

Time delay, monitoring and control relays

Electronic timers and counters

Temperature controllers

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Time delay relays

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Carlo Gavazzi monitoring and control relays

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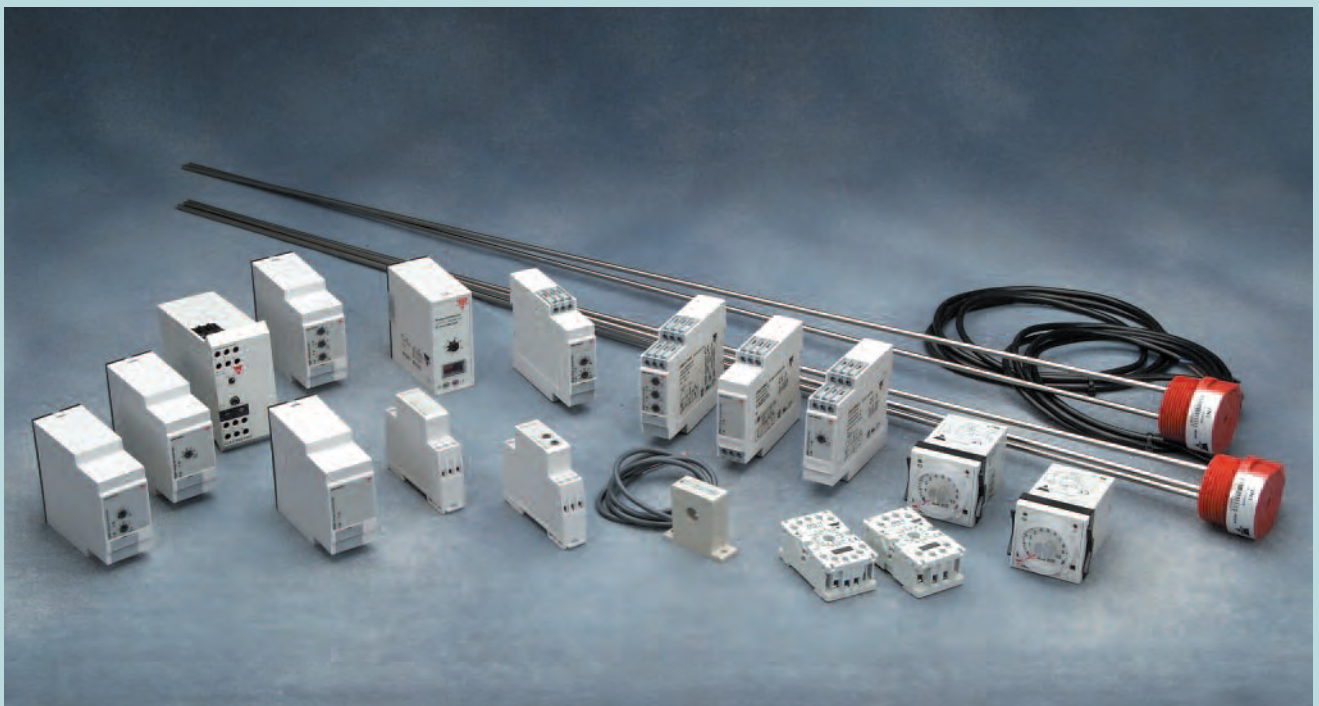
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Sprecher + Schuh electronic time delay relays

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NHP DASY – Twilight switch

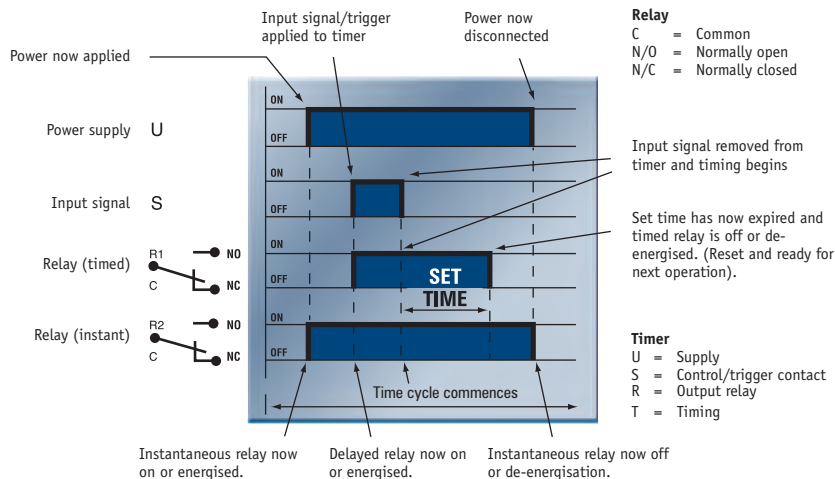
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Electronic time delay relays

Timing functions

Typical timing function



ON DELAY

1 TIMED CONTACT

Also referred to as: Delay on
Delay on make
Delay energisation
Delay on operate

FUNCTION DIAGRAM



MODE OF OPERATION

When power is applied to the timer, the set time delay commences and the relay remains in its normal state. At the end of the set time delay, the relay changes over to the opposite position or on state. At the disconnection of the power supply the relay changes back to its normal state, and the timer is reset for its next operation.

SUITABLE PRODUCTS

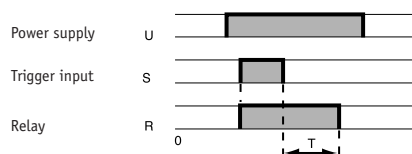
DAA51CM24, DAA01CM24, DAA01DM24, (2 contacts),
DAA01CM24, FAA, CRZE4, RZ7-FSA3, RZ7-FSA4 (2 contacts),
FKC01, RZ7-FEA, MRW

OFF DELAY

1 TIMED CONTACT

Also referred to as: Delay on break
Delay off
Delay on de-energisation

FUNCTION DIAGRAM



MODE OF OPERATION

This timer is permanently supplied. When power is applied to the timer it is prepared for operation. At the closure of the input signal, the relay changes over to the opposite position or on state. Timing does not commence. At the loss of the input signal timing commences and at the end of the set time delay the relay changes back to its normal or de-energised state and the timer is reset for its next operation.

SUITABLE PRODUCTS

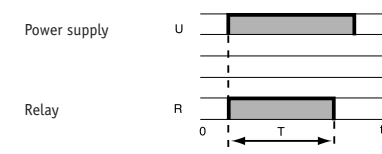
DBA52CM24, DBA02CM24, PBA02CM24, DMB51CW24,
DMB01CM24, DMB01DM24 (2 contacts), PMB01CM24,
PMB01DM24 (2 contacts), RZ7-FSB3,
RZ7-FSB4 (2 contacts), RZ7-FEB, FKC01.

INTERVAL (Automatic start)

1 TIMED CONTACT

Also referred to as: On pulse
On delay impulse

FUNCTION DIAGRAM



MODE OF OPERATION

When power is applied to the timer, the set time delay commences and the relay changes over to the opposite position or on state. At the end of the set time delay, the relay changes back to its normal or de-energised state, and the timer is reset for its next operation.

SUITABLE PRODUCTS

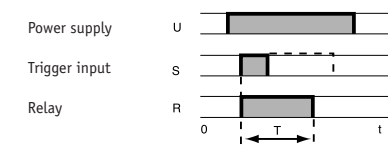
DMB51CW24, DMB01CM24, DMB01DM24 (2 contacts),
PMB01CM24, PMB01DM24 (2 contacts), FAA, FMB, FKC01,
RZ7-FSD5, RZ7-FSM4 (2 contacts).

INTERVAL (Manual start)

1 TIMED CONTACT

Also referred to as: One shot
Impulse lengthener
Single shot

FUNCTION DIAGRAM



MODE OF OPERATION

This timer is permanently supplied. Upon the closure of an input signal the relay changes over to the opposite position or on state and timing commences. At the end of the set time delay, the relay changes back to its normal state and the timer is reset for its next operation. The input signal can be held for either a shorter, or longer time than the preset time delay and it will not influence the operation of the relay.

SUITABLE PRODUCTS

DMB51CW24, DMB01CM24, DMB01DM24 (2 contacts),
PMB01CM24, PMB01DM24 (2 contacts), FAA, FMB, FKC01,
RZ7-FSL3.

9

STAR-DELTA

2 TIMED CONTACTS

This function is utilised to control timed operation of the star and delta contactors in a star delta motor starter.

FUNCTION DIAGRAM



MODE OF OPERATION

When power is applied to the timer, the set time delay T1 commences and the star relay changes over to the opposite position or on state. At the end of the set time delay T1 the star relay changes back to its normal or de-energised state and the fixed preset time T2 commences. At the end of the fixed time delay T2 the delta relay changes over to the opposite position or on state. The delta relay remains on until power is disconnected from the timer.

SUITABLE PRODUCTS

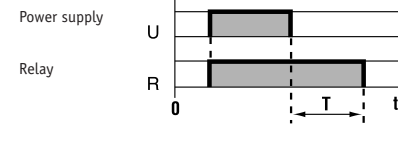
DAC01CM24, DAC01CM40, DAC51CM24, CRZY4,
RZ7-FSY2

TRUE OFF DELAY

1 TIMED CONTACT

Also referred to as: Delay on loss of supply
Delay on release

FUNCTION DIAGRAM



MODE OF OPERATION

When power is applied to the timer, the relay changes over to the opposite or on state. Timing does not commence. When the power is disconnected, the set time delay commences, and the relay remains in its on state. At the end of the set time delay, the relay changes back to its normal or de-energised state, and the timer is reset for its next operation.

SUITABLE PRODUCTS

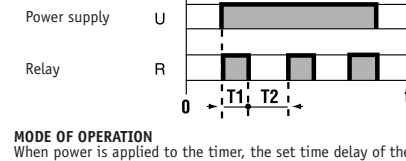
DBB51CM241M, DBB51CM2410M, DBB51CM2410S, DBB01DM24

RECYCLING

1 TIMED CONTACT (ON PULSE FIRST)

Also referred to as: Repeat cycling
Symmetrical recycler
Asymmetrical recycler

FUNCTION DIAGRAM



MODE OF OPERATION

When power is applied to the timer, the set time delay of the off pulse commences and the relay remains in its normal state. At the end of the set time delay of the off pulse, the relay changes over to the opposite position or on state. The set time delay of the on pulse will now commence and at the end of the set time delay the relay will change back to its normal or de-energised state. This repeat cycling will continue until power is removed from the timer. The timer will then be reset for its next operation to begin with an off pulse. The operation of a recycling timer with on pulse facility is the same as above, although it starts with an on pulse upon application of the power supply.

SUITABLE PRODUCTS

DCB51CM24, DCB01CM24, DMB51CW24,
DMB01CM24, PMB01CM24, FKC01, RZ7-FSF3,
RZ7-FSM4, RZ7-FEF.

Selection guide

Time delay relays and accessories

Electronic ON delay

Cat. No.	Time range	No. of contacts	Mounting	Page ref.
DAA-51-C-M24	0.1 s - 100 hours	1 C/O	17.5 mm, Din rail	9 - 6
DAA-01-C-M24	0.1 s - 100 hours	1 C/O	22.5 mm, Din rail	9 - 6
DAA-01-D-M24	0.1 s - 100 hours	2 C/O	22.5 mm, DIN rail	9 - 6
PAA-01-D-M24	0.1 s - 100 hours	2 C/O	36 mm, 11 Pin, Plug-in	9 - 6
RZ7-FEA1	0.05 - 60 minutes	1 N/O	DIN rail	9 - 43
RZ7-FEA3	0.05 - 10 hours	1 C/O	DIN rail	9 - 45
RZ7-FSA3	0.05 - 60 hours	1 C/O	DIN rail	9 - 47
RZ7-FSA4	0.05 - 60 hours	2 C/O	DIN rail	9 - 53
RZ7-FSI3	0.05 - 60 hours	1 C/O	DIN rail	9 - 49
RZ7-FSK3	0.05 - 60 hours	1 C/O	DIN rail	9 - 50
CRZE4	0.1 s - 3 s / 1 s - 30 s	Static output	Clip-on timer	1 - 25

Electronic OFF delay

DBA-52-C-M24	0.1 s - 100 hours	1 C/O	17.5 mm, DIN rail	9 - 7
DBA-02-C-M24	0.1 s - 100 hours	1 C/O	22.5 mm, DIN rail	9 - 7
PBA-02-C-M24	0.1 s - 100 hours	1 C/O	36 mm, 11 Pin, Plug-in	9 - 7
RZ7-FEB1	0.05 - 60 minutes	1 N/O	DIN rail	9 - 43
RZ7-FEB3	0.05 - 10 hours	1 C/O	DIN rail	9 - 45
RZ7-FSB3	0.05 - 60 hours	1 C/O	DIN rail	9 - 47
RZ7-FSB4	0.5 - 60 hours	2 C/O	DIN rail	9 - 53

Electronic TRUE OFF delay

DBB-51-C-M24-10S	1 s - 10 s	1 C/O	17.5 mm, DIN rail	9 - 8
DBB-51-C-M24-1M	6 s - 60 s	1 C/O	17.5 mm, DIN rail	9 - 8
DBB-51-C-M24-10M	60 s - 10 minutes	1 C/O	17.5 mm, DIN rail	9 - 8
DBB-01-D-M24	0.1 s - 10 minutes	2 C/O	22.5 mm, DIN rail	9 - 8
RZ7-FSQ3	0.15 - 10 minutes	1 C/O	DIN rail	9 - 52
RZ7-FSQ4	0.15 - 10 minutes	2 C/O	DIN rail	9 - 53

Selection guide

Time delay relays and accessories

Electronic multi-function, multi-range, multi-voltage

Cat. No.	Time range	No. of contacts	Mounting	Page ref.
DMB-51-C-W24	0.1 s - 100 hours	1 C/O	17.5 mm, DIN rail	9 - 9
DMB-01-C-M24	0.1 s - 100 hours	1 C/O	22.5 mm, DIN rail	9 - 9
DMB-01-D-M24	0.1 s - 100 hours	2 C/O	22.5 mm, DIN rail	9 - 9
PMB-01-C-M24	0.1 s - 100 hours	1 C/O	36 mm, 11 Pin, Plug-in	9 - 9
PMB-01-D-M24	0.1 s - 100 hours	2 C/O	36 mm, 11 Pin, Plug-in	9 - 9
FAA-08-DW-24	0.05 s - 300 hours	2 C/O	48 mm ² , flush, 8 Pin, Plug-in	9 - 13
FAA-01-DW-24	0.05 s - 300 hours	2 C/O	48 mm ² , flush, 11 Pin, Plug-in	9 - 13
FMB-01-DW-24	0.05 s - 300 hours	2 C/O	48 mm ² , flush, 11 Pin, Plug-in	9 - 14
FMC-01	0.02 s - 9999 hours	1 C/O	48 mm ² , flush, panel mount	9 - 15
RZ7-FEM1	0.05 - 60 minutes	1 N/O	DIN rail	9 - 44
RZ7-FEM3	0.05 - 10 hours	1 C/O	DIN rail	9 - 46
RZ7-FSM3	0.5 - 60 hours	1 C/O	DIN rail	9 - 52
RZ7-FSM4	0.5 - 60 hours	2 C/O	DIN rail	9 - 53

Electronic recycling

DCB-51-C-M24	0.1 s - 100 hours	1 C/O	17.5 mm, DIN rail	9 - 11
DCB-01-C-M24	0.1 s - 100 hours	1 C/O	22.5 mm, DIN rail	9 - 11
PCB-01-C-M24	0.1 s - 100 hours	1 C/O	36 mm, 11 Pin, Plug-in	9 - 11
RZ7-FEF1	0.05 - 60 minutes	1 N/O	DIN rail	9 - 43
RZ7-FEF3	0.05 - 10 hours	1 C/O	DIN rail	9 - 45
RZ7-FSF3	0.05 - 60 hours	1 C/O	DIN rail	9 - 48

Star delta

DAC-51-C-M24	0.1s - 600 s, 50 ms - 130 ms	1 C/O	17.5 mm, DIN rail	9 - 12
DAC-01-C-M24	0.1s - 600 s, 50 ms - 130 ms	1 C/O	22.5 mm, DIN rail	9 - 12
DAC-01-C-M40	0.1s - 600 s, 50 ms - 130 ms	1 C/O	22.5 mm, DIN rail	9 - 12
RZ7-FSY2	1.5 - 30 s, 0.15 s - 3 minutes	1 C/O	DIN rail	9 - 52
CRZY4	1 s - 30 seconds	Static output	Clip-on timer	1 - 25
RZ7-FEY2	0.15 - 10 minutes	1 C/O	DIN rail	9 - 46

9

Special function

RZ7-FSC3	0.05 - 60 hours	1 C/O on & off delay	DIN rail	9 - 47
RZ7-FSD3, RZ7-FSE3	0.05 - 60 hours	1 C/O one shot & fleeting off delay	DIN rail	9 - 48
RZ7-FED1	0.05 - 60 minutes	1 N/O on delay impulse timing relay	DIN rail	9 - 43
RZ7-FED3	0.05 - 10 hours	1 C/O on delay impulse timing relay	DIN rail	9 - 45
RZ7-FEE3	0.05 - 10 hours	1 C/O fleeting off delay	DIN rail	9 - 46
RZ7-FEL3	0.05 - 10 hours	1 C/O impulse converter	DIN rail	9 - 46
RZ7-FSG3	0.05 - 60 hours	1 C/O flashing starter with pause	DIN rail	9 - 49
RZ7-FSJ3	0.05 - 60 hours	1 C/O delayed on pulse control	DIN rail	9 - 49
RZ7-FSL3	0.05 - 60 hours	1 C/O impulse converter	DIN rail	9 - 50
RZ7-FSH3	0.05 - 60 hours	1 C/O repeat cycle timer	DIN rail	9 - 51

Electronic time delay relays

Timer selection guide

Mini-D, D & P series timers

Carlo Gavazzi offers solutions where time is of the essence and control is the desired outcome. Functionality is offered with Mini-D, D and P series timers all able to accept 24 V DC and 24 to 240 V AC supply voltage.

Catalogue Number construction



DMB51...



DAA01...



PBA02...



FAA...

FMB...

D M B - 5 1 - C - W 2 4

Installation

D – DIN rail

P – Plug-in

Function

A – ON delay

B – OFF delay

C – Recycling

M – Multi-function

Function Type

A – Mono-function

B – Multi-function/special variation

Power supply

W24 – 12 - 240 V AC/DC

M24 – 24 V DC / 24 to 240 V AC

M40 – 380 V AC to 415 V AC

Output

C – 1 changeover contact

D – 2 changeover contacts

Function version

1 – Standard

2 – Special/other variation

Housing

0 – Standard DIN or Plug-in

5 – 17.5 mm wide (mini housing)

48 mm² flush mount timers

Any timing application can be met with Carlo Gavazzi flush mount timers. Presented in 48 mm x 48 mm housing and configured in 8 or 11 Pin, these timers are ideal for panel mounting.

F A A - 0 1 - D W 2 4

Housing

F – 48mm²

Function

A – ON delay

M – Multi-function

Function type

A – Multi-function

B – Multi-function/special variation

Plug type

01 – 11 Pin

08 – 8 Pin

Output

2 changeover contacts DPDT

Power supply

W24 – 12 to 240 V AC/DC

Electronic time delay relays

ON delay (Delay on operate)

- Time range setting 0.1 sec to 100 hours
- Easily accessible knobs for time setting and adjusting
- Multi-voltage power supply
- LED indication for relay status and power supply
- IP 20 touch-proof terminals



DAA-51-C-M24



DAA-01-C-M24



PAA-01-D-M24

Housing	Supply	Output	Cat. No.	Price \$
17.5 mm, DIN	24 V DC / 24-240 V AC	1 C/O	DAA-51-C-M24	162.00
22.5 mm, DIN	24 V DC / 24-240 V AC	1 C/O	DAA-01-C-M24	184.00
22.5 mm, DIN	24-240 V AC / DC	2 C/O ¹⁾	DAA-01-D-M24	205.00
36 mm, 11 Pin, Plug-in	24-240 V AC / DC	2 C/O ¹⁾	PAA-01-D-M24	215.00

Technical data

Timing specifications

Timing range	0.1 to 1 sec
	1 to 10 sec
	6 to 60 sec
	60 to 600 sec
	0.1 to 1 hour
	1 to 10 hours
	10 to 100 hours

Time setting accuracy	≤ 5 %
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Reset on power supply	≥ 200 ms
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Output specifications

Output contacts	1 C/O or 2 C/O ¹⁾
Contact ratings	AC 1 5 A / 250 V AC (DAA-51)
	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC

Electrical life	> 10 ⁵ cycles
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Mechanical life	> 30 x 10 ⁶ cycles
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Operating frequency	< 7200 cycles/hour
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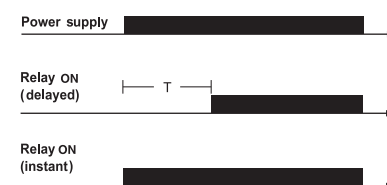
Supply specifications

Rated operational voltage	DAA-01C... 24 V DC ± 15 %
	24-240 V AC +10 % -15 %
	45-65 Hz
	DAA-01D & PAA-01D... 24-240 V AC / DC +10 % -15 %
	45-65 Hz
Power consumption AC/DC	4 VA / 1.5 W

Base (for P series only)	ZPD11 refer page 9 - 17
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Timing diagram

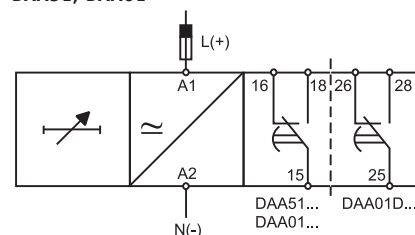
Function O – ON Delay



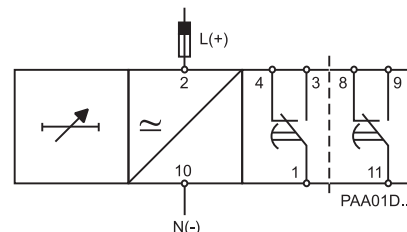
For full explanation of timer function refer pages 9 - 18 to 9 - 20

Wiring diagrams

DAA51, DAA01



PAA01



Dimensions	Refer page 9 - 17
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Complies with CE
UL approved

Note: ¹⁾ 2 C/O selectable (2 delayed) or (1 delay + 1 instant).

Price Schedule 'B2'

Electronic time delay relays

OFF delay (Delay on release)

- Time range setting 0.1 sec to 100 hours
- Easily accessible knobs for time setting and adjusting
- Multi-voltage power supply
- LED indication of relay status and power ON
- IP 20 touch-proof terminals



DBA-52-C-M24



DBA-02-C-M24



PBA-02-C-M24

Housing	Supply	Output	Cat. No.	Price \$
17.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DBA-52-C-M24	172.00
22.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DBA-02-C-M24	182.00
36 mm, 11 Pin, Plug-in	24 V DC / 24-240 V AC	1 C/O	PBA-02-C-M24	194.00

Technical data

Timing specifications

Timing range	0.1 to 1 sec
	1 to 10 sec
	6 to 60 sec
	60 to 600 sec
	0.1 to 1 hour
	1 to 10 hours
	10 to 100 hours

Time setting accuracy	≤ 5 %
Reset on power supply	≥ 200 ms

Output specifications

Output contacts	1 C/O
Contact ratings	AC 1 5 A / 250 V AC (DBA-52)
	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC
Electrical life	> 10 ⁵ cycles
Mechanical life	> 30 x 10 ⁶ cycles
Operating frequency	< 7200 cycles/hour

Supply specifications

Rated operational voltage	24 V DC ± 15 %
	24-240 V AC +10 % -15 %
	45-65 Hz
Power consumption AC/DC	4 VA / 1.5 W

Base (for P series only)	ZPD11	refer page 9 - 17
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Timing diagram

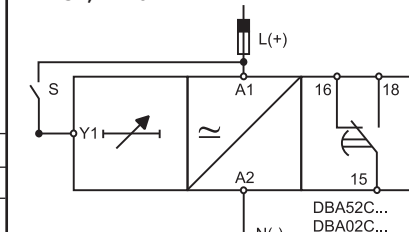
Function Dr - OFF Delay



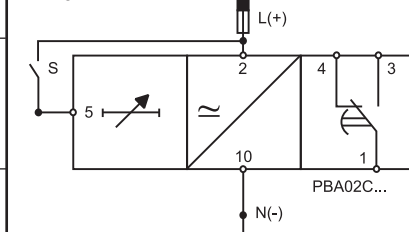
For full explanation of timer function refer pages 9 - 18 to 9 - 20

Wiring diagrams

DBA52, DBA02



PBA02



Dimensions

Refer page 9 - 17

Complies with CE
UL approved

Price Schedule 'B2'

Electronic time delay relays

True OFF delay

- Time range setting up to 600 seconds
- Knob adjustable time setting
- Automatic start after power supply drop-out
- LED indication of relay status and power ON
- One and two changeover contacts



DBB-51-C-M24



DBB-01-D-M24

Housing	Supply	Output	Cat. No.	Price \$
17.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DBB-51-C-M24 1M	270.00
17.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DBB-51-C-M24 10M	270.00
17.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DBB-51-C-M24 10S	270.00
22.5 mm DIN	24-240 V AC/DC	2 C/O	DBB-01-D-M24	290.00

Technical data

Timing specifications

Timing range	
DBB-51-C-M24 10S	1 to 10 sec
DBB-51-C-M24 1M	6 to 60 sec
DBB-51-C-M24 10M	60 to 600 sec
DBB-01-D-M24	0.1 to 1 sec
	1 to 10 sec
	6 to 60 sec
	60 to 600 sec

Time setting accuracy ≤ 5 %

Reset on power supply ≥ 200 ms

Output specifications

Output contacts	1 C/O or 2 C/O
Contact ratings	AC 1 5 A / 250 V AC (DBB-51...)
	AC 1 8 A / 250 V AC (DBB-01...)
	DC 12 5 A / 24 V DC
	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC

Electrical life > 10⁵ cycles

Mechanical life > 30 x 10⁶ cycles

Operating frequency < 7200 cycles/hour

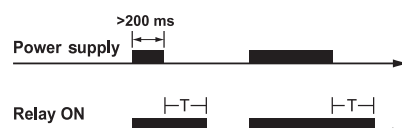
Supply specifications

Rated operational voltage	
DBB-51-C...	24 V DC ± 15 %
	24-240 V AC +10 % -15 %
	45-65 Hz
DBB-01-D...	24-240 V AC/DC +10 % -15 %
	45-65 Hz
Power consumption AC/DC	1.5 VA / 0.60 W (DBB-51...)
	2.2 VA / 0.60 W (DBB-01...)

Base (for P series only) ZPD11 refer page 9 - 17

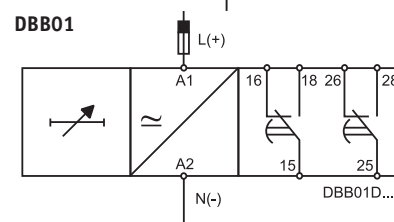
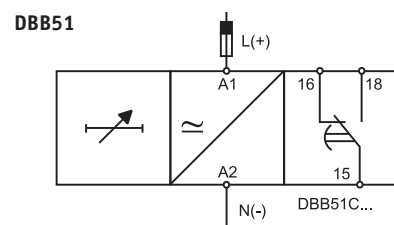
Timing diagram

Function Tr - True OFF Delay



For full explanation of timer function refer pages 9 - 18 to 9 - 20

Wiring diagrams



DIP switches for DBB-01...

Timing range setting

1	2		DIP switches
ON	ON:	0.1 to 1 sec	
ON	OFF:	1 to 10 sec	
OFF	ON:	6 to 60 sec	
OFF	OFF:	60 to 600 sec	

Dimensions Refer page 9 - 17

Complies with CE
UL approved

Price Schedule 'B2'

Electronic time delay relays

Multi-function

- 7 timers in one
- 3 housings to choose from
- LED indication of relay status and power ON
- Time range setting 0.1 sec to 100 hours
- Multi-voltage power supply

- 7 selectable functions
- Op - ON delay
- Dr - OFF delay
- In - Interval
- Id - Double interval
- Io - Fleeting OFF
- R - Recycling ON first
- Rb - Recycling OFF first



DMB-51-C-W24

Housing	Supply	Output	Cat. No.	Price \$
17.5 mm DIN	12-240 V AC/DC	1 C/O	DMB-51-C-W24	174.00
22.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DMB-01-C-M24	197.00
22.5 mm DIN	24-240 V AC/DC	2 C/O ¹⁾	DMB-01-D-M24	230.00
36 mm, 11 Pin, Plug-in	24 V DC / 24-240 V AC	1 C/O	PMB-01-C-M24	210.00
36 mm, 11 Pin, Plug-in	24-240 V AC/DC	2 C/O ¹⁾	PMB-01-D-M24	240.00



DMB-01-C-M24

Technical data

Timing specifications

Timing range	0.1 to 1 sec
	1 to 10 sec
	6 to 60 sec
	60 to 600 sec
	0.1 to 1 hour
	1 to 10 hours
	10 to 100 hours

Time setting accuracy	≤ 5 %
Reset on power supply	≥ 200 ms

Output specifications

Output contacts	1 C/O & 2 C/O ¹⁾
Contact ratings	AC 1 5 A / 250 V AC (DMB-51...)
	AC 1 8 A / 250 V AC (DMB-01...)
	DC 12 5 A / 24 V DC
	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC

Electrical life	> 10 ⁵ cycles
Mechanical life	> 30 x 10 ⁶ cycles
Operating frequency	< 7200 cycles/hour

Supply specifications

Rated operational voltage	
DMB-51...	12-24 V DC ± 15 %
	12-240 V AC +10 % -15 %
	45-65 Hz
DMB-01-C..., PMB-01-C...	24 V DC ± 15 %
	24-240 V AC +10 % -15 %
	45-65 Hz
DMB-01-D..., PMB-01-D...	24-240 V AC/DC +10 % -15 %
Power consumption AC/DC	4 VA / 1.5 W

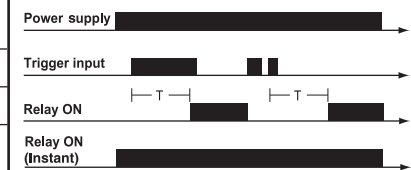
Base (for P series only)	ZPD11	refer page 9 - 17	Dimensions	Refer page 9 - 17
---------------------------------	-------	-------------------	-------------------	-------------------

Timing diagram

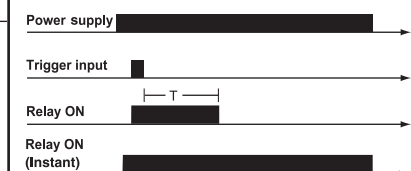
Function Op - ON Delay - Automatic start



Function Op - ON Delay - Manual start



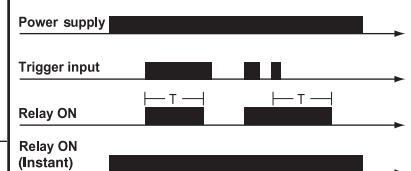
Function Dr - OFF Delay



Function In - Interval - Automatic start



Function In - Interval - Manual start



For full explanation of timing diagrams refer page 9 - 18 to 9 - 20



PMB-01-D-M24

Complies with CE
UL approved

Note: ¹⁾ 2 C/O selectable (2 delayed) or (1 delay + 1 instant).

Price Schedule 'B2'

Electronic time delay relays

Multi-function

Refer previous page

- 7 selectable functions
- Op - ON delay
- Dr - OFF delay
- In - Interval
- Id - Double interval
- Io - Fleeting OFF
- R - Recycling ON first
- Rb - Recycling OFF first



DMB-51-C-W24



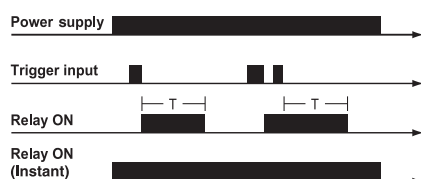
DMB-01-C-M24



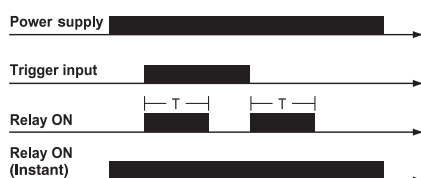
PMB-01-D-M24

Timing diagram

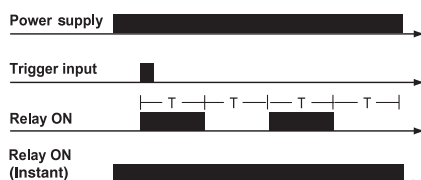
Function Io - Interval on trigger open



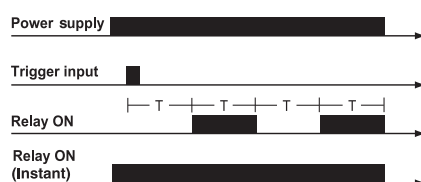
Function Id - Double interval



Function R - Symmetrical recycler (ON first)



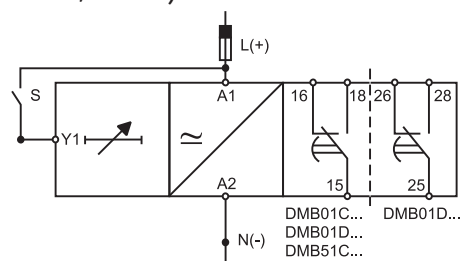
Function Rb - Symmetrical recycler (OFF first)



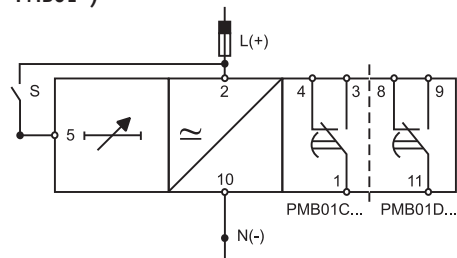
For full explanation of timing diagrams refer page 9 - 16 and 9 - 18 to 9 - 20

Wiring diagrams

DMB51, DMB01 ¹⁾



PMB01 ¹⁾



Dimensions

Refer page 9 - 17

Note: ¹⁾ For applications not requiring trigger input (automatic) bridge Y1 and A1 (DMB51 & DMB01) or 5 and 2 (PMB01) terminals

Electronic time delay relays

Asymmetrical recycling/single shot

- Time range 0.1 sec to 100 hours
- 3 selectable timing functions
Aa - Asymmetrical recycler ON first
Ab - Asymmetrical recycler OFF first
Sh - Single shot (not available on DCB51...)
- Knob adjustable time range and setting
- Automatic start (on supply of power)
- LED indication of relay status and power ON



DCB-51-C-M24



DCB-01-C-M24



PCB-01-C-M24

Housing	Supply	Output	Cat. No.	Price \$
17.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DCB-51-C-M24	235.00
22.5 mm DIN	24 V DC / 24-240 V AC	1 C/O	DCB-01-C-M24	245.00
36 mm, 11 Pin, Plug-in	24 V DC / 24-240 V AC	1 C/O	PCB-01-C-M24	255.00

Technical data

Timing specifications

Timing range	0.1 to 1 sec
	1 to 10 sec
	6 to 60 sec
	60 to 600 sec
	0.1 to 1 hour
	1 to 10 hours
	10 to 100 hours

Time setting accuracy ≤ 5 %

Reset on power supply ≥ 200 ms

Output specifications

Output contacts	1 C/O
Contact ratings	AC 1 5 A / 250 V AC (DCB-51...)
	AC 1 8 A / 250 V AC (DCB-01...)
	DC 12 5 A / 24 V DC
	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC
Electrical life	> 10 ⁵ cycles
Mechanical life	> 30 x 10 ⁶ cycles
Operating frequency	< 7200 cycles/hour

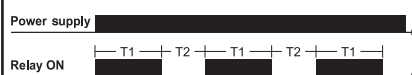
Supply specifications

Rated operational voltage	24 V DC ± 15 %
	24-240 V AC +10 % -15 %
	45-65 Hz
Power consumption AC/DC	4 VA / 1.5 W

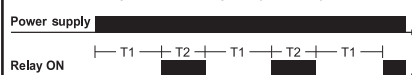
Base (for P series only) ZPD11 refer page 9 - 17

Timing diagram

Function Aa - Asymmetrical recycler (ON first)



Function Ab - Asymmetrical recycler (OFF first)



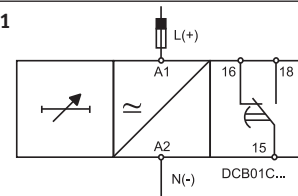
Function Sh - Single shot on delay



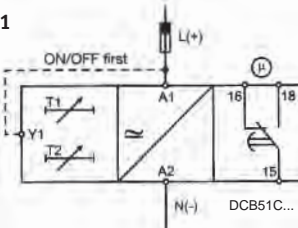
For full explanation of timer function refer pages 9 - 18 to 9 - 20

Wiring diagrams

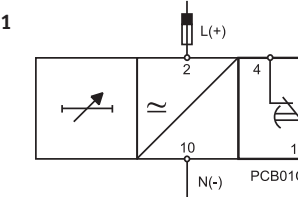
DCB01



DCB51



PCB01



Dimensions Refer page 9 - 17

Complies with CE
UL approved

Price Schedule 'B2'

Electronic time delay relays

Star-delta

- Time range 0.1 to 600 sec
- Time range star to delta: 50 to 130 ms
- Knob adjustable time setting and star time
- Automatic start (on supply of power)
- LED indication of relay status and power ON






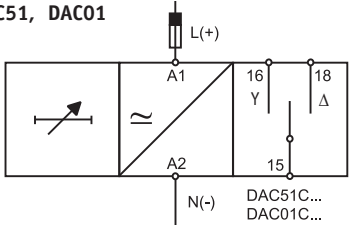
DAC-51-C-M24



DAC-01-C-M24

Housing	Supply	Output	Cat. No.	Price \$
17.5 mm DIN	24-240 V AC/DC	1 C/O	DAC-51-C-M24	184.00
22.5 mm DIN	24-240 V AC/DC	1 C/O	DAC-01-C-M24	192.00
22.5 mm DIN	380-415 V AC	1 C/O	DAC-01-C-M40	200.00

Technical data

Timing specifications		Timing diagram
Timing range TY	0.1 to 1 sec 1 to 10 sec 6 to 60 sec 60 to 600 sec	<p>Function SD - Star-delta</p> <p>Power supply </p> <p>Star output </p> <p>Delta output </p> <p>For full explanation of timer function refer pages 9 - 18 to 9 - 20</p>
Star to delta delay TYΔ	50 ms to 130 ms	
Time setting accuracy	≤ 5 %	
Reset on power supply	≥ 200 ms	
Output specifications		Wiring diagrams
Output contacts	1 C/O	<p>DAC51, DAC01</p> 
Contact ratings	AC 1 5 A / 250 V AC (DAC-51...) AC 1 8 A / 250 V AC (DAC-01...) DC 12 5 A / 24 V DC AC 15 2.5 A / 250 V AC DC 13 2.5 A / 24 V DC	
Electrical life	> 10 ⁵ cycles	
Mechanical life	> 30 x 10 ⁶ cycles	
Operating frequency	< 7200 cycles/hour	<p>Dimensions Refer page 9 - 17</p>
Supply specifications		
Rated operational voltage	M24 24-240 V AC/DC +10 % -15 % 45-65 Hz M40 380-415 V AC + 10 % -15 % 45-65 Hz	
Power consumption AC/DC	4 VA / 1.5 W (DAC-01...) 5 VA / 1.5 W (DAC-51...)	
Base (for P series only)	N/A	

Electronic time delay relays

ON delay 48 mm² panel mount

- Time range setting 0.02 sec to 300 hours
- Knob adjustable time range and setting
- Flush mount 48 mm² housing for easy door mounting
- LED indication of relay status and power ON
- Selectable functions
OP - ON delay
R - Symmetrical Recycler (ON first)
In - Interval
Sh - One shot



FAA01DW24



FAA08DW24

Housing	Supply	Output	Cat. No.	Price \$
48 mm ² , 8 Pin, Plug-in	12-240 V AC/DC	2 C/O	FAA08DW24	173.00
48 mm ² , 11 Pin, Plug-in	12-240 V AC/DC	2 C/O	FAA01DW24	174.00

Technical data

Timing specifications	sec/min/hrs	10hr	Timing diagram
Timing range	1.2	0.02 to 1.2	0.2 to 12
	12	0.2 to 12	2 to 120
	3	0.05 to 3	0.5 to 30
	30	0.5 to 30	5 to 300
Time setting accuracy	± 5 %		
Reset on power supply	≥ 100 ms		

Function O – ON Delay

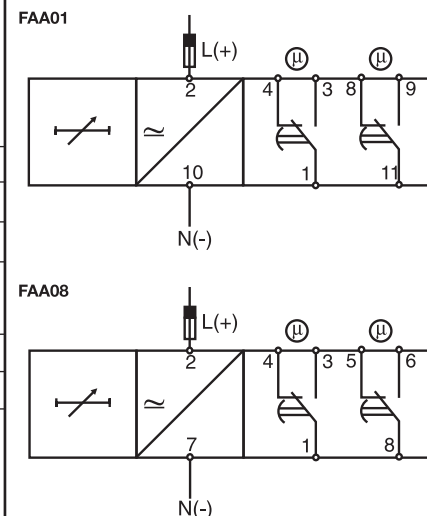


For full explanation of timer functions refer page 9 - 18 to 9 - 20

Output specifications

Output contacts	2 C/O
Contact ratings	AC 1 8 A / 250 V AC
	DC 12 5 A @ 24 V DC
	AC 15 2.5 A @ 250 V AC
	DC 13 2.5 A @ 24 V DC
Electrical life	≥ 1 x 10 ⁵
Mechanical life	> 30 x 10 ⁶
Operating frequency	< 3600 ops/hr

Wiring diagrams



Supply specifications

Rated operational voltage	12 - 240 V AC/DC
Power consumption AC/DC	5 VA / 1.5 W

Base

ZPD8 refer page 9 - 17
ZPD11 refer page 9 - 17

Dimensions Refer page 9 - 17

Complies with CE
UL approved

Price Schedule 'B2'

Electronic time delay relays

Multi-function 48 mm² panel mount

- Time range setting 0.02 sec to 300 hours
- Knob adjustable time range and setting
- Flush mount 48 mm² housing
- Manual start
- LED indication of relay status and power ON
- Selectable functions
- Op - ON delay
- Rb - Symmetrical recycler OFF first
- R - Symmetrical recycler ON first
- Id - Double Interval
- Dr - OFF delay
- In - Interval
- Io - Interval on trigger open



FMB01DW24

Housing	Supply	Output	Cat. No.	Price \$
48 mm ² , 11 Pin, Plug-in	12 - 240 V AC/DC	2 C/O	FMB01DW24	168.00

Technical data

Timing specifications		sec/min/hrs	10hr
Timing range	1.2	0.02 to 1.2	0.2 to 12
	12	0.2 to 12	2 to 120
	3	0.05 to 3	0.5 to 30
	30	0.5 to 30	5 to 300
Time setting accuracy		± 5 %	
Reset on power supply		≥ 100 ms	

Output specifications

Output contacts	2 C/O
Contact ratings	AC 1 8 A / 250 V AC
	DC 12 5 A @ 24 V DC
	AC 15 2.5 A @ 250 V AC
	DC 13 2.5 A @ 24 V DC
Electrical life	≥ 1 x 10 ⁵ cycles
Mechanical life	≥ 30 x 10 ⁶ cycles
Operating frequency	≤ 3600 operations/hour

Supply specifications

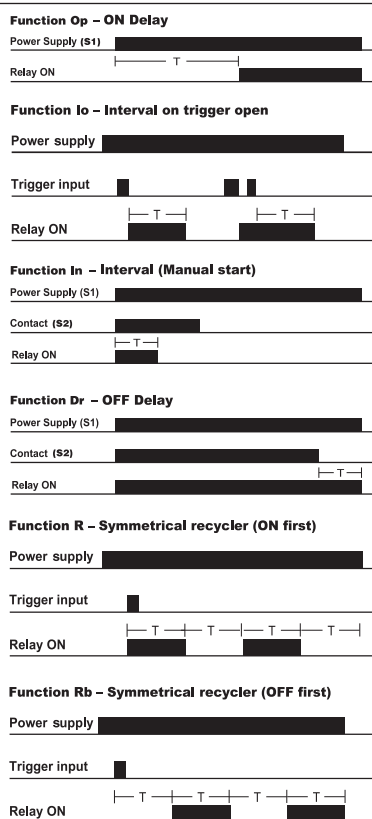
Rated operational voltage	12 - 240 V AC/DC
	+ 10 % -15 %
Power consumption AC/DC	3 VA / 1.5 W

Base

for use with	FMB...	ZPD11
		refer page 9 - 17

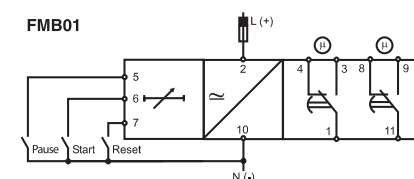
Note: 'Pause' function can be actuated during all timing sequences. Once the pause is removed timing re-instates.

Timing diagram



For full explanation of timer functions refer pages 9 - 18 and 9 - 20

Wiring diagram



Dimensions Refer page 9 - 17

Complies with CE
UL approved

Price Schedule 'B2'

Electronic time delay relays

Multi-function digital

- Precision control to 0.01 sec
- Time range 0.02 sec to 9999 hours
- 9 timing/output functions
- Highly visible liquid crystal display
- 4 levels of program protection
- IP 65 rated front panel



FMC01

Housing	Input	Output	Cat. No.	Price \$
48 mm ² panel mount	12 to 240 V AC/DC	1 C/O	FMC01	430.00

Technical data

Timing specifications

Timing range	0.02 s to 9999 hr
Input signals	Signal, rest, gate, key protect input
Input method	Volt-free contact, NPN sensor
Display type	LCD display
Display mode	Up, down time
Digits	5 digit
Reset system	Remote, automatic
Memory back-up	10 year life

Output specifications

Output contacts	1 C/O (SPST)
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Contact ratings

Resistive loads	AC 1 8 A @ 250 V AC
	DC 12 5 A @ 30 V DC
Small inductive loads	AC 15 5 A @ 250 V AC
	DC 13 3.5 A @ 30 V DC

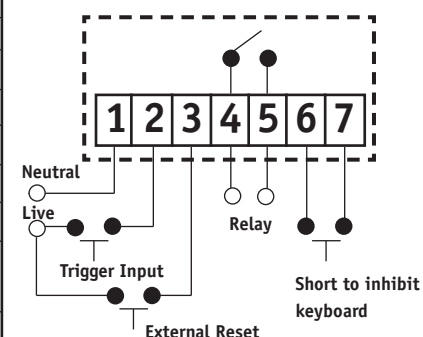
Output modes	See page 9 - 16
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Response time	20 ms minimum
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Supply specifications

Rated operational voltage	2 x 3 V, 1/2 AA replaceable lithium batteries (lifetime ≥ 10 years of ≥ 50 x 10 ⁴ relay operation)
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Wiring diagram



1	Common for terminals 2 + 3
2	Trigger input. Programmable to level or edge triggered
3	Reset input
4/5	Voltage free relay contacts. Programmable to N/O or N/C
6/7	Connect together to disable front panel keys

Dimensions

Refer page 9 - 17

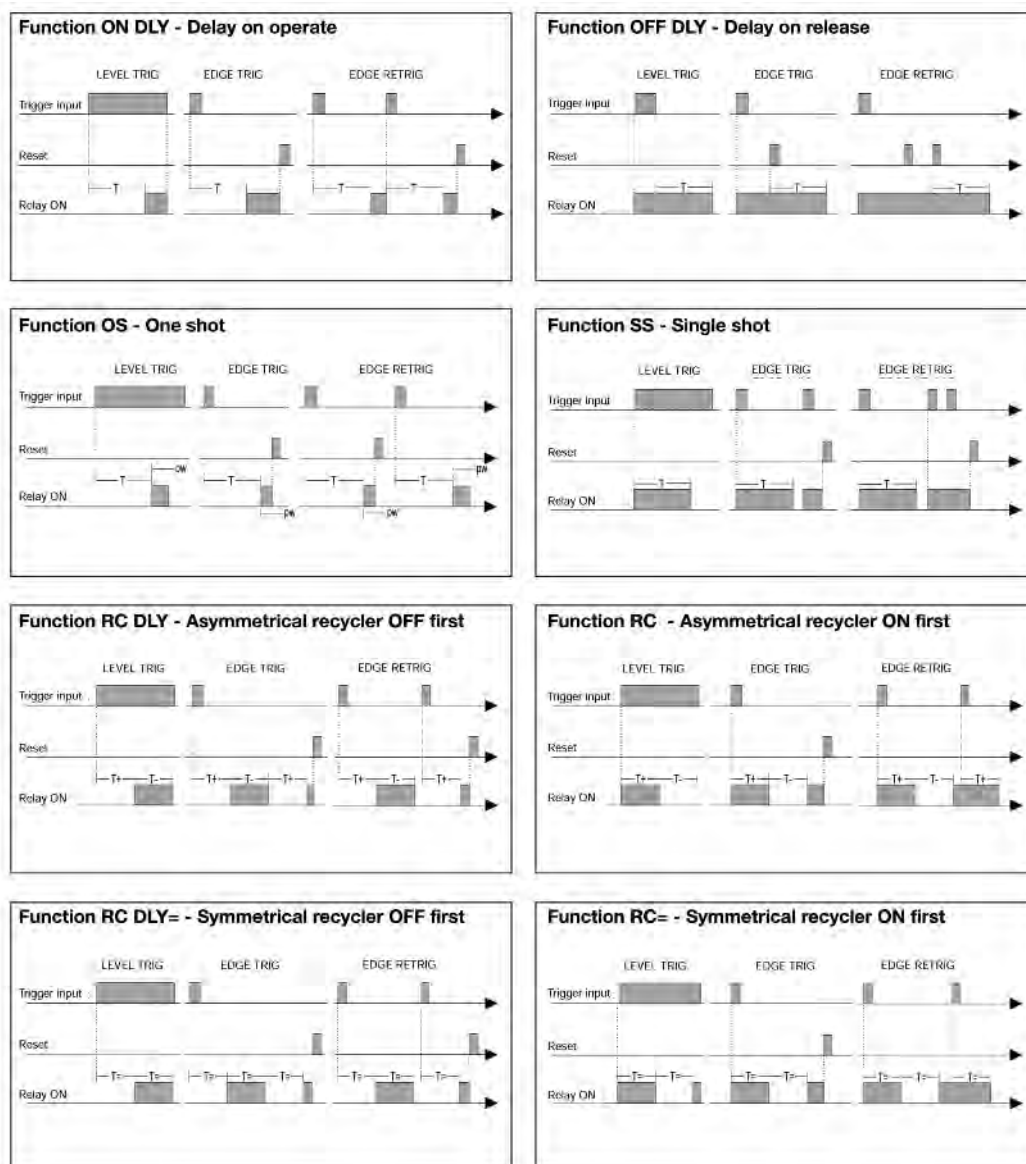
Complies with CE
UL approved

Price Schedule 'B2'

Electronic time delay relays

Multi-function digital

Digital timing function diagrams



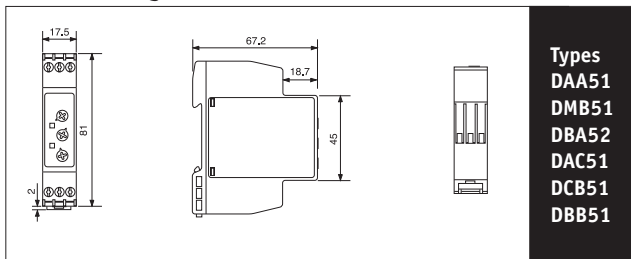
Accessories (Carlo Gavazzi) and dimensions

For time delay relays

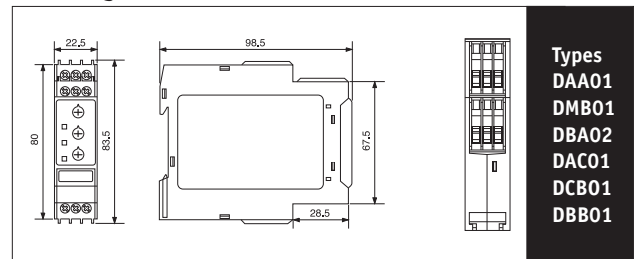
			
Cat. No.	ZPD8	ZPD11	HF Spring
Price \$	17.40	19.60	6.00
Description	Screw terminal base - 8 round Pin	Screw terminal base - 11 round Pin	Retaining spring for use with P series timers
Features	<ul style="list-style-type: none"> Snap on DIN rail, or conventional screw mount. Ideal for FAA series timers. 	<ul style="list-style-type: none"> Snap on DIN rail, or conventional screw mount. Ideal for P, FAA and FMB series timers. 	<ul style="list-style-type: none"> Provides connection stability for Plug-in timers where vibration is prominent.
			
Cat. No.	90.12	90.13	
Price \$	6.20	6.80	
Description	Solder socket	Solder socket	
Features	<ul style="list-style-type: none"> Back connected socket for solder connection 8 Pin. 	<ul style="list-style-type: none"> Back connected socket for solder connection 11 Pin. 	

Dimensions (mm)

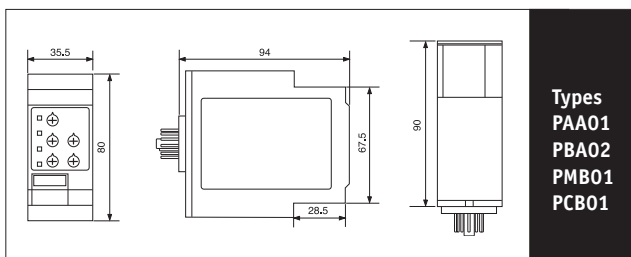
Mini-D housing



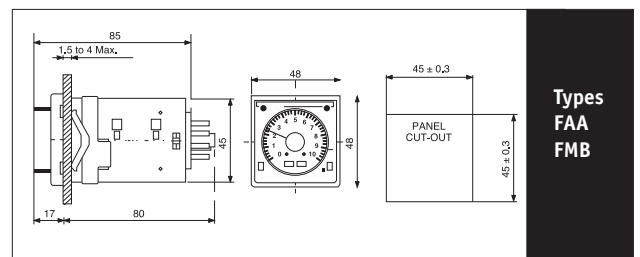
D-housing



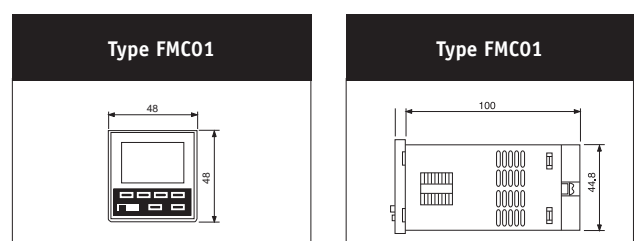
P-housing



Flush mount 48 mm² housing



Flush mount 48 mm² housing



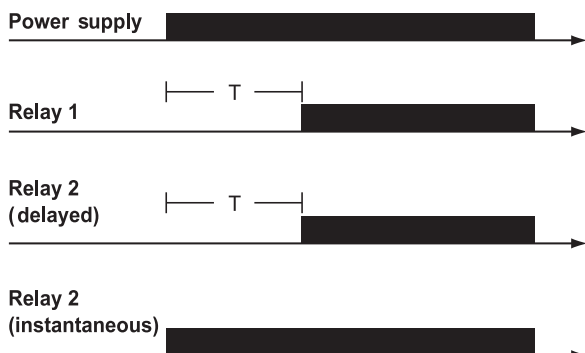
Price Schedule 'B2'

Electronic time delay relays

Function diagrams explained

Function O – ON Delay (automatic)

Function O – ON Delay



Mode of operation

With the power supply ON, the set time delay commences and the relay remains in the normal state (OFF) or de-energised. At the end of the set time delay, the relay energises or turns ON. If power is removed the relay changes back to its normal state and the timer is reset for its next operation.

Note: Model DAA-01-D-M24 and PAA-01-D-M24 (2 contacts) can be configured to operate with the second relay timed or instantaneous as shown above.

Use models: DAA51, DAA01, PAA01 (refer page 9 - 6)
FAA (refer page 9 - 13)

Function Dr – OFF Delay (manual start)

Function Dr – OFF Delay



Mode of operation

With the power supply on, the relay energises when the trigger contact closes, the relay stays on for the set time delay after the trigger contact has opened. If the trigger contact re-closes and opens during the time delay period the relay will stay on for the additional set time delay.

Use models: DBA52, DBA02, PBA02 (refer page 9 - 7)
DMB51, DMB01, PMB01 (refer page 9 - 9)
FMB (refer page 9 - 14)

Function Op – ON Delay (manual & automatic start)

Function Op – ON Delay – Automatic start



Function Op – ON Delay – Manual start



Mode of operation

Automatic start

With the power supply ON, the time period begins and the relay energises after the set time delay and stays on until the power supply is interrupted.

Manual start

With the power supply ON and trigger contact closed, the time period begins and the relay energises after the set time delay, the relay remains energised until the trigger closes again or the power supply is interrupted.

Use models: DMB51, DMB01, PMB01 (refer page 9 - 9)

Function In – Interval (manual & automatic start)

Function In – Interval – Manual start



Function In – Interval – Automatic start



Mode of operation

Manual start

With the power supply on, the relay energises when the trigger contact closes and stays on until the set time delay elapses or when the power supply is interrupted.

Automatic start

When the power supply is ON, the relay energises and remains on for the set time delay until the power supply is interrupted.

Use models: DMB51, DMB01, PMB01 (refer page 9 - 9)
FMB (refer page 9 - 14)

Electronic time delay relays

Function diagrams explained

Function Io – Interval on trigger open

Function Io – Interval on trigger open



Mode of operation

With the power supply ON, the relay energises for the set time delay when the trigger contact opens. If a second trigger contact closure occurs within the set time, the relay will stay on for the set time after the second trigger contact opens. The relay releases at the end of the set time delay or when the power supply is interrupted.

Use models: DMB51, DMB01, PMB01 (refer page 9 - 9)

Function Sh – Single shot on delay

Function Sh – Single shot on delay



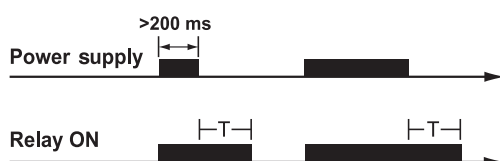
Mode of operation

With the power supply ON, the relay remains in the normal or off state for a set time delay period. Once T1 has elapsed the relay energises (turns on) and remains this way for a time period on T2. Once this cycle is complete, the relay will reset to OFF position.

Use Models: DCB51, DCB01, PCB01 (refer page 9 - 11)

Function Tr – True OFF Delay

Function Tr - True OFF Delay



Mode of operation

When power is applied to the timer, the relay changes over to the opposite or ON state. Timing does not commence. When the power is disconnected, the set time delay commences, and the relay remains in its ON state. At the end of the set time delay, the relay changes back to its normal or de-energised state and the timer is reset for its next operation.

Use Models: DBB51, DBB01 (refer page 9 - 8)

Function R – Symmetrical recycler (ON first)

Function R – Symmetrical recycler (ON first)



Mode of operation

Timing begins as soon as trigger contact is closed. The relay operates and stays ON for set time, after this time it de-energises and remains OFF for same time period. This sequence continues with equal ON and OFF time periods until power supply is interrupted.

Use Models: DMB51, DMB01, PMB01 (refer page 9 - 9)

Function Id – Double Interval

Function Id – Double interval



Mode of operation

With the power supply ON and trigger contact closed the relay energises and stays on for the set time delay. When the trigger contact opens, the relay repeats the same operation. If the trigger contact opens before the end of the first time delay period the relay will stay on for the second time delay period. If the trigger contact re-closes during the time delay period the relay will operate as described in the first instance.

Use models: DMB51, DMB01, PMB01 (refer page 9 - 9)

Function Rb – Symmetrical recycler (OFF first)

Function Rb – Symmetrical recycler (OFF first)



Mode of operation

Timing begins as soon as trigger contact is closed. The relay is OFF during set time, after this time it operates and stays ON for the same time period. This sequence continues with equal OFF and ON time periods until power supply is interrupted.

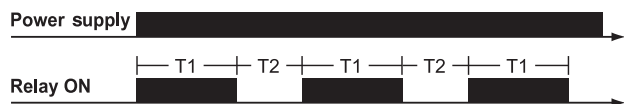
Use models: DMB51, DMB01, PMB01 (refer page 9 - 9)

Electronic time delay relays

Function diagrams explained

Function Aa – Asymmetrical recycler (ON first)

Function Aa – Asymmetrical recycler (ON first)



Mode of operation

Timing begins as soon as power is applied. The relay operates and stays ON for set time T1, after this time it releases and stays OFF for a separate period of time T2.

This sequence continues with ON and OFF time periods independent of one another until power supply is interrupted.

Use Models: DCB51, DCB01, PCB01 (refer page 9 - 11)

Function Ab – Asymmetrical recycler (OFF first)

Function Ab – Asymmetrical recycler (OFF first)



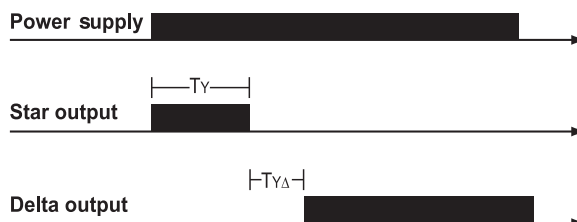
Mode of operation

Timing begins as soon as power is applied. The relay is OFF during this time T1, after set time relay energises and stays ON for a period of time T2. This sequence continues with independent On and OFF time periods until power supply is interrupted.

Use Models: DCB51, DCB01, PCB01 (refer page 9 - 11)

Function SD – Star-Delta

Function SD - Star-delta



Mode of operation

When power is applied to the timer, the set time delay T1 commences and the star relay changes over to the opposite position or ON state. At the end of the set time delay T1 the star relay changes back to its normal or de-energised state and the fixed preset time T2 commences. At the end of the fixed time delay T6 the delta relay changes over to the opposite position or on state. The delta relay remains ON until power is disconnected from the timer.

Use Models: DAC51, DAC01 (refer page 9 - 12)

Selection guide

Monitoring and control relays

Current

Monitoring function	Output	Housing	Supply	Cat. No.	Page ref.
Overcurrent 0.5 - 5 A	1 C/O	22.5 mm DIN	24/48 V AC/DC	DIA-01-C-D48-5A	9 - 24
			115/230 V AC	DIA-01-C-B23-5A	
		36 mm, 11 Pin, Plug-in	24/48 V AC/DC	PIA-01-C-D48-5A	
			115/230 V AC	PIA-01-C-B23-5A	
Over or under RMS current 1-10 A	1 C/O	22.5 mm DIN	115/230 V AC	DIB-01-C-B23-10A	9 - 25
			24/48 V AC/DC	DIB-01-C-D48-10A	
Over or under RMS current 0.1-5 A	1 C/O	22.5 mm DIN	115/230 V AC	DIB-01-C-B23-5A	9 - 25
			24/48 V AC/DC	DIB-01-C-D48-5A	
		36 mm, 11 Pin, Plug-in	115/230 V AC	PIB-01-C-B23-5A	
			24/48 V AC/DC	PIB-01-C-D48-5A	

Current - Shunt connect

Over or under RMS current 150 mV input	1 C/O	22.5 mm DIN	24/48 V AC/DC	DIB02-C-D48-150MV	9 - 26
		36 mm, 11 Pin, Plug-in	115/230 V AC	PIB02-C-B23-150MV	

Voltage

Undervoltage 8-28V	1 C/O	22.5 mm DIN	12 - 24 V DC	DUA-52-C-724	9 - 28
Overvoltage 2 - 500 V	1 C/O	22.5 mm DIN	115/230 V AC	DUA-01-C-B23-500V	9 - 29
			24/48 V AC/DC	DUA-01-C-D48-500V	
		36 mm, 11 Pin, Plug-in	115/230 V AC	PUA-01-C-B23-500V	
			24/48 V AC/DC	PUA-01-C-D48-500V	
Over or undervoltage 2-500 V	1 C/O	22.5 mm DIN	115/230 V AC	DUB-01-C-B23-500V	9 - 30
			24/48 V AC/DC	DUB-01-C-D48-500V	
		36 mm, 11 Pin, Plug-in	115/230 V AC	PUB-01-C-B23-500V	
			24/48 V AC/DC	PUB-01-C-D48-500V	
Over and undervoltage 2-500 V	1 C/O	22.5 mm DIN	24/115/230 V AC	DUB-02-C-T23	9 - 31
		36 mm, 11 Pin, Plug-in	24/115/230 V AC	PUB-02-C-T23	

Three phase

Phase failure and sequence	1C/O	17.5 mm DIN	208 - 480 V AC	DPA-51-C-M44	9 - 32
		22.5 mm DIN	208 - 480 V AC	DPA-01-C-M44	
		22.5 mm DIN	380 - 480 V AC	DPA-01-D-M48	
		36 mm, 11 Pin, Plug-in	208 - 415 V AC	PPA-01-C-M44	
Over and undervoltage, Phase fail & seq.	1 C/O	22.5 mm DIN	380 - 415 V AC	DPB-01-C-M48	9 - 33
		36 mm, 11 Pin, Plug-in	380 - 415 V AC	PPB-01-C-M48	
Phase fail, seq. & asymm.	1 C/O	22.5 mm DIN	380 - 415 V AC	DPB-02-C-M48	9 - 34
		36 mm, 11 Pin, Plug-in	380 - 415 V AC	PPB-02-C-M48	

Note:  Available on indent only.


Selection guide

Monitoring and control relays

Frequency and power factor

Monitoring function	Output	Housing	Supply	Cat. No.	Page ref.
Power factor	1 C/O	22.5 mm DIN	380 - 480 V AC	DWB-01-C-M48	9 - 35
Over & Under frequency 50/60 Hz	1 C/O	22.5 mm DIN	24 - 240 V AC	DFB-01-C-M24	9 - 36

Speed

Over or Under speed (30-300 RPM)	1 C/O	36 mm, 11 Pin, Plug-in	230 V AC	SM155-230-300	9 - 37
			24 V DC	SM155-724-300	
Over or Under speed (200-2000 RPM)	1 C/O	36 mm, 11 Pin, Plug-in	230 V AC	SM155-230-2K	
Over or Under speed (1000-10000 RPM)	1 C/O	36 mm, 11 Pin, Plug-in	24 V DC	 SM155-724-10K	

Overcurrent switch

2-20 A	1 N/O	22.5 mm DIN	3-40 V DC	IMAX20	9 - 27
5-50 A	1 N/O	22.5 mm DIN	3-40 V DC	IMAX50	

Liquid level relay

CLP2 type

Discharge/charge	2 pole	11 Pin, Plug-in	24 V AC/DC	CLP2ET1CM24	9 - 38
Discharge/charge	2 pole	11 Pin, Plug-in	115 V AC	CLP2ET1C115	
Discharge/charge	2 pole	11 Pin, Plug-in	230 V AC	CLP2ET1C230	

CLP4 type

Discharge/charge	2 pole	11 Pin, Plug-in	24 V AC/DC	CLP4MT2AM24	
Discharge/charge	2 pole	11 Pin, Plug-in	115 V AC	CLP4MT2A115	
Discharge/charge	2 pole	11 Pin, Plug-in	230 V AC	CLP4MT2A230	

Monitoring relays accessories

Conductive probes

	Description	Type		Cat No.	
Suitable for CLP	Nylon Housing with PVC Cable (hanging)	1 electrode x 0.75 m		VH2	9 - 41
		Moulded cable	2 electrodes x 1 m 1 1/2"	VN2	
			3 electrodes x 1 m 1 1/2"	VN3	
	PVC Housing with Screw terminal	2 electrodes x 0.5 m	1 1/2"	VPC205	
		3 electrodes x 0.5 m	1"	VPC310	

Current transformers

Suitable for DIB02 Current Relay	0.4 - 4 Vp Output to DIB02 relay	1 Phase	0.5-5 A AC	MI5CT	9 - 41
			2-20 A AC	MI20CT	
			10-100 A AC	MI100CT	
			50-500 A AC	MI500CT	
		3 Phase	0.5-5 A AC	MP3005CT	
			2-20 A AC	MP3020CT	
			10-100 A AC	MP3100CT	
			50-500 A AC	MP3500CT	

Plug-in base

Suitable for 36 mm, 11 Pin, Plug-in Relays	11 Round Pin base	ZPD11	9 - 41
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Note:  Available on indent only.

Selection guide

Monitoring and control relays

Current, voltage, phase, frequency and power factor guarding is vital in order to maximise your system's performance. The Carlo Gavazzi range of economical and advanced monitoring relays translates into the **Advantage** and **AdvantagePlus** series offering reliability you can count on.

Advantage series:

- 1 and 3 Phase monitoring
- AC/DC Overvoltage
- AC/DC Overcurrent
- Phase sequence and phase loss
- Latch function
- Up to 500 V AC/DC monitoring

AdvantagePlus series:

- 1 and 3 Phase true RMS monitoring
- AC/DC Over or undercurrent
- AC/DC Over or undervoltage
- Phase sequence and phase loss
- Phase asymmetry
- AC/DC Over or undercurrent - mV input
- AC/DC Over and undervoltage
- Latch and inhibit function
- Time delay setting (0.1 - 30 sec)



Catalogue Number construction

D I B - 0 1 - C - B23 - XX

Installation

- D** DIN rail
- P** Plug-in

Relay Type

- I** Current
- U** Voltage
- P** Phase
- F** Frequency
- W** Power factor

Function

- A** Advantage
- B** AdvantagePlus

Housing

- 0** Standard 22.5 mm DIN or 36 mm Plug-in
- 5** 17.5 mm DIN (mini)

Input range

Refer to relay data

Power supply

- D48** 24/48 V AC/DC
- B23** 115/230 V AC
- M44** 208-480 V AC
- T23** 24,115 & 230 V AC
- M48** 380-480 V AC ¹⁾

Output

- C** 1 changeover contact
- D** 2 changeover contacts

Function version

- 1** Standard features
- 2** Extended features

Note: ¹⁾ Plug-in and special versions may differ in supply voltages.

Monitoring and control

Overcurrent relays

- AC/DC overcurrent monitoring
- Measuring range 0.5 to 5 A AC/DC
- Direct measurement or CT input
- Adjustable current setting on relative scale
- Adjustable hysteresis (external resistor connection)
- Programmable latching at set level
- LED indication for relay and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Overcurrent 0.5 - 5 A	22.5 mm DIN	Please specify	1 C/O	DIA-01-C-...5A	315.00
Overcurrent 0.5 - 5 A	36 mm, 11 Pin, Plug-in	Please specify	1 C/O	PIA-01-C-...5A	330.00

Technical data

Input specifications

Measuring ranges

Direct	0.5 - 5 A AC / DC
Max. current	6 A
Max. current for 1 s	25 A

Output specifications

Output contacts	1 C/O
Contact ratings	
Resistive loads	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
Small inductive loads	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC
Mechanical life	≥30 x 10 ⁶ operations
Electrical life	≥10 ⁵ operations (AC 1)
Operating frequency	≤7200 operations/h

Supply specifications

Rated operational voltage	
Ordering code	D48: 24/48 V AC/DC ± 15 %
	B23: 115/230 V AC ± 15 %
	45 to 65 Hz

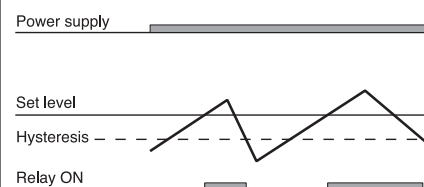
Power consumption AC/DC	4 VA / 2 W
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Dimensions Refer page 9 - 42

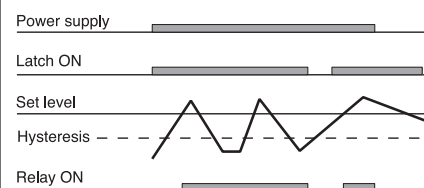
Bases & accessories Refer page 9 - 41

Operation diagrams

Overcurrent

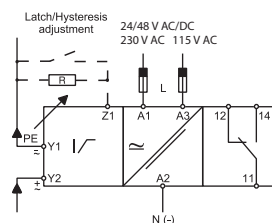


Overcurrent - Latch function

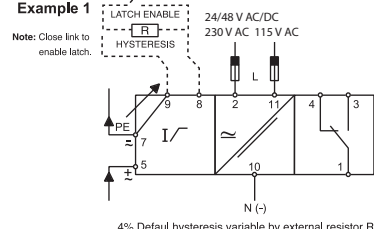


Wiring diagrams

DIA01 Example 1



PIA01 Example 1



R	HYSTERESIS
180 kΩ	10 %
47 kΩ	25 %
22 kΩ	50 %
15 kΩ	75 %
< 500 Ω	LATCH

Notes: Available on indent only.

Price Schedule 'B2'

Monitoring and control

Over or undercurrent relays

- TRMS AC/DC over or undercurrent monitoring (selectable)
- Measuring range from 0.1 A to 10 A AC/DC
- Direct measurement or CT input (IME 5 A versions)
- Selectable relay coil status - normally energised or normally de-energised
- Adjustable hysteresis and delay function (0.1 to 30 s)
- Programmable latching or inhibit at set level
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Over or under RMS current 10-500 mA	22-5 mm DIN	Please specify	1 C/O	DIB-01-C-...500MA	355.00
Over or under RMS current 0.1 - 5 A	22.5 mm DIN	Please specify	1 C/O	DIB-01-C-...5A	355.00
Over or under RMS current 1 - 10 A	22.5 mm DIN	Please specify	1 C/O	DIB-01-C-...10A	355.00
Over or under RMS current 0.1 - 5 A	36 mm, 11 Pin, Plug-in	Please specify	1 C/O	PIB-01-C-...5A ¹⁾	370.00
Over or under RMS current 1 - 10 A	36 mm, 11 Pin, Plug-in	Please specify	1 C/O	PIB-01-C-...10A	365.00



DIB-01-C...

Technical data

Input specifications

Measuring ranges	Max. current
..5 A: 0.1 to 1 A AC/DC	6 A
0.2 to 2 A AC/DC	6 A
0.5 to 5 A AC/DC	6 A
Max. current for 1 s	15 A
..10 A: 1 to 10 A AC/DC	11 A
Max. current for 1 s	50 A

Output specifications

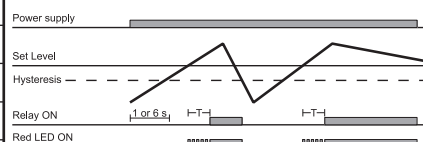
Output contacts	1 C/O (SPDT)
Contact ratings	
Resistive loads	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
Small inductive loads	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC
Mechanical life	≥30 x 10 ⁶ operations
Electrical life	≥10 ⁵ operations (AC 1)
Operating frequency	≤7200 operations/h

Supply specifications

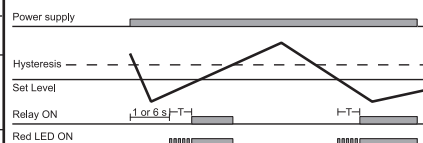
Rated operational voltage	
Ordering code	D48: 24/48 V AC/DC ± 15 %
	B23: 115/230 V AC ± 15 %
	45 to 65 Hz
Power consumption AC/DC	4 VA / 3 W
Dimensions	Refer page 9 - 42
Bases & accessories	Refer page 9 - 41

Operation diagrams

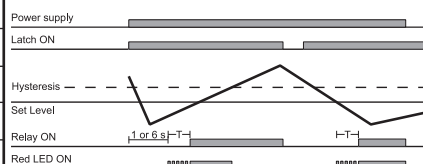
Overcurrent (Normally de-energised relay)



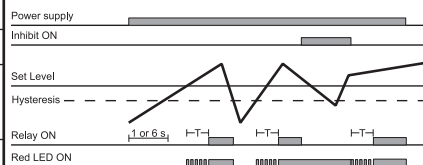
Under-current (Normally de-energised relay)



Under-current - Latch function (Normally de-energised relay)



Overcurrent - Inhibit function (Normally de-energised relay)



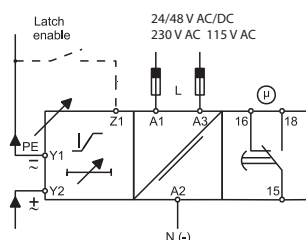
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PIB-01-C...

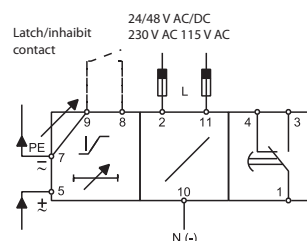
Wiring diagrams

DIB01 Example 1



Note: Close link to enable latch.

PIB01 Example 1



Notes: ¹⁾ PIB-01-C-D48-5A available only on indent only
Available on indent only.

Price Schedule 'B2'

Monitoring and control

Over or undercurrent relays (mV input)

- TRMS AC/DC over or undercurrent monitoring
- Current measuring through external shunt or CT (Carlo Gavazzi, MI, MP versions page 9 - 41)
- Measuring ranges from 6 to 150 mV AC/DC and 0.4 to 4 Vp (Using MI or MP CTs)
- Selectable relay coil status - normally energised or normally de-energised
- Adjustable current and hysteresis setting
- Adjustable delay function (0.1 to 30 s)
- Programmable latching or inhibit at set level
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Over or under RMS current 150 mV input	22.5 mm DIN	Please specify	1 C/O	DIB-02-C-...150MV	355.00
Over or under RMS current 150 mV input	36 mm, 11 Pin, Plug-in	Please specify	1 C/O	PIB-02-C-...150MV	370.00



DIB-02-C...

Technical data

Input specifications

Measuring ranges	Max. volt.
Selectable by DIP switches	
6 to 60 mV AC/DC	2 V
15 to 150 mV AC/DC	2 V
Max. voltage for 1 s	15 V
0.4 to 4 Vp AC	50 V
Max. voltage for 1 s	100 V

MI and MP CT ranges	AAC RMS	Max. curr.
1 phase	3 phase	
MI 5 CT	MP 3005 CT	0.5 to 5 A
MI 20 CT	MP 3020 CT	2 to 20 A
MI 100 CT	MP 3100 CT	10 to 100 A
MI 500 CT	MP 3500 CT	50 to 500 A

Output specifications

Output contacts	1 C/O
Contact ratings	
Resistive loads	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
Small inductive loads	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC
Mechanical life	≥30 x 10 ⁶ operations
Electrical life	≥10 ⁵ operations (AC 1)
Operating frequency	≤7200 operations/h

Supply specifications

Rated operational voltage	
Ordering code	D48: 24/48 V AC/DC ± 15 %
	B23: 115 / 230 V AC ± 15 %
	45 to 65 Hz

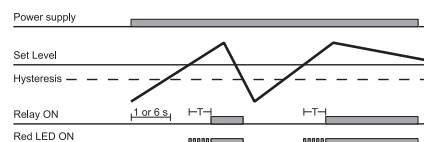
Power consumption AC/DC	4 VA / 3 W
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Dimensions Refer page 9 - 42

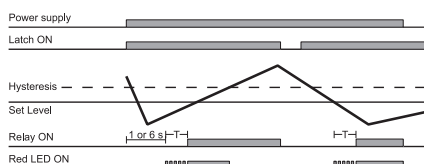
Bases & accessories Refer page 9 - 41

Operation diagrams

Overcurrent (Normally de-energised relay)

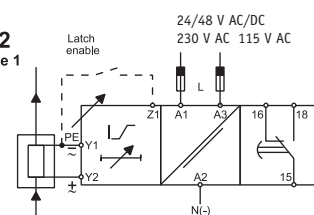


Under-current – Latch function (Normally de-energised relay)

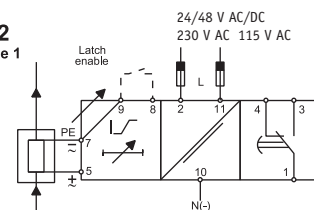


Wiring diagrams

DIB02 Example 1



PIB02 Example 1



Note: Close link to enable latch.

Price Schedule 'B2'

Monitoring and control

Overcurrent switch

- 2 wire connection
- Low Power
- IMAX20: 2 - 20 A AC
- IMAX50: 5 - 50 A AC
- Knob-adjustable set-point
- Output: Normally open, 100 mA transistor
- 22.5 mm DIN style housing



IMAX20



IMAX50

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Overcurrent 2 - 20 A AC	22.5 mm DIN	Self-powered	1 N/O	IMAX20	194.00
Overcurrent 5 - 50 A AC	22.5 mm DIN	Self-powered	1 N/O	IMAX50	200.00

Technical data

Input specifications

Current range	IMAX20	IMAX50
50 Hz	2 - 20 A	5 - 50 A
400 Hz	1.6 - 13 A	4 - 32 A
Max. current (continuous)	40 A	100 A
Max. overload current (t=30 s)	200 A	200 A

Output specifications

Output contacts	Transistor, N/O
Output current	
Maximum load current	100 mA
Maximum voltage	3 - 40 V DC
Voltage drop (Ud)	<2.5 V DC

Supply specifications

Range accuracy	±15 % on max.
Hysteresis (Differential travel)	7 - 13 % of setpoint
Frequency range	45 - 400 Hz
Degree of protection	IP 20

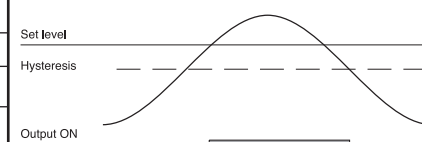
Dimensions

Refer page 9 - 42

Bases & accessories

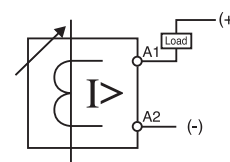
Refer page 9 - 41

Operation diagrams



Wiring diagrams

IMAX20
IMAX50
Example 1



Monitoring and control Undervoltage relays

- DC undervoltage monitoring
- Measure on own power supply
- Measuring range (8-28 V DC)
- Adjustable hysteresis (4-50 %)
- LED indication for relay and power supply on

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
DC undervoltage 8-28 V DC	17.5 mm DIN	8-28 V DC	1 C/O	DUA52C724	290.00
DC undervoltage 38-58 V DC	17.5 mm DIN	38-58 V DC	1 C/O	DUA52C748	290.00



DUA52C724



DUA52C748

Technical data

Input specifications	724	748
Own supply	12-24 V DC	48 V DC
Measuring range	8-28 V DC	38-58 V DC

Output specifications

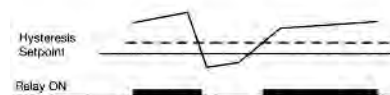
Output contact	1 C/O
Contact ratings	
Resistive load	AC 1 5 A/250 V AC
	DC 12 5 A/24 V DC
Small inductive load	AC 15 2.5 A/250 V AC
	DC 13 2.5 A 250 V AC
Mechanical Life	≥ 30 x 10 ⁶ operations
Electrical Life	≥ 10 ⁵ operations (8 A, 250 V, cos φ = 1)
Operating frequency	≤ 7200 operations

Supply specifications

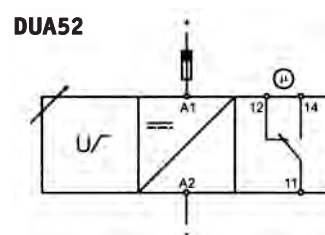
Rated operational voltage	
Ordering code	724: 8 to 28 V DC
	748: 38 to 58 V DC
Power consumption	DC 1.5 W

Dimensions Refer page 9 - 42

Operation diagram



Wiring diagram



Monitoring and control

Overvoltage relays

- AC/DC overvoltage monitoring
- Measuring ranges:
 - 2 to 20 V AC/DC • 50 to 500 V AC/DC
 - 5 to 50 V AC/DC • 0.4 to 4 Vp AC
 - 20 to 200 V AC/DC
- Overcurrent monitoring using MI & MP CTs
- Adjustable voltage setting on relative scale
- Adjustable hysteresis (external resistor connection)
- Programmable latching at set level
- LED indication for relay and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Overvoltage 2 - 500 V AC/DC	22.5 mm DIN	Please specify	1 C/O	DUA-01-C...-500V	255.00
Overvoltage 2 - 500 V AC/DC	36 mm, 11 Pin, Plug-in	Please specify	1 C/O	PUA-01-C...500V¹⁾	280.00



DUA-01-C...

Technical data

Input specifications

Measuring ranges		Max. voltage	
Selectable by DIP switches			
2 to 20 V AC / DC		600 V	
5 to 50 V AC / DC		600 V	
20 to 200 V AC / DC		600 V	
50 to 500 V AC / DC		600 V	
0.4 to 4 Vp AC		600 V	
Max. voltage for 1 s		1000 V	
MI and MP CT ranges		AAC RMS	Max. current
1 phase	3 phase		
MI 5 CT	MP 3005 CT	0.5 to 5 A	20 A
MI 20 CT	MP 3020 CT	2 to 20 A	50 A
MI 100 CT	MP 3100 CT	10 to 100 A	250 A
MI 500 CT	MP 3500 CT	50 to 500 A	750 A

Output specifications

Output contacts	1 C/O		
Contact ratings			
Resistive loads	AC 1	8 A / 250 V AC	
	DC 12	5 A / 24 V DC	
Small inductive loads	AC 15	2.5 A / 250 V AC	
	DC 13	2.5 A / 24 V DC	
Mechanical life	≥30 x 10 ⁶ operations		
Electrical life	≥10 ⁵ operations (AC 1)		
Operating frequency	≤7200 operations/h		

Supply specifications

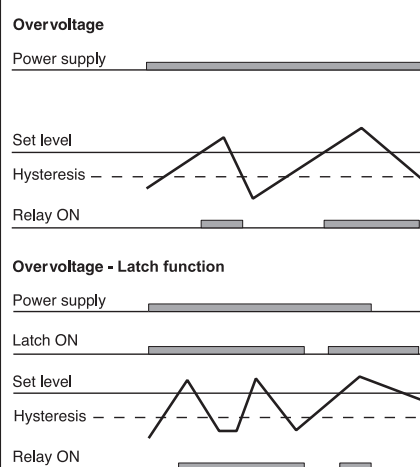
Rated operational voltage			
Ordering code:	D48:	24/48 V AC/DC ± 15 %	
	B23:	115/230 V AC ± 15 %	
		45 to 65 Hz	

Power consumption AC/DC	4 VA / 2 W
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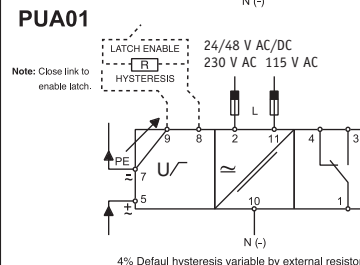
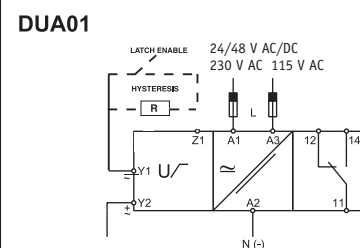
Dimensions Refer page 9 - 42

Bases & accessories Refer page 9 - 41

Operation diagrams



Wiring diagrams



R	HYSTERESIS
180 kΩ	10 %
47 kΩ	25 %
22 kΩ	50 %
15 kΩ	75 %
< 500 Ω	LATCH

Notes: ¹⁾ PUA-01-C-D48500 V available on indent only

Price Schedule 'B2'

Monitoring and control Over or undervoltage relays

- TRMS AC/DC over or undervoltage monitoring (selectable)
- Measuring range from 2 to 500 V AC/DC
- Selectable relay coil status - normally energised or normally de-energised
- Adjustable voltage setting on relative scale
- Adjustable hysteresis on relative scale
- Adjustable delay function (0.1 to 30 s)
- Programmable latching or inhibit at set level
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Over or undervoltage 2 - 500 V AC/DC	22.5 mm DIN	Please specify	1 C/O	DUB-01-C...-500V	335.00
Over or undervoltage 2 - 500 V AC/DC	36 mm, 11 Pin, Plug-in	Please specify	1 C/O	PUB-01-C...-500V ¹⁾	360.00



DUB-01-C...



PUB-01-C...

Technical data

Input specifications

Measuring ranges	Max. voltage
Selectable by DIP switches	
2 to 20 V AC/DC	350 V
5 to 50 V AC/DC	350 V
20 to 200 V AC/DC	600 V
50 to 500 V AC/DC	600 V
Max. voltage for 1 s	1000 V

Output specifications

Output contacts	1 C/O
Contact ratings	
Resistive loads	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
Small inductive loads	AC 15 2.5 A / 250 V AC
	DC 13 2.5 A / 24 V DC
Mechanical life	≥30 x 10 ⁶ operations
Electrical life	≥10 ⁵ operations (AC 1)
Operating frequency	≤7200 operations/h

Supply specifications

Rated operational voltage	
Ordering code	D48: 24/48 V AC/DC ± 15 %
	B23: 115 / 230 V AC ± 15 %
	45 to 65 Hz

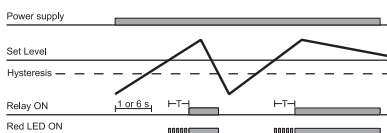
Power consumption AC/DC	4 VA / 3 W
-------------------------	------------

Dimensions Refer page 9 - 42

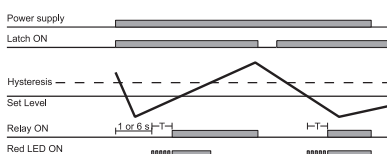
Bases & accessories Refer page 9 - 41

Operation diagrams

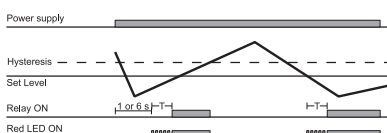
Over voltage (Normally de-energised relay)



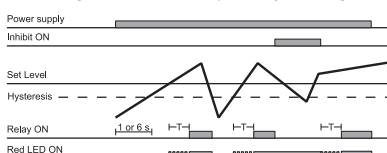
Undervoltage - Latch function (Normally de-energised relay)



Undervoltage (Normally de-energised relay)

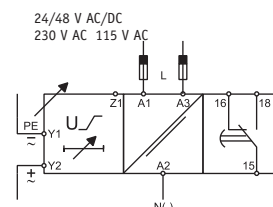


Over voltage - Inhibit function (Normally de-energised relay)

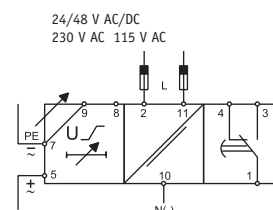


Wiring diagrams

DUB01



PUB01



Notes: ¹⁾ PUB-01-C-D48-500V is available on indent only

Price Schedule 'B2'

Monitoring and control Over and undervoltage relays

- True RMS AC over and undervoltage monitoring
- Measures own power supply
- Measuring ranges: 24, 115, 230 V AC
- Separately adjustable upper and lower level on relative scale
- Selectable relay coil status - normally energised or normally de-energised
- Adjustable delay function (0.1 to 30 s)
- Programmable latching or inhibit at set level
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Over and undervoltage	22.5 mm DIN	24, 115, 230 V AC	1 C/O	DUB-02-C-T23	315.00
Over and undervoltage	36 mm, 11 Pin, Plug-in	24, 115, 230 V AC	1 C/O	PUB-02-C-T23	360.00



DUB-02-C-T23



PUB-02-C-T23

Technical data

Input specifications

Measures own supply

DUB-02: A1, A2 (24, 115, 230 V AC)

PUB-02: 2, 10 (24, 115, 230 V AC)

Measuring ranges	Upper level	Lower level
Selectable by DIP switch	-5 % to +20 %	-20 % to +5 %
24 V AC	22.8 to 28.8 V	19.2 to 25.2 V
115 V AC	109 to 138 V	92 to 121 V
230 V AC	218 to 275 V	184 to 242 V

Output specifications

Output contacts 1 C/O

Contact ratings

Resistive loads	AC 1	8 A / 250 V AC
	DC 12	5 A / 24 V DC
Small inductive loads	AC 15	2.5 A / 250 V AC
	DC 13	2.5 A / 24 V DC

Mechanical life $\geq 30 \times 10^6$ operations

Electrical life $\geq 10^5$ operations (AC 1)

Operating frequency ≤ 7200 operations/h

Supply specifications

Rated operational voltage

Ordering code	T23:	24 V AC ± 20 %
		115 V AC ± 20 %
		230 V AC ± 20 %

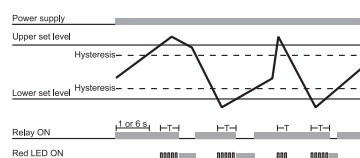
Power consumption AC 4 VA

Dimensions Refer page 9 - 42

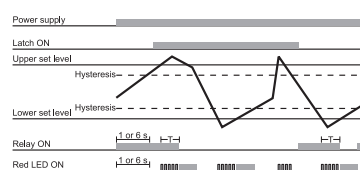
Bases & accessories Refer page 9 - 41

Operation diagrams

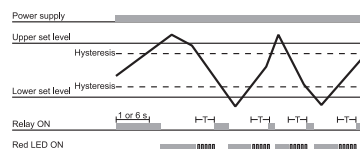
**Over & Undervoltage
Delay ON alarm (Normally energised relay)**



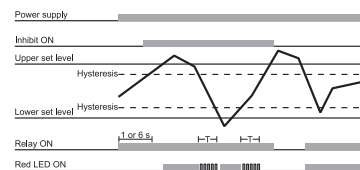
Delay ON alarm - Latch function (Normally energised relay)



Delay ON recovery (Normally de-energised relay)

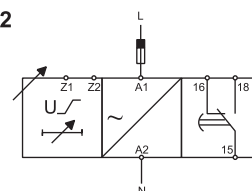


Delay ON recovery - Inhibit function (Normally energised relay)

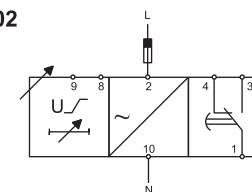


Wiring diagrams

DUB02



PUB02



Monitoring and control

3 Phase - sequence and phase loss relays

- 3 phase monitoring for phase sequence and phase loss
- Detect when all 3 phases are present and have correct sequence
- Measures own power supply
- Power supply range: 208 to 480 V AC (±15 %)
- LED indication for relay and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Phase sequence and loss	17.5 mm DIN	208-480 V AC	1 C/O	DPA-51-C-M44	255.00
Phase sequence and loss	22.5 mm DIN	208-480 V AC	1 C/O	DPA-01-C-M44	255.00
Phase sequence and loss	22.5 mm DIN	380-480 V AC	2 C/O	DPA-01-D-M48	260.00
Phase sequence and loss	36 mm, 11 Pin, Plug-in	208-415 V AC	1 C/O	PPA-01-C-M44	270.00



DPA-51-C-M44



DPA-01-C-M44



PPA-01-C-M44

Technical data

Input specifications

Measuring range - measures own supply

DPA-51C/DPA-01C	177 to 550 V AC
DPA-01D	323 to 550 V AC
PPA-01C	177 to 550 V AC
ON-level	>85 % of the mains phase-phase voltage

Output specifications

Output contacts	1 C/O
	2 C/O (DPA-01-D only)

Contact ratings

DPA-51C, DPA-01C, PPA-01C	1 C/O
AC1 (DPA51)	5 A / 250 V AC

Resistive loads	AC 1 8 A / 250 V AC
-----------------	----------------------------

	DC 12 5 A / 24 V DC
--	----------------------------

Small inductive loads	AC 15 2.5 A / 250 V AC
-----------------------	-------------------------------

	DC 13 2.5 A / 24 V DC
--	------------------------------

DPA-01D	2 C/O
---------	-------

Resistive loads	AC 1 8 A / 250 V AC
-----------------	----------------------------

Small inductive loads	AC 15 3 A / 250 V AC
-----------------------	-----------------------------

	DC 13 2 A / 24 V DC
--	----------------------------

Mechanical life	≥30 x 10 ⁶ operations
-----------------	----------------------------------

Electrical life	≥10 ⁵ operations (AC 1)
-----------------	------------------------------------

Operating frequency	≤7200 operations/h
---------------------	--------------------

Supply specifications

Rated operational voltage	DPA-01C/DPA-51 208 to 480 V AC ± 15 %
	45 to 65 Hz
PPA-01C	208 to 415 V AC ± 15 %
	45 to 65 Hz
DPA-01D	380 to 480 V AC ± 15 %
	45 to 65 Hz

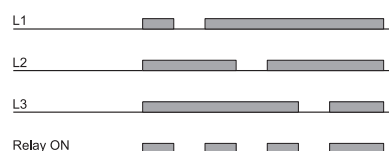
Power consumption AC	10 VA
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Dimensions	Refer page 9 - 42
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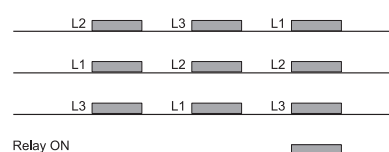
Bases & accessories	Refer page 9 - 41
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Operation diagrams

Phase loss

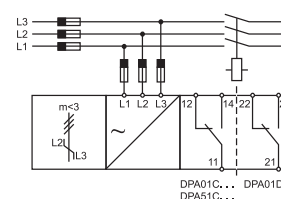


Phase sequence

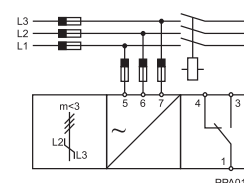


Wiring diagrams

DPA51 / DPA01



PPA01



Price Schedule 'B2'

Monitoring and control

3 Phase voltage, phase loss and sequence relays

- 3 phase 4 wire over and undervoltage monitoring
- Phase sequence and phase loss monitoring
- Upper and lower limits separately adjustable
- Measures own power supply
- Measuring range DIP switch selectable
- Adjustable voltage on relative scale
- Adjustable delay function (0.1 to 30 s)
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Over and under V, phase loss & sequence	22.5 mm DIN	380-415 V AC	1 C/O	DPB-01-C-M48	365.00
Over and under V, phase loss & sequence	36 mm, 11 Pin, Plug-in	380-415 V AC	1 C/O	PPB-01-C-M48	390.00



DPB-01-C-M48



PPB-01-C-M48

Technical data

Input specifications

Measuring ranges - Measures own power supply

DPB-01-C... 323 to 475 V AC

PPB-01-C... 323 to 475 V AC

Ranges

Upper level +2 to +22 % of VN

Lower level -22 to -2 % of VN

Output specifications

Output contacts 1 C/O

Contact ratings

Resistive loads **AC 1** 8 A / 250 V AC

DC 12 5 A / 24 V DC

Small inductive loads **AC 15** 2.5 A / 250 V AC

DC 13 2.5 A / 24 V DC

Mechanical life $\geq 30 \times 10^6$ operations

Electrical life $\geq 10^5$ operations (AC 1)

Operating frequency ≤ 7200 operations/h

Supply specifications

Rated operational voltage

Star voltage: **M48** 380 to 415 VL-L AC $\pm 15\%$

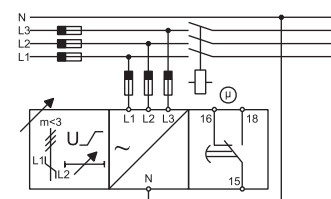
220 to 240 VL-N AC $\pm 15\%$

45 to 65 Hz

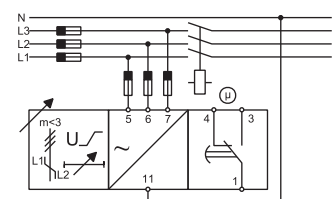
Power consumption AC 13 VA

Wiring diagrams

DPB01



PPB01



Note: DPB01 & PPB01 can only be used on 3 phase, 4 wire systems (Neutral must be connected). Connect the neutral only if it is intrinsically at the star centre.

Dimensions

Refer page 9 - 42

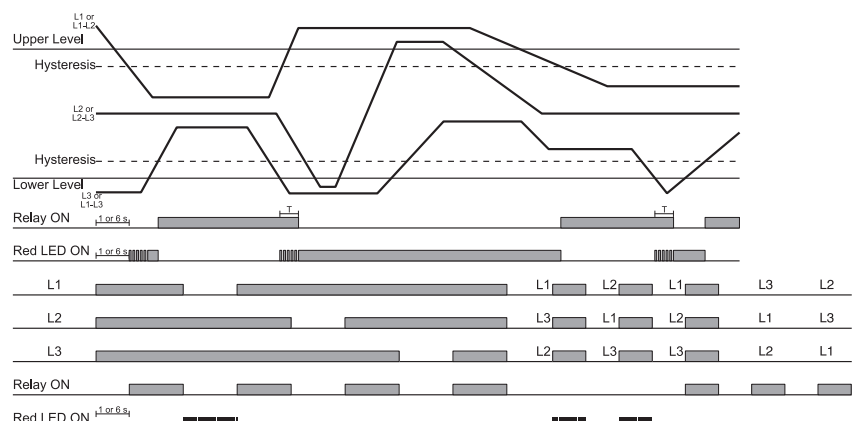
Bases & accessories

Refer page 9 - 41

Operation diagrams

Note: Hysteresis is based on Asymmetry setting

Asymmetry	Hysteresis
2 % to 5 %	1 %
6 % to 22 %	2 %



Price Schedule 'B2'

Monitoring and control

3 Phase sequence, phase loss and asymmetry relay

- Phase sequence
- Phase loss and asymmetry monitoring
- Measures own power supply
- Measuring range DIP switch selectable
- Adjustable asymmetry on relative scale
- Adjustable delay function (0.1 to 30 s)
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Phase loss, sequence & asymmetry	22.5 mm DIN	380-480 V AC	1 C/O	DPB-02-C-M48	390.00
Phase loss, sequence & asymmetry	36 mm, 11 Pin, Plug-in	380-480 V AC	1 C/O	PPB-02-C-M48	410.00



DPB-02-C-M48

Technical data

Input specifications

Measuring ranges - Measures own power supply

DPB-02-C... 323 to 550 Δ V AC

PPB-02-C... 323 to 475 Δ V AC

Ranges

Asymmetry 2 to 22 % of VN

Output specifications

Output contacts 1 C/O

Contact ratings

Resistive loads **AC 1** 8 A / 250 V AC

DC 12 5 A / 24 V DC

Small inductive loads **AC 15** 2.5 A / 250 V AC

DC 13 2.5 A / 24 V DC

Mechanical life ≥30 x 10⁶ operations

Electrical life ≥10⁵ operations (AC 1)

Operating frequency ≤7200 operations/h

Supply specifications

Rated operational voltage

M48 (DIN-rail) - Delta Voltage 380 to 480 V AC ± 15 %

M48 (DIN-rail) - Star Voltage 220 to 277 V AC ± 15 %

M48 (Plug-in) - Delta Voltage 380 to 415 V AC ± 15 %

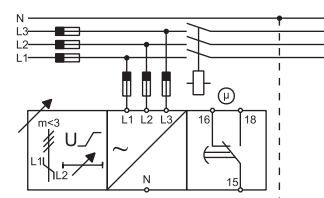
M48 (Plug-in) - Star Voltage 220 to 240 V AC ± 15 %

Power consumption AC 13 VA

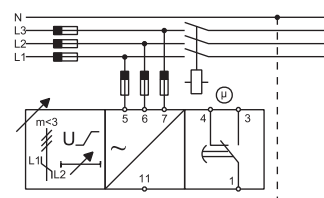
Supplied by L1 and L2

Wiring diagrams

DPB02



PPB02



Note: Connect the neutral only if it is intrinsically at the star centre.

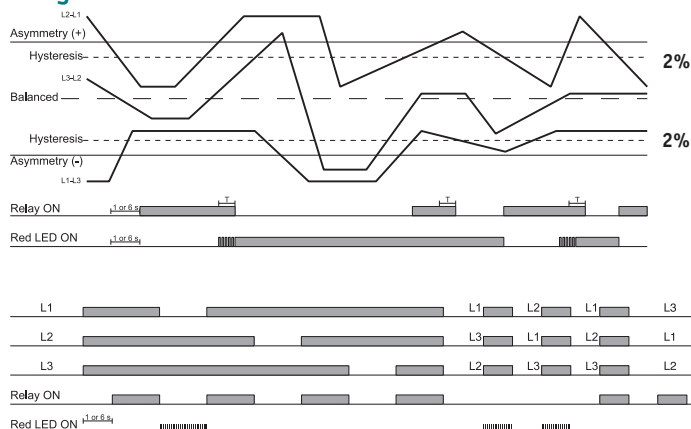
Dimensions

Refer page 9 - 42

Bases & accessories

Refer page 9 - 41

Operation diagrams



Price Schedule 'B2'

Monitoring and control 'Load guard' power factor relay

- True power factor monitoring for 3 phase balanced systems
- Measures power factor within set limits
- Measures own power supply
- Power ON delay 1 to 30 s knob adjustable
- Separately adjustable upper and lower level
- Programmable latching or inhibit at set level
- Automatic and manual start and stop of system
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Power factor Cos φ	45 mm DIN	380 - 480 V AC	1 C/O	DWB-01-C-M48-10A	390.00
Power factor Cos φ	36 mm, 11 Pin, Plug-in	380 - 415 V AC	1 C/O	i PWB-01-C-M48-10A	POA



DWB-01-C-M48-10A

Technical data

Input specifications

Measures own supply

Voltage	DWB-01:	380 to 480 V AC $\pm 15\%$
	PWB-01:	380 to 415 V AC $\pm 15\%$

Current	DWB-01:	5 A, 10 A; MI...CTs
	PWB-01:	5 A, 10 A; MI...CTs

Measuring ranges	Upper level	Lower level
------------------	-------------	-------------

Power factor (Cos φ)	0.1 to 0.99	0.1 to 0.99
-------------------------------	-------------	-------------

Hysteresis	P.F. approx. 0.1
------------	------------------

Direct input		Max. curr. (30 s)
	0.5 to 5 A	30 A
	1 to 10 A	50 A

MI CT ranges

MI 100 CT	10 to 100 A	325 A
MI 500 CT	50 to 500 A	1000 A

Note: Standard CTs can be used

Output specifications

Output contacts	1 C/O
-----------------	-------

Contact ratings

Resistive loads	AC 1	8 A / 250 V AC
	DC 12	5 A / 24 V DC
Small inductive loads	AC 15	2.5 A / 250 V AC
	DC 13	2.5 A / 24 V DC

Mechanical life	$\geq 30 \times 10^6$ operations
Electrical life	$\geq 10^5$ operations (AC 1)
Operating frequency	≤ 7200 operations/h

Supply specifications

Rated operational voltage

DWB-01	323 to 552 V AC
i PWB-01	323 to 477 V AC
	45 to 65 Hz

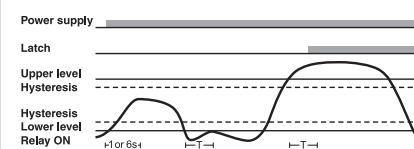
Power consumption AC	13 VA
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Dimensions Refer page 9 - 42

Bases & accessories Refer page 9 - 41

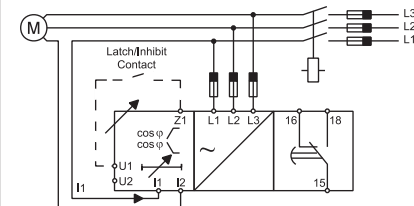
Operation diagrams

Latch function - normally energised relay



Wiring diagrams

DWB01 - Direct connection



Note: Current input via standard CTs can be used. For more information refer to NHP price list catalogue Part B, section 9 (IME CTs).

Note: i Available on indent only.

Price Schedule 'B2'

Monitoring and control Over and under frequency relay

- Over and under frequency monitoring
- Measures own power supply
- Measuring range 49 - 61 Hz
- Separately adjustable upper and lower levels
- Adjustable delay function (0.1 to 30 s)
- Programmable latching or inhibit at set level
- LED indication for relay, alarm and power supply ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Over and under frequency	22.5 mm DIN	24 - 240 V AC	1 C/O	DFB-01-C-M24	395.00
Over and under frequency	36 mm, 11 Pin, Plug-in	24 - 240 V AC	1 C/O	PFB-01-C-M24	410.00



DFB-01-C-M24

Technical data

Input specifications

Measures own power supply

Measuring ranges	Upper level	Lower level
Selectable by DIP switches		
2 Hz range	-0.2 to +2 Hz	-2 to +0.2 Hz
50 Hz	49.8 to 52 Hz	48 to 50.2 Hz
60 Hz	59.8 to 62 Hz	58 to 60.2 Hz
10 Hz range	-1 to +10 Hz	-10 to +1 Hz
50 Hz	49 to 60 Hz	40 to 51 Hz
60 Hz	59 to 70 Hz	50 to 61 Hz
Hysteresis		
2 Hz range	~0.05 Hz	
10 Hz range	~0.25 Hz	

Output specifications

Output contacts	1 C/O
Contact ratings	
Resistive loads	AC 1 8 A / 250 V AC
	DC 12 5 A / 24 V DC
Small inductive loads	AC 15 2.5 / A 250 V AC
	DC 13 2.5 / A 24 V DC
Mechanical life	≥30 x 10 ⁶ operations
Electrical life	≥10 ⁵ operations (AC 1)
Operating frequency	≤7200 operations/h

Supply specifications

Rated operational voltage	
DFB-01	24 to 240 V AC ± 15 %
PFB-01	24 to 240 V AC ± 15 %
Power consumption AC	4 VA

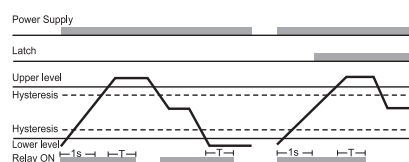
Dimensions

Refer page 9 - 42

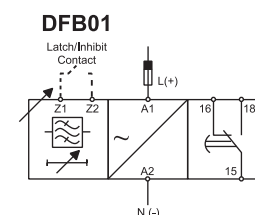
Bases & accessories

Refer page 9 - 41

Operation diagrams



Wiring diagrams



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

Price Schedule 'B2'

Monitoring and control

Over or under speed

- Measuring range: 30 - 10,000 RPM
- Knob-adjustable speed setting
- Controlled by Namur type sensors or metallic contact
- Moving-coil instruments can be connected for speed readings
- LED indication for relay ON

Monitoring function	Housing	Supply	Output	Cat. No.	Price \$
Speed, 30 - 300 RPM	36 mm, 11 Pin, Plug-in	230 V AC	1 C/O	SM155-230-300	325.00
Speed, 200 - 2000 RPM	36 mm, 11 Pin, Plug-in	230 V AC	1 C/O	SM155-230-2K	330.00
Speed, 1000 - 10,000 RPM	36 mm, 11 Pin, Plug-in	24 V DC	1 C/O	<i>i</i> SM155-724-10K	335.00
Speed, 30 - 300 RPM	36 mm, 11 Pin, Plug-in	24 V DC	1 C/O	SM155-724-300	335.00



SM155...

Technical data

Input specifications		Operation diagrams	
Input	Metallic contact, Namur, Open collector sensor	Power Supply	
Measuring range	300: 30 - 300 RPM 2K: 200-2000 RPM 10K: 1000 -10,000 RPM	Set Level	
		Hysteresis	
		Input Pulse Speed	
		Relay	
		Inversion Mode	
		Relay	
Hysteresis (fixed)	Approx. 3 % of set value	Wiring diagrams	

Output specifications

Output contacts	1 C/O
Contact ratings	
Resistive loads	AC 1 10 A / 250 V AC DC 1 1 A / 250 V DC
Small inductive loads	AC 15 2.5 A / 230 V AC DC 13 5 A / 24 V DC
Mechanical life	≥30 x 10 ⁶ operations
Electrical life	≥2.5 x 10 ⁵ operations
Operating frequency	≤7200 operations/h

Supply specifications

Rated operational voltage	
Ordering code	724: 24 V DC ± 15 % 230: 230 V AC ± 15 % 45 to 65 Hz
Sensor supply - Namur	8.2 V DC, 5 mA
Power consumption AC/DC	4 VA / 2 W

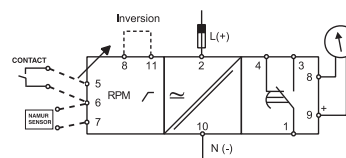
Dimensions

Refer page 10-42

Bases & accessories

Refer page 10-41

SM155



Note: *i* Available on indent only.

Price Schedule 'B2'

Level control

Conductive sensor control relays



CLP...



ZPD11

- Replaces ELA series and S196 Relays
- Teach-in
- Sensitivity 220 Ω to 220 k Ω
- 2 point level control (CLP2...) charge / discharge only
- 2 or 4 point level control (CLP4...)
- 2 independent outputs (CLP4...)
- Plug-in type 11 Pin (round)

Functions	Supply voltage	Relay	Cat. No.	Price \$
CLP2 type				
Discharge/charge	24 V AC/DC	DPDT	CLP2ET1CM24	270.00
Discharge/charge	115 V AC	DPDT	<i>i</i> CLP2ET1C115	270.00
Discharge/charge	230 V AC	DPDT	CLP2ET1C230	270.00
CLP4 type				
Multi function	24 V AC/DC	2xSPST	CLP4MT2AM24	300.00
Multi function	115 V AC	2xSPST	<i>i</i> CLP4MT2A115	300.00
Multi function	230 V AC	2xSPST	CLP4MT2A230	300.00

Accessories

11 Pin DIN mount plug-in base	ZPD11	19.60
Retaining spring	HFSPRING	6.00

Contact ratings

		CLP2	CLP4
Resistive loads	AC 1	5 A 250 V AC	8 A 250 V AC
	DC 1	1 A 250 V DC	1 A 250 V DC
	or	5 A 25 V DC	10 A 25 V DC
Small inductive loads	AC 15	0.4 A 250 V AC	0.4 A 250 V AC
	DC 13	0.4 A 30 V DC	0.4 A 30 V DC

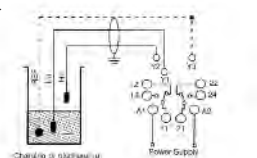


HFSPRING

Examples (Illustrations are for representation only)

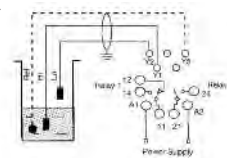
CLP2....

Charge / discharge control.
Lo, Hi level



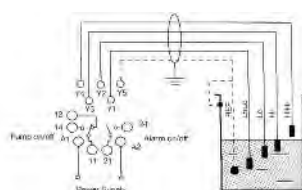
CLP4....

Two level detection.
Lo, Hi level



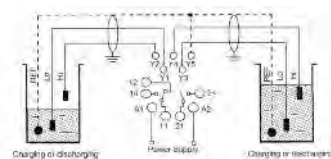
CLP4....

Four level detection.
Lo/Lo, Lo, Hi, Hi/Hi level



CLP4....

Four level detection.
Lo, Hi & Lo, Hi (separate detection areas)



Note: *i* Available on indent only.

Price Schedule 'B2'

ARE YOU MONITORING YOUR ENERGY CONSUMPTION?

Power and energy management solutions.



ENERGY-CG-METERS




"Monitoring your energy consumption is the first step in reducing your carbon footprint".

If you cannot measure it, then how can you improve on it? The key is a sub-metering system to help understand, tune and track your sustainability initiatives, ultimately improving efficiency.

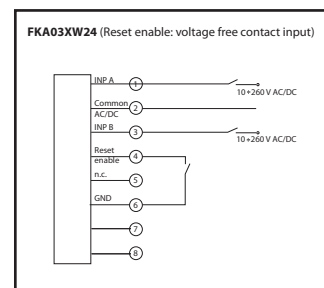
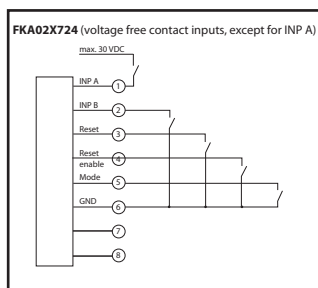
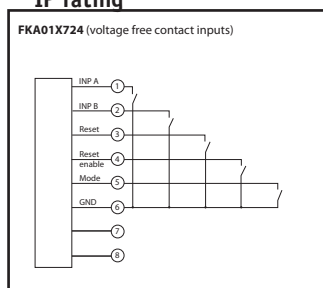


Monitoring and control



Electronic counter

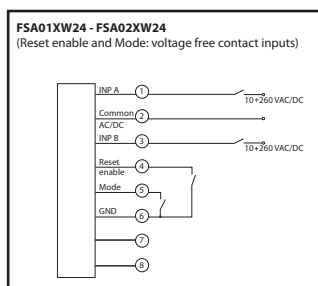
			
Cat. No.	FKA01A12850	FKA01A12852	FKA01A12853
Price \$	244.20	244.20	249.75
Description	Lithium powered elapsed time counter		
Reset	Manual or remote		
Display/No. of digits	LCD / 8 (8 mm high)		
Power supply	Non-replaceable lithium battery (lifetime approx. 8 years at 20 °C)		
Housing	Panel mounting W 48 x H 24 x D 48 mm according to DIN 43700, RAL7021		
Panel cut-out	W 45 x H 22.2 mm		
Input type	NPN, open collector or Volt free	PNP, open collector or Volt free	Voltage
Inputs	3-30 V DC	4-30 V DC	10-260 V AC/DC
Requirement	-9999999 to 99999999		0 to 99999999
Range	IP 65 on front panel		

IP rating



Electronic elapsed timer (hour meter)

		
Cat. No.	FSA01A12853	FSA02A12853
Price \$	244.20	249.75
Description	Digital hour meter	
Reset	Via NPN or Volt free contact	
Display/No. of digits	LCD / 8 (8 mm high)	
Time Range	99999h 59 m or 99999.99h	9999h 59 m 59 s or 9999999.9s
IP rating	IP 65 on front panel	



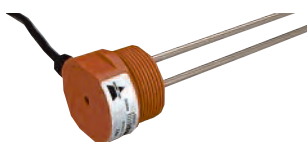
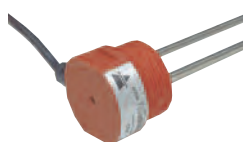








Note: NPN or PNP alternative connection not shown

Price Schedule 'B2'

Monitoring and control

Accessories - current transducers, conductive probes

Current transducers	 <div>1 phase current transformer</div>				 <div>3 phase current transformer</div>			
	Cat. No.	MI5CT	MI20CT	MI100CT	MI500CT	MP3005CT	MP3020CT ⁱ	MP3100CT ⁱ
Price \$	134.00	141.00	155.00	166.00	345.00	370.00	390.00	420.00
Input (AC)	0.5-5 A	2-20 A	10-100 A	50-500 A	0.5-5 A	2-20 A	10-100 A	50-500 A
Output (Vp)	0.4-4	0.4-4	0.4-4	0.4-4	0.4-4	0.4-4	0.4-4	0.4-4
Core hole Ø in mm	10.5	10.5	10.5	10.5	3 x 12	3 x 12	3 x 27	3 x 27
Cable length in metres	1	1	1	1	1	1	2	2
	For use with DIB-02-C... AdvantagePlus current relays							
Conductive probes								
	Cat. No.	VN2		VN3		VPC205		
Price \$	138.00		179.00		167.00			
Description	Level probe Nylon, 1 1/2" pipe thread probe w/ 2 x 1 m electrodes		Level probe Nylon, 1 1/2" pipe thread probe w/ 3 x 1 m electrodes		Level probe PVC, 1/2" pipe thread probe w/ 2 x 0.5 m electrodes			
Features	<ul style="list-style-type: none">• 1 level detection• Moulded PVC cable for quick installation		<ul style="list-style-type: none">• 2 level detection• Moulded PVC cable for quick installation		<ul style="list-style-type: none">• 1 level detection• Screw terminal connection• Insulated probes for sewerage & waste water applications			
								
Cat. No.	VPC310		VH2		ZPD11			
Price \$	230.00		127.00		19.60			
Description	Level probe PVC, 1" pipe thread with 3 x 0.5 m electrodes		Level probe PVC hanging probe with 1 x 0.75 m electrode		Level probe Screw terminal base 11 round Pin			
Features	<ul style="list-style-type: none">• 2 level detection• Screw terminal connection• Insulated probes for sewerage & waste water applications		<ul style="list-style-type: none">• Suspended probe for easy installation• Ideal for large tanks		<ul style="list-style-type: none">• Snap-on DIN rail mount• Used with all P series monitoring relays			
Accessories					<div>For high-temperature probes contact NHP</div>			
	Cat. No.	HFSpring		FRS2 ⁱ				
Price \$	6.00		POA					
Description	Retaining spring for use with P series timers/sockets		Flush mount bracket					
Features	<ul style="list-style-type: none">• Provides connection stability for Plug-in timers where vibration is prominent		<ul style="list-style-type: none">• For use with 'S' relays for panel / flush mounting					

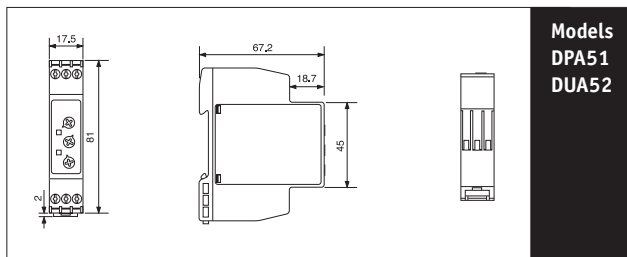
Note: ⁱ Available on indent only.

Price Schedule 'B2'

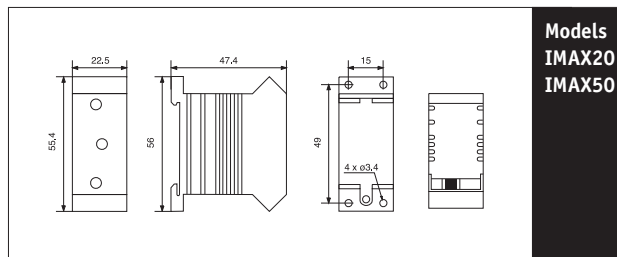
Monitoring and control

Dimensions (in mm)

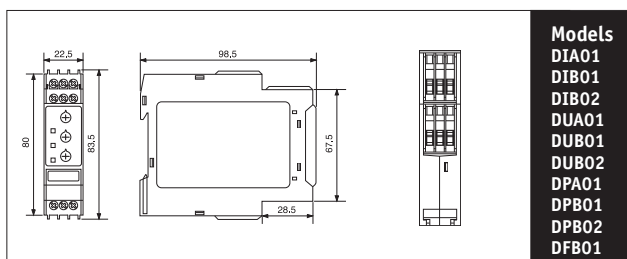
Mini-D housing



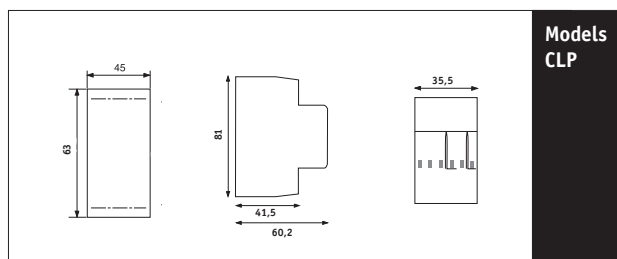
IMAX-housing



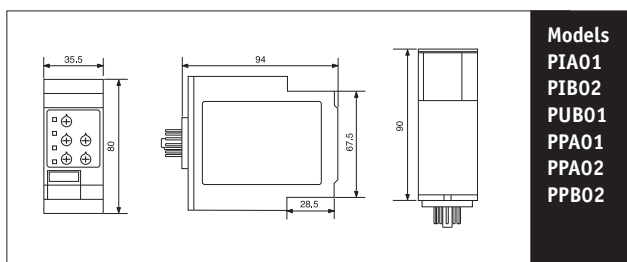
D-housing



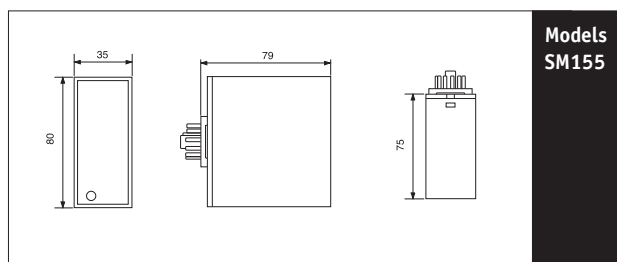
CLP-housing



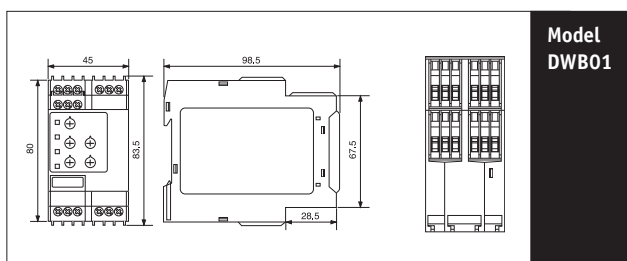
P-housing



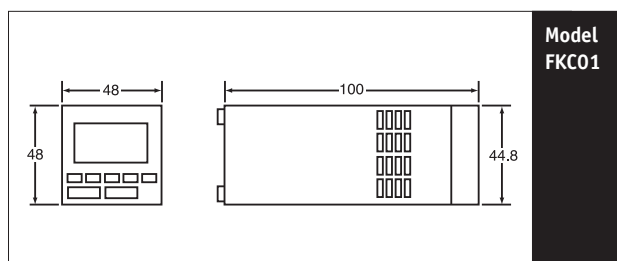
S-housing



D-housing (45 mm)



Flush mount housing (48 mm²)



Economy electronic time delays relays

Type RZ7-FE (with 1 N/O contact)



RZ7-FEA1SU22

- Only 17.5 mm wide (DIN circuit breaker size)
- DIN rail mounting
- 5 timers cover a high percentage of applications
- 110...240 V AC and 24 V AC/DC in the same relay
- 4 selectable time ranges from 0.05 seconds to 60 minutes
- Terminals all touch-protected (IP 20)
- LED indication
- High reliability SMD technology
- Multifunction unit also available
- Economy by having a single N/O output contact

Electronic time delay relays RZ7-FE (with 1 N/O contact)

All timers have selectable time ranges ¹⁾

0.75 ... 15 s

0.05 ... 60 s

0.4 ... 8 min

0.5 ... 60 min

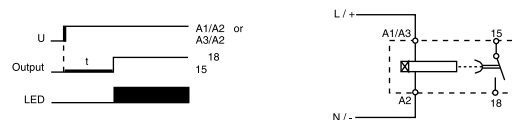


RZ7-FEB1SU22

RZ7-FEA on delay timing relay

Description

On application of the supply voltage the output relay closes after time delay t .



Cat. No. ²⁾

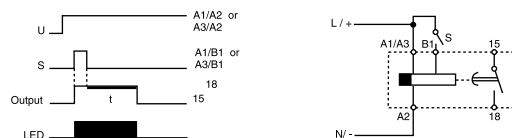
RZ7-FEA1SU22

Price \$

180.00

RZ7-FEB off delay timing relay

The output relay closes as soon as B1 terminal is energised. When the B1 terminal is de-energised the output relay remains closed for time delay t .



RZ7-FEB1SU22

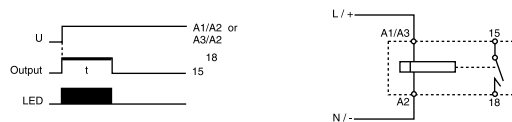
196.00



RZ7-FED1SU22

RZ7-FED on delay impulse timing relay

On application of the supply voltage the output relay closes for the set time delay t .

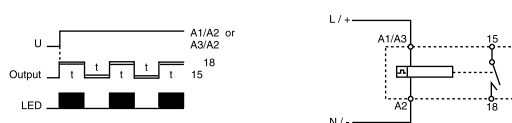


RZ7-FED1SU22

185.00

RZ7-FEF flasher timing relay

On application of the supply voltage, the output relay closes for the time delay t and then opens for the same set time. The cycle continues until the supply voltage is removed.



RZ7-FEF1SU22

180.00



RZ7-FEF1SU22

Notes: ¹⁾ The multifunction time range is from 0.5 seconds to 60 minutes.

²⁾ All timers are multivoltage 110 ... 240 V AC and 24 V AC/DC.
Simply order function required by Cat. No.

Price Schedule 'A2'

Economy electronic time delay relays

Type RZ7-FE (with 1 N/O contact)

Refer catalogue RZ7



**Multifunction timer
RZ7-FEM1RU22**

Multifunction timer RZ7-FEM

- All 4 functions in one relay
 - On delay
 - Off delay
 - Impulse on delay
 - Flasher relay
- 4 timing ranges in one relay
 - 0.5 ... 10 s
 - 0.05 ... 60 s
 - 0.5 ... 10 min
 - 0.05 ... 60 min
- 110/240 V AC and 24 V AC/DC in one relay

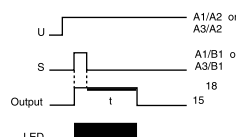
On delay function



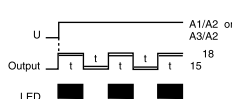
Impulse on delay function



Off delay function



Flasher timing function

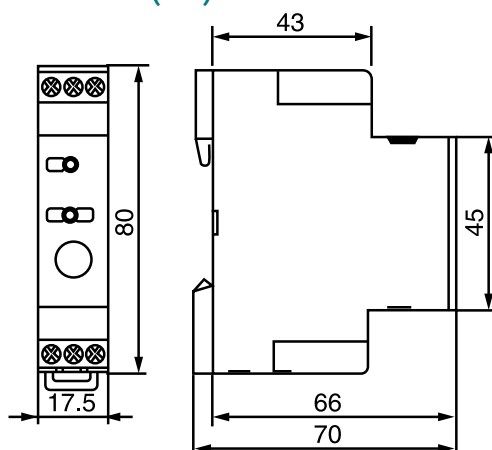


Description	Cat. No. ¹⁾	Price \$
Multifunction timer RZ7-FEM	RZ7-FEM1RU22	230.00

Technical data for RZ7-FE timers ²⁾

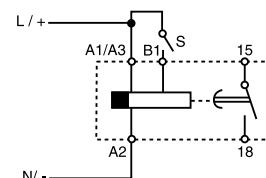
Relay contact 15-18	N/O
Switching power to IEC 947-5-1	5 A, 250 V AC, 1 A, 30 V DC AC 14 - 1 A, DC 13 - 1 A
Mechanical life	10 million ops
Maximum switching rate at 500 VA	500 operations per hour
Voltage withstand according to IEC 947	2 kV AC, 50 Hz
Impulse test to IEC 801-5	
A1-A2 and A1/B1-A2	4 kV
A3-A2 and A3/B1-A2	1 kV
EMC immunity	Class B to EN 55022 2 kV to IEC 801-4
EMC emission	6 kV ESD to IEC 801-2
Temperature range - operating / storage	-25 ° ... +60 °C / -40 ° ... +85 °C
Terminals	
Solid wire	Min. 1 x 0.5 mm ² , max. 2 x 2.5 mm ²
Standard wire with sleeve	2 x 1.5 mm ²

Dimensions (mm)



Please note the following terminal voltages.

- A1 - A2 = 110 to 240 V AC
- A3 - A2 = 24 V AC/DC



- Notes:** ¹⁾ RZ7-FEM is multivoltage 110-240 V AC and 24 V AC/DC.
²⁾ Technical data also applicable to relays with 1 C/O contact.

Price Schedule 'A2'

Economy electronic time delay relays

Type RZ7-FE (with 1 C/O contact)



On delay timer
RZ7-FEA3TU23

- Only 17.5 mm wide (DIN circuit breaker size)
- DIN rail mounting
- 5 timers cover a high percentage of applications
- 24...240 V AC and 24...48 V DC
- 6 selectable time ranges from 0.05 seconds to 10 hours
- Terminals all touch-protected (IP 20)
- LED indication
- High reliability SMD technology
- Multifunction unit also available

Electronic time delay relays RZ7-FE (with one changeover contact)

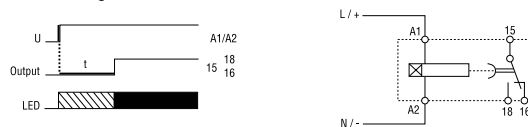
All timers have selectable time ranges ¹⁾

0.05 ... 1 s 0.5 ... 10 s 0.05 ... 60 s 0.5 ... 10 m 0.5...60 m 0.5...10 h

RZ7-FEA on delay timing relay

Description

On application of the supply voltage the output relay closes after time delay t .



Cat. No. ¹⁾ ²⁾

Price \$

RZ7-FEA3TU23

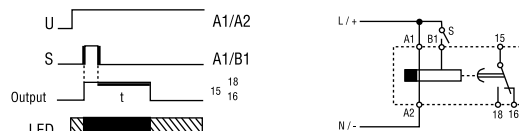
196.00



Off delay timer
RZ7-FEB3TU23

RZ7-FEB off delay timing relay

The output relay closes as soon as B1 terminal is energised. When the B1 terminal is de-energised the output relay remains closed for time delay t .



RZ7-FEB3TU23

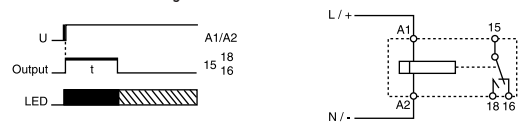
215.00



On delay impulse timing relay
RZ7-FED3TU23

RZ7-FED on delay impulse timing relay

On application of the supply voltage the output relay closes for the set time delay t .



RZ7-FED3TU23

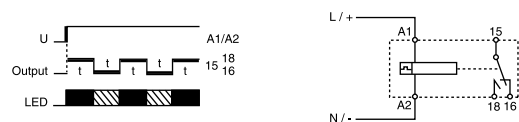
196.00



Flasher timer
RZ7-FEF3TU23

RZ7-FEF flasher timing relay

On application of the supply voltage, the output relay closes for the time delay t and then opens for the same set time. The cycle continues until the supply voltage is removed.



RZ7-FEF3TU23

196.00

Notes: ¹⁾ All timers are multivoltage 24...240 V AC and 24...48 V DC. Simply order required function by Cat. No.

²⁾ For technical data on RZ7-FE (with one changeover contact) refer page 9 - 44.

Price Schedule 'A2'

Economy electronic time delay relays

Type RZ7-FE (with 1 C/O contact)

Refer catalogue RZ7

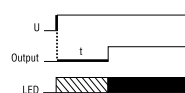


Multifunction timer RZ7-FEM3TU23

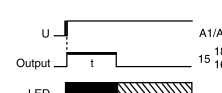
Multi-function timer RZ7-FEM ¹⁾

- All 4 functions in one relay
 - On delay
 - Off delay
 - Impulse on delay
 - Flasher relay
- 6 timing ranges in one relay
 - 0.05 ... 1 s - 0.5 ... 10 s
 - 0.05 ... 60 s - 0.5 ... 10 min
 - 0.05 ... 60 min - 0.5 ... 10 hr
- 24...240 V AC and 24...48 V DC in one relay.

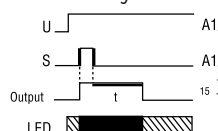
On delay function



Impulse on delay function



Off delay function



Flasher timing function



Description	Cat. No. ¹⁾	Price \$
Multi-function timer RZ7-FEM	RZ7-FEM3TU23	265.00



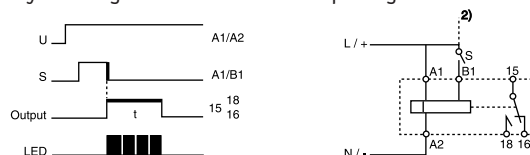
RZ7-FEE3TU23

Electronic timers/relays RZ7-FE (with 1 C/O contact) and special timer/relay for star-delta

Description	Cat. No. ¹⁾	Price \$
-------------	------------------------	----------

RZ7-FEE fleeting off delay 0.05 - 10 hours

The relay is energised for time t after opening the control contact.



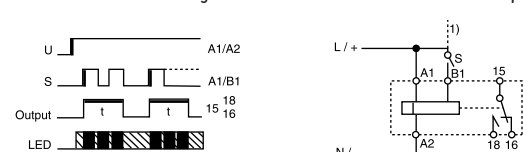
RZ7-FEE3TU23	210.00
---------------------	---------------



RZ7-FEL3TU23

RZ7-FEL impulse converter 0.05 - 10 hours

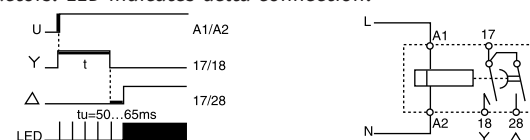
The relay is energised for time t after closing the control impulse. Time t is not influenced by the duration of the control impulse.



RZ7-FEL3TU23	210.00
---------------------	---------------

RZ7-FEY star-delta timing relay 0.15 - 10 min

After application of the supply voltage to terminals A1-A2, output relay Y closes terminal 17/18 and then releases after the expiry of time t . After a fixed transit time t_u of 50...65 ms, output relay Δ , terminals 17/28, is brought to its operational state until removal of the supply voltage. The fixed transition time guarantees short circuit protection during changeover from star to delta with the briefest possible current-off pause, thus allowing for the inertia of contactors. LED indicates delta connection.



RZ7-FEY2QU23	260.00
---------------------	---------------

Note: ¹⁾ For technical data for RZ7-FE (with one changeover contact) refer page 9 - 44.

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 1 C/O contact)

- 22.5 mm wide
- DIN rail mounting
- 24...240 V AC, 24...48 V DC in same relay
- 360...440 V AC available
- Timing ranges from 0.05 seconds to 60 hours
- Terminals all touch-protected (IP 20)
- LED indication
- One changeover or two changeover contacts ²⁾
- Multi-function timer also available

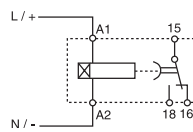
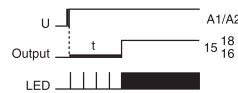


RZ7-FSA 3A- ...

On delay, off delay and on/off delay

RZ7-FSA3 - on delay timing relay ²⁾ (FUNCTION-A)

Description	Timing range	Cat. No. ¹⁾ ⁴⁾ ⁵⁾	Price \$
On application of the supply voltage the relay operates with delay <i>t</i> .	0.05...1 s	RZ7-FSA 3A-...	255.00
	0.15...3 s	RZ7-FSA 3B-...	255.00
	0.5...10 s	RZ7-FSA 3C-...	255.00
	1.5...30 s	RZ7-FSA 3D-...	255.00
	0.05...60 s	RZ7-FSA 3E-...	255.00
	0.15...3 min	RZ7-FSA 3F-...	255.00
	0.5...10 min	RZ7-FSA 3G-...	255.00
	1.5...30 min	RZ7-FSA 3H-...	255.00
	0.05...60 min	RZ7-FSA 3I-...	255.00
	0.15...3 h	RZ7-FSA 3J-...	255.00
	0.5...10 h	RZ7-FSA 3K-...	255.00
	3...60 h	RZ7-FSA 3L-...	255.00

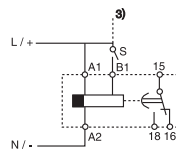
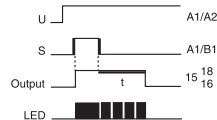


RZ7-FSB 3L- ...

RZ7-FSB3 - off delay timing relay ²⁾ (FUNCTION-B)

The relay is energised upon closing the control contact. It resets time *t* after opening the control contact.

Description	Timing range	Cat. No. ¹⁾ ⁴⁾ ⁵⁾	Price \$
The relay is energised upon closing the control contact. It resets time <i>t</i> after opening the control contact.	0.05...1 s	RZ7-FSB 3A-...	295.00
	0.15...3 s	RZ7-FSB 3B-...	295.00
	0.5...10 s	RZ7-FSB 3C-...	295.00
	1.5...30 s	RZ7-FSB 3D-...	295.00
	0.05...60 s	RZ7-FSB 3E-...	295.00
	0.15...3 min	RZ7-FSB 3F-...	295.00
	0.5...10 min	RZ7-FSB 3G-...	295.00
	1.5...30 min	RZ7-FSB 3H-...	295.00
	0.05...60 min	RZ7-FSB 3I-...	295.00
	0.15...3 h	RZ7-FSB 3J-...	295.00
	0.5...10 h	RZ7-FSB 3K-...	295.00
	3...60 h	RZ7-FSB 3L-...	295.00

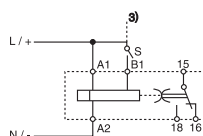
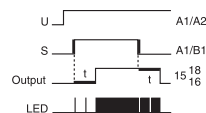


RZ7-FSC 3A- ...

RZ7-FSC3 - on and off delay timing relay (FUNCTION-C)

The relay is energised time *t* after closing the contact and resets time *t* after opening the control contact.

Description	Timing range	Cat. No. ¹⁾ ⁴⁾ ⁵⁾	Price \$
The relay is energised time <i>t</i> after closing the contact and resets time <i>t</i> after opening the control contact.	0.05...1 s	RZ7-FSC 3A-...	295.00
	0.15...3 s	RZ7-FSC 3B-...	295.00
	0.5...10 s	RZ7-FSC 3C-...	295.00
	1.5...30 s	RZ7-FSC 3D-...	295.00
	0.05...60 s	RZ7-FSC 3E-...	295.00
	0.15...3 min	RZ7-FSC 3F-...	295.00
	0.5...10 min	RZ7-FSC 3G-...	295.00
	1.5...30 min	RZ7-FSC 3H-...	295.00
	0.05...60 min	RZ7-FSC 3I-...	295.00
	0.15...3 h	RZ7-FSC 3J-...	295.00
	0.5...10 h	RZ7-FSC 3K-...	295.00
	3...60 h	RZ7-FSC 3L-...	295.00



- Notes:**
- ¹⁾ Add 'U23' to catalogue number for the following voltages: 24...48 V DC; 24...240 V AC 50/60 Hz. Add 'A40' to catalogue number for the following voltages: 346...440 V AC 50/60 Hz.
 - ²⁾ Also available with 2 C/O contacts refer page 9 - 53 for ordering details.
 - ³⁾ For pulse control, another voltage other than the supply voltage can also be used.
 - ⁴⁾ Special voltage code 'U18' for AC/DC 24...240 V available on request.
 - ⁵⁾ Please note: FS Timers are programmed to order/request and are therefore non-returnable.

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 1 C/O contact)

One shot, fleeting off delay and flasher starting with pulse

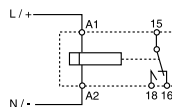
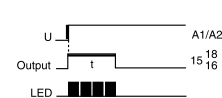
RZ7-FSD3 - on delay impulse (FUNCTION-D)



RZ7-FSD 3C- ...

Description

The relay is energised for time t after applying the supply voltage.



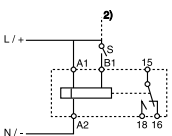
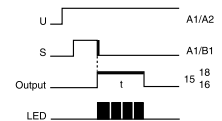
Timing range	Cat. No. ¹⁾ ³⁾ ⁴⁾	Price \$
0.05...1 s	RZ7-FSD 3A-...	250.00
0.15...3 s	RZ7-FSD 3B-...	250.00
0.5...10 s	RZ7-FSD 3C-...	250.00
1.5...30 s	RZ7-FSD 3D-...	250.00
0.05...60 s	RZ7-FSD 3E-...	250.00
0.15...3 min	RZ7-FSD 3F-...	250.00
0.5...10 min	RZ7-FSD 3G-...	250.00
1.5...30 min	RZ7-FSD 3H-...	250.00
0.05...60 min	RZ7-FSD 3I-...	250.00
0.15...3 h	RZ7-FSD 3J-...	250.00
0.5...10 h	RZ7-FSD 3K-...	250.00
3...60 h	RZ7-FSD 3L-...	250.00



RZ7-FSE 3B- ...

RZ7-FSE3 - Fleeting off delay (FUNCTION-E)

The relay is energised for time t after opening the control contact.



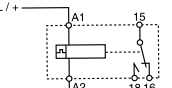
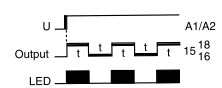
0.05...1 s	RZ7-FSE 3A-...	295.00
0.15...3 s	RZ7-FSE 3B-...	295.00
0.5...10 s	RZ7-FSE 3C-...	295.00
1.5...30 s	RZ7-FSE 3D-...	295.00
0.05...60 s	RZ7-FSE 3E-...	295.00
0.15...3 min	RZ7-FSE 3F-...	295.00
0.5...10 min	RZ7-FSE 3G-...	295.00
1.5...30 min	RZ7-FSE 3H-...	295.00
0.05...60 min	RZ7-FSE 3I-...	295.00
0.15...3 h	RZ7-FSE 3J-...	295.00
0.5...10 h	RZ7-FSE 3K-...	295.00
3...60 h	RZ7-FSE 3L-...	295.00



RZ7-FSF 3F- ...

RZ7-FSF3 - flasher starting with pulse (FUNCTION-F)

The relay is energised for time t after applying the supply voltage. At the end of time t , the relay is de-energised for time t . The cycle is repeated until the supply voltage is interrupted.



0.05...1 s	RZ7-FSF 3A-...	250.00
0.15...3 s	RZ7-FSF 3B-...	250.00
0.5...10 s	RZ7-FSF 3C-...	250.00
1.5...30 s	RZ7-FSF 3D-...	250.00
0.05...60 s	RZ7-FSF 3E-...	250.00
0.15...3 min	RZ7-FSF 3F-...	250.00
0.5...10 min	RZ7-FSF 3G-...	250.00
1.5...30 min	RZ7-FSF 3H-...	250.00
0.05...60 min	RZ7-FSF 3I-...	250.00
0.15...3 h	RZ7-FSF 3J-...	250.00
0.5...10 h	RZ7-FSF 3K-...	250.00
3...60 h	RZ7-FSF 3L-...	250.00

- Notes:** ¹⁾ Add 'U23' to catalogue number for the following voltages: 24...48 V DC; 24...240 V AC 50/60 Hz.
Add 'A40' to catalogue number for the following voltages: 346...440 V AC 50/60 Hz.
²⁾ For pulse control, another voltage other than the supply voltage can also be used.
³⁾ Special voltage code 'U18' for AC/DC 24...240 V available on request.
⁴⁾ **Please note: FS Timers are programmed to order/request and are therefore non-returnable.**

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 1 C/O contact)

Flasher starting with pause, fixed pulse and on delay, pulse controlled

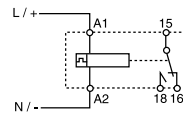
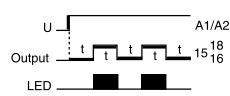


RZ7-FSG 3I- ...

RZ7-FSG3 - flasher starting with pause (FUNCTION-G)

Description

The relay is de-energised for time t after applying the supply voltage. At the end of time t , the relay is energised for time t . The cycle is repeated until the supply voltage is interrupted.



Timing range

Cat. No. ¹⁾ ³⁾ ⁴⁾

Price \$

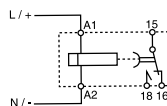
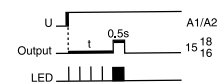
0.05...1 s	RZ7-FSG 3A-...	250.00
0.15...3 s	RZ7-FSG 3B-...	250.00
0.5...10 s	RZ7-FSG 3C-...	250.00
1.5...30 s	RZ7-FSG 3D-...	250.00
0.05...60 s	RZ7-FSG 3E-...	250.00
0.15...3 min	RZ7-FSG 3F-...	250.00
0.5...10 min	RZ7-FSG 3G-...	250.00
1.5...30 min	RZ7-FSG 3H-...	250.00
0.05...60 min	RZ7-FSG 3I-...	250.00
0.15...3 h	RZ7-FSG 3J-...	250.00
0.5...10 h	RZ7-FSG 3K-...	250.00
3...60 h	RZ7-FSG 3L-...	250.00



RZ7-FSI 3F- ...

RZ7-FSI3 - on delay impulse timing relay with fixed pulse duration ²⁾ (FUNCTION-I)

The relay is energised for the fixed impulse of 0.5 s time and after applying the supply voltage.



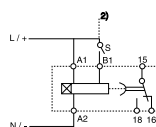
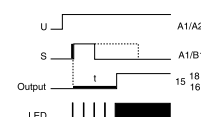
0.05...1 s	RZ7-FSI 3A-...	250.00
0.15...3 s	RZ7-FSI 3B-...	250.00
0.5...10 s	RZ7-FSI 3C-...	250.00
1.5...30 s	RZ7-FSI 3D-...	250.00
0.05...60 s	RZ7-FSI 3E-...	250.00
0.15...3 min	RZ7-FSI 3F-...	250.00
0.5...10 min	RZ7-FSI 3G-...	250.00
1.5...30 min	RZ7-FSI 3H-...	250.00
0.05...60 min	RZ7-FSI 3I-...	250.00
0.15...3 h	RZ7-FSI 3J-...	250.00
0.5...10 h	RZ7-FSI 3K-...	250.00
3...60 h	RZ7-FSI 3L-...	250.00



RZ7-FSJ 3F- ...

RZ7-FSJ3 - delayed on (command contact controlled) pulse controlled (FUNCTION-J)

The relay is energised time t after closing the control contact.



0.05...1 s	RZ7-FSJ 3A-...	295.00
0.15...3 s	RZ7-FSJ 3B-...	295.00
0.5...10 s	RZ7-FSJ 3C-...	295.00
1.5...30 s	RZ7-FSJ 3D-...	295.00
0.05...60 s	RZ7-FSJ 3E-...	295.00
0.15...3 min	RZ7-FSJ 3F-...	295.00
0.5...10 min	RZ7-FSJ 3G-...	295.00
1.5...30 min	RZ7-FSJ 3H-...	295.00
0.05...60 min	RZ7-FSJ 3I-...	295.00
0.15...3 h	RZ7-FSJ 3J-...	295.00
0.5...10 h	RZ7-FSJ 3K-...	295.00
3...60 h	RZ7-FSJ 3L-...	295.00

Notes: ¹⁾ Add 'U23' to catalogue number for the following voltages: 24...48 V DC; 24...240 V AC 50/60 Hz.

Add 'A40' to catalogue number for the following voltages: 346...440 V AC 50/60 Hz.

²⁾ For pulse control, another voltage other than the supply voltage can also be used.

³⁾ Special voltage code 'U18' for AC/DC 24...240 V available on request.

⁴⁾ Please note: FS Timers are programmed to order/request and are therefore non-returnable.

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 1 C/O contact)

One shot pulse controlled and impulse converter

RZ7-FSK3 - one shot pulse controlled (FUNCTION-K) ³⁾



RZ7-FSK 3D- ...

Description

The relay is energised for time t after closing the control contact.



Timing range

Cat. No. ¹⁾ ³⁾ ⁴⁾

Price \$

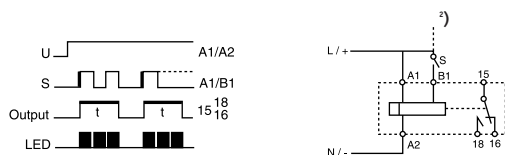
0.05...1 s	RZ7-FSK 3A-...	295.00
0.15...3 s	RZ7-FSK 3B-...	295.00
0.5...10 s	RZ7-FSK 3C-...	295.00
1.5...30 s	RZ7-FSK 3D-...	295.00
0.05...60 s	RZ7-FSK 3E-...	295.00
0.15...3 min	RZ7-FSK 3F-...	295.00
0.5...10 min	RZ7-FSK 3G-...	295.00
1.5...30 min	RZ7-FSK 3H-...	295.00
0.05...60 min	RZ7-FSK 3I-...	295.00
0.15...3 h	RZ7-FSK 3J-...	295.00
0.5...10 h	RZ7-FSK 3K-...	295.00
3...60 h	RZ7-FSK 3L-...	295.00

RZ7-FSL3 - impulse converter (FUNCTION-L) ³⁾



RZ7-FSL 3D- ...

The relay is energised for time t after closing the control contact. Time t is not influenced by the duration of the control impulse.



0.05...1 s	RZ7-FSL 3A-...	295.00
0.15...3 s	RZ7-FSL 3B-...	295.00
0.5...10 s	RZ7-FSL 3C-...	295.00
1.5...30 s	RZ7-FSL 3D-...	295.00
0.05...60 s	RZ7-FSL 3E-...	295.00
0.15...3 min	RZ7-FSL 3F-...	295.00
0.5...10 min	RZ7-FSL 3G-...	295.00
1.5...30 min	RZ7-FSL 3H-...	295.00
0.05...60 min	RZ7-FSL 3I-...	295.00
0.15...3 h	RZ7-FSL 3J-...	295.00
0.5...10 h	RZ7-FSL 3K-...	295.00
3...60 h	RZ7-FSL 3L-...	295.00

Notes: ¹⁾ Add 'U23' to catalogue number for the following voltages:
24...48 V DC.
24...240 V AC 50/60 Hz.

Add 'A40' to catalogue number for the following voltages:
346...440 V AC 50/60 Hz.

²⁾ For pulse control, another voltage other than the supply voltage can also be used.

³⁾ Special voltage code 'U18' for AC/DC 24...240 V available on request.

⁴⁾ **Please note: FS Timers are programmed to order/request and are therefore non-returnable.**

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 1 C/O contact)

Special versions

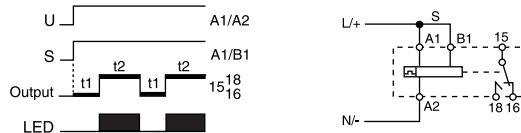
RZ7-FSH3 - repeat cycle timer - flasher (multi-time range)



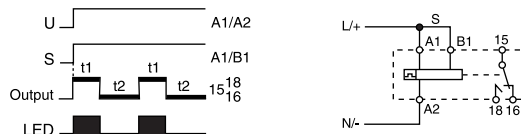
Flasher timer
RZ7-FSH3V-...

Description	Timing range	Cat. No. ¹⁾ ²⁾	Price \$
<p>The repeat cycle timer permits different settings for on and off times.</p> <ul style="list-style-type: none"> - output starts with pulse or pause - controlled by supply voltage or an additional control contact - monostable or oscillating mode (latter contact control only) <p>• RZ7-FSH3V is used for individual setting of pulse and pause durations. (Time setting ranges for pulse and pause duration can be different)</p>	2 x 0.05 s...60 h	RZ7-FSH3V-...	380.00

Supply voltage controlled, output starts with pause



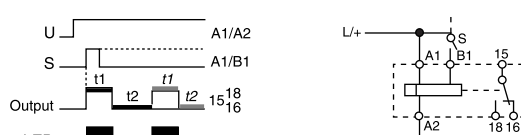
Supply voltage controlled, output starts with pulse



Pulse controlled, output starts with pause



Pulse controlled, output starts with pulse



Notes: ¹⁾ Add 'U23' to catalogue number for the following voltages:
24...48 V DC.
24...240 V AC 50/60 Hz.

²⁾ FS Timers are programmed to order/request and are therefore non-returnable.

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 1 C/O contact)

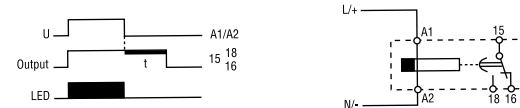
Special versions

RZ7-FSQ3 - off delay without supply voltage (multi-time range)



RZ7-FSQ3U18
24...240V AC/DC

Description	Timing range	Cat. No. ²⁾	Price \$
The relay is energised immediately after applying the supply voltage. It resets time t after the supply voltage is interrupted.	0.15...10 m	RZ7-FSQ3QU18 24...240V AC/DC	375.00



RZ7-FSY2 - star-delta timing relay ¹⁾



RZ7-FSY 2D-

Output relay Y picks up when the supply voltage is applied and resets after time t . After a fixed changeover time tu output relay Δ picks up and remains energised until the supply voltage is interrupted.	0.5...10 s	RZ7-FSY 2C-...	265.00
	1.5...30 s	RZ7-FSY 2D-...	265.00
	0.05...60 s	RZ7-FSY 2E-...	265.00
	0.15...3 min	RZ7-FSY 2F-...	265.00
	0.5...10 min	RZ7-FSY 2G-...	265.00



RZ7-FSM3 - multi-function, multi-time timer ^{1) 2)}



RZ7-FSM 3U-...

10 setting functions available	0.05 s...60 h	RZ7-FSM 3U-...	310.00
A - on delay I - on delay impulse			
B - off delay L - impulse converter			
C - on and off delay (ON) - ON function			
D - one shot (OFF) - OFF function			
E - fleeting off delay			
F - flasher starting with pulse			

Accessories for RZ7 timers

Panel adaptor for surface mounting of FE and FS timers	RZ7-FSA	14.80
Dovetail 0 mm spacing	CA7S-0	4.40
Dovetail 9 mm spacing	CA7S-9	6.40
Raised setting knob for RZ7-FS	RZ7-FSK	4.20

Notes: ¹⁾ Add 'U23' to catalogue number for the following voltages:
24...48 V DC.
24...240 V AC 50/60 Hz.

²⁾ Special voltage code 'U18' for AC/DC 24...240 V available on request.
FS timers are programmed to order/request and are therefore non-returnable.

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS single function timers (with 2 C/O contacts)

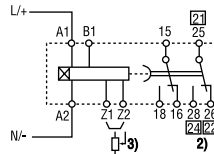
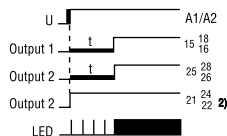
On delay and off delay (with 2 changeover contacts)



RZ7-FSA4U-...

RZ7-FSA4 - on delay timing relay (multi-time range)

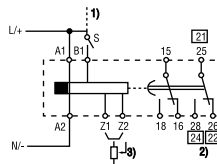
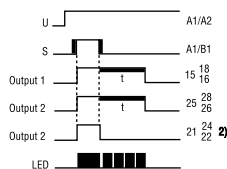
Description	Timing range	Cat. No. ⁴⁾	Price \$
On application of the supply voltage the relay operates with delay t .	0.05 s...60 h	RZ7-FSA4U -...	330.00



RZ7-FSB 4U-...

RZ7-FSB4 - off delay timing relay (multi-time range)

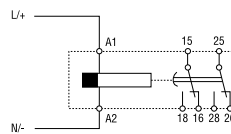
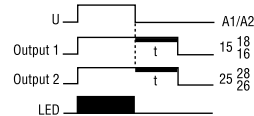
The relay is energised upon closing the control contact. It resets time t after opening the control contact.	0.05 s...60 h	RZ7-FSB 4U-...	320.00
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Special function

RZ7-FSQ4 - off delay without supply voltage

Description	Timing range	Cat. No.	Price \$
The relay is energised immediately after applying the supply voltage. It resets time t after the supply voltage is interrupted.	0.15 s...10 m	RZ7-FSQ4QU18 24...240VAC/DC	485.00



RZ7-FSQ4Q1824...

Multi-function

RZ7-FSM4 - multifunction, multi-time timer	Timing range	Cat. No. ^{1) 5)}	Price \$
10 function settings available A - on delay I - on delay impulse B - off delay L - impulse converter C - on and off delay (ON) - ON function D - one shot (OFF) - OFF function E - fleeting off delay F - flasher starting with pulse	0.05 s...60 h	RZ7-FSM 4U-...	420.00



RZ7-FSM 4U-...

- Notes:**
- ¹⁾ For pulse control, another voltage other than the supply voltage can also be used.
 - ²⁾ Output 2, selectable as instantaneous contact with sliding switch on front panel.
 - ³⁾ Bridge or potentiometer 10 k ohm, min. 0.25 W (low voltage) for external time setting.
 - ⁴⁾ Add 'U23' to catalogue number for the following voltages:
24...48 V DC.
24...240 V AC 50/60 Hz.
 - ⁵⁾ Special voltage code 'U18' for AC/DC 24...240 V available on request.
- FS timers are programmed to order/request and are therefore non-returnable.**

Price Schedule 'A2'

High performance electronic time delay relays

Type RZ7-FS technical information

Time characteristics (according to VDE 0435, Part 2021)

Setting accuracy	$\pm 5\%$ of the time range final value ($t_{max.}$)
Repeatability	$\pm 0.2\%$ of the setting values
Tolerance	Voltage: $\pm 0.001\%$ / $\% \Delta U$ Temperature: $\pm 0.025\%$ / $^{\circ}C$

Supply

Supply voltages	24...48 V DC and 24...240 V AC, 50/60 Hz (multi-voltage), 346 - 440 V AC, 24...240 V AC/DC
Voltage tolerance	-20 % / +20 % (DC), -15 % / +10 % (AC)
Power consumption	0.5 W at 24 V DC, 5 VA at 240 V AC
Time energised	100 %
Recovery time	50 ms
Voltage interpretation	≤ 20 ms without reset (supply voltage)
Cable length (supply voltage control)	maximum 250 m

Pulse control (B1)

Impulse duration	≥ 50 ms (AC), ≥ 30 ms (DC)
Input voltage	Supply voltage range
Input current	1 mA
Cable length	maximum 250 m without parallel load between B1 and A2 maximum 50 m with load ($< 3\text{ k}\Omega$) between B1 and A2

Outputs

Contact type	Relay as changeover switch
Switching capacity	Voltage: 440 V AC Current I_{th} : 8 A Power: 2000 VA according to IEC 947-5-1: 3 A/440 V AC (inductive load, AC 14) 3 A/250 V AC (inductive load, AC 15) 1 A/24 V DC (inductive load, DC 13) according to UL 508 1.5 A/250 V AC (B300) 3 A/120 V AC (B300)
Short-circuit resistance	10 A gL
Life	Mechanical: 30 Million operations Electrical operations: 4 Million operations at 1 A/250 V AC, $\cos \phi = 1$ 0.2 Million operations at 6 A/250 V AC, $\cos \phi = 1$ 1.5 Million operations at 1 A/250 V AC, $\cos \phi = 0.3$ 0.3 Million operations at 3 A/250 V AC, $\cos \phi = 0.3$ 0.5 Million operations at 6 A/24 V DC, resistive 2 Million operations at 4 A/24 V DC, resistive 2 Million operations at 0.2 A/230 V DC, resistive 1 Million operations at 0.4 A/24 V DC, L/R = 20 ms 1 Million operations at 0.2 A/110 V DC, L/R = 20 ms 1 Million operations at 0.1 A/230 V DC, L/R = 20 ms
Status indicator	1 LED, combination signal

High performance electronic time delay relays

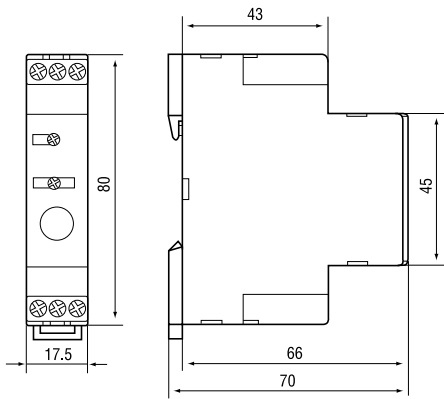
Type RZ7-FS technical information

General data

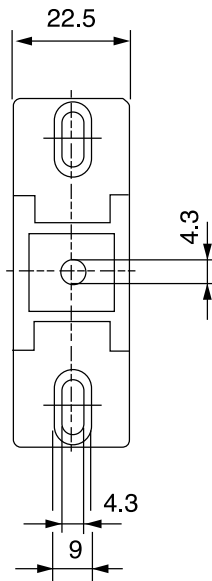
Insulation characteristics	2 kV AC / 50 Hz test voltage according to VDE 0435 and 6 kV 1.2/50 µs surge voltage
EMC/Interference immunity	according to IEC 947-1 between all inputs and outputs. Performance of following requirements: Surge capacity of the supply voltage according to IEC 1000-4-5: 4 kV 1.2/50 µs Burst according to IEC 1000-4-4: 6 kV 5/50 ns ESD discharge according to IEC 1000-4-2: Contact 8 kV, air 8 kV Electromagnetic HF field according to IEC 801-3 and conducted electromagnetic HF signal according to IEC 801-6: Level 3
EMC/Emission	Electromagnetic fields according to EN 55 022: class B
Safe isolation	according to VDE 106, part 101
Climatic withstand	56 Cycles (24 h) at 25...40 °C and 95 % relative humidity according to IEC 68-2-30 and IEC 68-2-3
Vibration resistance	4 g in 3 axis at 10...500 Hz, test FC according to IEC 68-2-6
Shock resistance	50 g according to IEC 68-2-27
Protection class	Enclosure: IP 40 IP 30 (single-function) Terminal: IP 20 according to IEC 947-1
Weight	100 g
Approvals	CE, UL, C-UL, Germanischer Lloyd
Ambient temperature	Open: -25 °C...+60 °C Enclosed: -25 °C...+45 °C Storage: -40 °C...+85 °C
Terminals	Screw terminal M3.5 for Pozidrive Nr.2, Philips and slotted screws Nr.2. suitable for power screwdriver. Rated tightening torque 0.8 Nm (max. 1.2 Nm) Dual-chamber system for terminal cross-sections of 1 x 0.5 mm ² ...2 x 2.5 mm ² (solid) or 2 x 2.5 mm ² (flexible with sleeve), AWG 20...14. Touch protection according to VDE 0106.
Mounting	Front mounting: For snap-on mounting on DIN rail 35 mm or screw fixing by adaptor and 2 screws M4.
Disposal	Synthetic material without dioxin according to EC/EFTA notification Nr. 93/0141/D electrical contacts with cadmium.

High performance electronic time delay relays

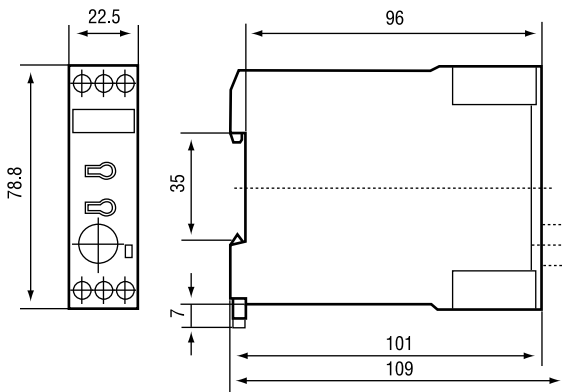
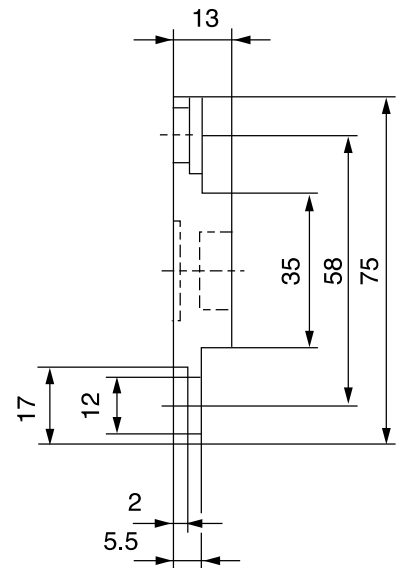
Type RZ7-FS dimensions (mm)



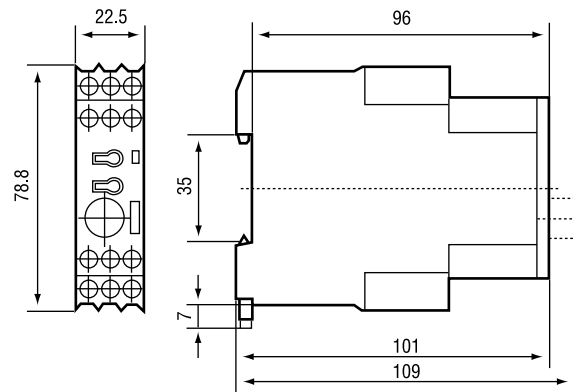
RZ7-FE range



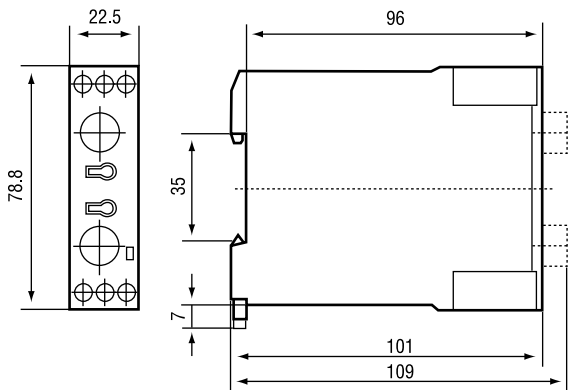
RZ7-FSA surface mount adaptor



RZ7-FS (1 C/O)



RZ7-FS (2 C/O)



RZ7-FSH3V (1 C/O special function)

Twilight switch Model DASY

General description

The DASY 10 and 16 twilight switches compare the ambient light level to that of the preset threshold.

When the light strength drops below the threshold, the contact will close after a time delay of 10 seconds. When the ambient light level increases, the contact will open after a 40 second time delay.

The 40 second 'off' delay avoids unnecessary switching caused by intermittent changes in ambient light levels. e.g. lightning, car headlights etc.



Energy saving

Features

- Load current 10 A or 16 A.
- Setting range 0-200 lux.
- IP 54 protection rating.
- Simple adjustment from outside of unit.
- Closed contact status indicated by red LED on bottom of unit.
- Minimal sensitivity to optical switch reversal due to a switch hysteresis of approximately 60 %.
- In-built time delays offer maximum protection against disturbance due to sudden light level changes.

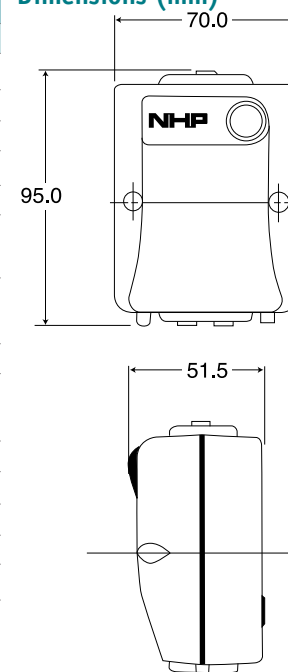
Note:

When installing compensated fluorescent lamps, a slave contactor of the appropriate rating must be used in every instance.

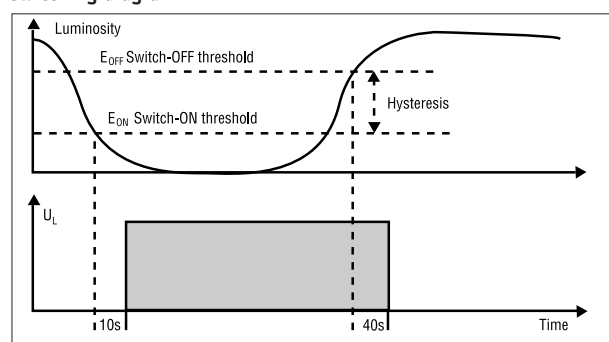
Ordering details and technical data

Cat. No.	DASY 10240	DASY 1024	DASY 1012	DASY 16240 ¹⁾
Price \$	182.00	182.00	170.00	205.00
Supply voltage (± 10 %)	240 V AC	24 V AC/DC	12 V AC/DC	240 V AC
Setting range	0 - 200 lux			
Switch OFF threshold	1.5 x ON threshold			
Output	1 relay contact N/O (SPST)			
Current rating	10 A	10 A	10 A	16 A
Power rating: Resistive load	2400 VA	240 VA	120 VA	3680 VA
Incandescent lamps	1800 W	200 W	100 W	3200 W ¹⁾
Power rating: inductive loads	360 VA	-	-	480 VA
Time delays: ON delay	10 s (1 s) ²⁾			
OFF delay	40 s (1 s) ²⁾			
Switching threshold indicator (instantaneous)	LED red			
Protection class	IP 54			
Casing	Blend (ABS/PC)			
Wiring terminals	2.5 mm ²			
Operating temperature	-25 °C to +45 °C			
Standards	DIN VDE 0632; IEC 669			

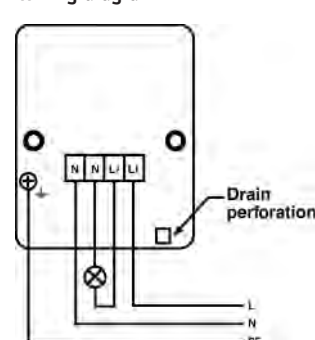
Dimensions (mm)



Switching diagram



Wiring diagram



Notes: ¹⁾ For switching low inductive loads e.g. contactors / the DASY 10 is recommended.
²⁾ These figures apply for 5 minutes after the last change in the switch-on threshold.
 Alternatively an RC network should be used on the inductive load.

Price Schedule 'B2'

TL101 AUTOMATIC TRANSFER SWITCH SYSTEM

NHP

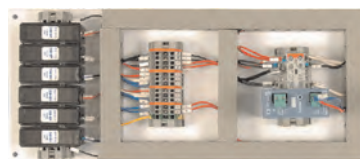
High level functionality and ease of use



COMPLETE AUTOMATIC TRANSFER SWITCH SOLUTIONS



AUTOMATIC TRANSFER SWITCH CONTROLLER



INTERFACE PANEL



TRANSFER SWITCH

'PLUG 'N PLAY' STYLE INSTALLATION

Terasaki TemLogic 2 TL101 automatic transfer switch controller

- Genuine 144 x 144 mm controller solution
- User friendly display and menu selection
- Large selection of functions and options as standard

Terasaki TemLogic 2 to TemBreak interface panel

- The optional TemBreak interface panel provides a safe link between the Terasaki TemLogic 2 TL101 controller and a temBreak 1 or 2 MCCB Transfer switch.
- The TemBreak Interface Panel comes complete with 'plug 'n play' style connectors, eliminating the need for separate control and power wiring.

Terasaki TemBreak 1 or 2 transfer switch

- Large range of amp-frame sizes available
- High kA range
- Selection of mechanical interlocks
- Suitable for TemBreak 1 or 2 125-2500 A

TemLogic TemBreak

TERASAKI
Innovators in Protection Technology