

Metering systems - Analogue and digital Ammeters, voltmeters, current transformers

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Carlo Gavazzi

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Analogue meters

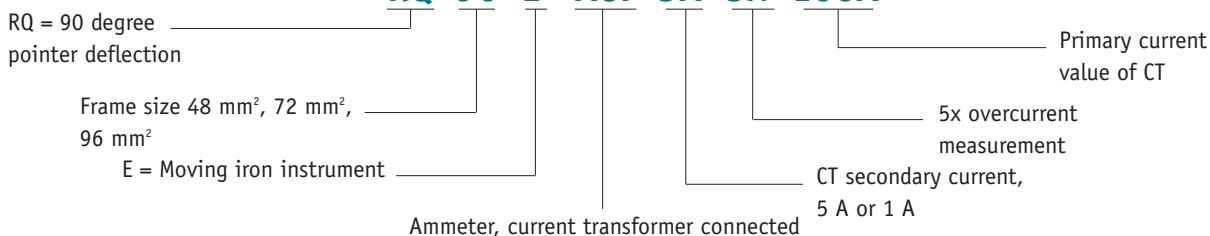
Moving iron ammeters and voltmeters

General features

- Accuracy class 1.5
- 600 V operational voltage rating
- Insulation tested at 2 kV/min @ 50 Hz
- Operating temperature -25 to +50 °C
- Overload parameters:
Ammeters 1.2 x In cont., 10 x In for 5 sec.
Voltmeters 1.2 x Un cont., 2 x Un for 5 sec.
- Suitable for mounting on ferromagnetic materials
- Self-extinguishing housing
- IP 52 rated front frame
- Operates with ambient humidity rating 85 % without condensation at max. 35 °C for 60 days
- Vibration resistant with amplitude of 1-0.03 mm peak frequency on 3 axes @ 5-80 Hz (IEC 68-2-6)

Catalogue Number construction

RQ 96 E ACT 5A 5X 100A



Ordering guide

Analogue meters can be ordered by constructing the Catalogue Number from tables ① (meter type and size) plus table ② (scale / input). If the input is different from the scale, select it from table ③ and clearly state when placing your order.

Example 1. To order a 90° AC ammeter – direct connect with a 96 mm x 96 mm window including a 10 A scale and input:

Customer Order

1 x RQ96EAAC10A

Example 2. To order a 90° AC ammeter – CT connect with a 72 mm x 72 mm window with a 100 A scale and a 5 A input:

Customer Order

1 x RQ72EACT5A5X100A

Input: 5 A

Scale: 100 A

90° AC ammeter - Direct connect

With 5x over-scale

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale / input from table ② .



RQ72E AAC 100A

① Window size	Cat. No.	Price \$
48 mm x 48 mm	RQ48EAAC...	84.00
72 mm x 72 mm	RQ72EAAC...	72.00
96 mm x 96 mm	RQ96EAAC...	80.00

② Scale / input selection	1 A, 2.5 A, 5 A, 10 A, 15 A, 20 A, 25 A, 30 A, 40 A, 50 A, 60 A, 80 A, 100 A
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Price Schedule 'Y8'

Analogue meters

Moving iron ammeters and voltmeters

90° AC ammeter - CT connect ¹⁾

5A Current transformer operation with 5x over-scale

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale from table ②. The input is 5 A. 1 A input is available on request, contact NHP for further details.



RQ72E ACT 5A 5X 750

① Window size	Cat. No.	Price \$	
48 mm x 48 mm	RQ48EACT5A5X...	74.50	
72 mm x 72 mm	RQ72EACT5A5X...	69.50	
96 mm x 96 mm	RQ96EACT5A5X...	72.00	
② Scale selection		5 A, 10 A, 12 A, 15 A, 20 A, 25 A, 30 A, 40 A, 50 A, 60 A, 75 A, 80 A, 100 A, 120 A, 150 A, 200 A, 300 A, 400 A, 500 A, 600 A, 750 A, 800 A, 1 kA, 1.2 kA, 1.5 kA, 1.6 kA, 2 kA, 3 kA, 4 kA	

90° AC Voltmeter - Direct connect

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale / input from table ②.

E.g. RQ72EVAC500V.



RQ72E VAC 500V

① Window size	Cat. No.	Price \$
48 mm x 48 mm	RQ48EVAC...	89.50
72 mm x 72 mm	RQ72EVAC...	80.00
96 mm x 96 mm	RQ96EVAC...	88.00
② Scale / input selection		50 V, 150 V, 300 V, 500 V

90° AC Voltmeter - VT Connect

High voltage measurement, voltage transformer operated

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the input from table ②, and then state the required scale from table ③ on your order.

E.g. RQ72EVVT110V.



RQ72E VVT
110V/1.1kV

① Window size	Cat. No.	Price \$
48 mm x 48 mm	RQ48EVVT...	89.50
72 mm x 72 mm	RQ72EVVT...	80.00
96 mm x 96 mm	RQ96EVVT...	88.00
② Input selection		24 V, 110 V, 240 V, 415 V
③ Scale selection		1.0 kV, 1.5 kV, 2 kV, 3 kV, 4 kV, 5 kV, 10 kV

Notes: 1A versions available upon request, please contact NHP.

Price Schedule 'Y8'

Analogue meters

AC moving iron ammeters and voltmeters

240° AC Ammeter - Direct connect

With 5x over-scale

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale / input from table ②.

E.g. AQ96E AAC10A.



AQ96E AAC 10A

① Window size

	Cat. No.	Price \$
48 mm x 48 mm	[i] AQ48EAAC...	250.00
72 mm x 72 mm	[i] AQ72EAAC...	245.00
96 mm x 96 mm	[i] AQ96EAAC...	250.00

② Scale/input selection

1 A, 2.5 A, 5 A, 10 A

240° AC Ammeter - CT connect ¹⁾

5A Current transformer operated with 5x over-scale

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale from table ②. The input is 5 A. 1 A input is available on request, contact NHP for further details.



AQ96E ACT 5A 5X
50A

① Window size

	Cat. No.	Price \$
48 mm x 48 mm	AQ48EACT5AX...	225.00
72 mm x 72 mm	AQ72EACT5AX...	245.00
96 mm x 96 mm	AQ96EACT5AX...	245.00

② Scale selection

5 A, 10 A, 12 A, 15 A, 20 A, 25 A, 30 A, 40 A, 50 A, 60 A, 75 A, 80 A, 100 A, 120 A, 150 A, 200 A, 300 A, 400 A, 500 A, 600 A, 750 A, 800 A, 1 kA, 1.6 kA, 2 kA, 3 kA, 4 kA

240° AC Voltmeter - Direct connect

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale / input from table ②.

E.g. AQ96EVAC500V.

9



AQ96E VAC 500V

① Window size

	Cat. No.	Price \$
48 mm x 48 mm	[i] AQ48EVAC...	215.00
72 mm x 72 mm	AQ72EVAC...	210.00
96 mm x 96 mm	AQ96EVAC...	215.00

② Scale/input selection

50 V, 150 V, 300 V, 500 V

Notes: 1 A versions available upon request, please contact NHP.

[i] Available on indent only

Price Schedule 'Y8'

Analogue meters

Maximum demand ammeters and hour run meters

Maximum demand ammeters

- Accuracy class 1.5
- 5 A CT operation
- 1.2x overcurrent measurement
- Red slave indicator, peak measurement
- Nominal temperature range 0 - +40 °C
- 15 minute delay time operation
- Thermal movement
- Knob resettable slave pointer
- Rated burden: approx 1.5 VA

90° AC Maximum demand ammeter - CT connect, delay time 15 mins

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale/ input from table ② . E.g. RQT72N5A50A



RQT96N 5A 100A

	Cat. No.	Price \$
① Window size		
72 mm x 72 mm	RQT72N5A...	142.00
96 mm x 96 mm	RQT96N5A...	144.00
② Scale / input selection	10 A, 12 A, 15 A, 20 A, 25 A, 30 A, 40 A, 50 A, 60 A, 75 A, 80 A, 100 A, 120 A, 150 A, 200 A, 250 A, 300 A, 400 A, 500 A, 600 A, 750 A, 800 A, 1 kA, 1.5 kA, 1.6 kA, 2 kA, 2.5 kA, 3 kA, 4 kA,	

Combined maximum demand ammeter - CT connect, delay time 15 mins

Instrument includes a dynamic ammeter pointer and scale

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the scale from table ② . E.g. RQTE96N5A1KA



RQTE72N 5A 100A

	Cat. No.	Price \$
① Window size		
72 mm x 72 mm	RQTE72N5A...	210.00
96 mm x 96 mm	RQTE96N5A...	210.00
② Scale / input selection	10 A, 12 A, 15 A, 20 A, 25 A, 30 A, 40 A, 50 A, 60 A, 75 A, 80 A, 100 A, 120 A, 150 A, 200 A, 250 A, 300 A, 400 A, 500 A, 600 A, 750 A, 800 A, 1 kA, 2.5 kA, 3 kA, 4 kA	

Hour run meters

- 7 digit (2 decimal) with run indicator, non-resettable counter
- Front frame with flange for 50 mm circular cut-out on RQ48.0 models
- Faston, fork lug or 2 x 4 mm² wire termination on RQ48.0 models

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the voltage range from table ② .

E.g. RQ960240 V AC



RQ48.0 240 V AC

Range	24 V AC 50 Hz	110 V AC 50 Hz	240 V AC 50 Hz	415 V AC 50 Hz	10 - 80 V DC
① Window size	Cat. No.	Price \$	Price \$	Price \$	Price \$
48 mm x 48 mm	RQ480...	80.00	65.50	67.00	80.00
72 mm x 72 mm	RQ720...	131.00	127.00	127.00	143.00
96 mm x 96 mm	RQ960...	-	152.00	152.00	158.00

② Voltage auxiliary range	24 V AC, 110 V AC, 240 V AC, 415 V AC, 10-80 V DC
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Notes: Standard 5 A input from CT for all maximum demand ammeters.

Price Schedule 'Y8'

Analogue meters

Power factor, frequency and synchronising meters

Power factor meters

- Accuracy class 1.5
- Single phase 240 V AC models
- 3 phase 415 V AC (balanced load) models
- 5 A CT operated
- Scale $\text{Cos } \varphi$, inductive 0.5-1-0.5 capacitive
- Meter and transducer supplied separately 48 + 72
- Meter and transducer are integrated in frame size 96

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the input from table ②.



RQC72 240VAC

① Window size	Cat. No.	Price \$
72 mm x 72 mm	RQC72...	580.00
96 mm x 96 mm	RQCE96...	600.00
② Input selection	240 V AC or 415V AC	

Frequency meter

- Single phase 110 V AC and 240 V AC models
- 3 phase 415 V AC models
- The transducer and moving operation coil meter offers relative immunity to external vibration
- Moving coil meter and transducer, accuracy class 0.5
- Voltage level tolerance +15 %, 4 VA burden
- Range of 45-55 Hz

Ordering

Construct the Catalogue Number by selecting the meter from table ① and adding the input from table ②.



RQ72FI 240VAC

① Window size	Cat. No.	Price \$
48 mm x 48 mm	RQ48FI...	245.00
72 mm x 72 mm	RQ72FI...	230.00
96 mm x 96 mm	RQ96FI...	230.00
② Input selection	110 V AC, 240 V AC, 415 V AC	

Synchronising meter

LED Static synchroscope

Synchronism is achieved when the rectangular LED under the arrow is illuminated and the 2 phase LEDs are off. The lighting of the LEDs clockwise or anti-clockwise means the generator to be synchronised is lagging or leading.



RQ96SL

Window size	Synchroscope	Cat. No.	Price \$
96 mm x 96 mm	415 V AC	i RQ96SL	580.00

Notes: i Available on indent only

Price Schedule 'Y8'

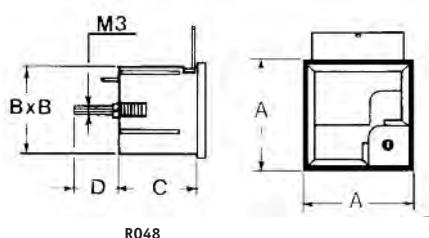
Dimensions and shunts

Analogue meters

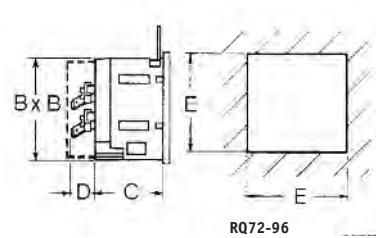
Overall dimensions (mm) and weight – RQ/90° and AQ/240° Instruments

Cat. No.	A	B	C	D	E	Weight (g)
RQ48	48 x 48	44.5 x 44.5	40	22	45	100
AQ48	48 x 48	44.5 x 44.5	57.5	22	45	200
RQ72	72 x 72	66.5 x 66.5	44	12	68	150
AQ72	72 x 72	66.5 x 66.5	59	12	68	300
RQ96	96 x 96	91 x 91	44	12	92	210
AQ96	96 x 96	91 x 91	59	12	92	400

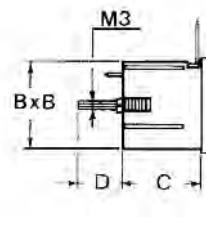
RQ/90°



RQ/90°



AQ/240°



NHP100-50 mV Shunt

Shunts (50 mV)

Current rating Amps DC	Cat. No. ¹⁾ Output	Price \$	Current rating Amps DC	Cat. No. ¹⁾ Output	Price \$
10 A	NHP 10-50MV	89.00	250 A	NHP 250-50MV	132.00
20 A	NHP 20-50MV	89.00	300 A	NHP 300-50MV	132.00
30 A	i NHP 30-50MV	89.00	400 A	i NHP 400-50MV	187.00
40 A	NHP 40-50MV	89.00	500 A	NHP 500-50MV	310.00
50 A	NHP 50-50MV	89.00	600 A	i NHP 600-50MV	320.00
60 A	NHP 60-50MV	89.00	800 A	i NHP 800-50MV	530.00
75 A	NHP 75-50MV	89.00	1000 A	i NHP 1000-50MV	580.00
80 A	i NHP 80-50MV	89.00	1200 A	i NHP 1200-50MV	680.00
100 A	NHP 100-50MV	89.00	1500 A	i NHP 1500-50MV	690.00
150 A	NHP 150-50MV	89.00	2000 A	i NHP 2000-50MV	820.00
200 A	NHP 200-50MV	132.00	-	-	-

Notes: ¹⁾ 75 mV shunts available on indent locally, P.O.A. Replace 50 mV in Cat. No. with 75 mV when ordering shunt. Shunts available up to 12000 A, 75 mV on indent.

[i] Available on indent only.

Price Schedule 'Y8'

Analogue meters

90° DC moving coil ammeters and voltmeters

Catalogue Number construction

RQ = 90 degree pointer deflection

AQ = 240 degree pointer deflection

Frame size 48 mm², 72 mm², 96 mm²

RQ 96 M ADC-4 100A

Scale range and caption

Code for measurement range i.e: 4-20 mA

M = Moving coil instrument



RQ96 M ADC 25 A

90° Instruments

Ordering

Construct the Catalogue Number by selecting the meter kit from table below and clearly state required **input** and **scale** and **full scale** reading information when ordering.

E.g. RQ72MADC4

Input: 4 - 20 mA

Scale: 0 - 100 A

Full scale: 20 mA input = 100 A scale

E.g. RQ96MADC5

Shunt input: 50 mV 200 A

Scale: 0 - 200 A

Full scale: 50 mV input = 200 A scale

DC ammeters

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add
		RQ48M-ADC	RQ72M-ADC	RQ96M-ADC	input code
0-200 µA		—	141.00	—	200
0-1 mA to 0-10 mA		137.00	126.00	142.00	M1 ²⁾
0-20 mA to 0-800 mA		137.00	126.00	142.00	M2 ²⁾
1, 5 A ²⁾		137.00	137.00	142.00	—
10, 15, 20, 25, 30, 40, 60 A ²⁾		—	137.00	142.00	—
4-20 mA mech. suppressed		156.00	141.00	145.00	4

Shunt connect ammeters¹⁾

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add
		RQ48M-ADC	RQ72M-ADC	RQ96M-ADC	input code
0-10 A to 0-2000 A 50 mV	i	130.00	126.00	135.00	5
0-20 A to 0-2000 A 75 mV	i	130.00	126.00	135.00	7
10-0-10 A to 1000-0-1000 A 50 mV	i	130.00	126.00	135.00	0

DC voltmeter

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add
		RQ48M-VDC	RQ72M-VDC	RQ96M-VDC	input code
0-1 V to 0-600 V		130.00	126.00	135.00	V
1-0-1 V to 600 V-0-600 V		130.00	126.00	135.00	0

(Rectified AC) Voltmeter

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add
		RQ48M-VAC	RQ72M-VAC	RQ96M-VAC	input code
0-10 V to 0-600 V		142.00	126.00	142.00	V

Notes:

¹⁾ Price of meter does not include shunt. Refer to page 9 - 7 for shunt pricing.²⁾ Clearly define all required information when ordering (input / scale / full scale), check with NHP for custom meters.

i Available on indent only.

Price Schedule 'Y8'

Analogue meters

240° DC moving coil ammeters and voltmeters

240° Instruments



AQ96M-VDC 500V

DC ammeters

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add input code
	AQ48M-ADC	AQ72M-ADC	AQ96M-ADC		
0-1 mA to 0-8 mA	[i] 245.00	215.00	235.00	M1	
0-10 mA to 0-800 mA	[i] 245.00	215.00	235.00	M2	
1, 5 A ²⁾	[i] 245.00	215.00	235.00	-	
4-20 mA mech. suppressed	[i] 275.00	270.00	270.00	4	

Shunt connect ammeters¹⁾

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add input code
	AQ48M-ADC	AQ72M-ADC	AQ96M-ADC		
0-10 A to 0-2000 A 50 mV	[i] 245.00	215.00	235.00	5	
0-20 A to 0-2000 A 75 mV	[i] 245.00	215.00	235.00	7	
10-0-10 A to 1000-0-1000 A 50 mV	[i] 245.00	215.00	235.00	0	

DC voltmeter

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add input code
	AQ48M-VDC	AQ72M-VDC	AQ96M-VDC		
0-1 V to 0-600 V	[i] 245.00	215.00	235.00	V	
1-0-1 V to 600 V-0-600 V	[i] 245.00	215.00	235.00	0	

(Rectified AC) Voltmeter

Input type	Cat. No. ²⁾	Price \$	Price \$	Price \$	add input code
	AQ48M-VAC	AQ72M-VAC	AQ96M-VAC		
0-10 V to 0-600 V	[i] 245.00	215.00	235.00	V	

Notes: ¹⁾ Price of meter does not include shunt. Refer to page 9 - 7 for shunt pricing.

²⁾ Clearly define all required information when ordering (input / scale / full scale), check with NHP for custom meters.

[i] Available on indent only.

Price Schedule 'Y8'



TC-96 RQAQ

Terminal covers

Instrument terminal covers provide IP 40 protection
Protects persons from making contact with live connections

Terminal cover for meter

	Cat. No. ¹⁾	Price \$
72 mm ²	TC72RQAQ	4.00
96 mm ²	TC96144RQAQ	4.00

Description	Cat. No.	Price \$
Terminal boots (pair) (suit 48 x 48 mm)	MTB2	12.00

Meter lenses

Glass

Cat. No.	Price \$	Price \$	Price \$	Price \$	Add window code
	RQ	AQ	RQT	RQTE	
Size (mm)					
48	[i] 15.00	—	15.00	—	48LENSGL
72	16.00	16.00	16.00	[i] 20.00	72LENSGL
96	[i] 20.00	[i] 20.00	[i] 25.00	25.00	96LENSGL

Non-reflective glass

Cat. No.	Price \$	Price \$	Price \$	Price \$	Add window code
	RQ	AQ	RQT	RQTE	
Size (mm)					
48	[i] 20.00	[i] 16.00	[i] 16.00	—	48LENSNR
72	—	—	[i] 24.00	[i] 25.00	72LENSNR
96	—	—	—	—	96LENSNR

Lexan

Cat. No.	Price \$	Price \$	Price \$	Price \$	Add window code
	RQ	AQ	RQT	RQTE	
Size (mm)					
48	—	—	—	—	48LENSLEXAN
72	20.00	[i] 16.00	—	[i] 20.00	72LENSLEXAN
96	30.00	—	30.00	—	96LENSLEXAN

Meter lens ordering: Construct the catalogue number by selecting the meter type, adding the window code and the Lens type, G (glass), N/R (non-reflective glass) or L (lexan).



SB96

Side mount bracket

Provides a method of mounting meter where panel mount is not suitable.

To suit

frame size

	Cat. No.	Price \$
48 x 48 mm	SB48	51.50
72 x 72 mm	SB72	54.50
96 x 96 mm	SB96	61.00

Note: ¹⁾ Not suitable for direct connect ammeters above 60 A, or frequency meters.

[i] Available on indent only.

Price Schedule 'Y8'

DIN rail meters

General features

- Accuracy class 1.5
- Working temperature -25 to +40 °C humidity 80 %
- Overload parameters:
Ammeters: 1.2 I_{in} continuous, 10 I_{in} for 10 seconds
Voltmeters: 1.2 U_{in} continuous, 2 U_{in} for 5 seconds
- Insulation tested 2 kV/1 min @ 50 Hz
- Self-extinguishing housing
- IP 50 front protection
- DIN rail, base or panel mount with optional flush mount kit
- Working voltage 600 V

AC moving iron meters



D4E-AAC-20 A

Ammeters

Direct connect with 2x over-scale

1 A, 2.5 A, 5 A, 10 A, 15 A,
20 A, 25 A, 30 A, 40 A, 50 A, 60 A

Cat. No. ¹⁾

D4E-AAC...A

Price \$

104.00

Catalogue Number construction

D 4 E AAC 50A

D = DIN rail mount meter

Current measurement range

4 = 4 DIN modules wide, 70 mm size

AC Ammeter direct connect

E = Moving iron instrument

Ammeters, current transformer operated with 2x over-scale



D4E ACT 5A 2X100 A

Ammeter scales to suit CT primary current value

10 A, 12 A, 15 A, 20 A, 25 A, 30 A, 40 A, 50 A, 60 A, 75 A,
80 A, 100 A, 120 A, 150 A, 200 A, 250 A, 300 A, 400 A,
500 A, 600 A, 750 A, 800 A, 1 kA, 1.2 kA, 1.5 kA, 1.6 kA,
2 kA, 2.5 kA, 3 kA, 4 kA

Cat. No. ¹⁾

D4E ACT 5A 2X...A

Price \$

104.00

D4TN 5A...A

164.00

Catalogue Number construction

D 4 E ACT 5A 2X 100A

D = DIN rail mount meter

Primary current value of CT

4 = 4 DIN modules wide, 70 mm size

2x overcurrent measurement

E = Moving iron instrument

CT secondary current, 5 A. 1 A

Ammeter, current transformer connected

Maximum demand ammeters, current transformer operated with 1.2x over-scale

Catalogue Number construction

D 4 TN 5A 100A

D = DIN rail mount meter

Primary current value of CT

4 = 4 DIN modules wide, 70 mm size

CT secondary current, 5 A. 1 A

TN = Bi-metallic thermal operation, 15 minute delay time



D4E VAC 300 V

AC moving iron meters

Voltmeters, direct connect with scale

Voltmeter measurement ranges

50 V, 150 V, 300 V, 500 V

Cat. No. ¹⁾

D4E-VAC...V

Price \$

113.00

Frequency meter 240 V AC

Measurement range

45-55 Hz

Cat. No.

D4FI-240V

Price \$

230.00

Notes: ¹⁾ Add required voltage measurement range to Cat. No. Available on indent only.

Price Schedule 'Y8'

DIN rail meters

DC moving coil meters¹⁾



D4M-ADC 10 A



D4M-VDC 300 V

DC ammeters with scale

Current measurement ranges	Cat. No.	Price \$
1 A, 2.5 A, 5 A, 10 A, 15 A, 25 A, 40 A	i D4M-ADC...A	184.00

DC ammeters, mA input value & scale to spec.²⁾

Input current value	Cat. No. ¹⁾	Price \$
0-1 mA to 0-8 mA	D4M-ADC M1	154.00
0-10 mA to 0-800 mA	D4M-ADC M2	154.00

DC ammeters shunt connect & scale to spec.²⁾

Shunt & current measurement range	Cat. No. ¹⁾	Price \$
50 mV, 0-2000 A	D4M-ADC 5...A	184.00
75 mV, 0-2000 A	D4M-ADC 7...A	184.00

Voltmeters DC & AC rectified with scale to spec.

Voltage measurement range	Cat. No. ¹⁾	Price \$
0-0.5 to 0-600 V DC	D4M-VDC V...V	160.00
0-10 to 0-600 V AC (Rectified)	D4M-VAC V...V	160.00

Catalogue Number construction

D 4 M ADC-M2 100%

D = DIN rail mount meter

4 = 4 DIN modules wide, 70 mm size

Scale range and caption

Code for measurement range i.e: 0-10 mA

M = Moving coil instrument

DIN rail digital instruments

- Digital indicator at 3 digits
- Out of scale indication

- Display with green LED (14 mm)
- Auxiliary supply 240 V AC, 50/60 Hz.
- Other voltages also available on request, POA.

Ammeters

AC ammeter
DGMA07A3

AC ammeter	Connection	Display range	Auxiliary	Cat. No.	Price \$
1 A	CT	Selectable ³⁾	240 V AC	i DGMG07C2	340.00
5 A	CT	Selectable ³⁾	240 V AC	DGMG07C1	340.00
10 A	Direct	9.99 A	240 V AC	i DGMA07A3	330.00
20 A	Direct	20.0 A	240 V AC	DGMA07A4	330.00

DC ammeter

50/75 mV	Shunt	Selectable ³⁾	240 V AC	DGMM07L5	370.00
50/75 mV	Shunt	Selectable ³⁾	20-150 V DC	DGMM0HDL5	330.00

Voltmeters

AC voltmeter
DGMG07C1

AC voltmeter	Connection	Display range	Auxiliary	Cat. No.	Price \$
500 V	Direct	Selectable ³⁾	240 V AC	DGMG07C1	340.00
500 V	Direct	Selectable ³⁾	20-150 V DC	i DGMGOHC1	330.00
1000 V	VT	999 V	240 V AC	i DGMD07D1	330.00

DC voltmeter

0-100/500 V	Direct	99.9/500 V	240 V AC	DGMN07N6	330.00
0-100/500 V	Direct	99.9/500 V	20-150 V DC	DGMNOHN6	330.00

Notes:

- ¹⁾ Standard scales are available in the following subdivisions: 0-10, 12, 15, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90. The scale is marked to the requested scale range numbering (equal division or multiple of above scale division) and standard electrical or industrial type captions, i.e.: V, A, kA, kW, Hz, M/sec, mm/min, RPM, %.

- ²⁾ Please specify input and scaling requirements.

- ³⁾ Selectable 38 ranges - 5-8000 A or 0-500 V refer chart G page 9 - 15.

- ⁴⁾ Available on indent only.

Price Schedule 'Y8'

Refer catalogue ITC

DIN rail meters

DIN rail digital instruments



Frequency meter
DGMS07F1



Phase fail/rotation
indicator
D4SE



FD8



L08

Frequency meter

Range	Input	Connection	Auxiliary	Cat. No.	Price \$
10-100 Hz	100-500 V	Direct	240 V AC	DGMS07F1	415.00

Hour run meter – analogue accumulative hours and minutes

5 digit + 2 decimal 110 V AC	D20110V	132.00
5 digit + 2 decimal 240 V AC	D20240V	132.00

Phase fail/rotation indicator ¹⁾

100-440 V	50-60 Hz	D4SE	290.00
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DIN rail accessories

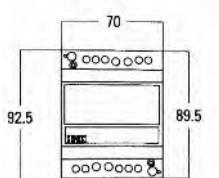
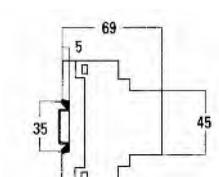
Flush mounting kits for DIN rail meters

Description	Suits meter size	Cat. No.	Price \$
DIN flush mounting kit	4 module	FD4	113.00
DIN flush mounting kit	6 module	FD6	117.00
DIN flush mounting kit	8 module	FD8	132.00

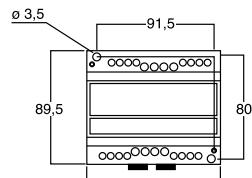
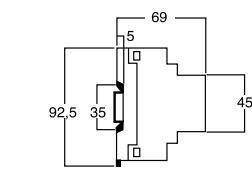
IP 54 protection hinged window

Description	Dimensions (mm) Opening	Dimensions (mm) External	Cat. No.	Price \$
	Window	93 x 76		
Window	78 x 50	93 x 76	L04	53.00
Window	146 x 50	162 x 76	L08	66.50

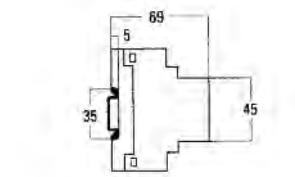
DIN rail meter dimensions (mm)



D4/DG Meter
(DIN 4 module)



D6 Meter
(DIN 6 module)



D8 Meter
(DIN 8 module)

Note: ¹⁾ 400 Hz available on indent.

Price Schedule 'Y8'

Digital panel mount meters

General features

- High efficiency red LED display
- Accuracy class $\pm 1\% + 1$ digit
- Insulation voltage rating 650 V
- Auxiliary voltage 240 V AC - other voltages available on request
- Maximum display 999; except DG7C07A2 i.e., 9999
- IP 50 front frame / IP 20 terminals and housing
- Self-extinguishing housing
- Operating temperature -5° to $+55^{\circ}$ C
- Vibration resistant with amplitude of 1-0.3 mm peak frequency on 3 axes @ 5-80 Hz (IEC 68-2-6)
- Easy faston (6.3 x 0.8 mm) terminal connections

72 x 36 frame size 240 V AC Auxiliary



DG3S0AF2

Description	Table	Cat. No.	Price \$
AC ammeter direct connect 0 - 10 A ¹⁾	—	DG3A07A3	325.00
AC ammeter 1 A CT connected or 0 - 500 V voltmeter ^{1) 2)}	G	DG3G07C2	325.00
AC ammeter 5 A CT connected or 0 - 500 V voltmeter ^{1) 2)}	G	DG3G07C1	325.00
VT connected voltmeter 0 - 100 V	F	DG3D07D1	325.00
DC shunt connected ammeter 50 - 75 mV ⁴⁾		DG3M07L5	290.00
DC ammeter 0 - 1 mA ^{1) 3) 4)}		DG3J07GB	325.00
DC ammeter 4 - 20 mA (max. display 999) ^{1) 3) 4)}		DG3J07GL	325.00
DC Voltmeter 0 - 100 V or 0 - 500 V DC selectable ¹⁾		DG3N07N6	325.00
Frequency 10 - 100 Hz (auxiliary supply 230 V AC) ¹⁾	i	DG3S06F1	325.00

72 x 72 frame size 240 V AC Auxiliary 1 or 2 displays



DG8207C1

AC ammeter 5 A CT connected 4 digit ^{1) 2) 3)}	G	DG7C07A2	380.00
AC ammeter 5 A CT or 0 - 500 V AC voltmeter 3 digit ^{1) 2) 3)}	G	DG7G07C1	330.00
AC ammeter 5 A CT connected + AC voltmeter 0 - 500 V ²⁾	G	DG8207C1	640.00
AC ammeter direct connect 0 - 10 A ¹⁾	i	DG7A07A3	330.00
AC voltmeter 0 - 100 V direct or VT Connect ^{1) 2)}	F	i DG7D07D1	335.00
AC ammeter 5 A CT connected or	G	DG7G27C1	650.00
AC voltmeter 0 - 500 V w/- 2 programmable alarms ^{1) 2) 3)}			

96 x 96 frame size 240 V AC Auxiliary ¹⁾ 3 displays



9

DG9307E1

2 Displays of AC ammeter 5 A CT connected or 0- 500 V AC voltmeters or any combination of Amps and Volts ²⁾	G	DG9307C1	880.00
3 Displays, 1 x AC ammeter CT connected 5 A + 1 x AC voltmeter 0 - 500 V AC ²⁾ + 1 Frequency 40 - 80 Hz	G	DG9307E5	1050.00

72 X 36 frame size 240 V AC Auxiliary 1 display for VSDs and soft starters



DGP36VSD-15

DC voltmeter 0 - 10 V DC (Max. display 1999) ⁴⁾		DGP36VSD-15	410.00
DC ammeter 4 - 20 mA (Max. display 1999) ⁴⁾		DGP36VSD-45	410.00

Notes: ¹⁾ Auxiliary voltage standard 240 V AC, other voltages available on request.
²⁾ Selectable input current, 38 selectable settings from 5 - 8000 A or voltage 0 - 500 V, refer chart on page 9 - 15.
³⁾ Other combinations available on request.

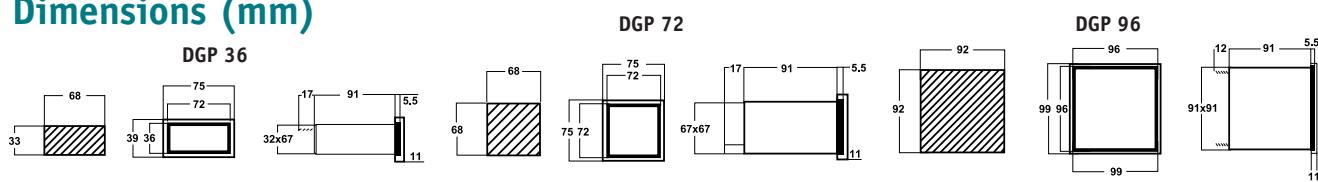
⁴⁾ IME Workshop programmed-specify input, scale e.g. 0-300 and range (span).

i Available on indent only.

Price Schedule 'Y8'

Digital panel meters

Dimensions (mm)



Selection tables for DG meters – F (43 selectable ranges)

100V	120V	150V	160V	200V	250V	300V	400V	500V	600V	700V	750V	800V
99.9	120	150	160	200	250	300	400	500	600	700	750	800
120	144	180	192	240	300	360	480	600	720	840	900	960
1kV	1.2kV	1.5kV	1.6kV	2kV	2.5kV	3kV	4kV	5kV	6kV	7kV	7.5kV	8kV
1.00	1.20	1.50	1.60	2.00	2.50	3.00	4.00	5.00	6.00	7.00	7.50	8.00
1.20	1.44	1.80	1.92	2.40	3.00	3.60	4.80	6.00	7.20	8.40	9.00	9.60
10kV		15kV		20kV	25kV	30kV	40kV	50kV	60kV	70kV	75kV	80kV
9.99		15.0		20.0	25.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0
12.0		18.0		24.0	30.0	36.0	48.0	60.0	72.0	84.0	90.0	96.0
100kV	120kV	150kV	160kV	200kV	250kV							
99.9	120	150	160	200	250							
120	144	180	192	240	300							

Selection tables for DG meters – G (38 selectable ranges)

								5A				
								5.00				
								6.00				
10A		15A		20A	25A	30A	40A	50A	60A	70A	75A	80A
9.99		15.0		20.0	25.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0
12.0		18.0		24.0	30.0	36.0	48.0	60.0	72.0	84.0	90.0	96.0
100A	120A	150A	160A	200A	250A	300A	400A	500A	600A	700A	750A	800A
9.99	120	150	160	200	250	300	400	500	600	700	750	800
120	144	180	192	240	300	360	480	600	720	840	900	960
1kA	1.2kA	1.5kA	1.6kA	2kA	2.5kA	3kA	4kA	5kA	6kA	7kA	7.5kA	8kA
1.00	1.20	1.50	1.60	2.00	2.50	3.00	4.00	5.00	6.00	7.00	7.50	8.00
1.20	1.44	1.80	1.92	2.40	3.00	3.60	4.80	6.00	7.20	8.40	9.00	9.60
								500V				
								500				
								600				

Setting instructions for DG meters

Repeated pressing of this key scrolls available ranges. Range is stored when display momentarily turns off. E.g. Volts always equals 500 V AC, Amps either 5 A CT or continue to press for higher ranges.



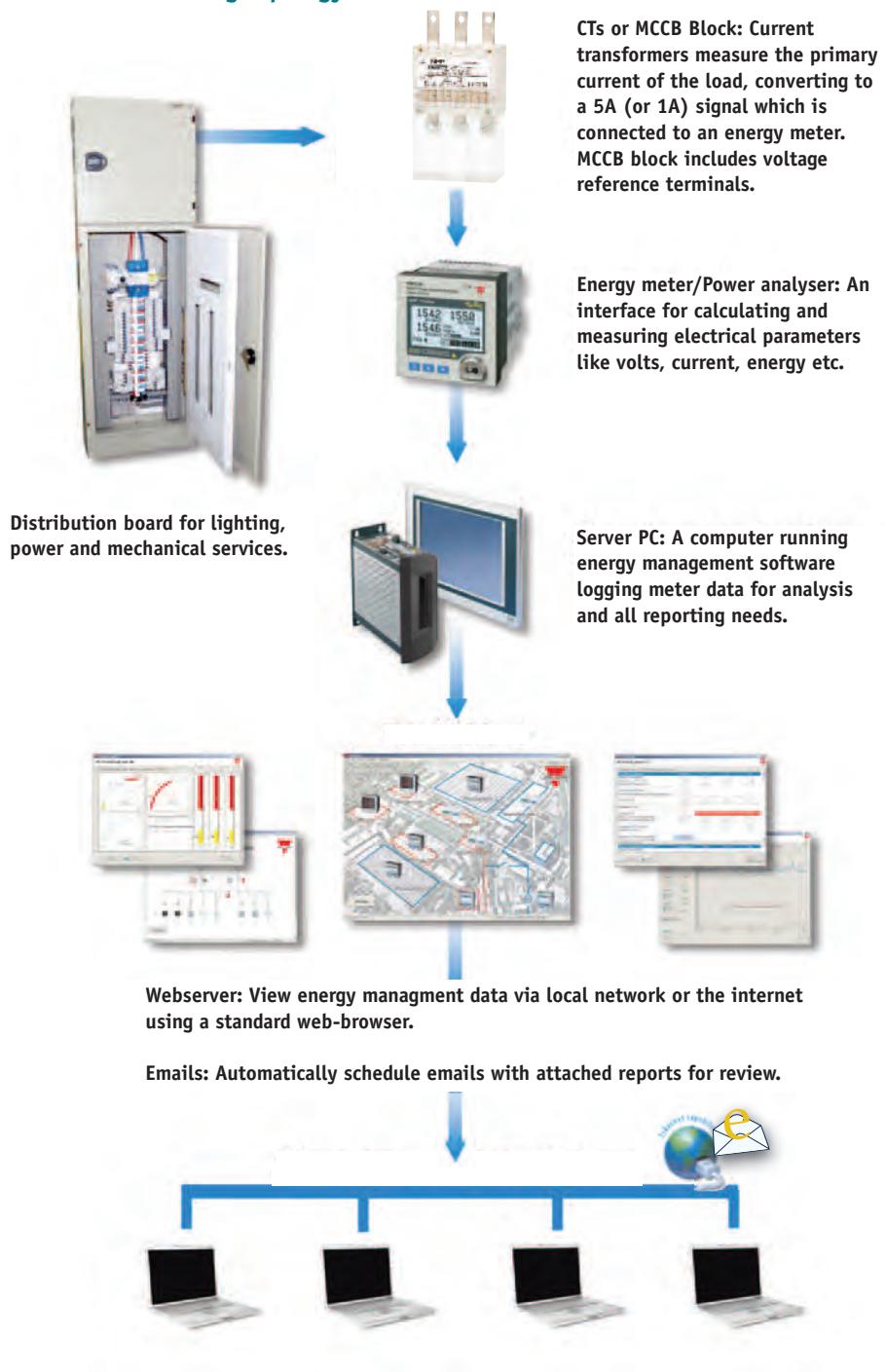
Price Schedule 'Y8'

Energy and power management

NHP offers a comprehensive range of products for energy and power management.

- Analogue and Digital meters
- Energy/kWh meters and pulse acquisition module with communications
- Multi-function energy/power meters
- Power Quality analysers
- Energy Management software
- Solid core, Split core, MCCB block current transformers

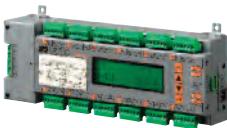
NHP Monitoring Topology



Notes: See catalogue CPB section 3 for further details on MCCB CT blocks.

Energy meter

Branch Feeder Monitor - Multi-circuit energy meter



CT4A6

SATEC's Branch Feeder Monitor™ (BFM) is the next generation in energy management for multi-point power solutions. Ideal for both new and retrofit projects, the BFM automatically provides metering, demand and energy readings, logging and multi-tariff (TOU) data. The BFM monitors up to 12 three phase circuits or 36 single phase circuits, or any combination of single or three phase circuits. This flexibility makes the BFM perfect for data centre applications or multi-tenant facilities such as office buildings and shopping malls. The compact BFM is designed to easily fit into existing panel boards or be flush mounted nearby, thus eliminating the need for expensive retrofit projects or for allocating extra space for the device.

The BFM monitors up to 36 currents via external Current Transformers (CTs). Each CT measures and reports the current consumed by each of the branch circuits at the panel board. Single or multiple circuits can be defined into groups for easy totalisation of functional areas. This flexibility allows a simple reassignment of circuit groups without wiring changes, and allows for easy changes when tenants move in and out. Main panel board or load center installation makes for a valuable saving of both time and money.

Features and benefits

- Multi-point power, energy and demand data logging.
- Data storage
 - Real Time Clock (RTC) and Flash memory for data and event logger.
 - TOU (Time Of Use): the TOU function stores energy consumption data according to the programmed time schedule.
 - Daily energy tariff profile and maximum demands programmable interval for load profile.
- Logging for any type of parameters, for all profiles.
- Local LCD display providing up to 36 channels of consumption readings
- Cost effective, space-saving compact design for easy installation into existing electric panelboards.
- Automatic installation verification: The BFM performs automatic synchronisation between voltages and currents per phase.
- Standard Communication Platforms
 - Protocols:
 - Modbus RTU
 - Modbus TCP/IP
 - Ports:
 - Standard: RS485 port
 - Optional: Ethernet TCP/IP, dial-up modem, RS232, additional RS485/422 port
- High accuracy 0.5S
- Input
 - Current inputs: 36 per device.
 - Measured currents, per phase: direct 100 or 400 Amp or up to 5000 A primary in conjunction with conventional 5 A or 1A secondary CT.
 - Voltage input: wide range 88 – 138 V AC (115) or 176 – 265 V AC (400/230).
 - Self power supply: 3-phase + N fed from the measured voltages.
- Alarm configuration: Over/ under voltage, over current, over kW, over kVA, over/ under frequency.
- Three year warranty.



CT4A6



CT236



CT126



CTSC6

Description

	Cat. No.	Price \$
Branch Feeder Monitor - Ethernet + RS485	BFM13650HZETHD	5060.00
Branch Feeder Monitor - RS485	i BFM13650HZ0D	4460.00
BFM 100 A CT 12 mm 2.5 m cable	CT126	76.00
BFM 100 A CT 23 mm 2.5 m cable	CT236	87.50
BFM 100 A split CT 16 mm 2.5 m	CTSC6	220.00
BFM 400 A CT 26 mm 2.5 m cable	CT4A6	210.00

Notes: Available on indent only.

Price Schedule 'Y9'

IME Veko and Conto energy meters

- Comprehensive range of single and three phase models
- New 2 & 4 module devices to save space and time
- New 2 & 4 module single and three phase direct connect to 63 Amps

Cat. No.	CE201 75A2	CE201 85A2	CE4DT 14A2	CE4DT 14A6	CE4DT 06A2	CE4DT 06A4	
Price \$	385.00	380.00	540.00	620.00	580.00	710.00	
Display type	6 Digit LCD		8 digit LCD – 6 mm high				
Power system	1Ø	1Ø	1Ø & 3Ø		3Ø		
Measurement parameters							
Active energy kWh reading	✓	✓	✓	✓	✓	✓	
Active energy MWh reading	-	-	✓	✓	✓	✓	
Reactive energy kvarh reading	-	-	✓	✓	✓	✓	
Reactive energy Mvarh reading	-	-	✓	✓	✓	✓	
Partial active energy	-	-	✓	✓	✓	✓	
Partial reactive energy	-	-	✓	✓	✓	✓	
Current display 3 digit	✓	✓	-	-	-	-	
Voltage display 4 digit	✓	✓	-	-	-	-	
Power demand	✓	✓	✓	✓	✓	✓	
Maximum demand power	-	-	✓	✓	✓	✓	
Outputs							
Active energy pulse	✓	✓	✓	✓	✓	-	
Reactive energy pulse	-	-	✓	✓	✓	-	
RS 485 comms, Modbus/Jbus	-	-	-	✓	-	✓	
Accuracy Class							
Accuracy class 1 (active energy)	✓	✓	✓	✓	✓	✓	
Connection details							
Direct current input up to 32 A	✓	-	-	-	-	-	
Direct current input up to 63 A	-	✓	-	-	✓	✓	
Input current 5 A CT	-	-	✓	✓	-	-	
Input current 1 A CT	-	-	✓	✓	-	-	
Single phase 240 V AC	✓	✓	✓	✓	✓	✓	
3 Phase, 415 V AC 3 wire	-	-	✓	✓	✓	✓	
3 Phase, 415 V AC 4 wire	-	-	✓	✓	✓	✓	
Isolated Input	-	-	✓	✓	✓	✓	
Current transformers							
Dimensions in mm (H x W x D)	89 x 35 x 60		89 x 71 x 66				
DIN modules	2	2	4				
Auxiliary power supply							
	Self-supplied from measurement						



CE20185



CE4DT14



CE4DT06

Notes: Comprehensive range of IME TAI & TAS series of current transformers are available on pages 9 - 30 to 9 - 32. Please see 9 - 13 for panel mount kit.

Price Schedule 'Y8'

Multi-function energy meters / power analysers

- Low voltage network monitor, single and three phase system
- True RMS value measurement
- Panel mounting or 4 DIN mount modules
- CT Connect



MF6FTU0026
• Pulse output



Nemo 72B13



Nemo 72LP
• Pulse output

NEMO 72 LRS485
• RS485 output



Nemo96HD

Cat. No.	MF6FT -		NEMO72 -			NEMO 96 / -
	U0026	40026	B13	LP	LRS485	HD
Price \$	570.00	700.00	510.00	700.00	720.00	920.00
Display type	LCD Backlight 4 line	LCD Backlight 3 line	LCD Backlight 4 line	LCD Backlight 4 line	LCD Backlight 4 line	LCD Backlight 4 line
Power system	1 & 3Ø - 3 & 4 wire 240 V / 415 V AC	1Ø & 3Ø wire 240V/415VAC	1 & 3Ø - 3 & 4 wire 240 V / 415 V AC	1 & 3Ø - 3 & 4 wire 240 V / 415 V AC	1 & 3Ø - 3 & 4 wire 240V/415VAC	1 & 3Ø - 3 & 4 wire 240V/415VAC
Measurement parameters						
Active energy kWh reading	✓	✓	-	✓	✓	✓
Active energy MWh reading	✓	✓	-	✓	✓	✓
Negative active energy	-	-	-	-	-	✓
Reactive energy kvarh reading	✓	✓	-	✓	✓	✓
Reactive energy Mvarh reading	✓	✓	-	✓	✓	✓
Negative reactive energy	-	-	-	-	-	✓
Phase voltage (Ph to N)	✓	✓	✓	✓	✓	✓
Linked voltage (Ph to Ph)	✓	✓	✓	✓	✓	✓
Min./ max. voltage	-	-	-	-	-	✓
Phase current	✓	✓	✓	✓	✓	✓
Average current	-	-	-	-	-	✓
Neutral current	✓	✓	✓	✓	✓	²⁾
Current demand	✓	✓	✓	✓	✓	✓
Maximum demand current	✓	✓	✓	✓	✓	✓
Frequency	✓	✓	✓	✓	✓	✓
Power factor	✓	✓	-	✓	✓	✓
Voltage sequence diagnostic	✓	✓	-	✓	✓	✓
Active power	✓	✓	-	✓	✓	✓
Reactive power	✓	✓	-	✓	✓	✓
Apparent power	✓	✓	-	✓	✓	✓
Phase power	-	-	-	-	-	✓
Power demand	✓	✓	-	✓	✓	✓
Maximum demand power	✓	✓	-	✓	✓	✓
Total Harmonic distortion (A)	-	-	-	16th	16th	22nd
Total harmonic distortion (V)	-	-	-	-	-	22nd
Hour run (hours and minutes)	✓	✓	✓	✓	✓	✓
Outputs						
Active energy pulse	✓	-	-	✓	-	²⁾
Reactive energy pulse	✓	-	-	✓	-	²⁾
RS 485 comms, Modbus/Jbus	-	✓	-	-	✓	²⁾
Accuracy Class - Energy						
Accuracy class 0.5s	-	-	-	-	-	✓
Accuracy class 1	✓	✓	-	✓	✓	-
Accuracy class 2 (reactive energy)	✓	✓	-	✓	✓	✓
Dimensions in mm	90 H x 70 W x 66 D		72 H x 72 W x 88 D			96 H x 96 W x 103 D
Mounting format	4 DIN modules		Panel mount			
Auxiliary power supply ¹⁾	230 V AC 50 Hz	Self-supplied from measurement	230 - 240 V AC 50 Hz	80 - 265 V AC (11 - 60 V DC) ¹⁾		

Notes: ¹⁾ Other supply voltages available on request, contact NHP.

²⁾ Measurements via optional plug-in module, see 9 - 20 for available modules.

Price Schedule 'Y8'

Input current via 1 A CT available on request, contact NHP.

Multifunction meters and accessories



NEMO 96 HD



IF96001



IF96002

NEMO72LJCCL1
• JC N2 openMF6FTJ0026
• JC N2 open

9

NEMO 96 HD

Kit Description	Cat. No.	Price \$
Base + RS485	NEMO96HD-1000	1140.00
Base + 2 pulse output	NEMO96HD-3000	1030.00
Base + RS485 + 2 pulse output	NEMO96HD-1300	1250.00

Component Description	N.Max	A	B	C	D	Position	Cat. No.	Price \$
Base Unit							NEMO96HD	920.00
RS485 Communication	1	•					IF96001	285.00
RS232 Communication	1	•					IF96002	285.00
2 Pulse Output (SPST-NO)	2	•	•	•	•		IF96003	110.00
2 Analogue Outputs (0/4..20 mA)	2			•	•		IF96004	660.00
2 Alarm Outputs (SPST)	2	•	•	•	•		IF96005	187.00
Neutral Current	1			•			IF96006	275.00
PROFIBUS Communication	1	•					IF96007	770.00
ONWorks Communication	1	•					IF96009	770.00
2 In/2 out SPST	2			•	•		IF96010	365.00
2 In/2 out 24 V DC	2			•	•		IF96011	365.00
Memory + RS485	1	•					IF96012	730.00
Bacnet MS/TP	1	•					IF96014	410.00

Johnson controls supported multi-function meters (N2 open)

Description	Range name	Cat. No.	Price \$
Refer to page 9 - 19 for technical data	Nemo72-L	NEMO72LJCCL1	920.00
Refer to page 9 - 19 for technical data	NemoD4-L	MF6FTJ0026	840.00
Refer to page 9 - 18 for technical data	Conto CD4-Pd	CE4DTJ6A4	830.00
Single phase multi-function meter (N2 open)	Nemo3D 1-phase	NEMO3D6SHCMJC	1170.00
Three phase multi-function meter (N2 open)	Nemo3D 3-phase	NEMO3DSHPN2	1540.00
NEMO96HD base (JC version) + RS485	NEMO96HD	NEMO96HD-JC-1000	1240.00

Accessories - Communications Interface

Input	Output	Power supply	Cat. No.	Price \$
RS485	RS232	240 V AC - auxiliary input	PC485	485.00
RS485	USB	Self supplied	USBCOMI	119.00
RS485	Ethernet	240 V AC power supply included	SUITCP2	980.00

Energy pulse acquisition module with communications

Description	Cat. No.	Price \$
Pulse acquisition module for counting pulses from gas/water/kWh meters etc.	D4-CR8	690.00
No. of energy meter pulse inputs:	1 to 8	
Auxiliary power supply:	240 V AC, 50 Hz	
Communications output:	RS 485 Modbus/JBus	
Dimensions:	4 DIN Modules	

Price Schedule 'Y8'

Carlo Gavazzi energy meters



EM21 72D

P Compact DIN / Panel Energy Meter: EM21 72D

EM21-72D is an innovative, cost-effective and compact energy meter. It is the first on the market to have a detachable display allowing it to be mounted either on the panel with just 72 mm x 72 mm or a DIN-rail in only 4 modules without any adaptor or external accessory.

Energy meter EM21 72D

Housing (H x W x D)	72 mm x 72 mm x 65 mm (4 DIN modules)
Class accuracy	Class 1 (kWh)
System type	Single, 2 or 3-phase
Voltage input	230 V AC, 400 V AC
Current input	1 A, 5 A via CT's
Measurements	V, A, W, kWh, kVarh, Var, PF, Phase-sequence, Hz
Outputs	1 Pulse + RS485
Power supply	Self supplied
Protection Degree	IP 50

Description	Cat. No.	Price \$
Compact DIN / Panel energy meter + pulse + RS485	EM21-72D-AV53-X0SX	550.00
Compact DIN / Panel energy meter + pulse	EM21-72D-AV53-X0XX	395.00



P Advanced utility meter 100 A

EM4DIN is an advanced utility meter capable to measure not only the usual consumed energies but also gas and water by means of the optional dual contact input modules. The EM4DIN is capable of a direct connection up to 100 A.



EM4DIN

Energy meter EM4DIN

Housing (H x W x D)	90 mm x 162.5 mm x 63 mm (9 DIN modules)
Class accuracy	Class 1 (kWh)
System type	Unbalanced 3-phase
Voltage input	230/400 V AC, 380/660 V AC
Current input	Up to 100 A direct connect
Measurements	kWh, kVarh, H ₂ O, Gas, W, W _{dmd}
Outputs	2 Pulse, 1 digital RS485 (via modular outputs)
Power supply	Self supplied
Protection Degree	IP 40

Description	Cat. No.	Price \$
Advanced meter 100 A Direct -connect + RS485	EM4-DIN-100-ASX	720.00

Notes: Compatible with Powersoft energy management software, see page 9 - 25.

Price Schedule 'Y9'

Carlo Gavazzi energy meters

P Compact DIN Energy Analyser: EM24DIN

The EM24DIN is a compact Energy Analyser for single and 3-phase systems. This compact meter is capable of measuring not only the traditional active and reactive energies but also gas, hot-water, cold-water, and remote heating consumptions.



EM24DIN

Energy meter EM24DIN

Housing (H x W x D)	90 mm x 71 mm x 65 mm (4 DIN modules)
Class accuracy	Class 1 (kWh)
System type	Single, 2 or 3 phase (Dependant on balanced/unbalanced)
Voltage input	120/208 V AC, 400 V AC
Current input	1 A, 5 A via CT's or Direct connect up to 65 A (dependant on model)
Measurements	V, A, A _{dmdmax} , Var, VA, VA _{dmd} , VA _{dmdmax} , W, W _{dmd} , W _{dmdmax} , Hz, kWh, kVarh, PF, Phase-sequence, h
Inputs	3 Pulse inputs for gas, hot water and cold water
Outputs	2 Pulse, 2 digital or RS485 (dependant on model)
Power supply	Self supplied, 18 to 60 V AC/DC, 230 V AC (dependant on model)
Protection Degree	IP 40

Description

Cat. No.

Price \$

Compact panel energy analyser direct connect + pulse	i EM24-DIN-AV93-XR2X	520.00
Compact panel energy analyser CT connect + pulse	i EM24-DIN-AV53-DR2X	560.00
Compact panel energy analyser direct connect + RS485 + Gas/water inputs	EM24-DIN-AV93-XISP	690.00
Compact panel energy analyser CT connect + RS485 + Gas/water inputs	EM24-DIN-AV53-DISP	670.00

P Compact panel energy analyser: EM26-96

The EM26 96 is a panel mount energy analyser for single and 3-phase systems. This meter is capable of measuring not only standard electrical parameters, but also extended consumption analysis, as well as gas, hot-water, cold-water, and remote heating consumption inputs.



EM2696

Energy meter EM26-96

Housing (H x W x D)	96mm x 96 mm x 61.4 mm
Class accuracy	Class 1 (kWh)
System type	Single, 2 or 3 phase (Dependant on balanced/unbalanced)
Voltage input	120/208 V AC, 400/660 V AC
Current input	1 A, 5 A via CT's
Measurements	V, A, An, A _{dmdmax} , VA, VA _{dmd} , VA _{dmdmax} , W, W _{dmd} , W _{dmdmax} , Hz, kWh, kVarh, h, Var, PF, Phase-sequence, Hz
Harmonic distortion	THD up to 15th Harmonic (V and A)
Inputs	3 Pulse inputs for gas, hot water and cold water
Outputs	3 Pulse or 2 digital and/or RS485 (dependant on model)
Power supply	18 to 60 V AC/DC, 90 to 265 V AC/DC
Protection Degree	IP 50

Description

Cat. No.

Price \$

Compact DIN energy analyser + RS485 + Gas/water	EM26-96-AV53-HI3S1	890.00
Compact DIN energy analyser + RS485 + pulse/ alarm (2 relay)	EM26-96-AV53-HR2S1	930.00

Notes: Compatible with Powersoft energy management software, see page 9 - 25.
 Available on indent only.

Price Schedule 'Y9'

Carlo Gavazzi energy meters

P Advanced power analyser WM14 96



WM14 96



WM14 DIN

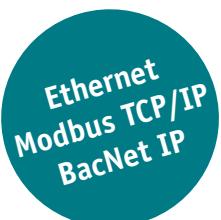
The WM14 meter is a power analyser that can be used in all the applications where it is needed to measure and control the main electrical parameters. It can also transmit data via pulses, by serial communication or Profibus DP to a PLC or a PC for further interrogation.

Power analyser WM14 96

Housing (H x W x D)	90mm x 107.5 mm x 64.5 mm (WM14DIN), 96mm x 96 mm x 61.5 mm (WM1496)
Class accuracy	Class 1 (kWh)
System type	Single, 2 or 3 phase (Dependant on balanced/unbalanced)
Voltage input	100/208 V AC, 400/660 V AC
Current input	5 A AC, shunts or CT's (Dependant on model)
Measurements	V, A, An, Admd, Admdmax, VA, VA _{dmd} , W, W _{dmd} , W _{dmdmax} , Hz, Wh, Varh, h, Var, PF, Hz
Harmonic distortion	THD up to 16th Harmonic (V and A)
Outputs	2 Pulse, 16 with and/or function and/or RS485 (Modbus, Profibus DP) (dependant on model)
Power supply	Advanced model: 18 to 60 V AC/DC to 265 V AC/DC
Protection Degree	IP 40 (WM14DIN), IP 65 (WM1496)

Description	Cat. No.	Price \$
Advanced power analyser + RS485 + pulse/ alarm (2 relay)	WM14-96-AV53-HR2S1	820.00

P Smart Modular Power Analyser WM30



The WM30 is a smart power analyser with a built-in advanced configuration system. This meter is particularly recommended for measurement of the main electrical parameters. Due to its modular design, the WM30 is capable of different types of outputs. The output modules include RS485/232, Ethernet, BacNet, Pulse and Relay/Alarm outputs.

Modular power analyser WM30

Housing (H x W x D)	96mm x 96 mm x 50 mm (not including modules)
Class accuracy	Class 0.5s (kWh)
System type	Single, 2 or 3 phase
Voltage input	100/208 V AC, 400/690 V AC
Current input	1 A, 5 A via CT's
Measurements	±kWh, ±Varh, V, A, VA, VA _{dmd} , W, W _{dmd} , Var, Var _{dmd} , PF, PF _{dmd} , Hz, Wh, Varh, h, Var, Phase-sequence
Harmonic distortion	THD up to 32th Harmonic (V and A)
Outputs	2 Pulse, 2 digital, 2 analogue (4 - 20 mA0) 2 analogue (0 - 10 V DC), RS485, Ethernet, BacNet-IP
Power supply	18 to 60 V AC/ DC, 90 to 265 V AC/DC
Protection Degree	IP 65

Description	Cat. No.	Price \$
Smart modular power analyser	WM30AV53H	1060.00
Smart modular power analyser + BacNet-IP	WM30AV53HXXXXBIXX	1620.00
Smart modular power analyser + Modbus TCP/IP	WM30AV53HXXXXE2XX	1560.00
Smart modular power analyser + Modbus RS485	WM30AV53HXXXXS1XX	1220.00

Notes: P Compatible with Powersoft energy management software, see page 9 - 25.

Price Schedule 'Y9'

Advanced modular Power Quality Analysers

The WM series energy meters are the 'Smart Power Quality Analysers' by Carlo Gavazzi. These high-tech instruments have been developed to meet the most advanced application needs. Both meters have advanced features that cannot be achieved with other meters. The WM4 and WM5 also have corresponding transducers with the same high-tech functionality.

P WM4 96



- Class 1 Accuracy - kWh
- Graphic backlit LCD display
- 2Mb Memory Module
- 8 simultaneous outputs:
-RS485, Pulse, Analogue, Digital
- Up to 6 digital inputs
- THD up to 50th Harmonic (V and A)
- Gas, hot water, cold water inputs

- Modular I/O components
- Over 50 electrical parameter measurements
- Plug-in Internet Web Server module
- Modem/GSM management
- Event logging
- CT primary input up to 30000 A
- VT primary input up to 600 KV
- IP65

Description

Cat. No.

Price \$

Recommended kits for WM4 96



Advanced modular power quality analyser + RS485 + memory	WM4-A5H-01004	2150.00
Advanced modular power quality analyser + webserv + memory	WM4-A5H-06004	3010.00
Advanced modular power quality analyser + base + memory	WM4-A5H-00004	2050.00
Recommended kits for PQT 90		
Advanced modular power quality analyser + RS485 + memory	PQT4-A5H-01004	1890.00
Advanced modular power quality analyser + webserv + memory	PQT4-A5H-06004	2640.00
Advanced modular power quality analyser + base + memory	PQT4-A5H-00004	1790.00

P WM5 96



- Class 0.5 Accuracy – kWh
- Graphic backlit LCD display
- THD up to 63rd Harmonic (V and A)
- 16 simultaneous outputs
- Up to 4 independent communication ports
- Fast Ethernet TCP/IP communications output
- Up to 12 digital inputs
- Up to 8 analogue inputs

- Up to 16 alarms with And/Or functionality
- Min/Max recording up to 10,000 events
- Up to 12 tariffs
- Over 55 electrical parameter measurements
- CT primary input up to 60000 A
- VT primary input up to 600 KV
- IP65

Description

Cat. No.

Price \$

Recommended kits for WM5 96

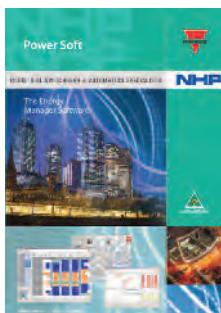


Advanced modular power quality analyser + RS485	WM5-A5H-01003	2140.00
Advanced modular power quality analyser + Ethernet	WM5-A5H-50003	2370.00
Advanced modular power quality analyser + pulse output kit	WM5-A5H-000J3	2140.00
Advanced modular power quality analyser + base	WM5-A5H-00003	2040.00
Recommended kits for PQT H		
Advanced modular power quality analyser + RS485	PQT5-A5H-01003	1930.00
Advanced modular power quality analyser + Ethernet	PQT5-A5H-50003	2160.00
Advanced modular power quality analyser + pulse output kit	PQT5-A5H-000J3	1930.00
Advanced modular power quality analyser + base	PQT5-A5H-00003	1830.00

Notes: Compatible with Powersoft energy management software, see page 9 - 25.

Price Schedule 'Y9'

Energy Management software



P PowerSoft

PowerSoft is an energy management analysis software platform designed by Carlo Gavazzi. It has been specifically developed to interface, by means of the Modbus protocol (RTU and TCP/IP), with the Carlo Gavazzi energy meters. The software allows the user to correctly and efficiently manage an electrical distribution system by monitoring the consumption of the system, checking the demanded power peaks and adopting accurate analysis and data processing tools. The software consists of a main core module - PowerSoft and of a series of optional add-in modules to compliment PowerSoft.

The modules are as follows:

P Interactive synoptics

A fully customisable set of animated interactive synoptics allows the user to browse the monitored electrical distribution system and to see any alarm condition at a glance. A series of links allows the access of real-time data of each instrument or to pass on to other synoptic pages.

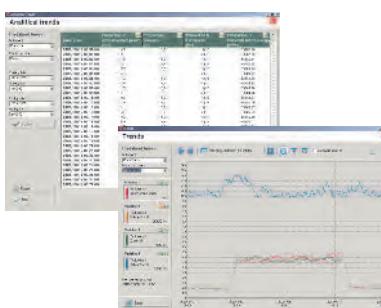
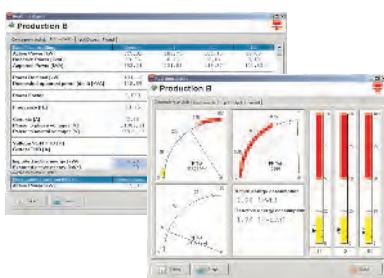
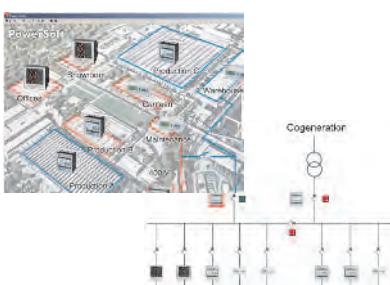
P Real-time display

Each instrument has a 4-page section where its real-time data can be examined in different ways; analytically in a complete table including all the variables and by means of a Fresnel diagram. It is possible to check the status of the digital inputs and check or switch the digital output for test purposes or to remotely act on an external device. A table displays all the data from up to 5 instruments per page simultaneously, allowing the user to carry out a simple and immediate data comparison.

P Trends

A selectable set of variables (different from instrument to instrument) can be stored in the PowerSoft database with a selectable time interval so to build-up a history of the installation. All the data can be analysed later on in both graphical and analytical format and exported in various formats (wmf, csv, xls). Up to 4 variables (from the same or from a different instrument) can be displayed and compared at the same time. With simple and intuitive procedures it is also possible to zoom in on the graph or analyse it in detail with a cursor, freely choosing the time period to be displayed.

Description	Cat. No.	Price \$
Powersoft software package	POWERSOFT	1070.00



Notes: Contact NHP for more details or for free DEMO version of Powersoft.

Price Schedule 'Y3'

Energy Management software

Add-in modules:

Carlo Gavazzi has designed 'Add-in' modules to compliment the PowerSoft Software. These modules have been specifically designed as separate components to reduce cost overheads of energy management software.

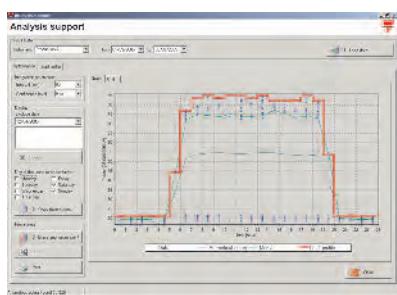
P Costs estimation



The software allows the estimation of costs, relevant to a selected period, due to the energy, water and gas consumption. This is useful to perform the cost allocation among the monitored lines, to display the daily trend of the consumption or to identify the reasons of any penalty. This feature is structured to manage a complex multi-tariff contract. The different tariffs during the day and the distribution of the typical-days among the year can be set according to the supplier tariff regulations in a very easy and extremely flexible way. Up to 12 tariffs, 24 tariff changes per day, 365 different typical-days per year can be simply configured.

Description	Cat. No.	Price \$
Powersoft add-in module: Costs estimation	PWSBILL	780.00
	PWSTARIFF	310.00

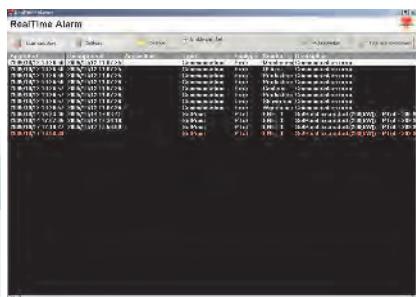
P Statistical analysis



PowerSoft carries out statistical analysis on the power trends and energy consumption by extrapolating the demand of each day of the week, the week-based consumption trends and the estimation of the ideal installed power for each tariff, calculated with a selectable confidence level. All this information is aimed to build-up an optimised load profile so as to negotiate a better contract with the utility supplier. To improve the reliability of the analysis, any data with abnormal consumptions due to external events can be filtered and removed, as well as the weekends and the holidays.

Description	Cat. No.	Price \$
Powersoft add-in module: Statistical analysis	PWSANALYSIS	1070.00

P Alarms and events

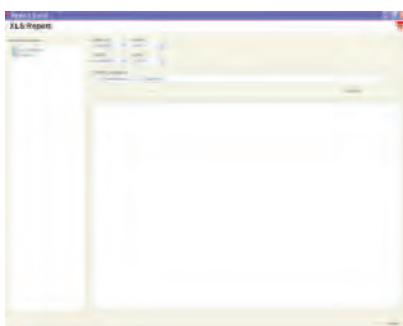


An active alarms window (that automatically pops up in any case of alarm) advises the user if a set-point has been exceeded or if a communication error is present; it allows the qualified users to acknowledge the selected alarm. A proper database allows to access the list of the events (login, logout, startup, alarm acknowledgment, etc.) and of the alarms (set-points, communication errors, missing data storage, etc.), also to carry out filter-based searches. The set-point alarms can be associated to both an up and a down threshold on all the variables measured by all the instruments of the network. The alarm can be software, being displayed in the Active alarms windows and stored in the Alarms and events log, or hardware-based, being stored as above and switching the digital output of the instrument that is pointing out the anomaly. This powerful tool allows the operator to monitor any anomaly of the installation and of the loads in real-time, so as to promptly decide and plan any maintenance actions, thus avoiding possible damages to the loads and/or expensive stopping of the machinery.

Description	Cat. No.	Price \$
Powersoft add-in module: Alarms and events	PWSALARM	580.00

Energy Management software

P Advanced reporting



This add-in module allows the collected data to be exported through PowerSoft in an Excel file format.

The window related to this module is divided in two parts:

- On the left there's a list of the available templates
- On the right there are all the generation variables:

Each template can be modified according to the customer's personal need. The template is an Excel file.

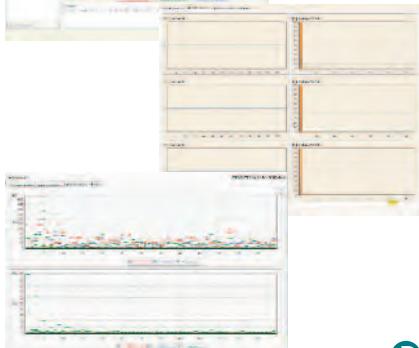
Once the template has been defined and both the starting and ending dates of the period have been fixed, a custom file is generated considering all the stored values via PowerSoft.

Description	Cat. No.	Price \$
Powersoft add-in module: Advanced reporting	PWSREPORT	1070.00

P Advanced Harmonic Analysis

For the WM5 meter with Ethernet Comms

This module is for advanced analysis of the harmonic content in your system. The module consists of a Wave's analysis tool, Manual Trigger to capture instantaneous harmonics, Historical Harmonics, Activities log, Harmonic Display and Zoom and Translations tool.



Description	Cat. No.	Price \$
Powersoft add-in module: Advanced harmonic analysis	PWSWAVE	1070.00

P Internet connectivity/Automatic emailing

PowerSoft can manage an automatic e-mailing module, able to notify the electrical system status to one or many e-mail addresses. The e-mailing can be carried out on regular basis and/or as a consequence of a defined alarm or event. In cost-sharing applications, the energy/utility bill of each final user can be sent to his/her e-mail box, while the administrator can receive the consumptions summary of all the customers. The web-server module allows remote access to PowerSoft, using a standard browser without additional licenses, in order to access all the real-time information and historical data from wherever you are.



Description	Cat. No.	Price \$
Powersoft add-in module: Email scheduler	PWSMAIL	390.00
Powersoft add-in module: Webserver, internet connectivity	PWSWEB	860.00

Combined current transformer and transducer

- Compact design - two devices in one unit saves space, time and money
- Alternating current units available up to 400 A AC in one size
- Direct current units available up to 1000 A DC in one size
- Simple rotary switch selection of primary current range
- Ideal device for measurement and control of electrical equipment
- Suitable for PLC, data logger and analogue measuring devices
- International approvals EMC, IEC and CE

Space &
time saver



TT35



TT35A

Combined current transformer (AC) and transducer

Selectable primary current ranges 25 / 50 / 75 / 100 / 125 / 150 / 175 / 200 / 225 A AC

Auxiliary supply	Connection	Output	Dimensions H x W x D (mm)	Hole dia. (mm)	Cat. No.	Price \$
10 - 30 V DC	2 wire	4 - 20 mA	94 x 92 x 56	35	TT35 10-30 V DC	640.00
240 V AC	4 wire	4 - 20 mA	135 x 92 x 56	35	TT35A 240 V AC	640.00
110 V AC	4 wire	4 - 20 mA	135 x 92 x 56	35	TT35A 110 V AC	640.00

Combined current transformer (DC) with hall effect transducer ¹⁾

Primary current range 0 - 400 A DC unidirectional current flow

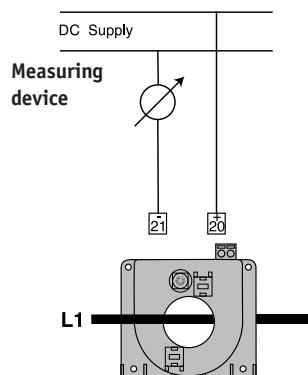
Auxiliary supply	Connection	Selectable output	Dimensions H x W x D (mm)	Hole dia. (mm)	Cat. No.	Price \$
240 V AC	4 wire	0/4 - 20 mA	135 x 92 x 56	35	i HT35A 240 V AC	630.00
110 V AC	4 wire	0/4 - 20 mA	135 x 92 x 56	35	i HT35A 110 V AC	630.00

Primary current range 0 - 1000 A DC unidirectional current flow

Auxiliary supply	Connection	Selectable output	Dimensions H x W x D (mm)	Hole dia. (mm)	Cat. No.	Price \$
240 V AC	4 wire	0/4 - 20 mA	182 x 125 x 56	80	i HT80A 240 V AC	780.00
110 V AC	4 wire	0/4 - 20 mA	182 x 125 x 56	80	i HT80A 110 V AC	780.00

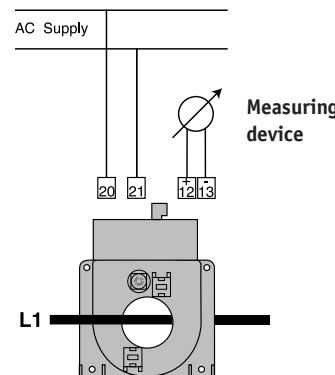
Connection diagrams

2 wire technology



TT35

4 wire technology



TT35A

Notes:

¹⁾ DC Auxiliary supply voltages 24, 48, 110 V DC are available on indent.

Price Schedule 'Y8'

i Available on indent only

Transducers



AC Current transducer
TM3I310



AC Voltage transducer
TM3U370



TM8P03120

2 DIN current & voltage transducers

- Accuracy class 0.5
- DIN rail, base or flush mountable
- Selectable outputs on most transducers

AC Current transducers

Input current	Output ¹⁾	Auxiliary supply ²⁾	Cat. No.	Price \$
1 A CT	Selectable	240 V AC	TM3I310	405.00
1 A CT	Selectable	110 V AC	i TM3I210	405.00
5 A CT	Selectable	240 V AC	TM3I330	405.00
5 A CT	Selectable	110 V AC	TM3I230	405.00
5 A CT	0-20 mA	Self supplied	TM2IA34	355.00

AC Voltage transducers

Voltage input	Output	Auxiliary supply ²⁾	Cat. No.	Price \$
0 - 110 V AC	Selectable	110 V AC	TM3U220	405.00
0 - 250 V AC	Selectable	240 V AC	i TM3U370	405.00
0 - 500 V AC	Selectable	240 V AC	TM3U3C0	405.00

TM8P Programmable transducer

One transducer to measure, display and transmit the following electrical quantities:-

Single or three phase networks –

- Active, reactive and apparent power
- Balanced or Unbalanced
- Power factor cos φ
- Frequency
- Phase angle
- Maximum demand
- Peak maximum demand (display only) ³⁾

Programmable outputs:

Current rated values – 0 to 5 mA, 0 to 10 mA, 0 to 20 mA or 4 to 20 mA

Voltage rated values – 0 to 10 V or 1 to 5 V

Negative values: – 5.0.5 mA; – 10.0.10 mA; – 20.0.20 mA; 10.0.10 V

5 Amp input – direct connection up to 500 V

Beginning and full scale calibration field-adjustable.

Refer page 9-13
for meter
dimensions
& flush mount
kits

Ordering details

Input	Output	Auxiliary voltage	Cat. No.	Price \$
5 A CT	Programmable	110 V AC	i TM8P02120	750.00
5 A CT	Programmable	240 V AC	TM8P03120	750.00
5 A CT	Programmable	20-150 V DC	TM8POH120	750.00

Notes: ¹⁾ Output selectable 7 ranges (except TM2IA34).

Values: 0-5/10/20 mA; 4-20 mA

0-5/10 V; 2-10 V

²⁾ Auxiliary supply - 24/48/110 V DC or self-supplied available on indent, P.O.A.

³⁾ Peak power maximum demand is display only (not associated to output)

[i] Available on indent only

Price Schedule 'Y8'

Current transformers for cables

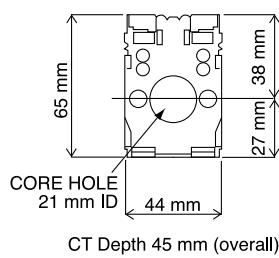
- Housing, self-extinguishing thermoplastic
- Highest system voltage, 720 V RMS
- Test voltage, 3 kV RMS 50 Hz for 1 min.
- Frequency of operation, 40-60 Hz
- Insulation Class, B (130 °C)
- Short circuit thermal current (I_{th}) 60-100 times rated primary current for 1 sec.
- Rated dynamic current 2.5 times I_{th}
- Rated continuous thermal current 120 % of rated primary current

■ Compact miniature CT

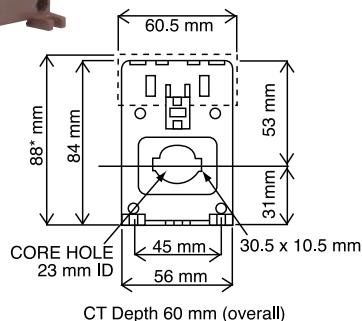
■ DIN rail mountable



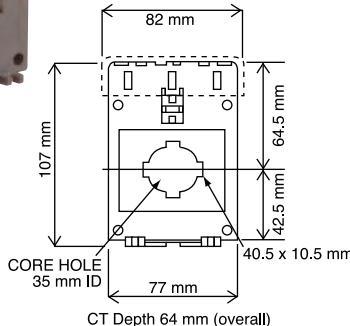
TAI BB



TAI 233



TAI 400



Price Schedule 'Y8'

Accuracy class

Ratio:

CL 0.5 VA	CL 1 VA	CL 3 VA	Primary / Secondary current - 5 A or 1 A
--------------	------------	------------	--

TAI BB - Cable Ø 21 mm max.

		Cat. No ¹⁾	5A Price \$	1A Price \$
-	-	1 TAI BB 40...	50.00	-
-	1.25	1.5 TAI BB 50...	50.00	-
-	1.25	2 TAI BB 60...	50.00	-
-	1.5	2.5 TAI BB 75...	50.00	-
-	1.5	2.5 TAI BB 80...	50.00	-
2	2.5	3.5 TAI BB 100...	50.00	-
2.5	3.5	4 TAI BB 120...	50.00	-
3	4	5 TAI BB 150...	50.00	-
4	5.5	6 TAI BB 200...	50.00	-
5	6	7 TAI BB 250...	50.00	-
6	7.5	8 TAI BB 300...	50.00	-

TAI 233 - Cable Ø 23 mm, Busbar 30 x 10 mm max.

-	-	1.5 TAI 233 40...	58.00	83.50
-	-	2.5 TAI 233 50...	58.00	83.50
-	-	2.5 TAI 233 60...	58.00	83.50
-	1.5	3.5 TAI 233 75...	58.00	83.50
-	1.5	4 TAI 233 80...	58.00	i 83.50
-	2.5	5 TAI 233 100...	58.00	83.50
-	3.5	5.5 TAI 233 120...	58.00	83.50
1.5	5.5	6.5 TAI 233 150...	58.00	i 83.50
4	7	8.5 TAI 233 200...	58.00	83.50
6	9	11 TAI 233 250...	58.00	83.50
7.5	11	13.5 TAI 233 300...	58.00	83.50
10.5	15	18 TAI 233 400...	70.50	98.00
12	18	22 TAI 233 500...	70.50	98.00
14.5	21.5	26 TAI 233 600...	70.50	i 98.00

TAI 400 - Cable Ø 35 mm, Busbar 40 x 10 mm max.

1	3	6 TAI 400 150...	61.00	88.50
1.5	3	6 TAI 400 200...	61.00	i 88.50
2.5	5	8 TAI 400 250...	61.00	i 88.50
4	8	12 TAI 400 300...	66.50	i 88.50
8	12	15 TAI 400 400...	66.50	88.50
10	12	15 TAI 400 500...	79.50	i 93.00
12	15	15 TAI 400 600...	79.50	i 93.00
10	12	15 TAI 400 750...	79.50	i 106.00
10	12	15 TAI 400 800...	84.00	i 106.00
10	12	15 TAI 400 1000...	85.50	i 106.00

Note:

¹⁾ Add primary and secondary current + 5 A or 1 A suffix to complete Cat. No.

Current transformers

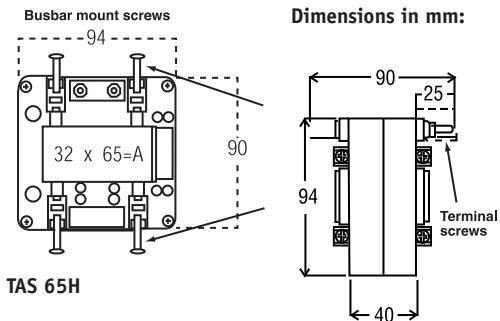
Horizontal busbar mount and terminals



TAS127BH1500/5A

- Compact design busbar CTs
- Reduced overall dimensions and weight
- Mounting parts, terminals and busbar clamps supplied as standard
- Suits popular busbar dimensions

TAS 65H

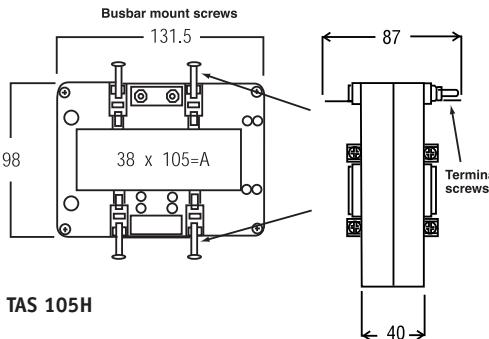


TAS 65H

Accuracy class

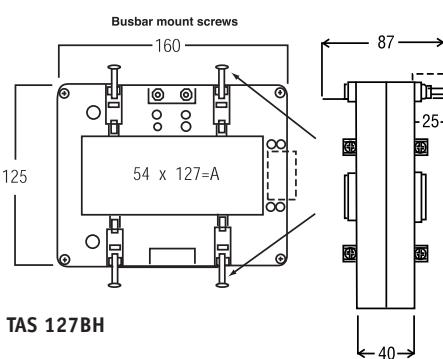
CL 0.5 VA	CL 1 VA	CL 3 VA	Ratio: Primary / Secondary current ¹⁾
TAS 65 Busbar 63 x 32 mm (Max.)			Cat. No. Price \$
8	10	12	TAS 65H5005A 81.00
8	12	15	TAS 65H6005A 81.00
10	15	15	TAS 65H7505A 106.00
12	15	20	TAS 65H8005A 106.00
15	20	25	TAS 65H10005A 106.00
15	20	25	TAS 65H12005A 118.00
20	25	30	TAS 65H15005A 151.00

TAS 105H



TAS 105 Busbar 100 x 36 mm (Max.)			Cat. No. Price \$
10	15	20	TAS 105H10005A 133.00
12	15	25	TAS 105H12005A 133.00
15	20	30	TAS 105H15005A 154.00
20	30	40	TAS 105H20005A 172.00
25	30	50	TAS 105H25005A 172.00
25	30	50	TAS 105H30005A 200.00

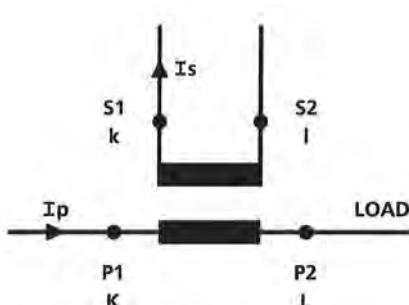
TAS 127BH



TAS 127B Busbar 125 x 52 mm (Max.)			Cat. No. Price \$
20	30	40	TAS 127BH15005A 183.00
20	30	40	TAS 127BH16005A 183.00
25	40	50	TAS 127BH20005A 183.00
30	50	60	TAS 127BH25005A 172.00
40	60	60	TAS 127BH30005A 172.00
50	60	60	TAS 127BH40005A 255.00

TAS 127BH

Terminal covers (IP 40)			Cat. No. Price \$
TAS 65, 105 & 127B			TCTAS65105127B 20.00



Current flow diagram

Price Schedule 'Y8'

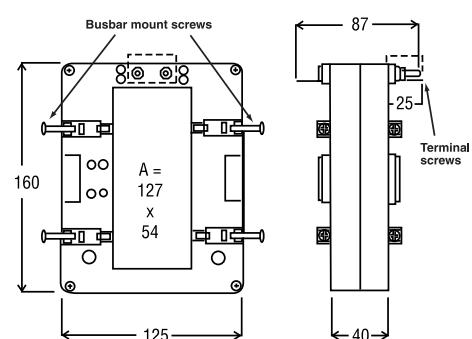
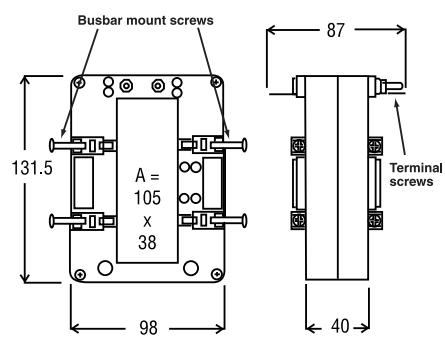
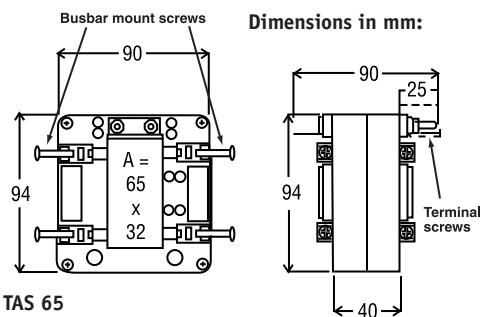
Notes: ¹⁾ Transformers available as 1 A secondary on request, contact NHP.

Current transformers

Vertical busbar mount and terminals



TAS105_5A



- Compact design busbar CTs
- Reduced overall dimensions and weight
- Mounting parts, terminals and busbar clamps supplied as standard
- Suits popular busbar dimensions

Accuracy class

CL 0.5 VA	CL 1 VA	CL 3 VA	Ratio: Primary / Secondary current ¹⁾
TAS 65 Busbar 63 x 32 mm (Max.)			Cat. No.
8	10	12	TAS 65 5005A
8	12	15	TAS 65 6005A
10	15	15	TAS 65 7505A
12	15	20	TAS 65 8005A
15	20	25	TAS 65 10005A
15	20	25	TAS 65 12005A
20	25	30	TAS 65 15005A

Price \$

8	10	12	TAS 65 5005A	81.00
8	12	15	TAS 65 6005A	81.00
10	15	15	TAS 65 7505A	106.00
12	15	20	TAS 65 8005A	106.00
15	20	25	TAS 65 10005A	106.00
15	20	25	TAS 65 12005A	118.00
20	25	30	TAS 65 15005A	151.00

TAS 105 Busbar 100 x 36 mm (Max.)

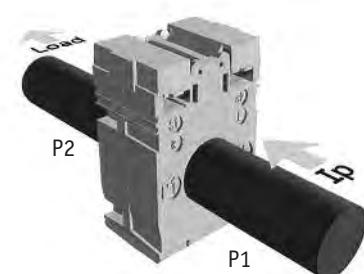
			Cat. No.	Price \$
10	15	20	TAS 105 10005A	133.00
12	15	25	TAS 105 12005A	133.00
15	20	30	TAS 105 15005A	154.00
20	30	40	TAS 105 20005A	172.00
25	30	50	TAS 105 25005A	172.00
25	30	50	TAS 105 30005A	200.00

TAS 127B Busbar 125 x 52 mm (Max.)

			Cat. No.	Price \$
20	30	40	TAS 127B 15005A	183.00
20	30	40	TAS 127B 16005A	183.00
25	40	50	TAS 127B 20005A	183.00
30	50	60	TAS 127B 25005A	215.00
40	60	60	TAS 127B 30005A	215.00
50	60	60	TAS 127B 40005A	255.00

Terminal covers (IP 40)

	Cat. No.	Price \$
TAS 65, 105 & 127B	TCTAS65105127B	20.00

**Price Schedule 'Y8'**Note: ¹⁾ Transformers available as 1 A secondary on request, contact NHP.

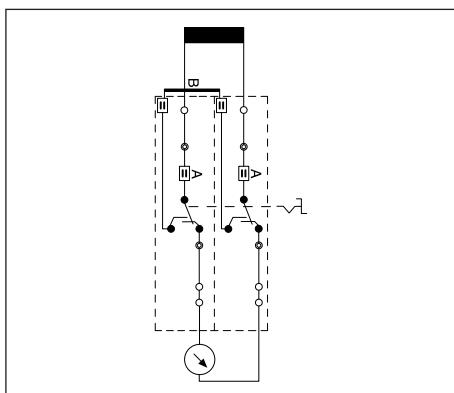
Refer catalogue ETC08

CAGE CLAMP® terminals Disconnect terminals – DIN 35 mounting

Series 282



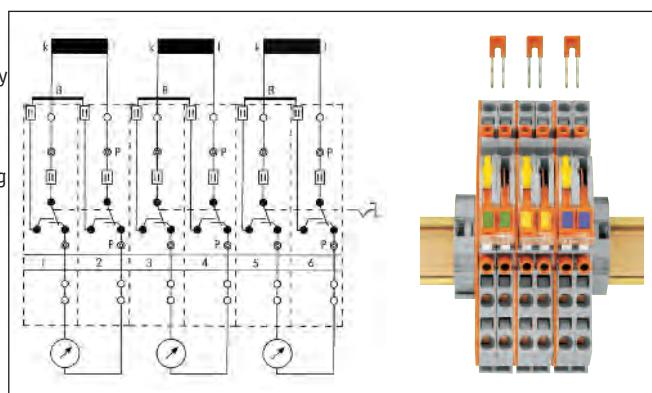
Measuring set for a single phase current transformer



Pairs of disconnect links are interlocked by means of the locking covers.
After the interlocking has been released, testing of the measured value is also possible.
B = shorting jumper
P = test socket

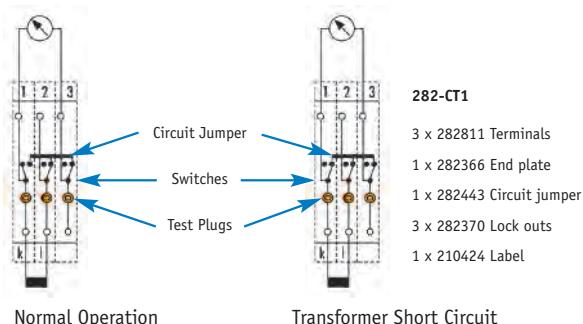
Terminal blocks required : 2 x disconnect/test terminal blocks 282-870
1 x jumper, orange 282-424
1 x end plate, orange 282-387
1 x locking cover 282-882

Measuring set for a 3 phase current transformer



Terminal blocks required : 6 x disconnect/test terminal blocks 282-870
3 x jumpers, orange 282-424
3 x end plates, orange 282-387
3 x locking covers 282-882

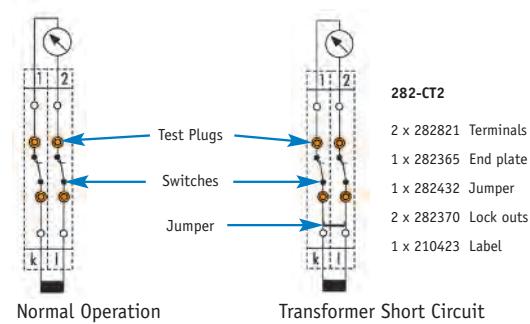
282-CT1 CT Test / Disconnect Terminal



Normal Operation

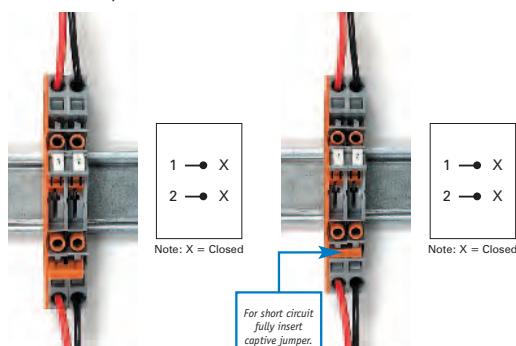
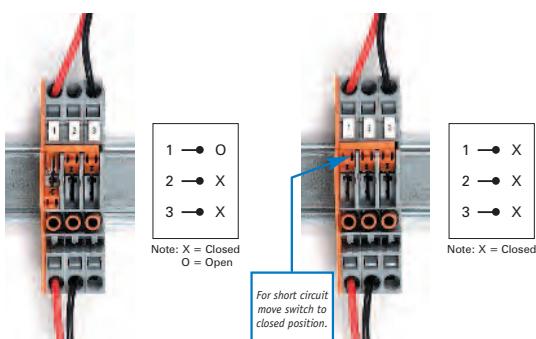
Transformer Short Circuit

282-CT2 CT Test / Disconnect Terminal



Normal Operation

Transformer Short Circuit



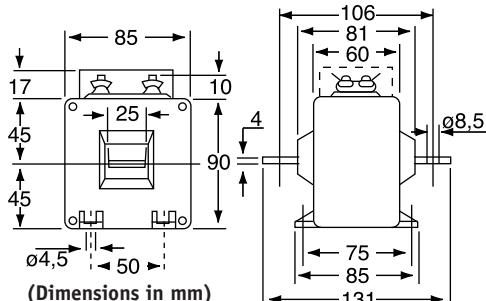
Price Schedule 'B2'

Notes: Refer to catalogue Part B, section 10 for further details and pricing.

Current transformers for cables

TAQ 10 CTS

- Suitable for metering purposes of low primary/secondary current ratio circuits



TAQ 10

TAQ 10 Primary wound CT	Cat. No.	Price \$
10 12 20	TAQ 10 5/5	155.00
10 12 20	TAQ 10 10/5	155.00
10 12 20	TAQ 10 25/5	155.00
10 12 20	TAQ 10 30/5	155.00

Terminal covers (IP 40)	Cat. No.	Price \$
TAQ 10	i TC-TAQ10	20.00

Split core current transformers



- Allows installation without disconnecting cables or busbar circuits
- Suitable for existing installation, retrofit applications
- Supplied with mounting screws and terminal covers
- 2 sets of secondary terminal (CTD range)

Model	A	Class 1	Class 3	Window size (mm)	Cat. No.	Price \$
CTD-5S	125	1.5	1.5	26 x 32	CTD5S1255AXXX	197.00
	150	1.5	2.5		CTD5S1505AXXX	210.00
	200	1.5	5		CTD5S2005AXXX	210.00
	250	1.5	5		CTD5S2505AXXX	215.00
	400	5	10		CTD5S4005AXXX	235.00
CTD-6S	400	2.5	5	50 x 52	i CTD6S4005AXXX	250.00
	600	7.5	15		CTD6S6005AXXX	275.00
	800	10	15		i CTD6S8005AXXX	275.00
	1000	10	15		CTD6S10005AXXX	290.00
CTD-8S	400	3	5	30 x 80	CTD8S4005AXXX	265.00
	600	6	10		CTD8S6005AXXX	290.00
	800	8	12		CTD8S8005AXXX	290.00
CTD-10S	1000	12	20	50 x 126	CTD10S10005AXXX	325.00
	1200	15	25		CTD10S12005AXXX	345.00
	1600	20	30		CTD10S16005AXXX	510.00
	2000	25	40		i CTD10S20005AXXX	580.00
	2500	30	50		i CTD10S25005AXXX	600.00
	3000	30	50		i CTD10S30005AXXX	620.00
	3200	30	50		i CTS10S32005AXXX	620.00
TP816	2500	20	25	80 x 160	i TP81625005A	1380.00
	3000	25	30		i TP81630005A	1380.00
	4000	25	30		i TP81640005A	1380.00

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Notes: More current ratio and physical sizes available on request, contact NHP.

Class 0.5 available upon request

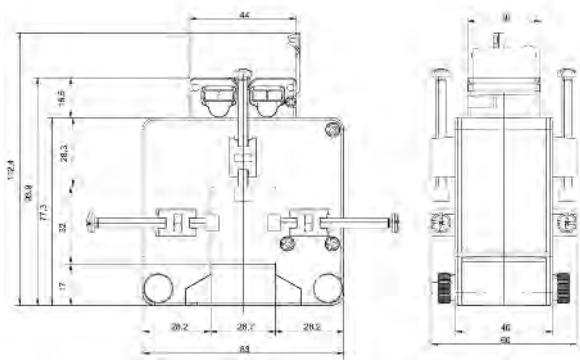
Available on indent only

Price Schedule 'Y9'

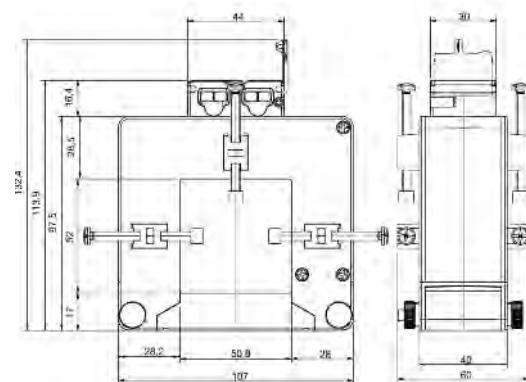
Split core current transformers

Dimensions (mm)

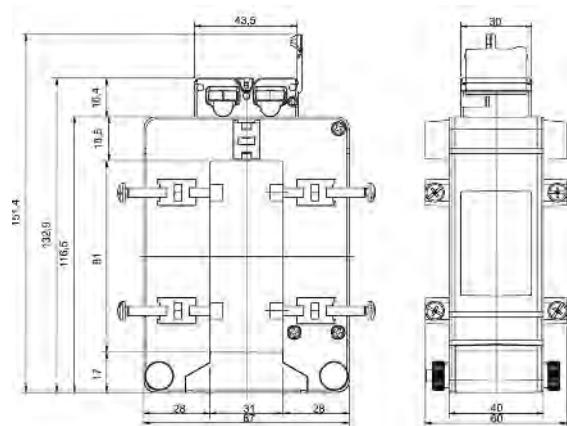
CTD-5S



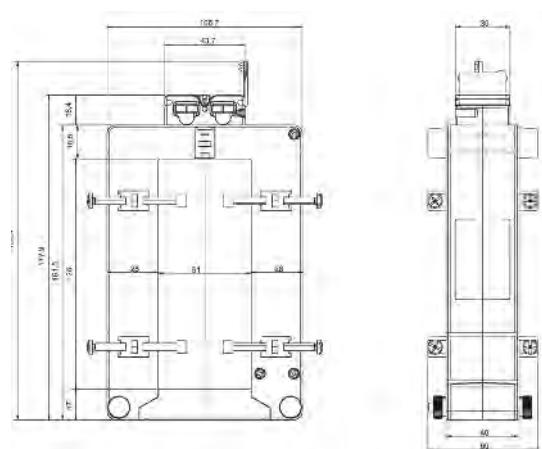
CTD-6S



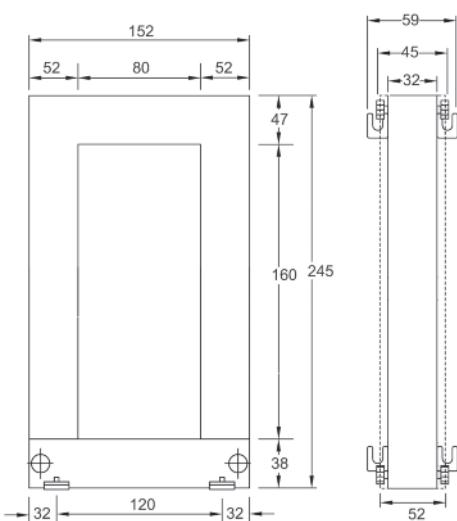
CTD-8S



CTD-10S



TP816



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.

