window	78 x 50	93 x 76	L04
Window	146 x 50	162 x 76	L08

Notes: ¹⁾ Standard scales - CT operated meters comprise of the following scale ranges and their decade multiples-
10/20A, 12/24A, 15/30A, 20/40A, 25/50A, 30/60A, 40/80A, 50/100A, 60/120A, 75/150A, 80/160A

²⁾ Include range scale to suit chosen transformer ratio.
eg. A 2 times overscale ammeter operating from a 800/5A CT will have a Cat. No. D4E-ACT 5A 2X 800A.

³⁾ Standard scales - Moving coil meters comprise the following scale ranges and their decade multiples- 0-10, 12, 15, 20, 25, 30, 40, 50, 60, 75, 80

⁴⁾ Please include range required at the end of the Cat. No. eg. A 0-150V DC voltmeter in a RAIL DIN housing will have a Cat. No. D4M-VDC V/150.

⁵⁾ Shunt must be ordered separately.

Available on indent only.

NHP TERA SAKI DIN rail Mounting System

RAIL DIN Instruments

Digital ammeters - overload withstand

- 2 x In constant
- 10 x In for 5 seconds

RAIL DIN digital meters

Range	Connection	Max. display	Cat. No.
Direct connect ammeters D4E-AAC-2 times over scale			
0-100V	Direct	99.9V	<i>i</i> DG3-4VAC 100V
0-600V	Direct	600V	DG3-4VAC 600V
0-1000V	VT	999V	DG3-4VAC 1000/100V

AC ammeter DG3-4AAC

0-1A ¹⁾	CT	999A	<i>i</i> DG3-4ACT 1A
0-5A ¹⁾	CT	999A	DG3-4ACT 5A
0-10A	Direct	9.99A	DG3-4AAC 10A
0-20A	Direct	20.0A	DG3-4AAC 20A

DC voltmeter DG3-4VDC

0-100V	Direct	99.9V	<i>i</i> DG3-4VDC 100V
0-600V	Direct	600V	<i>i</i> DG3-4VDC 600V

DC ammeter DG3-4VDC

0-50mV ¹⁾	Shunt ²⁾	999A	DG3-4ADC 50MV
0-75mV ¹⁾	Shunt ²⁾	999A	<i>i</i> DG3-4ADC 75MV

Frequency meter DG3-4FI

40-80Hz	Direct	40-80Hz	<i>i</i> DG3-4FI 80
200-800Hz	Direct	200-800Hz	DG3-4FI 800

Temperature meter DG3-4 PT2

-10 to +100°C	PT 100 ³⁾ thermistor	-9.9 to 99.9°C	<i>i</i> DG3-4PT2 100
-20 to +400°C	PT 100 ³⁾ thermistor	-20 to 400°C	<i>i</i> DG3-4PT2 4000

How to set the range

1. Remove the front as shown on figure A.
2. The instrument is calibrated to display 99.9 (1st switch on position 'x1', then switch on position 99.9 – figure B).
3. Move the switch from position '0' to the desired range (15.0, 25.0 or 40.0 or 60.0 or 99.9). All other switches must be placed on '0'.
4. When the first switch on position 'x 10', the display is multiplied by 10. (eg., switch on position 'x10' and on '99.9', instrument set to read 999).
5. Connect the instrument through CT or shunt having the primary range equal to the set range.
6. The full scale (SPAN) and beginning scale (0) calibrations are already made by the manufacturer and therefore it is not necessary to adjust any potentiometers.

Notes: All digital meters require auxiliary supply.

¹⁾ The instrument can be used for 10 ranges which may be selected to suit the current transformer or shunt value in use. Range selections are made by switches located under the front cover of the instrument.



Hour run meter D4.0

5 digital + 2 decimal 110V	D4.0 - 110
5 digital + 2 decimal 240V	D4.0 - 240

Phase fail/rotation indicator D4S-E

110-415V	D4S-E
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Maximum demand ammeters

5 amp input	D4T
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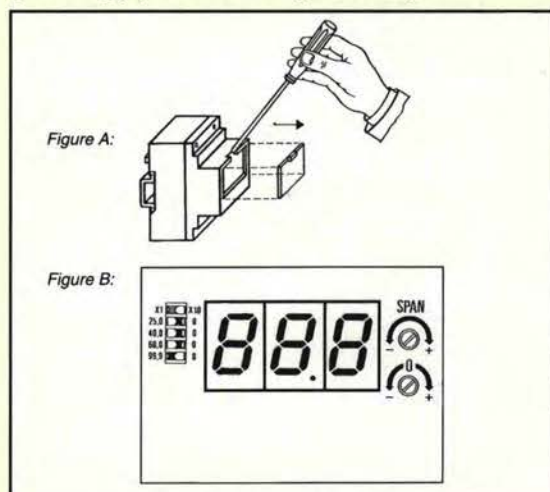


Kilowatt hour meters

Veko kWh meters

1 phase 25A direct connect	D4EWM
1 phase 25A direct connect (pulse output)	D4EWM P
1 phase 100/5A CT connected	D8CME
1 phase 100/5A CT connected (pulse output)	D8CME P
3 phase kWh/MWh meter	D8CTEP/3S
3 phase kWh/MWh meter (pulse output)	D8CTEP/3SP

All Veko meters require a 240V 50Hz auxiliary power supply. Class 2 energy metering.



²⁾ Shunt must be ordered separately. ³⁾ PT 100 thermistor not supplied.

i Available on indent only.

NHP TERA SAKI DIN rail Mounting System

Insulated loadcentres

ILC range

- Standard AS 3132.
- Suits Din-T6, 10, 10H and 15 MCBs and associated DIN equipment.
- Hinged transparent door provides easy access.
- High impact resistant self extinguishing halogen free material.
- Comprehensive cable entries top, bottom, rear and sides.
- Degree of protection; ILC 4 & 8 – IP54; ILC 10, 14 & 18 – IP40.
- Colour: Base – grey; Door – clear



Application

The NHP ILC consumer unit range offers a number of options suitable for most applications. They are designed for indoor use and accept any of the modular Din-T MCB range, Din-Safe

RCDs, Din-T main switches, time clocks and contactors etc. Suitable for residential and commercial applications.

No. of modules	Neutral protected	Neutral unprotected	Earth bar	Height	Dimensions (mm) Width	Depth	Cat. No.
4	¹⁾	-	¹⁾	175	90	100	ILC4S ¹⁾
8	¹⁾	-	¹⁾	175	170	120	ILC8S ¹⁾
10	4	9	10	208	220	108	ILC10SSN
14	8	9	14	208	292	108	ILC14SSN
18	12	9	18	208	370	108	ILC18SSN

Accessories supplied

- Single phase busbar comb.
- Full DIN rail.
- Circuit identification label.
- Hinged transparent lid.
- Earth and neutral bars. (ILC10, 14 & 18 only)
– Neutral bars can be split for Din-Safe RCD



Notes: ¹⁾ Enclosure without earth and neutral bars. Order earth and neutral bars separately.

²⁾ Add to Cat. No. Example ICL151 for 15 pole single phase.

³⁾ 16 x 3 MCB connections and 16 x 9 spaces (AUX).

Additional accessories available

Description	Cat. No.
ILC4 earth & neutral bars	ILC4EN
ILC8 earth & neutral bars	ILC8EN
Main switch 1 pole 63A	DTMS631
Main switch 1 pole 80A	DTMS801
Main switch 1 pole 100A	DTMS1001
Main switch 3 pole 63A	DTMS633
Main switch 3 pole 100A	DTMS1003
Flush kit ILC10	ILC10F
Flush kit ILC14	ILC14F
Flush kit ILC18	ILC18F

ICL busbar combs (120A)

Cat.No. ²⁾ Busbar	1 Phase 1 ²⁾	3 Phase 3 ²⁾	3P+N 3N ²⁾	3P+Aux 3A ²⁾	1P+N 1N ²⁾
ICL08_	✓	-	-	-	-
ICL12_	✓	✓	-	-	-
ICL15_	✓	✓	-	-	-
ICL18_	✓	✓	-	-	-
ICL21_	✓	✓	-	-	-
ICL56_	-	-	✓	-	✓
ICL57_	✓	✓	-	✓ ³⁾	-
End cap					
ICLEC23	-	✓	-	✓	✓
ICLEC4	-	-	✓	-	-

NHP TERA SAKI DIN rail Mounting System

Insulated loadcentres

Din-Modula 150

- Standard AS 3132.
- Available in 36, 54 & 72 pole sizes.
- Suits Din-T6, 10, 10H & 15 MCBs and associated DIN equipment.
- IP 40 protection rating.
- Totally insulated.
- Material self extinguishing.
- Hinged transparent door standard.
- Removable DIN rail frame for wiring access.
- 150mm centres between DIN rail.
- 30mm wiring space behind DIN frame.
- Neutral and earth bars provided.



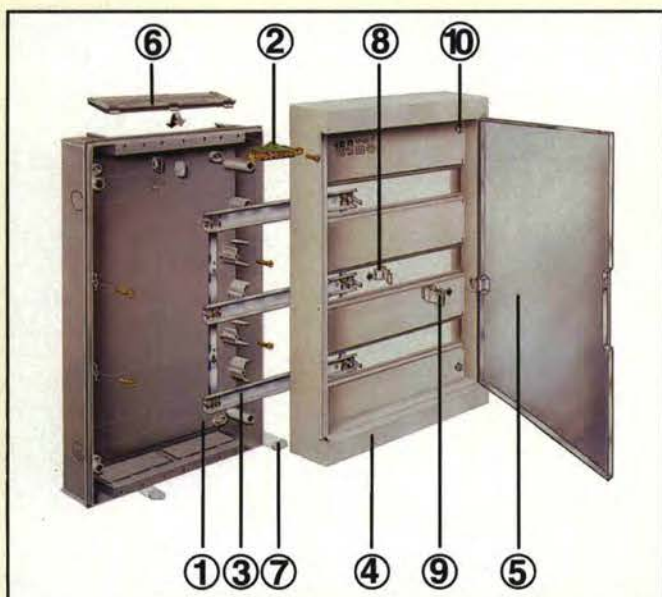
The NHP Din-Modula 150 range of insulated loadcentres have unique design features previously unavailable to the end consumer and are available in 36, 54 and 72 pole sizes. The Din-Modula 150 was designed with ease of wiring in mind, as the name suggests, the distance between the DIN rail is an

ample 150mm providing more useable space for wiring and connecting installed DIN rail equipment. The aesthetically pleasing appearance of the Din-Modula 150 range ensures its suitability for residential, commercial and light industrial applications.

No. of modules	No. of rows	Neutral bar	Earth bar	Height	Dimensions (mm)		Cat. No.
					Width	Depth	
36	2	1 x 18	1 x 18	450	355	142	DM15036
54	3	2 x 18	1 x 24	600	355	142	DM15054
72	4	2 x 18	1 x 36	750	355	142	DM15072

Accessories supplied

- Hinged door can be left or right hand hinged. (left hand hinged is standard).
- Full DIN rail.
- Earth and neutral bars with split neutral (100 amp).
- Pole fillers.
- Circuit identification labels.



Additional accessories available

Description	Cat. No.
Neutral bar 19 - 36	DM150NAA
Neutral bar 37 - 54	DM150NAB
Neutral bar 55 - 72	DM150NACD
Flush kit DM15036	DM15036FK
Flush kit DM15054	DM15054FK
Flush kit DM15072	DM15072FK
Locking device (2 keys)	DM150LD
Coupling kit	DM150JK

Components

- ① Shallow base
- ② Earth bar/neutral bars
- ③ Removable mounting
- ④ Protective cover
- ⑤ Transparent door
- ⑥ Entry plate
- ⑦ Insulation cap
- ⑧ Fastener
- ⑨ Hinge
- ⑩ Quarter-turn screw

NHP TERA SAKI DIN rail Mounting System

Insulated loadcentres

Din-Modula weatherproof

- Standard AS 3132.
- Available in 12, 24 and 36 pole sizes.
- Suits Din-T6, 10, 10H & 15 MCBs and associated DIN equipment.
- IP 55-6 protection rating.
- Totally insulated.
- Hinged transparent door standard.
- Adjustable DIN rail depth.
- 125mm centres between DIN rails.
- Earth bars and split neutral bars provided.



The Din-Modula weatherproof insulated loadcentres maintain modern styling and attractive appearance, offering a high protection rating of IP 55-6 for wet area applications out of direct sunlight. The Din-Modula weatherproof was designed

with maximum flexibility in mind. Using a connection set, two or more enclosures can be joined together – maintaining the IP 55-6 protection rating.

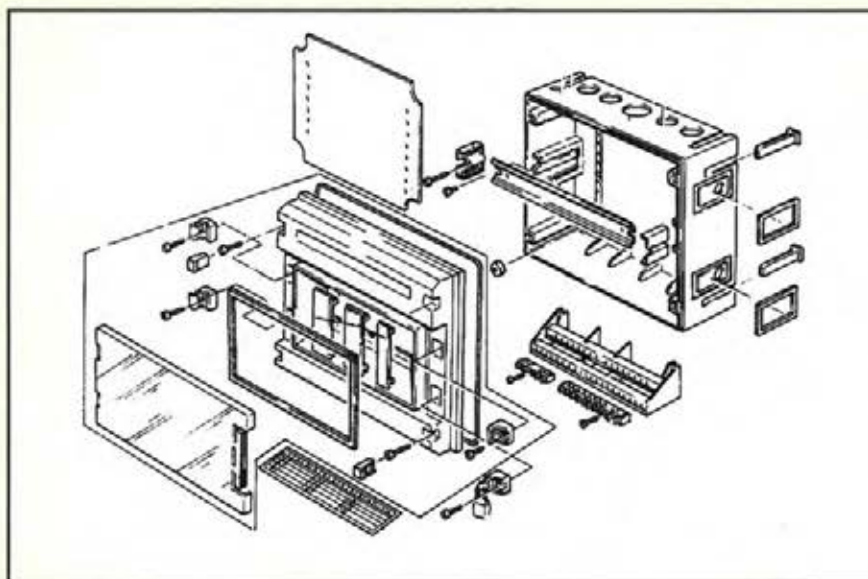
No. of modules	No. of rows	Neutral bar	Earth bar	Height	Dimensions (mm) Width	Depth	Cat. No.
12	1	8/4	8	250	285	138	DMWP12
24	2	18/6	18	375	285	138	DMWP24
36	3	24/12	18	500	285	138	DMWP36

Accessories supplied

- Circuit identification labels.
- Weatherproof sealing caps for mounting screws.
- Polefillers.
- Clear hinged door – left or right side.
- Split neutral and earth bars (100 amp).

Additional accessories available

Description	Cat. No.
Locking bracket, lock and 3 keys	DMWPLD
Connection set	DMWPCS



Notes: ICL busbars for Din-Modula refer page 31.
Terminal lugs and connections for Din-Modular refer page 22.

NHP TERA SAKI DIN rail Mounting System

Metal loadcentres

NLC

- Suits Din-T6, 10, 10H & 15 MCBs and associated DIN equipment.
- Commercial and light industrial applications.
- 1.0mm zinc annealed steel.
- Polyester powder coated N42 grey.
- Earth and neutral bars fitted.
- Circuit schedule labels supplied.
- DIN rail fitted.
- Cable knock outs top, bottom and rear.
- Australian made.



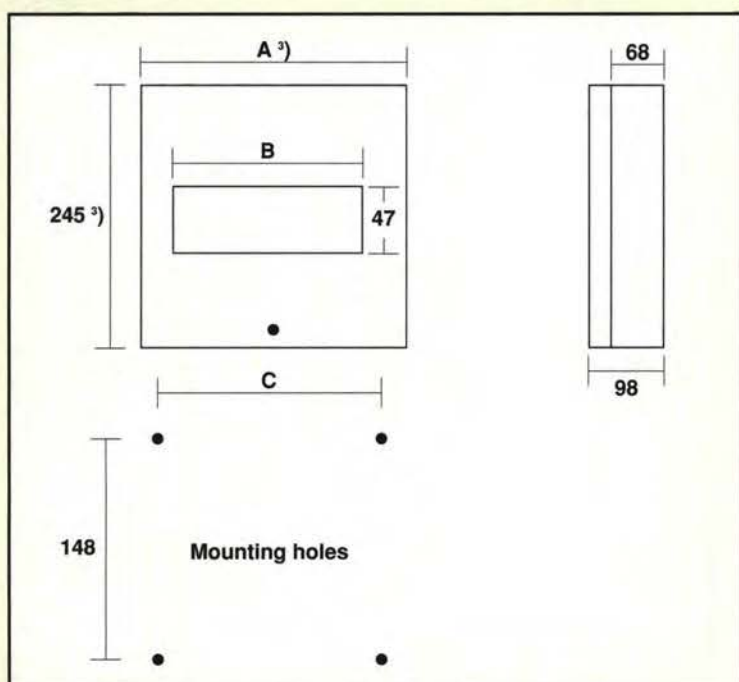
The NHP NLC metal loadcentre range is a surface mount enclosure suitable for Din-T circuit breakers and associated DIN rail equipment for use in commercial and light industrial applications. Manufactured from 1.0mm zinc annealed steel and polyester powder coated N42 grey, each loadcentre is

supplied fitted with DIN rail, earth/neutral bars and circuit identification labels are supplied loose. Options available include a flush escutcheon and a lockable drop down door. Special colours are also available to order at extra cost.

Pole cap	Neutral bar	Earth bar	Surface mount encl. Cat. No.	Flush escutcheon Cat. No. ¹⁾	Door Cat. No. ^{1) 2)}
8	9 x 16mm ²	6 x 16mm ²	NLC8S	NLC8FE	LD6/8
12	12 x 16mm ²	6 x 16mm ²	NLC12S	NLC12FE	LD9/12
15	15 x 16mm ²	12 x 16mm ²	NLC15S	NLC15FE	LD12/15
18	18 x 16mm ²	12 x 16mm ²	NLC18S	NLC18FE	LD15/18
21	21 x 16mm ²	15 x 16mm ²	NLC21S	NLC21FE	LD18/21

Dimensions (mm)

Pole cap.	A ³⁾	B	C
8	268	145	192
12	343	216	267
15	415	270	342
18	493	324	417
21	568	378	492



Options and accessories

- ICL busbars 120 amps (refer page 31).
- Din-T terminals, lugs and accessories (refer page 22).
- Traffolite labels and numbers.
- Special paint colours.
- Fitting of Din-T MCBs
- Pole fillers (set of 4)...
- Flush fitting escutcheon and door.
- NSW Public Works Department E1 type lock

Notes: ¹⁾ Doors and flush escutcheons are options and must be ordered separately.

²⁾ Door is prepunched to accept lock – lock and bracket ordered separately.

³⁾ Height and width increases by 50mm when flush mounted. With door depth = 98mm.

NHP TERA SAKI DIN rail Mounting System

NHP DIN-SAVER distribution centres

- Standard AS 3439.
- Unique MCB enclosure.
- 60% lighter than equivalent panelboard.
- 40% smaller than equivalent panelboard.
- Faster to fit out than a loadcentre.
- Stronger than a loadcentre.
- Australian made.



Application

The Din-Saver range is constructed from 1.0mm zinc annealed steel and is polyester powder coated. The light neutral colour, Magnolia (beige), and ripple texture ensures a durable yet aesthetically pleasing finish. All models are fitted with earth and split neutral bars providing M6 studs for main earth and neutral connections and 16mm² tunnel terminals for outgoing connections.

The “vertical” series is fitted with a unique 160A main switch and compact chassis arrangement suitable for mounting Din-T6, 10 and 15 MCBs. The “horizontal” series has multiple rows of standard DIN rail, 15 modules wide, suitable for mounting the entire range of Din-T MCBs and associated DIN equipment. The Din-Saver range is suitable for residential, commercial and light industrial applications.

Pole capacity	Configuration	Earth bar	Neutral bar	Height	Dimensions (mm) Width	Depth	Cat. No.
24	160A vert chassis ¹⁾	18	19/6	566	386	100	DSV24V
40	160A vert chassis ¹⁾	24	29/12	710	386	100	DSV40V
48	160A vert chassis ¹⁾	42	37/12	782	386	100	DSV48V
45	Horizontal DIN rail ²⁾	42	37/12	566	386	100	DSV45H
60	Horizontal DIN rail ²⁾	42	49/12	710	386	100	DSV60H

Technical data

Cat. No.	DSV24V	DSV40V	DSV48V	DSV45H	DSV60H
Pole capacity	24	40	48	45	60
1mm zinc annealed mild steel	✓	✓	✓	✓	✓
Polyester powder coated	✓	✓	✓	✓	✓
Ripple finish Magnolia (beige)	✓	✓	✓	✓	✓
Standard DIN rail x No. modules (18mm)	1x6+1x5 ¹⁾	1x6+1x5 ¹⁾	1x6+1x5 ¹⁾	3 x 15	4 x 15
150mm centre distance between DIN rails	-	-	-	✓	✓
Door hinging	RHS fitted standard, field changeable LHS				
IP rating	IP 40	IP 40	IP 40	IP 40	IP 40
Weight kg (unpacked)	9	11	12	8	9.5
Weight kg (packed)	9.6	11.5	12.5	8.5	10
Chassis (160A)					
- Fitted	✓	✓	✓	-	-
- Capacity poles	24	40	48	-	-
- Unconditional rating 10kA 0.3 sec	✓	✓	✓	-	-
Main switch (160A)					
- Fitted and connected	✓	✓	✓	-	-
- Terminal size	70mm ²	70mm ²	70mm ²	-	-
- Facility to lock	✓	✓	✓	-	-
Accessories supplied					
- Pole fillers (qty)	16	16	16	16	16
- Circuit schedule and labels	✓	✓	✓	✓	✓
- Main switch connection tags	✓	✓	✓	-	-
Accessories optional (Cat. No.)					
- Door lock kit	DSLK	DSLK	DSLK	DSLK	DSLK
- Flush escutcheon	DSV24FE	DSV40FE	DSV48FE	DSV45FE	DSV60FE

Notes: ¹⁾ Vertical units (1x6 poles and 1x5 poles) of standard DIN rail adjacent to main switch.

²⁾ Main switches available for horizontal mounting at extra cost.

NHP TERA SAKI DIN rail Mounting System

NDB general purpose panelboards

- Standard AS 3439.
- Suits Din-T6, 10 and 15kA MCBs and associated DIN equipment.
- Type tested busbar chassis system.
- Removable gland plates.
- Maximised wiring space.
- Modular design.
- Lockable door.
- Australian made.



Application

The NDB panelboard range was designed and is manufactured by NHP, to accommodate the Din-T range of MCBs and associated DIN rail mounted equipment and accessories making it suitable for distribution of general light and power in commercial and industrial applications.

Features

NDB panelboards are manufactured from 1.6mm zinc annealed steel and are polyester powder coated, two colours are stocked as standard N42 grey and X15 orange, other colours are available to special order. The NHP type tested 'ND' busbar chassis system is standard in the NDB range as well as earth and neutral

bars, circuit identification label, circuit schedule card and door mounted holder. The standard 200 amp 4 pole main switch is located on the horizontal DIN rail (18 modules) provided in the top section of the enclosure, the horizontal DIN rail will also accommodate 6 and 4 modules of standard DIN equipment on the left and right side of the main switch respectively.

The metal escutcheon, pre-cut to accept Din-T MCBs, is punched to accept IPA circuit identification studs. Other features include a lockable door with concealed hinges, generous cabling room and adequate depth to accept Sprecher + Schuh contactors up to CA3-72N.

Pole capacity	Mod box size	Height	Dimensions (mm) Width	Depth	Without main switch Cat. No. ⁴⁾	With main switch ³⁾ Cat. No. ⁴⁾
24	1	610	485	125	NDB24SDR_D	NDB24SDR200MS_D
30	2	685	485	125	NDB30SDR_D	NDB30SDR200MS_D
36	3	835	485	125	NDB36SDR_D	NDB36SDR200MS_D
48	3	835	485	125	NDB48SDR_D	NDB48SDR200MS_D
60	4	1060	485	125	NDB60SDR_D	NDB60SDR200MS_D
72	4	1060	485	125	NDB72SDR_D	NDB72SDR200MS_D
78	5	1350	485	125	NDB78SDR_D	NDB78SDR200MS_D
84	5	1350	485	125	NDB84SDR_D ⁴⁾	NDB84SDR200MS_D ⁴⁾

Technical data

Finish	Polyester powder coat
Colour (AS 2700)	N42 grey or X15 orange
Busbar rating	250A/18kA 0.3sec 300A/20kA 1.0sec
Neutral and earth bar	
- short circuit rating	10kA 1 sec
- main connection	2 x M8 stud
- outgoing connection	tunnel terminal 2 screw
- max cable size	2 x 25mm ² ; bal x 16mm ²
200A main switch (if applicable)	
- No. of poles	4 pole
- enclosed thermal current	200A
- rated voltage	415V AC 50/60Hz
- peak short circuit withstand	10kA RMS
Horizontal DIN rail	
- no main switch	18 modules
- main switch fitted	6 & 4 modules left & right of main switch

Optional accessories

- 200A main switch kit supplied loose.
- Flush surround kit supplied loose.
- Dustproof doors for all sizes.
- Special colours.
- White interior.
- IPA identity studs.
- Split tariff chassis.
- KWH meter.
- 300A busbar.
- PVC duct (40x80).
- Pole fillers (pack of 16 modules).
- Fitting of circuit breakers.
- Accessory module (for fitting extra control gear).
- Customised design and layout (refer NHP).

Notes: ¹⁾ Add 25mm for total depth including door.

²⁾ 300A chassis standard.

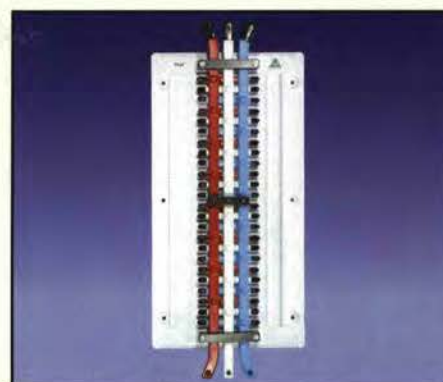
³⁾ 200A 4 pole top mount main switch fitted and connected.

⁴⁾ To order N42 grey or X15 orange insert "G" or "O" in catalogue No. space marked ' ', eg. NDB24SDRGD or DB24SDR200MSGD

NHP TERA SAKI DIN rail Mounting System

ND busbar chassis assembly

- Withstand rating 250A/18kA for 0.3 secs.
- Withstand rating 300A/20kA for 1 sec.
- Suitable for Din-T 6, 10 and 15kA (up to 63 amps) MCBs.
- Universal flared top and bottom feed.
- Tee offs stripped and capped.
- 1 set of power feeds stripped and capped.
- 1P+N and 3P+N chassis options available to order.
- Non-standard chassis to suit MCB with accessory combinations available to order.
- Din-T10H 80-125amp MCBs fit ND300AH chassis from stock.



Pole capacity	Height ¹⁾ (mm)	Escutcheon cut-out 'C'	Cat. No.
12	184	110	ND250A12UD
18	238	164	ND250A18UD
24	292	218	ND250A24UD
30	346	272	ND250A30UD
36	400	326	ND250A36UD
42	454	380	ND250A42UD
48	508	434	ND250A48UD
54	562	488	ND250A54UD
60	616	542	ND250A60UD
72	724	650	ND250A72UD
78	778	704	ND250A78UD
84	832	758	ND300A84UD ²⁾
96	940	866	ND300A96UD ²⁾



3 pole application – Din-T10H MCBs (80-125 amp) only

Pole capacity	Height ³⁾ (mm)	Escutcheon cut-out 'C'	Cat. No.
6	148	83	ND300AH6UD
12	229	164	ND300AH12UD

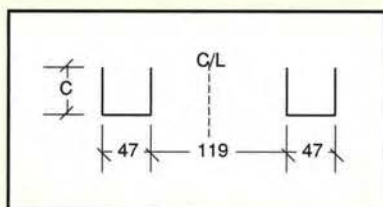
4 pole application – Din-Safe MCB

Pole capacity	Height ¹⁾ (mm)	Escutcheon ⁴⁾ cut-out 'C'	Cat. No.
24/26	292	218	ND250A24UD3P+N ⁵⁾
36/38	400	326	ND250A36UD3P+N ⁶⁾



Escutcheon critical cut-out dimensions

Applies to ND250A, ND300A and ND300AH chassis.

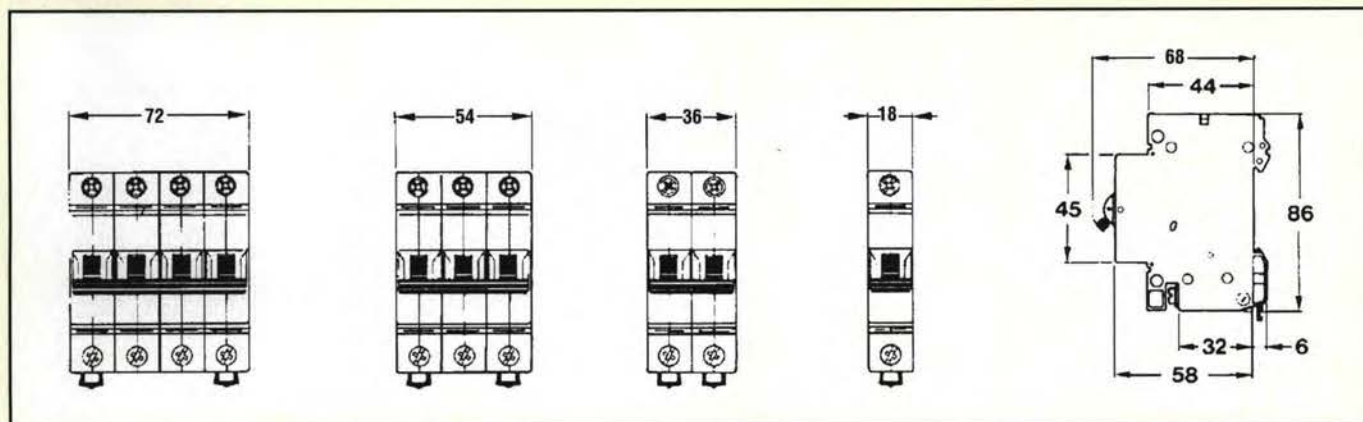


- Notes:
- ¹⁾ Chassis pan height, add 92mm for overall busbar length.
 - ²⁾ 300 amp busbar standard.
 - ³⁾ Chassis pan height, add 94mm for overall busbar length.
 - ⁴⁾ Special cut-out required in escutcheon to cater for one extra neutral tee off.
 - ⁵⁾ Accommodates 12 x Din-Safe-MCB.
 - ⁶⁾ Accommodates 24 poles of standard Din-T MCBs, plus 6 x Din-Safe-MCB.
- MCB DIN clips must be disengaged or removed when mounting onto ND chassis.
"OFF" (line side) of MCB connects to chassis tee-offs.

NHP TERA SAKI DIN rail Mounting System

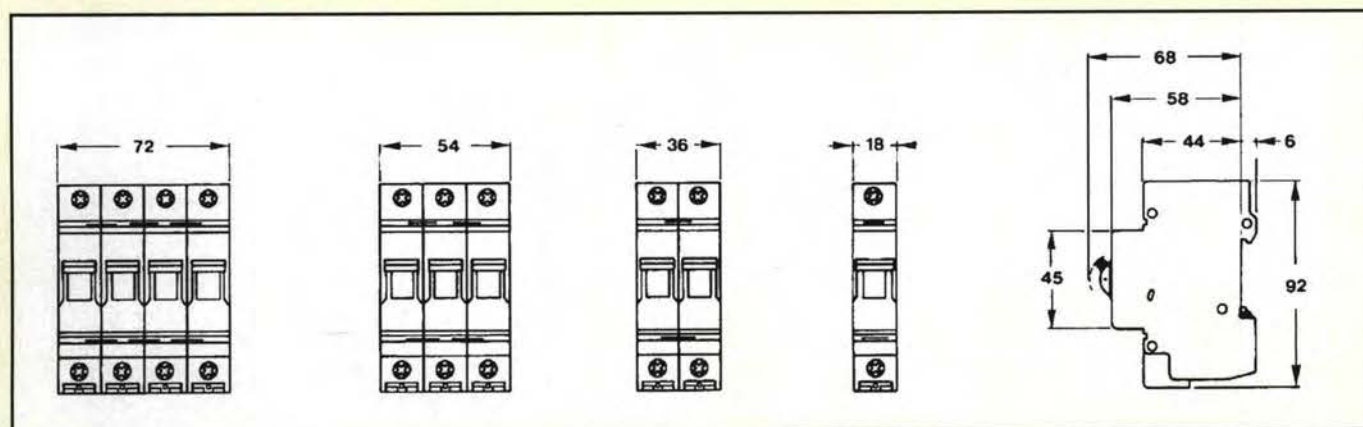
Dimensions

Din-T6 (6-40amp)

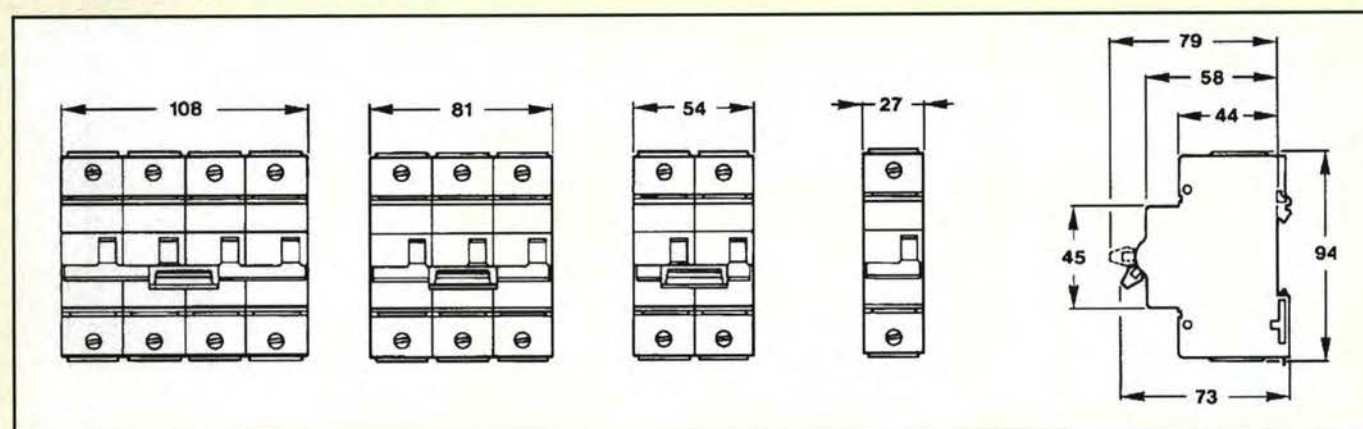


Din-T6 (50-63amp)

Din-T10 and 15 (0.5-63amp)

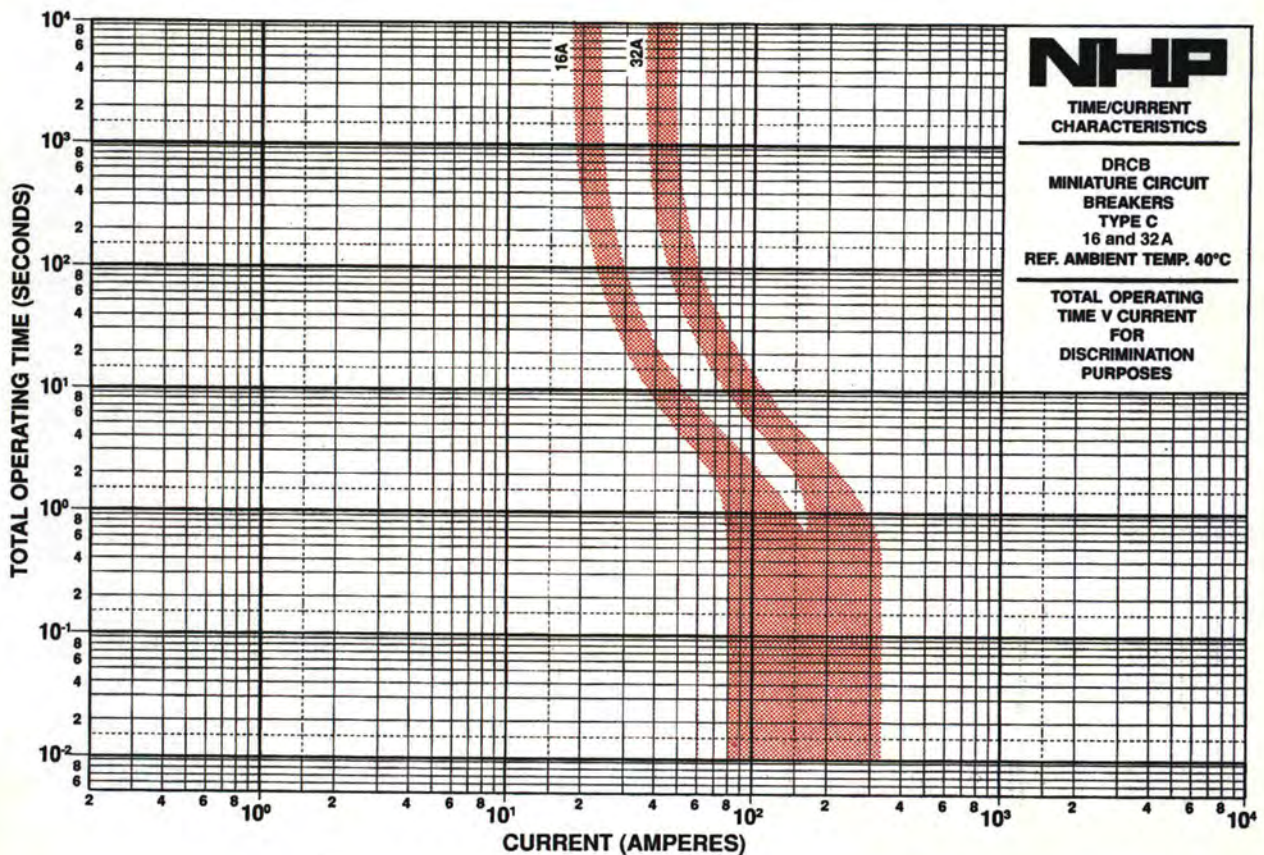
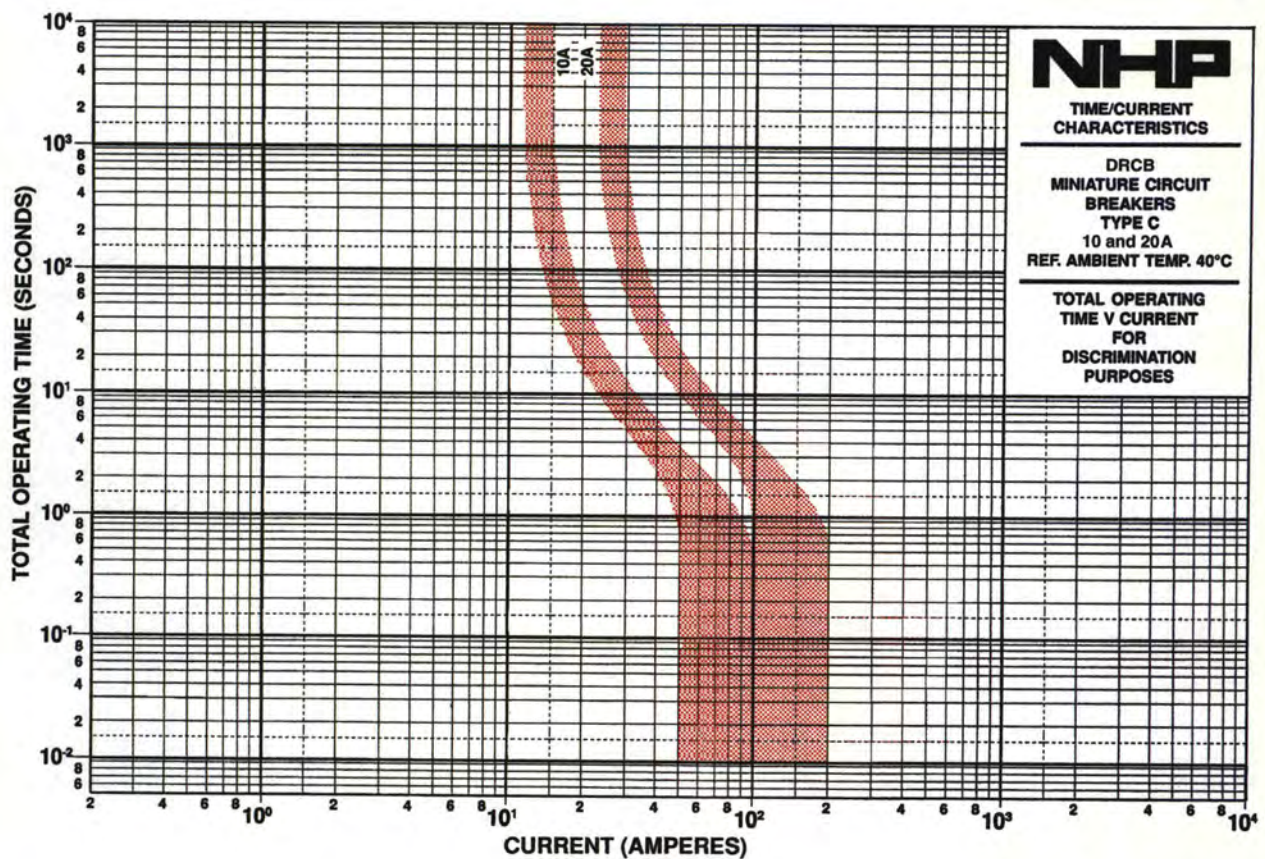


Din-T10H (80, 100 and 125amp)



NHP TERASAKI DIN rail Mounting System

Tripping characteristics DRCB



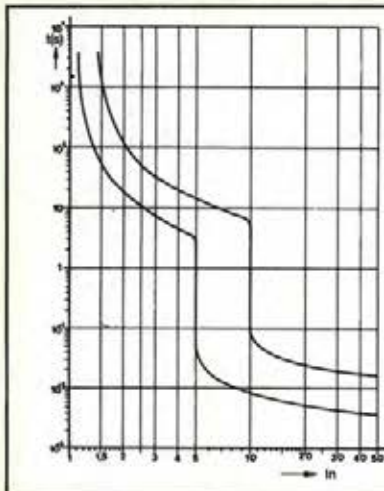
NHP TERA SAKI DIN rail Mounting System

Tripping characteristics and temperature compensation curves

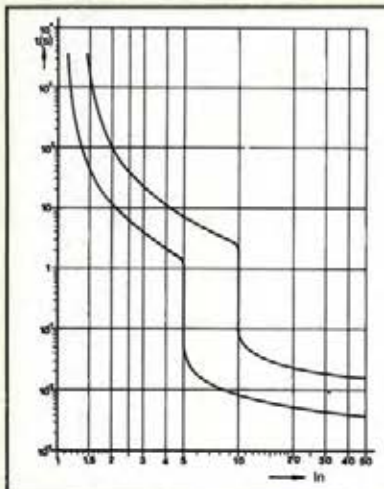
Din-T6 and Din-T10 (According to IEC898)

"C" curve (5-10 In)

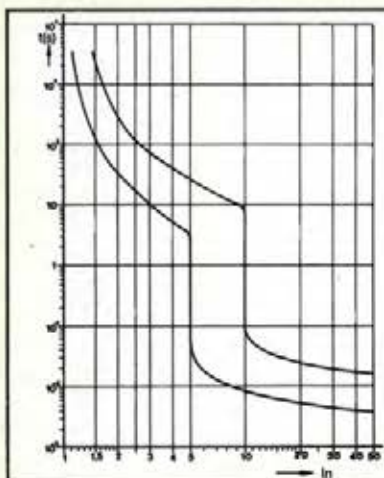
*Din-T6: 2 to 6A
Din-T10: 0.5 to 6A*



*Din-T6: 10 to 40A and 50A-1P
Din-T10: 0.5 to 40A and 50A-1P*

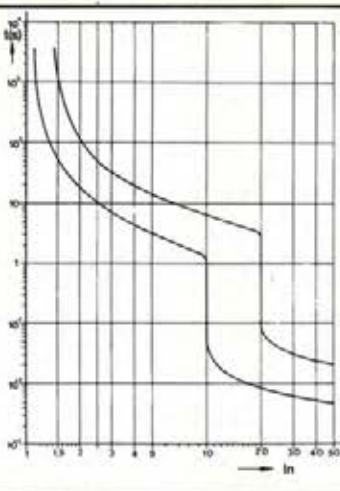


*Din-T6: 50A 2, 3 & 4P and 63A
Din-T10: 50A 2, 3 & 4P and 63A*

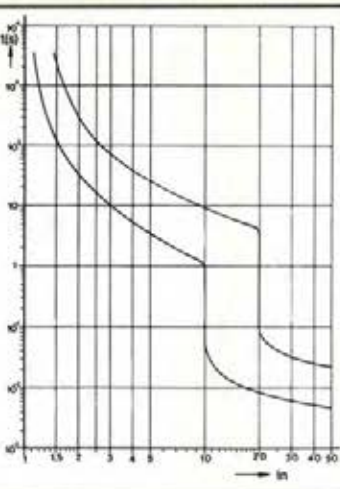


"D" curve (10-20 In)

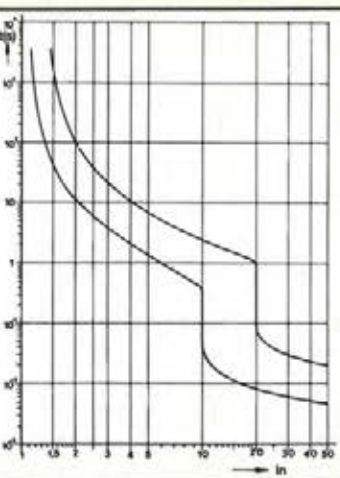
*Din-T6: 2 to 6A
Din-T10: 0.5 to 6A*



*Din-T6: 10 to 40A and 50A-1P
Din-T10: 10 to 40A and 50A-1P*



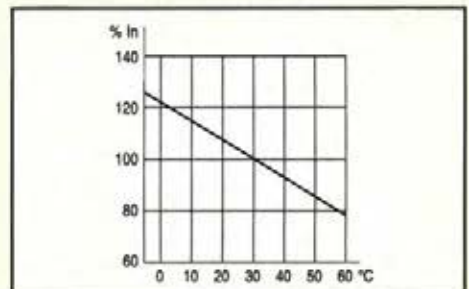
*Din-T6: 50A 2, 3 & 4P and 63A
Din-T10: 50A 2, 3 & 4P and 63A*



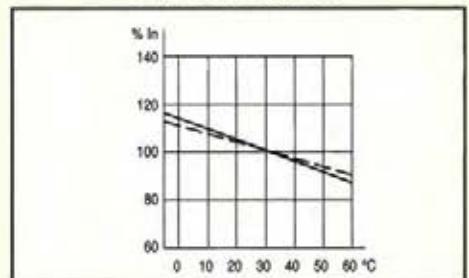
Influence of ambient temperature

The thermal calibration of Din-T MCBs was carried out at an ambient of 30°C (IEC898). Ambient temperatures different from 30°C influence the bimetal and this results in earlier or later tripping.

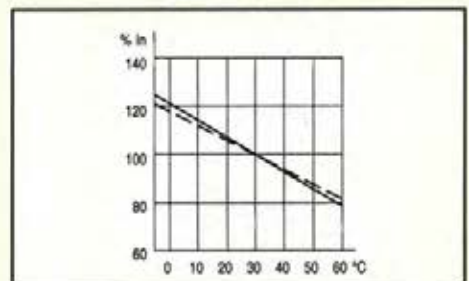
Din-T6: 6 to 40A



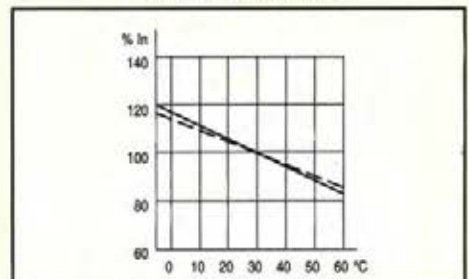
Din-T10: 0.5 to 6A



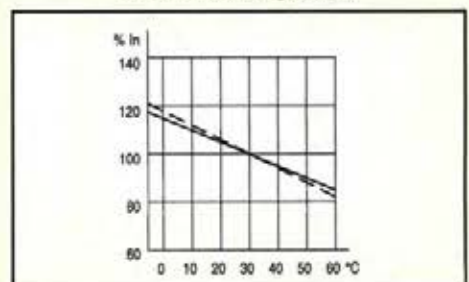
Din-T10: 10A



Din-T10: 16-40A



Din-T6 & 10: 50-63A



NHP TERA SAKI DIN rail Mounting System

Tripping characteristics and temperature compensation curves

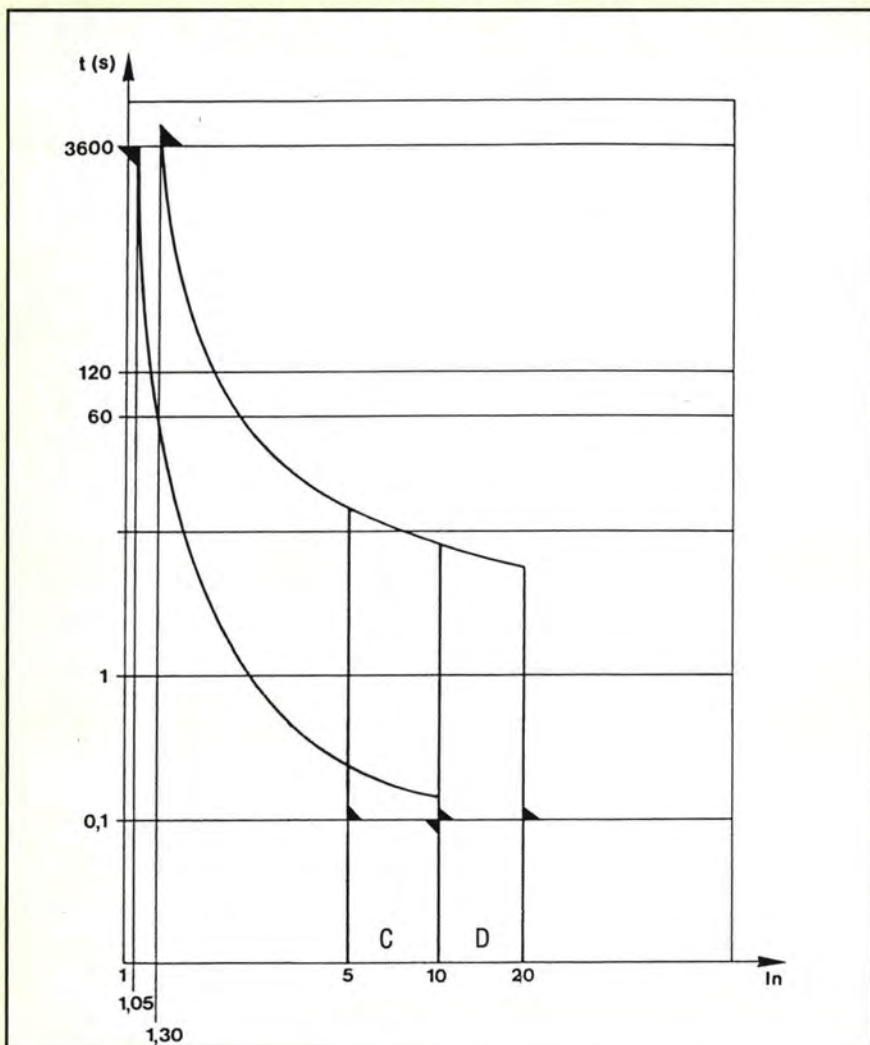
Din-T10H and Din-T15 (According to IEC947-2)

The IEC 947-2 standard applies to circuit breakers, the main contacts of which are intended to be connected to circuits, the rated voltage of which does not exceed 1000V AC or 1500V DC.

Circuit breakers for use in industrial applications (for use by instructed personnel).

Influence of ambient temperature

The thermal calibration of Din-T10H/15 MCBs was carried out at an ambient of 40°C (IEC947-2). Ambient temperatures different from 40°C influence the bimetal and this results in earlier or later tripping.

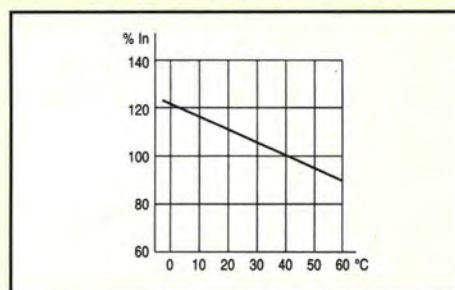


Magnetic release

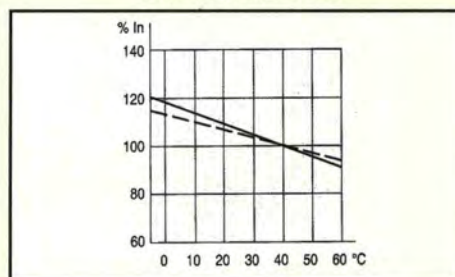
An electromagnet with plunger insures instantaneous tripping in case of short circuit. The manufacturer distinguishes different types, following the current for instantaneous release: type C, D.

Curve type	Test current	Tripping time	Applications
C	5 In	$t \geq 0.1s$	Usual loads such as: lighting, socket outlets, small motors
	10 In	$t < 0.1s$	
D	10 In	$t > 0.1s$	Control and protection of circuits having important transient inrush currents (large motors)
	20 In	$t < 0.1s$	

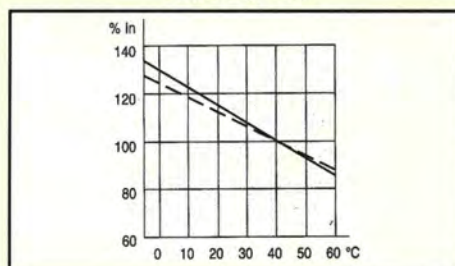
Din-T10H: 80, 100 and 125A



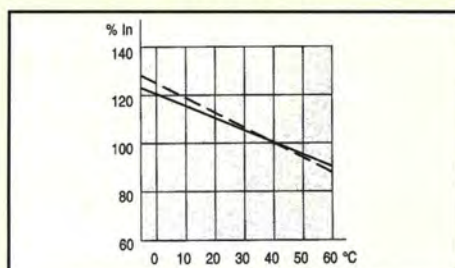
Din-T15: 0.5 to 6A



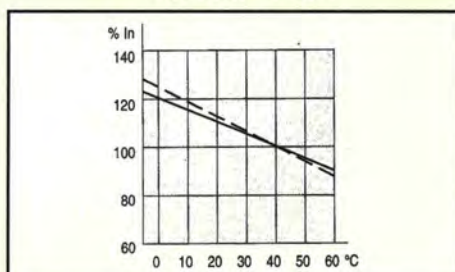
Din-T15: 10A



Din-T15: 16-40A



Din-T15: 50-63A



NHP TERA SAKI DIN rail Mounting System

Din-T MCB technical reference

Features	Din-T6 2 to 63A			Din-T10 0.5 to 63A				Din-T15 6 to 63A				Din-T10H 80 to 125A			
No. of poles	1	2	3	1	2	3	4	1	2	3	4	1	2	3	4
Protected poles	1	2	3	1	2	3	4	1	2	3	4	1	2	3	4
Width (mm)	18	36	54	18	36	54	72	18	36	54	72	27	54	81	108
Height (mm)	68			68				68				79			
Depth (mm)	86			92				92				94			
Rated voltage	240/415 V AC			240/415 V AC				240/415 V AC				240/415 V AC			
Max. current In	63A			63A				63A				125A			
Calibration temp °C	30			30				40				40			
No. of operations															
-220V In cosφ=0.9	10000			10000				10000				10000			
-415V In cosφ=0.9	10000			10000				10000				10000			
Insulation resistance	>10MΩ			>10MΩ				>10MΩ				>10MΩ			
Dielectric rigidity	>2.5kV			>4kV				>4kV				>4kV			
Terminal capacity															
-line mm²	25			35				35				70			
-load mm²	25			25				25				70			
Insulation group according to IEC112 NBNC20-002, VDE0100															
Group B	500V			500V				500V				500V			
Group C	415V			415V				415V				415V			

DC application

Max. voltage	48	110 ¹⁾	48	110 ¹⁾	48	110 ¹⁾	125 ¹⁾	250 ²⁾
Short circuit kA (t<15ms)	6	6	10	10	10	10	10	10
No. operations (t<15ms)	4000		4000		4000		4000	

Voltage drop and watts loss

In (A)	Drop (V)	Loss (W)	Drop (V)	Loss (W)	Drop (V)	Loss (W)	Drop (V)	Loss (W)
0.5	-	-	3.100	1.55	-	-	-	-
1	-	-	1.700	1.7	-	-	-	-
2	0.820	1.6	0.900	1.8	-	-	-	-
4	0.570	2.3	0.500	2	-	-	-	-
6	0.210	1.3	0.318	1.91	0.318	1.91	-	-
10	0.130	1.3	0.140	1.4	0.140	1.4	-	-
16	0.110	1.8	0.128	2.05	0.128	2.05	-	-
20	0.140	2.8	0.110	2.2	0.110	2.2	-	-
25	0.100	2.5	0.092	2.31	0.092	2.31	-	-
32	0.090	3.0	0.103	3.28	0.103	3.28	-	-
40	0.080	3.2	0.088	3.5	0.088	3.5	-	-
50	0.090	4.5	0.090	4.5	0.090	4.5	-	-
63	0.088	5.56	0.088	5.56	0.088	5.56	-	-
80	-	-	-	-	-	-	0.075	6
100	-	-	-	-	-	-	0.075	7.5
125	-	-	-	-	-	-	0.076	9.5

Notes: DC magnetic trip current is approximately 40% higher than at 50/60Hz AC.
 At 400Hz the magnetic tripping current is approximately 50% higher than at 50/60Hz AC.
¹⁾ Series connection 2 pole MCB.
²⁾ Series connection 4 pole MCB.

NHP TERASAKI DIN rail Mounting System

Motor starting selection

415 volt 3 phase D.O.L. starting

Motor rating (kW)	Approx. FLC (amps)	Din-T C & D curve	Safe-T	XS125CJ XS125NJ XH125NJ	XE225NC	XS250NJ XH250NJ	XS400NE XH400NE XS400CJ XS400NJ
0.37	1.1	4	6				
0.55	1.5	4	6	20			
0.75	1.8	6	6	20			
1.1	2.6	10	6	20			
1.5	3.4	10	10	20			
2.2	4.8	16	16	20			
3	6.5	20	16	20			
4	8.2	25	20	20			
5.5	11	32	32	32			
7.5	14	40	40	32			
10	19	50	50	50			
11	21	50	50	50			
15	28	63	63	63			
18.5	34	100 ¹⁾	80	100			
22	40	125 ¹⁾	100	100			
25	46	125 ¹⁾	100	100			
30	55			125		160	
37	66			125 ²⁾	125	160	
45	80			125 ²⁾	125	160	
55	100				175	160	250
75	130				225	250	250
90	155					250	250
110	200						400

Notes: This table is to be used as a selection guide for average 3 phase, 4 pole, 415V motors, for standard applications only. Non-standard applications refer NHP. The DOL table is based on holding 125% FLC continuously and 600% for 10 seconds.

Lower circuit breaker ratings are possible in most applications. Refer NHP Type 2 co-ordination tables for specific circuit breaker / overload combinations.

TemBreak MCCBs with adjustable magnetic trip must be set to high.

¹⁾ Din-T10H MCB only.

²⁾ Use magnetic only.

NHP TERASAKI DIN rail Mounting System

Motor starting selection

415 volt 3 phase reduced voltage starting

Star delta, auto transformer, resistor or reactance starting

Motor rating (kW)	Approx. FLC (amps)	Din-T C & D curve	Safe-T	XS125CJ XS125NJ XH125NJ	XE225NC	XS250NJ XH250NJ	XS400NE XH400NE XS400CJ XS400NJ
0.37	1.1	4	6				
0.55	1.5	4	6	20			
0.75	1.8	4	6	20			
1.1	2.6	6	6	20			
1.5	3.4	10	6	20			
2.2	4.8	10	10	20			
3	6.5	16	16	20			
4	8.2	20	16	20			
5.5	11	25	20	20			
7.5	14	32	25	20			
10	19	40	40	32			
11	21	50	40	32			
15	28	50	50	50			
18.5	34	63	63	50			
22	40	80 ¹⁾	63	63			
25	46	100 ¹⁾	80	100			
30	55	125 ¹⁾	100	100		160	
37	66	125 ¹⁾		100	125	160	
45	80			125	125	160	250
55	100				150	160	250
75	130				175	250	250
90	155				225	250	250
110	200					250	250

Notes: This table is to be used as a selection guide for average 3 phase, 4 pole, 415V motors, for standard applications only. Non-standard applications refer NHP.
The reduced voltage table is based on holding 120% of FLC continuously and 350% for 20 seconds.
TemBreak MCCBs with adjustable magnetic trip must be set to high.
¹⁾ Din-T10H MCB only.

NHP TERASAKI DIN rail Mounting System

Motor starting selection

415 volt 3 phase D.O.L. starting fire pumps

Motor rating (kW)	Approx. FLC (amps)	Din-T C & D curve	Safe-T	XS125CJ XS125NJ XH125NJ	XE225NC	XS250NJ XH250NJ	XS400NE XH400NE XS400CJ XS400NJ
0.37	1.1	4	6				
0.55	1.5	6	6				
0.75	1.8	6	6	20			
1.1	2.6	10	6	20			
1.5	3.4	16	10	20			
2.2	4.8	20	16	20			
3	6.5	25	20	20			
4	8.2	32	25	32			
5.5	11	40	40	32			
7.5	14	50	50	50			
10	19	63	50	50			
11	21	63	63	63			
15	28	100 ¹⁾	80	100			
18.5	34	125 ¹⁾	100	100			
22	40			125			
25	46			125			
30	55				125	160	
37	66				150	160	
45	80				175	250	250
55	100				225	250	250
75	130					250	250
90	155						400
110	200						400

Notes: This table is to be used as a selection guide for average 3 phase, 4 pole, 415V motors, for standard applications only. Non-standard applications refer NHP.
 The DOL fire pump table is based on holding 120% of FLC continuously and 600% for at least 20 seconds.
 TemBreak MCCBs with adjustable magnetic trip must be set to high.
¹⁾ Din-T10H MCB only.

NHP TERASAKI DIN rail Mounting System

Din-T MCB fuse fault current limiters co-ordination chart

For fault levels up to 50kA at 415V

Circuit breaker		Minimum fuse amps ¹⁾	Maximum fuse - amps	
Type	Rating amps		BS 88	DIN
Safe-T6	6-10	50	160 ²⁾	160
	16-25	63	200 ²⁾	200
	32	80	200 ²⁾	200
	40-50	100	200 ²⁾	200
	63-100	160	200 ²⁾	200
SRCB	10	50	160	160
	16-20	63	200	200
Din-T6	2-25	20-63	160	160
	32-63	100	160	160
DRCB	10-20	20-63	160	160
	32	100	160	160
Din-T10	0.5-6	20	200	200
&	10	25	200	200
Din-T15	16	35	200	200
	20-32	63	200	200
	40-63	100	200	200
Din-T10H	80	160	200	200
	100	200	200	200
	125	250	250	250
XS125NJ/CJ	16-125	250	400	400

Notes: ¹⁾ Minimum fuse size is based on grading under overload of one MCB with one set of fuses. Where a single set of fuses protects more than one MCB, the minimum fuse size shall be increased to allow for load biasing effects.

²⁾ Maximum fuse size is based on testing to AS3439.1 clause 8.2.3.

Tables based on the following maximum pre-arcing I_{pt} for both BS 88 and DIN fuses: 160A - 0.62×10^5 , 200A - 1.2×10^5 , 250A - 2.1×10^5

Suitable fuses include NHP, GEC, Siemens and Brovaria-Crady.

Fuses with higher current ratings may be used providing I_{pt} values are equal to, or less than the levels above. Semi-conductor fuses have very low I_{pt} values and may suit some applications.

Attention is also drawn to AS 3000 clause 2.19.4.4 regarding the use of fault current limiters in installations containing fire and smoke control equipment, evacuation equipment and lifts.

NHP TERASAKI DIN rail Mounting System

Discrimination (selectivity) and cascade table at 415V

Discrimination

The Terasaki principle of discrimination is based upon the peak let through current being lower than the instantaneous trip setting of the upstream circuit breaker when converted to peak current and includes both overload and short circuit discrimination.

Results may be plotted via an NHP TemCurve programme.

Cascading

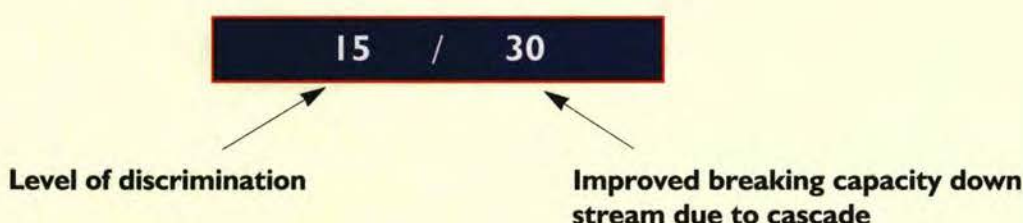
The application of cascade (back up) with Terasaki moulded case circuit breakers complies with the requirements of AS 3858, IEC947-2 and AS 3000 clause 2.4.3.

This rule requires that moulded case breakers installed where the fault level is above their breaking capacity may be protected by an upstream circuit breaker which sufficiently limits their peak let through current at the I^2t during the short circuit so as not to cause any damage to the downstream circuit breaker.

Cascade (back up) occurs when the above conditions are fulfilled.

Discrimination tables

The following table shows the level of discrimination and cascade of various combinations of circuit breakers connected in series.



Guidelines on the use of cascade

Cascade coordination chart application notes:

- The back up or upstream Terasaki circuit breaker Cat. Nos. are listed on the top line together with their prospective short circuit interrupting capacity.
- The figures shown below refer only to Terasaki circuit breakers when used in cascade with other Terasaki circuit breakers.

Terasaki TemBreak/Din-T

Downstream Din-T MCB			Upstream TemBreak MCCB						
Cat. No.	kA (rms)		XS125CJ	XS125NJ	XH125NJ	XS250NJ	XS250NJ	XS400CJ	XS400NE XS400NJ
			18	30	50	35	50	35	50
Din-T6	2-25A	6	18/18	25/25	25/25	25/25	25/25	-	-
	32-63A	6	18/18	20/25	20/25	25/25	25/25	-	-
DRCB	10-20A	6	18/18	25/25	25/25	25/25	25/25	-	-
	32A	6	18/18	20/25	20/25	25/25	25/25	-	-
Din-T10	0.5-25A	10	18/18	25/30	30/50	35/35	35/50	35/35	35/50
	32-63A	10	18/18	20/25	20/25	25/25	25/25	25/25	25/25
Din-T10H	80-125A	10	4/18	4/25	4/25	15/15	15/15	10/10	10/10
Din-T15	6-16A	25	18/25	25/30	30/50	35/35	35/50	35/35	35/50
	20A	20	18/20	25/30	30/50	35/35	35/50	35/35	35/50
	25-32A	15	18/18	25/30	30/50	35/35	35/50	35/35	35/50
	40-63A	10	18/18	20/25	20/25	25/25	25/25	25/25	25/25

Notes: For special combinations other than those listed refer NHP.
Limited to MCCB reset time.



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CS 7 HEAVY DUTY INDUSTRIAL RELAYS

A reputation for reliable and versatile performance

**Up to
12 poles**



Fitted with a 4 pole front mount and side mount auxiliary contact block (10 pole configuration)



Fitted with optional pneumatic timer and side mount auxiliary contact block (6 pole configuration)



Fitted with side mount auxiliary contact blocks (7 pole configuration)



Basic 4 pole CS 7 relay (Cat. No. CS7-40E shown)

- 25 amp rating for basic CS 7 relay
- Reliable long life
- Up to 12 pole configuration is possible with add-on auxiliary blocks
- Common accessories to CA 7 contactor
- Choice of front and side mount auxiliary contact blocks
- Auxiliaries rated up to 10 amps
- Interchangeable coils
- Electronic compatible contacts
- Choice of accessories (timers, latches, interlocks, etc)
- Reversible coil connections

**This size available
as contactor "CA 7"
up to 11 kW**

CS 7 control relay

Features

- Complies with IEC 947
- High contact reliability
- Basic 4 pole relay can be increased up to a 12 pole relay with add on contact blocks
- Choice of front mount or side mount accessories
- Electronic compatibility

Control Voltages

AC = 24, 32, 110, 240, 415 V 50 Hz

DC = 24, 36, 48, 110, 240 V DC

CS 7 industrial control relays share the same design as the CA 7 contactor range. They are compact and designed for heavy duty industrial control applications where reliability and versatility are essential.

CS 7 relays are designed for fast and trouble free installation and maintenance. All accessories are modular and snap-on without the use of tools. The relays are DIN/Screw mounted so they can be installed, moved or replaced quickly.

Basic 4 pole CS 7 relay AC coil

Contact arrangement	Cat. No.
2 N/O 2 N/C	CS7-22E...V
3 N/O 1 N/C	CS7-31E...V
4 N/O 0 N/C	CS7-40E...V



AC version



DC version

Basic 4 pole CS 7 relay DC coil

Contact arrangement	Cat. No.
0 N/O 4 N/C	CS7C-04E...V
1 N/O 3 N/C	CS7C-13E...V
2 N/O 2 N/C	CS7C-22E...V
3 N/O 1 N/C	CS7C-31E...V
4 N/O 0 N/C	CS7C-40E...V

Top mounting auxiliary contact blocks ¹⁾

N/O	N/C	Diagram	Reference	Suit CS 7	Cat. No.
1	1		11	All	CS 7-PV-11
0	2		02	All	CS 7-PV-02
2	0		20	All	CS 7-PV-20
1+1E	1+1L		L22	All	CS 7-PV-L22
3	1		31	All	CS 7-PV-31
4	0		40	All	CS 7-PV-40

Examples of CS 7 accessories



Front mount



Side mount



Front mount pneumatic timer

Note: ¹⁾ Other contact blocks type CA 7-P can be used providing terminal numbers are acceptable. (Refer CA 7 contactor auxiliaries, Part A section 1).

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Relays

RH Series

Ratings

Coil Ratings

Rated Voltage		Rated Current $\pm 15\%$ at 20°C								Coil Resistance $\pm 15\%$ at 20°C			
		60Hz				50Hz							
		SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT
AC	6V	150mA	200mA	280mA	330mA	170mA	238mA	330mA	387mA	18.8Ω	9.4Ω	6.0Ω	5.4Ω
	12V	75mA	100mA	140mA	165mA	86mA	118mA	165mA	196mA	76.8Ω	39.3Ω	25.3Ω	21.2Ω
	24V	37mA	50mA	70mA	83mA	42mA	59.7mA	81mA	98mA	300Ω	153Ω	103Ω	84.5Ω
	120V*	7.5mA	11mA	14.2mA	16.5mA	8.6mA	12.9mA	16.4mA	19.5mA	7,680Ω	4,170Ω	27,70Ω	22,20Ω
	240V†	3.2mA	5.5mA	7.1mA	8.3mA	3.7mA	6.5mA	8.2mA	9.8mA	3,1200Ω	15,210Ω	12,100Ω	91,20Ω
DC	6V	128mA	150mA	240mA	250mA	47Ω	40Ω	25Ω	24Ω				
	12V	64mA	75mA	120mA	125mA	188Ω	160Ω	100Ω	96Ω				
	24V	32mA	36.9mA	60mA	62mA	750Ω	650Ω	400Ω	388Ω				
	48V	18mA	18.5mA	30mA	31mA	2,660Ω	2,600Ω	1,600Ω	15,50Ω				
	110V‡	8mA	9.1mA	12.8mA	15mA	13,800Ω	12,100Ω	8,600Ω	7,340Ω				



* For RH2 relays = 110/120V AC.

† For RH2 relays = 220/240V AC.

‡ For RH2 relays = 100/110V DC.

Contact Ratings

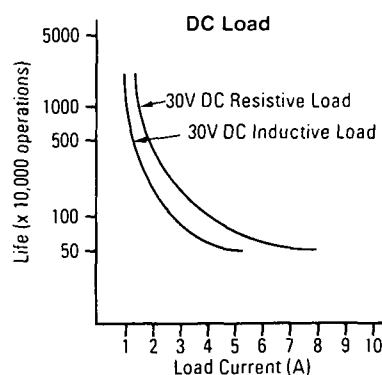
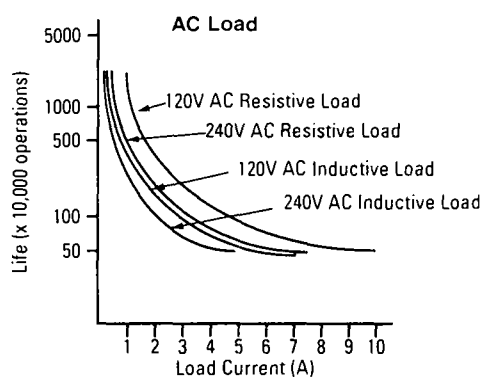
Voltage	Rating	Resistive				Inductive				Motor Load	
		SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT
28V DC	UL	10A	10A	10A	10A	7.5A	—	—	7.5A	—	—
30V DC	UL	—	—	—	—	7A	—	—	—	—	—
	CSA	10A	10A	10A	10A	7A	7.5A	7.5A	7.5A	—	—
	Nominal	—	—	—	—	—	—	—	—	—	—
110V DC	Nominal	0.5A	0.5A	0.5A	0.5A	0.3A	0.3A	0.3A	0.3A	—	—
120V AC	UL	—	—	—	—	7.5A	—	—	7.5A	1/6	1/6
	CSA	10A	10A	10A	10A	7.5A	7.5A	7.5A	7.5A	—	—
	Nominal	—	—	—	—	—	—	—	—	—	—
240V AC	UL	10A	10A	—	7.5A	7A	7A	*	5A	1/3	1/3
	CSA	—	—	—	—	—	—	—	—	—	—
	Nominal	7A	7.5A	7.5A	4.5A	5A	5A	5A	5A	—	—



1. * 6.5A/pole, 20A total.

2. Inductive load $\cos \phi = 0.3$, $L/R = 7ms$.

Electrical Life Curves



idec**Relays**

RH Series

RH Series — General Purpose Midget Relays

Key features of the RH series include:

- Compact midget size saves space
- High switching capacity (10A)
- Choice of blade or PCB style terminals
- Relay options include indicator light, check button, and top mounting bracket
- DIN rail, surface, panel, and PCB type sockets available for a wide range of mounting applications



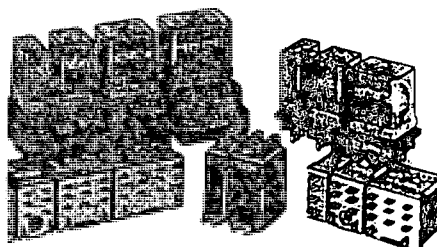
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E59804
E64245



CSA Certified
File No. LR35144



File No. BL951113332319



Specifications	Contact Material	Silver cadmium oxide
	Contact Resistance	50mΩ maximum (initial value)
	Minimum Applicable Load	24V DC/30mA, 5V DC/100mA (reference value)
	Operating Time	SPDT (RH1), DPDT (RH2): 20ms maximum 3PDT (RH3), 4PDT (RH4): 25ms maximum
	Release Time	SPDT (RH1), DPDT (RH2): 20ms maximum 3PDT (RH3), 4PDT (RH4): 25ms maximum
	Power Consumption	SPDT (RH1): DC: 0.8W AC: 1.1VA (50Hz), 1VA (60Hz) DPDT (RH2): DC: 0.9W AC: 1.4VA (50Hz), 1.2VA (60Hz) 3PDT (RH3): DC: 1.5W AC: 2VA (50Hz), 1.7VA (60Hz) 4PDT (RH4): DC: 1.5W AC: 2.5VA (50Hz), 2VA (60Hz)
	Insulation Resistance	100MΩ min (measured with a 500V DC megger)
	Dielectric Strength	SPDT (RH1) Between live and dead parts: 2,000V AC, 1 minute; Between contact circuit and operating coil: 2,000V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute
		DPDT (RH2), 3PDT (RH3), 4PDT (RH4) Between live and dead parts: 2,000V AC, 1 minute; Between contact circuit and operating coil: 2,000V AC, 1 minute; Between contact circuits: 2,000V AC, 1 minute; Between contacts of the same pole: 1,000V AC, 1 minute
	Frequency Response	1,800 operations/hour
	Temperature Rise	Coil: 85°C maximum Contact: 65°C maximum
	Vibration Resistance	0 to 6G (55Hz maximum)
	Shock Resistance	SPDT/DPDT: 200N (approximately 20G) 3PDT/4PDT: 100N (approximately 10G)
	Life Expectancy	Electrical: over 500,000 operations at 120V AC, 10A; (over 200,000 operations at 120V AC, 10A for SPDT (RH1), 3PDT (RH3), 4PDT (RH4)) Mechanical: 50,000,000 operations
	Operating Temperature	-30 to +70°C
	Weight	SPDT: 24g, DPDT: 37g (approximately) 3PDT: 50g, 4PDT: 74g (approximately)



See page D-29 for dimensions.

Operational Characteristics

Maximum Continuous Applied Voltage (AC/DC) at 20°C	110% of the rated voltage
Minimum Operating Voltage (AC/DC) at 20°C	80% of the rated voltage
Drop-Out Voltage (AC)	30% or more of the rated voltage
Drop-Out Voltage (DC)	10% or more of the rated voltage

Ordering Information

Order standard voltages for fastest delivery. Allow extra delivery time for non-standard voltages.

Basic Part No.

RH2B-U

Coil Voltage:

AC110-120V

USA: (800) 262-4332 or (408) 747-0550, Western Canada: (888) 578-9988 or Eastern Canada (888) 317-4332

D-11

Relays

RH Series

Part Numbers

Part Numbers: RH Series with Options

Termination	Contact Configuration	Basic Part No.	Indicator Light	Check Button	Indicator Light and Check Button	Top Bracket
B (blade)	SPDT	RH1B-U	RH1B-L*	—	—	RH1B-UT
	DPDT	RH2B-U	RH2B-UL	RH2B-UC	RH2B-ULC	RH2B-UT
	3PDT	RH3B-U	RH3B-UL	RH3B-UC	RH3B-ULC	RH3B-UT
	4PDT	RH4B-U	RH4B-UL	RH4B-UC	RH4B-ULC	RH4B-UT
V2 (PCB 0.078" [2mm] wide)	SPDT	RH1V2-U	RH1V2-L*	—	—	—
	DPDT	RH2V2-U	RH2V2-UL	RH2V2-UC	RH2V2-ULC	—
	3PDT	RH3V2-U	RH3V2-UL	RH3V2-UC	RH3V2-ULC	—
	4PDT	RH4V2-U	RH4V2-UL	RH4V2-UC	RH4V2-ULC	—

1. * RH1B(V2)-L is not UL recognized.

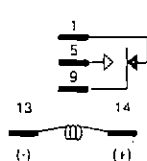
2. For Coil and Contact Ratings, see the next page.

Part Numbers: Sockets

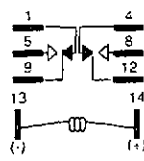
Relay	Standard DIN Rail Mount	Finger-Safe DIN Rail Mount	Surface Mount	Panel Mount	PCB Mount	Spring (optional)
RH1B	SH1B-05	SH1B-05C	—	SH1B-51	SH1B-62	SY2S-02F1 SFA-101 SFA-202 SY4S-51F1 SFA-301 SFA-302
RH2B	SH2B-05	SH2B-05C	SH2B-02	SH2B-51	SH2B-62	SY4S-02F1 SFA-101 SFA-202 SY4S-51F1
RH3B	SH3B-05	SH3B-05C	—	SH3B-51	SH3B-62	SH3B-05F1 SFA-101, -202 SY4S-51F1
RH4B	SH4B-05	SH4B-05C	—	SH4B-51	SH4B-62	SH4B-02F1 SFA-101, -202 SY4S-51F1

3. See Section F for details on sockets. All DIN rail mount sockets shown above can be mounted using DIN rail BNDN1000.

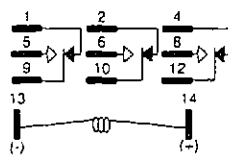
Internal Circuit



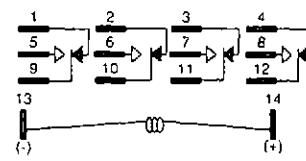
RH1



RH2



RH3



RH4