

CORE PRODUCT CATALOGUE

TE'S CROMPTON INSTRUMENTS

Edition 11



Table of content

Digital Metering Systems



4, 10, 12, 13

Integra range of multi-function metering systems measure, display and communicate over 100 parameters. Integra systems can be integrated into energy management and SCADA systems.

Energy Meters



11

DIN-rail mounted or self-contained panel meters measure combined kWh or kVArh with pulsed or analogue output options and selectable CT and VT ratios. Microprocessor controlled circuitry provides up to Class 1.0 accuracy.

Current Transformers



14

Current transformers for reducing high primary currents down to a consistent 5 or 1 Amp secondary current. Options include moulded case width, busbar and aperture sizes, tape wound, 3-in-1, balanced and split cores, current ratings and various mounting options.

Programmable Transducer



29

Transducers provide measurement, isolation and conversion of electrical parameters into industry standard DC output signals, offering single or multiple analogue outputs within a single case housing.

Protector Trip Relays



31

Trip relays continuously monitor and protect any electrical parameter within a set point limit. The range offers single and multi parameter units, earth leakage protection, ground fault relays, vector shift and ROCOF.

LED Synchroscope & Analogue Instruments



33 - 39

LED Synchroscopes measure and display the frequency difference of two power sources.
Traditional range of analogue instruments includes switchboard meter and panel indicators and complementary selector switches for line-to-line and line-to-neutral readings.

Shunts



40

Shunts provides an accurate dc millivolt signal, exactly proportional to the system current, to drive ammeter indicators, overload protection and control devices.

Selector Switches



41

Panel mounted selector switches offer a 7-position voltmeter switch and a 4-position ammeter switch for reading line-to-line or line-to-neutral voltage and phase current.

Complete Product Range



42

Descriptions and web page links for the Crompton Instruments complete product range.

NEW PRODUCTS

**DGU DIGITAL
PANEL METER
DC VOLTAGE &
CURRENT MODELS**



**LED
SYNCHROSCOPES
RELAY OUTPUT
FOR REMOTE
INDICATION**

**UL APPROVED
EBONY EXCEL
MOULDED CASE
CURRENT TRANSFORMERS:
SPLIT CORE &
EBONY EXCEL**



**DIGITAL METERING
SOFTWARE**



TE.COM

te.com/en/private/energy/crompton-software-downloads.html

Integra DMS - DIN-rail Mounted Integra SL1, DL1, TL1



FEATURES

- DIN-rail enclosure - 4 module
- Multiple display modes
- User-programmable CT ratio and system configuration
- True rms measurement
- Metering for single loads or multiple loads
- Can be programmed for individual power loads
- RJ12 socket for fast connection
- Self-Powered

BENEFITS

- Cost-effective, single meter solution
- UK manufactured
- CL1.0 accuracy for Energy
- Modbus communications
- Fully configurable
- Additional facility to accumulate the total system power/kWh -displaying the combined system total parameters

Description

Integra Single Load multifunction DIN-rail mounted meter
LCD Input 400 V L-L, 100 mA AC
Modbus RTU RS 485 Self powered

Part number

SL1-01

SINGLE LOAD PARAMETERS

LOAD 1

- Current L1
- Current L2
- Current L3
- kW L1
- kW L2
- kW L3
- Average System Volts
- Average System Current
- Average System kWh
- kWh Import

Description

Integra Dual Load multifunction DIN-rail mounted meter
LCD Input 400 V L-L, 100 mA AC
Modbus RTU RS 485 Self powered

Part number

DL1-01

DUAL LOAD PARAMETERS

LOAD 1

- Current L1
- Current L2
- Current L3
- kW L1
- kW L2
- kW L3
- Average System Volts
- Average System Current
- Average System kWh
- kWh Import

LOAD 2

- Current L1
- Current L2
- Current L3
- kW L1
- kW L2
- kW L3
- Average System Volts
- Average System Current
- Average System kWh
- kWh Import

SYSTEM

- Current L1
- Current L2
- Current L3
- Voltage L1
- Voltage L2
- Voltage L3
- Average System Volts
- Average System Current
- Average System kWh
- kWh Import - Power
- kWh Import - Lighting
- kWh Import - Total
- Frequency
- Power Factor (PF)

Description

Integra Triloard multifunction DIN-rail mounted meter
LCD Input 400 V L-L, 100 mA AC
Modbus RTU RS 485 Self powered

Part number

TL1-01

TRILOAD LOAD PARAMETERS

Load 1

- | | |
|------------------------|------------------------|
| Current L1 | Load 2 |
| Current L2 | Current L1 |
| Current L3 | Current L2 |
| kW L1 | Current L3 |
| kW L2 | kW L1 |
| kW L3 | kW L2 |
| Average System Volts | Average System Volts |
| Average System Current | Average System Current |
| Average System kW | Average System kW |
| kWh Import | kWh Import |

Load 2

- | | |
|------------------------|------------------------|
| Current L1 | System |
| Current L2 | Current L1 |
| Current L3 | Current L2 |
| kW L1 | Current L3 |
| kW L2 | Voltage L1 |
| kW L3 | Voltage L2 |
| Average System Volts | Voltage L3 |
| Average System Current | Average System Volts |
| Average System kW | Average System Current |
| kWh Import | Total System kWh |

Load 3

- | | |
|------------------------|------------------------|
| Current L1 | System |
| Current L2 | Current L1 |
| Current L3 | Current L2 |
| kW L1 | Current L3 |
| kW L2 | Voltage L1 |
| kW L3 | Voltage L2 |
| Average System Volts | Voltage L3 |
| Average System Current | Average System Volts |
| Average System kW | Average System Current |
| kWh Import | Total System kWh |
| | kWh Import - Load 1 |
| | kWh Import - Load 2 |
| | kWh Import - Load 3 |
| | Frequency |
| | Power Factor (PF) |

Compatable RJ12 CT's on page 7

Integra DMS - Panel Mounted - DIN 96 Integra 1221, 1222

PARAMETERS

Button	Scr	Parameter
	1	Watts L1 Volts L1 Current L1 Active Energy L1
	2	Watts L2 Volts L2 Current L2 Active Energy L2
	3	Watts L3 Volts L3 Current L3 Active Energy L3
	4	Watts L1 Volts L1 Current L1 Reactive Energy L1
	5	Watts L2 Volts L2 Current L2 Reactive Energy L2
	6	Watts L3 Volts L3 Current L3 Reactive Energy L3
	1	L-N Volts L1, L2, L3
	2	L-L Volts L1, L2, L3
	3	Current L1, L2, L3, N
	4	V-THD% per line
	5	I-THD% per line
	6	Phase Sequence V&I
	1	PF and System Freq
	2	PF per phase
	3	MD per phase
	4	System Max demand P, Q, S
	1	Active Power (P) L1, L2, L3
	2	Reactive Power (Q) L1, L2, L3
	3	Apparent Power (S) L1, L2, L3
	4	System Powers P, Q, S
	1	Imp Active Energy Exp Active Energy
	2	Imp Reactive Energy Exp Reactive Energy
	3	Total Active Energy Total Reactive Energy

FEATURES

- Import / Export kWh
- Single Phase & 3 phase applications
- Programmable VT, CT Ratios
- Voltage IN-OUT
- 2 pulsed and 1 Modbus output as standard
- Auxiliary or self powered (INT-1222 only)
- HD backlit LCD display - programmable
- 1A or 5A selectable CT Input
- Non-volatile memory 1MB

BENEFITS

- Standard Plug in / Quick to connect (Q2C) & RJ12 connection options available
- Phase voltage and current sequence screen
- Graphic petal array icons show total system load and phase balance
- Integra 1222 dms can also be used with any Crompton Instruments CTs.
- Push in panel mounting

INTEGRA-1221
RJ12 Connector



INTEGRA-1222
Quick 2 Connect



INTEGRA-122X OPTIONAL EXTRAS AVAILABLE

Integra 122X has the option to attach an Ethernet, BacNET or Datalogger module to the product.

Optional modules available.



IP64 sealing kit available.



Description

Part number

Integra 1221 multifunction panel meter - Self powered.
Backlit LCD HD Display
Input 100-277 V AC L-N / 173-480V AC L-L - 2 Pulsed outputs.
RJ12 CT input 100mA. Modbus RS485 output. RJ12 CT connectivity.

INT-1221-S-010

Integra 1222 multifunction panel meter - Self powered.
Backlit LCD HD Display
Input 100-277 V AC L-N / 173-480V AC L-L - 2 Pulsed outputs.
CT input 5A or 1A selectable. Modbus RS485 output.
Optional QC2 plug & socket connectivity.

INT-1222-S-010

Integra 1222 multifunction panel meter - Auxiliary powered.
Backlit LCD HD Display
Input 57.7-277 V AC L-N / 100-480V AC L-L
CT input 5A or 1A selectable. Modbus RS485 output.
Auxiliary powered - 100-250V AC/DC +/- 20%
Optional QC2 plug & socket connectivity.

INT-1222-M-010

Optional Ethernet Module (1221 & 1222) for Modbus IP and BACnet IP

OPT-1222-070

Optional Data Logger Module (1221 & 1222)

OPT-1222-020

Optional Sealing gasket & push fixing clamps for IP64 (1221 & 1222)

OPT-1222-IP64

Integra DMS - RJ12 Wiring Loom Solution



FEATURES

- DIN 96 enclosure
- Backlit LCD screen
- Voltage IN-OUT connections
- RJ12 connection 100mA
- Programmable VT
- Modbus™ RTU
- Individual harmonics to 63rd
- Non-volatile memory 1MB

BENEFITS

- Reduced installation time
- Eliminates potential cost of errors in electrical connections or programming
- Tidy solution for cable management



Description

Integra 1221 multifunction panel meter - Self powered.
Backlit LCD HD Display
Input 100-277 V AC L-N / 173-480V AC L-L - 2 Pulsed outputs.
RJ12 CT input 100mA. Modbus RS485 output. RJ12 CT connectivity.

Part number

INT-1221-S-010

Choose your requirements

Select:

Step 1 choose

- Self Powered or Auxiliary Meter

Step 2 choose

- RJ12 Current Transformer

Step 3 choose

- Voltage wiring loom

Step 4 choose

- Optional modules if required
e.g BACnet, Ethernet,
Data Logger, IP64 Sealing Kit



Voltage Meter to Open Loom

The meter to open loom connects the voltage supply from the fused connections to the meter using high quality LSZH cable fitted with suitable plugs and socket for safe and easy voltage connections.
Compatible with all versions of INT 12XX meters.

Length

Q2C-VFO-0600-01

Q2C-VFO-1000-01

Q2C-VFO-1200-01

Q2C-VFO-1500-01

Other lengths available



Voltage Meter to Meter Loom

The meter to meter loom connects the voltage for upto 32 meters using high quality LSZH cable fitted with suitable plugs and socket for safe and easy voltage connections.
Compatible with all versions of INT-12XX meters.

Length

Q2C-VMM-0600-01

Q2C-VMM-1000-01

Q2C-VMM-1200-01

Q2C-VMM-1500-01

Q2C-VMM-2000-01

Other lengths available

Integra DMS - RJ12 3-in-1 Current Transformers for use with Integra 1221, Integra SL1, DL1, TL1

FEATURES

- Busbar DIN-rail and metal feet (mounting hardware supplied)
- RJ12 socket for fast connection eliminate wiring errors
- Cable included (length 1.5 m)
- Low 60A ratio for more energy efficient loads
- Aperture hole centres 25, 35, 45, 70 mm



STANDARDS

- IEC61869-2



The 3-in-1 current transformer range are for use with the Integra digital metering system SL1-01/DL1-01/TL1-01 and INT 1221 combines three traditional current transformers in one moulding case with a RJ12 connection for simple and easy error free installation.

SPECIFICATIONS

System voltage:	720V maximum
Test voltage:	3kV for 1 minute
System frequency:	50Hz or 60Hz
Primary ratings:	100mA AC rms. per CT
Overload withstand:	1.2 x rated current continuously
Enclosure:	Flame retardant grade classified UL94V-O
Aperture hole centres:	25mm, 35mm, 45mm, 70mm
Operating temperature:	-20°C to +85°C
Compliant with accuracy:	IEC61869-2 Class 0.5, Class 1

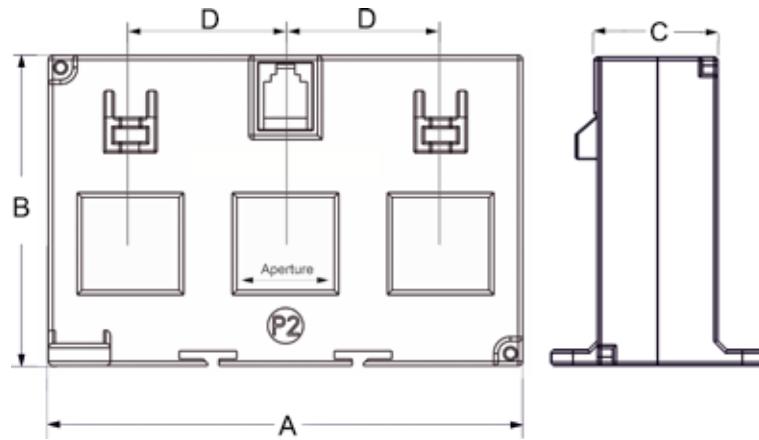
Part number	Primary Current	VA at Class 1	VA at Class 0.5	A (Width) mm	B (Height) mm	C (Depth) mm	D (Hole Centres) mm	Aperture mm
DL3N1-25-60/0.1	60A	0.25	-	76	78	30	25	3 @ 25 x 15
DL3N1-25-100/0.1	100A	0.35	0.25	76	78	30	25	3 @ 25 x 15
DL3N1-25-125/0.1	125A	0.35	0.25	76	78	30	25	3 @ 25 x 15
DL3N1-25-160/0.1	160A	0.35	0.25	76	78	30	25	3 @ 25 x 15

DL3N1-35-60/0.1	60A	0.25	-	107	70	35	35	3 @ 22 x 22
DL3N1-35-125/0.1	125A	0.5	0.25	107	70	35	35	3 @ 22 x 22
DL3N1-35-160/0.1	160A	0.35	0.25	107	70	35	35	3 @ 22 x 22
DL3N1-35-250/0.1	250A	0.5	0.25	107	70	35	35	3 @ 22 x 22

DL3N1-45-250/0.1	250A	0.25	-	142	86	40	45	3 @ 27 x 32
DL3N1-45-400/0.1	400A	-	0.25	142	86	40	45	3 @ 27 x 32
DL3N1-45-600/0.1	600A	-	0.25	142	86	40	45	3 @ 27 x 32

DL3N1-70-400/0.1	400A	-	0.25	212	100	40	70	3 @ 40 x 52
DL3N1-70-600/0.1	600A	-	0.25	212	100	40	70	3 @ 40 x 52
DL3N1-70-800/0.1	800A	-	0.25	212	100	40	70	3 @ 40 x 52

DIMENSIONS



BENEFITS

- RJ12 connection for simple and easy error free installation

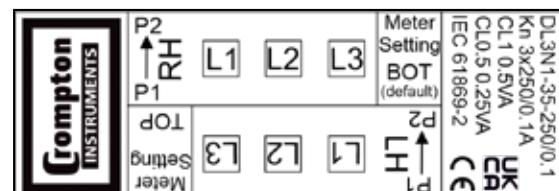


ALL CURRENT TRANSFORMERS ARE SUPPLIED WITH A 1.5M CONNECTING CABLE, WITH RJ12 CONNECTOR TERMINATION AT EACH END.

KEY FEATURE

- New CT label design shows correct metering setting for left hand and right hand mounting, current phasing and current flow.

CT LABEL



Integra DMS - Q2C Wiring Loom Solution



INTEGRA-1222
Q2C



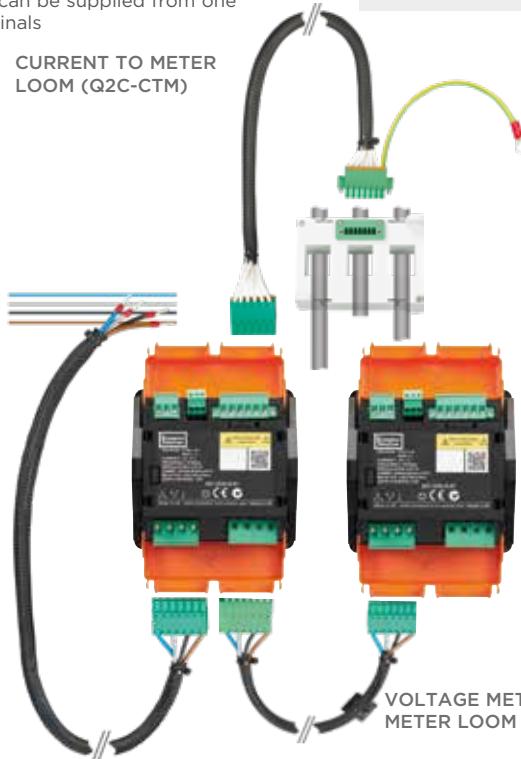
FEATURES

- A complete Quick 2 Connect wiring solution with integral connectors and earthing
- Screwless terminal connections, vibration proof and maintenance free
- Up to 32 meters can be supplied from one set of fused terminals

CURRENT TO METER LOOM (Q2C-CTM)

BENEFITS

- Reduced installation time
- Eliminates potential cost of errors in electrical connections or programming
- Tidy solution for cable management



Choose your requirements

Select:

Step 1 choose

- Self Powered or Auxiliary Meter

Step 2 choose

- Current Transformer e.g Q2C or hard wired

Step 3 choose

- Voltage/Current wiring loom

Step 4 choose

- Optional modules if required e.g BACnet, Ethernet, Data Logger, IP64 Sealing Kit



Description	Part number
Integra 1222 multifunction panel meter - Self powered. Backlit LCD HD Display Input 100-277 V AC L-N / 173-480V AC L-L - 2 Pulsed outputs. CT input 5A or 1A selectable. Modbus RS485 output.	INT-1222-S-010
Integra 1222 multifunction panel meter - Auxiliary powered. Backlit LCD HD Display Input 57.7-277 V AC L-N / 100-480V AC L-L CT input 5A or 1A selectable. Modbus RS485 output. Auxiliary powered - 100-250V AC/DC +/- 20%	INT-1222-M-010

Voltage Meter to Open Loom	Length	Part number
The meter to open loom connects the voltage supply from the fused connections to the meter using high quality LSZH cable fitted with suitable plugs and socket for safe and easy voltage connections.	600 mm	Q2C-VFO-0600-01
	900 mm	Q2C-VFO-0900-01
	1200 mm	Q2C-VFO-1200-01
	1500 mm	Q2C-VFO-1500-01

Voltage Meter to Meter Loom	Length	Part number
The meter to meter loom connects the voltage for upto 32 meters using high quality LSZH cable fitted with suitable plugs and socket for safe and easy voltage connections.	600 mm	Q2C-VMM-0600-01
	900 mm	Q2C-VMM-0900-01
	1200 mm	Q2C-VMM-1200-01
	1500 mm	Q2C-VMM-1500-01

Current to Open Loom	Length	Part number
Loom is opened at the CT end to allow hard wired connection to any CT and wired at the meter end	600 mm	Q2C-CMO-0600-01
	900 mm	Q2C-CMO-0900-01
	1200 mm	Q2C-CMO-1200-01
	1500 mm	Q2C-CMO-1500-01
	2000 mm	Q2C-CMO-2000-01

Current to Meter Loom	Length	Part number
The current to meter loom connects the current from the CT to the current input on the meter using high quality LSZH cable fitted with suitable plugs and socket for safe and easy current connections.	600 mm	Q2C-CTM-0600-01
	900 mm	Q2C-CTM-0900-01
	1200 mm	Q2C-CTM-1200-01
	1500 mm	Q2C-CTM-1500-01

Integra DMS - Q2C 3-in-1 Current Transformers for use with Integra 1222, 1232

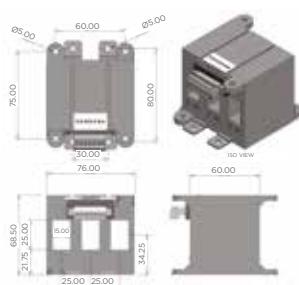


FEATURES

- 3-IN-1 current transformers combine 3 traditional current transformers
- Can be used with or without Q2C wiring solution
- Suitable for use with Integra 1222 and 1232 meters
- Integral connector

BENEFITS

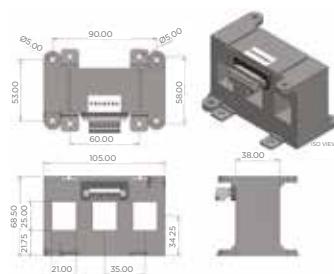
- Simple, easy and error free installation and wiring
- Applicable for most standard MCCB manufacturers



QC3N1-25 – 25 MM CENTRES BETWEEN PHASES

76 mm wide x 60 mm deep x 68 mm high

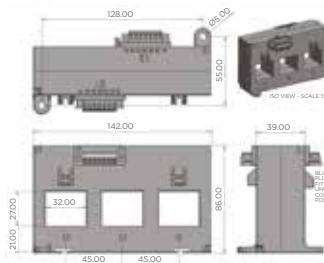
Part number	Ratio	Burden VA against class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
QC3N1-25-60/5	60/5	-	1	2	3@15x25
QC3N1-25-100/5	100/5	-	1.5	2.5	3@15x25
QC3N1-25-125/5	125/5	-	1.5	2.5	3@15x25
QC3N1-25-160/5	160/5	1.5	1.5	2.5	3@15x25



QC3N1-35 – 35 MM CENTRES BETWEEN PHASES

105 mm wide x 38 mm deep x 68.5 mm high

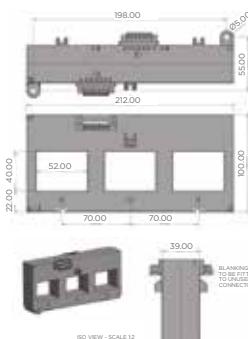
Part number	Ratio	Burden VA against class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
QC3N1-35-100/5	100/5	-	1.5	2	3@21x25
QC3N1-35-125/5	125/5	-	1.5	2.5	3@21x25
QC3N1-35-160/5	160/5	1.5	1.5	2.5	3@21x25
QC3N1-35-250/5	250/5	1.5	1.5	2.5	3@21x25



QC3N1-45 – 45 MM CENTRES BETWEEN PHASES

142 mm wide x 39 mm deep x 86 mm high

Part number	Ratio	Burden VA against class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
QC3N1-45-250/5	250/5	-	2.5VA	-	3@32x27
QC3N1-45-400/5	400/5	-	2.5VA	-	3@32x27
QC3N1-45-630/5	630/5	2.5VA	5VA	-	3@32x27



QC3N1-70 – 70 MM CENTRES BETWEEN PHASES

212 mm wide x 39 mm deep x 100 mm high

Part number	Ratio	Burden VA against class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
QC3N1-70-400/5	400/5	-	2.5VA	-	3@52x40
QC3N1-70-630/5	630/5	2.5VA	2.5VA	-	3@52x40
QC3N1-70-800/5	800/5	2.5VA	5VA	-	3@52x40

DGU - Digital Panel Meter

FEATURES

- Function Keys for easy programming
- Two auxillary power options
- 4 Digits ultra bright LED display
- Incase of power failure last screen is stored
- IP54 for front face (with gasket)
- IP65 for front with optional kit (96X96mm only)
- Available in 96x96mm or 96x48mm
- Scaleable display range
- Class 0.5 accuracy

BENEFITS

- Fast & Easy Installation
- Low Back Depth (96x96 model)
- Wide range of voltages & currents



AC/DC AMMETER - 96 X 96

Part number	Description	Input Range	Power Supply
244-DGU-1-A-8D-H-5	AC Ammeter	1/5A	AUX 40-300V AC/DC
244-DGU-1-D-20MZ-H-5	DC Ammeter	4/20MA	AUX 40-300V AC/DC
244-DGU-1-D-20MZ-L-5	DC Ammeter	4/20MA	AUX 20-40V AC/20-60V DC
244-DGU-1-D-60M-H-5	DC Ammeter	0/60MV	AUX 40-300V AC/DC
244-DGU-1-D-75M-H-5	DC Ammeter	0/75MV	AUX 40-300V AC/DC
244-DGU-1-K-60M-H-5	DC Voltmeter	0/60MV	AUX 40-300V AC/DC

AC/DC VOLTMETERS 96 X 96

Part number	Description	Input Range	Power Supply
244-DGU-1-K-75M-H-5	DC Voltmeter	0/75MV	AUX 40-300V AC/DC
244-DGU-1-V-8A-H-5	AC Voltmeter	600V L-N (fixed)	AUX 40-300V AC/DC
244-DGU-1-V-8B-H-5	AC Voltmeter	57.5-300V L-N	AUX 40-300V AC/DC
244-DGU-3-A-8D-H-5	AC Ammeter	1/5A	AUX 40-300V AC/DC
244-DGU-3-V-8C-H-5	AC Voltmeter	100-500V L-L	AUX 40-300V AC/DC



AC/DC VOLTMETERS 96 X 48

Part number	Description	Input Range	Power Supply
262-DGU-1-K-10-H-5	DC Voltmeter	0/10V	AUX 40-300V AC/DC
262-DGU-1-K-100M-H-5	DC Voltmeter	0/100MV	AUX 40-300V AC/DC
262-DGU-1-K-150-H-5	DC Voltmeter	0/150V	AUX 40-300V AC/DC
262-DGU-1-K-150M-H-5	DC Voltmeter	0/150MV	AUX 40-300V AC/DC
262-DGU-1-K-500-H-5	DC Voltmeter	0/500V	AUX 40-300V AC/DC
262-DGU-1-K-500-L-5	DC Voltmeter	0/500V	AUX 20-40V AC / 20-60V DC
262-DGU-1-K-50M-H-5	DC Voltmeter	0/50MV	AUX 40-300V AC/DC
262-DGU-1-K-75M-H-5	DC Voltmeter	0/75MV	AUX 40-300V AC/DC
262-DGU-1-V-8A-H-5	AC Voltmeter	600V L/N (fixed)	AUX 40-300V AC/DC
262-DGU-1-V-8B-H-5	AC Voltmeter	57.5-300V L-N	AUX 40-300V AC/DC

STANDARDS

- IEC 61326-1: 2005
- IEC 61010-1-2001
- CE
- UKCA

AC/DC AMMETER - 96 X 48

Part number	Description	Input Range	Power Supply
262-DGU-1-A-8D-H-5	AC Ammeter	1/5A	AUX 40-300V AC/DC
262-DGU-1-A-8D-L-5	AC Ammeter	1/5A	AUX 20-40V AC / 20-60V DC
262-DGU-1-D-100M-H-5	DC Ammeter	0/100MV	AUX 40-300V AC/DC
262-DGU-1-D-10MA-H-5	DC Ammeter	0/10MA	AUX 40-300V AC/DC
262-DGU-1-D-150M-H-5	DC Ammeter	0/150MV	AUX 40-300V AC/DC
262-DGU-1-D-20M-L-5	DC Ammeter	0/20MA	AUX 20-40V AC / 20-60V DC
262-DGU-1-D-20MA-H-5	DC Ammeter	0/20MA	AUX 40-300V AC/DC
262-DGU-1-D-20MZ-H-5	DC Ammeter	4/20MA	AUX 40-300V AC/DC
262-DGU-1-D-50M-H-5	DC Ammeter	0/50MV	AUX 40-300V AC/DC
262-DGU-1-D-50MA-H-5	DC Ammeter	0/50MA	AUX 40-300V AC/DC
262-DGU-1-D-50MA-L-5	DC Ammeter	0/50MA	AUX 20-40V AC / 20-60V DC
262-DGU-1-D-75M-H-5	DC Ammeter	0/75MV	AUX 40-300V AC/DC

Energy Meters - DIN-rail Mounted - MID Energy Metering

FEATURES

- MID approved, direct connected energy meters
- Single and three phase systems
- Import and export energy parameters
- DIN-rail enclosure
- Backlit LCD display



BENEFITS

- Easy programming
- Easy mounting
- User-friendly navigation

Description	Part number
Single phase 45 A direct connect 2 pulsed outputs + Modbus	DRS-45-1P-MOD-01



Description	Part number
Single phase 100 A direct connect 2 Pulsed Outputs + Modbus	DRS-100-1P-MOD-01



Description	Part number
Three phase 100 A direct connect 2 Pulsed Outputs + Modbus	DRS-100-3P-MOD-01

Integra DMS - 0230/1232

FEATURES

- MID B + D Certified
- DIN-rail enclosure DIN 43880
- Programmable backlit LCD screen
- CT current measurement 5 / 1 A
- Directly wired
- individual, up to the 31st harmonic



BENEFITS

- Programmable VT, CT ratios
- Modbus™ RTU as standard
- 2 pulsed outputs
- 3P4W, 3P3W, 1P2W system types

Description	Part number
Integra 0230 DIN-rail multifunction meter LCD Input 500 V L-L, 5 A / 1 A AC, 2 pulsed outputs, Modbus RS485 outputs	INT-0230-S-01

FEATURES

- MID approved
- DIN 96 enclosure
- Programmable backlit LCD screen
- Voltage IN-OUT connections
- CT current measurement 5A/1A
- Programmable VT, CT ratios
- Modbus™ RTU
- 2 pulsed outputs with led indication
- PF bar indicator
- 3P4W, 3P3W, 1P2W system types
- Individual harmonics to 63rd



BENEFITS

- Easy installation
- Q2C wiring solution

Description	Part number
Integra 1232 multifunction panel meter LCD Input 480 V L-L, 5 A / 1 A AC. 2 pulsed outputs, Modbus RS485 output. Optional Q2C plug and socket connectivity	INT-1232-S-01

Integra DMS - Panel Mounted DIN96 LED Integra 1630 DMS



FEATURES

- DIN 96 mm enclosure
- LED display
- Wide range of communication protocols
- 0.2% accuracy
- LED annunciations for each measured parameter
- Total harmonic distortion (THD) up to the 31st harmonic
- Selectable single-phase, three-phase three-wire and three-phase four-wire capability

BENEFITS

- User programmable system configuration (4-wire default)
- Fully programmable VT and CT ratios
- Current demand per phase
- Elapsed time counter for connected loads

DISPLAYED PARAMETERS

System (average) volts, System (average) current, System (total) kW

System volts (average) THD%
System current (average) THD%

Phase - neutral, Voltage (L-N)
(4-wire only), Phase - phase
Voltage (L-L) (3-wire only)

Voltage THD% L-L (3 and 4-wire)
Voltage THD% L-N (4-wire only)

Phase current

Current THD%

Neutral current (4-wire only)
Frequency and Power factor (overall)

kVAr kVA kW

kWh import (7-digit resolution)

kVArh import (7-digit resolution)

kWh export (7-digit resolution)

kVArh export (7-digit resolution)

kW demand current demand

Maximum kW demand
Maximum current demand

Hours run

Description	Part number
Integra 1630 low profile DMS LED display, DIN 96 mm panel mounted user selectable system configuration Input. 3~ 241-480 V L-L 1~ 140-277 V L-N CT Input. 5A Operated 45-66 Hz Auxiliary. 100-250 V AC/DC output. 1 Modbus	INT-1630-M-5-M-010
Integra 1630 low profile DMS - output. 1 relay, 1 Modbus	INT-1630-M-5-M-110
Integra 1630 low profile DMS - output. 2 relay, 1 Modbus	INT-1630-M-5-M-210

Integra 1530/1630 digital metering systems are also available with:

- 12 to 48 V DC auxiliary
- Voltage input 100-240 V L-L
- Current input 1 A
- Lonworks
- Analogue outputs
- True neutral current measurement
- Bacnet MSTP

Integra Power Quality Metering System - Panel Mounted DIN96 Integra 2170 / 2270



The new Integra 2270 power quality meter monitors the quality of incoming electricity with a 0.2S% accuracy of reading.

- **Total Harmonic Distortion** – the total distortion in the supply, measured as harmonics of the base frequency up to the 63rd harmonic
- **Waveform Capture** – allows instantaneous events to be captured and analysed offline using a computer
- **Voltage Interference** – known as 'sags and swells'. Variations in the voltage supply caused by non-linear loads, as described BS EN 50160:2010

KEY FEATURES



SIGNAL CONDITIONING

New technology enables measurement of power quality within any voltage of electrical supply, in a single product, covering the global range 120/230 V of electrical supplies.



FULL COLOUR TOUCH SCREEN DISPLAY

Energy-efficient and intuitive touch screen display with clear graphics and simple navigation. Easy for Field Engineers to set up and configure, reducing site time and saving money during installation.



INPUTS AND OUTPUT

- Total measurement for all utilities in a single meter, including measurement of pulses from water and gas meters
- Can be configured to communicate outputs relating to active and reactive energy to building management systems
- Alarms can be configured for any relevant, measured parameters and can also serve as a trip function
- Datalogging module
- Modbus TCP/IP module



EASY INSTALLATION

Plug and socket connectivity for easy installation of prewired looms, saving valuable installation time and reducing wiring errors. Current flows directly through the meter primary CTs, meaning there is no need to terminate the CT wire at the meter.

INTEGRA MODBUS OPTION



INTEGRA DATA LOGGING & MODBUS OPTION

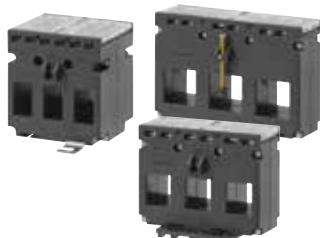


Description	Part number
Integra 2170 Power quality meter Accuracy: 0.5S%	INT-2170-M-01

Description	Part number
Integra 2270 Power quality meter Accuracy: 0.2S% Waveform capture	INT-2270-M-01

Description	Part number
Datalogging module for Integra 2170 and 2270 Power Quality Meter	OPT-2270-020
Modbus TCP/IP module for Integra 2170 and 2270 power quality meter	OPT-2270-070

Current Transformers - 3-in-1 Current Transformers

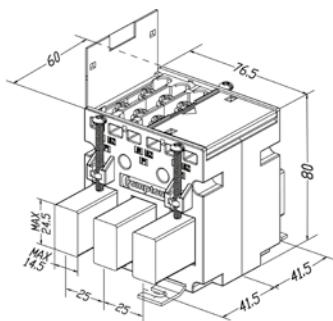


FEATURES

- 3-in-1 combine three traditional CTs in one moulded case
- Primary currents between 60-630 A
- 5A secondaries
- Up to Class 0.5 accuracy

BENEFITS

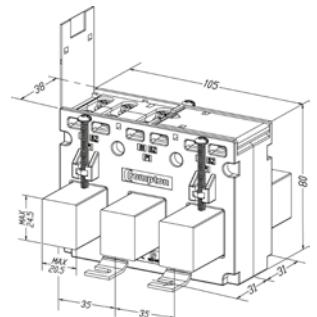
- Saving installation time where fitting three standard individual current transformers would be required
- Plug-in metal feet, DIN-rail clips and busbar mounting supplied as standard



M3N1-25 25 MM CENTRES BETWEEN PHASES

Case size: 75 mm wide x 60 mm deep x 80 mm high

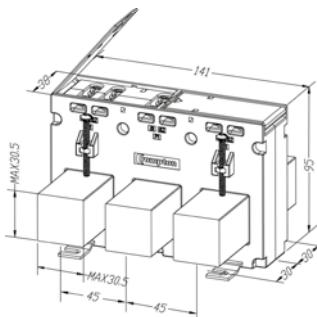
Part number	Ratio	Burden VA against Class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
M3N1-25-60/5	60/5	-	1	2	3@15 x 25 mm
M3N1-25-100/5	100/5	-	1.5	2.5	3@15 x 25 mm
M3N1-25-125/5	125/5	-	1.5	2.5	3@15 x 25 mm
M3N1-25-160/5	160/5	1.5	1.5	2.5	3@15 x 25 mm



M3N1-35 35 MM CENTRES BETWEEN PHASES

Case size: 105 mm wide x 38 mm deep x 80 mm high

Part number	Ratio	Burden VA against Class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
M3N1-35-100/5	100/5	-	1.5	2	3@21 x 25 mm
M3N1-35-125/5	125/5	-	1.5	2.5	3@21 x 25 mm
M3N1-35-150/5	150/5	-	1.5	2.5	3@21 x 25 mm
M3N1-35-160/5	160/5	1.5	1.5	2.5	3@21 x 25 mm
M3N1-35-200/5	200/5	1.5	1.5	2.5	3@21 x 25 mm
M3N1-35-250/5	250/5	1.5	1.5	2.5	3@21 x 25 mm



M3N1-45 45 MM CENTRES BETWEEN PHASES

Case size: 141 mm wide x 38 mm deep x 95 mm high

Part number	Ratio	Burden VA against Class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
M3N1-45-250/5	250/5	1.5	1.5	2.5	3@31 x 31 mm
M3N1-45-300/5	300/5	2.5	2.5	3.75	3@31 x 31 mm
M3N1-45-400/5	400/5	2.5	2.5	3.75	3@31 x 31 mm
M3N1-45-500/5	500/5	2.5	2.5	3.75	3@31 x 31 mm
M3N1-45-600/5	600/5	2.5	2.5	3.75	3@31 x 31 mm
M3N1-45-630/5	630/5	2.5	2.5	3.75	3@31 x 31 mm

Current Transformers - Ebony Excel Molded Case Current Transformers



EBONY EXCEL RANGE

Crompton Instruments Ebony Excel range of Current Transformers offer wide system current ratings, apertures, busbar and case sizes to suit every application. Manufactured to meet IEC61869-2, the range benefits include ratio rating from 1/5 to 6000/5, a comprehensive range of class accuracies, hinged wire sealable terminal covers for safety and multiple mounting options.

CONSTRUCTION

The toroidal core and secondary winding is encapsulated with UL94V-0 approved polycarbonate, in moulded case providing excellent mechanical strength and electrical insulation.



STANDARDS

- IEC 61869-2
- BS3938
- UL Recognised File No. E104604



INSTALLATION OPTIONS

- Plug-in metal feet for wall or base mounting
- Moulded busbar mounting
- Primary copper busbar mounting
- Multi busbar mounting for two busbars
- Plastic DIN-rail adaptor for DIN-rail mounting (available as an option)

SPECIFICATIONS

Applicable Standards	IEC 61869-2, BS3839 UL Recognised File No. E104604
Applicable Standards	10% glass filled polycarbonate Flame retardant grades classified UL94V-0
Connection	Two connections each side. M4 screws with self lifting clamp assembly
Insulation Class	E (120°C Maximum)
System Voltage	720V maximum
Test Voltage	4KV 50Hz for 1 min (Except for XL2 model where test voltage is 3KV 50Hz for 1 min)
Operating Frequency	50Hz or 60Hz
Rated secondary output	5A standard (1A on request)
Rated burden	1, 1.25, 1.5, 2.5, 3.75, 5, 7.5, 10, 12.5, 15, 20, 30, 45, 60, 100VA
Class of accuracy	0.5, 1, 3 Optional class 0.2, 0.2S & 0.5S
Ambient temperature	-20°C...+45°C
Storage temperature	-50°C...+80°C
Thermal short circuit current (I _{th})	60 x In
Dynamic short circuit current (I _{dyn})	2.5 x I _{th}
Instrument security factor	5, 10, 15
Rated continuous thermal current	1.2 x in
Degree of protection	IP20

ACCURACY CLASSES

The Ebony Excel range includes a comprehensive range of class accuracys between 3, 1, & 0.5. Where higher accuracy classes are required, the Ebony Excel Plus range has class accuracys of 0.2, 0.2S and 0.5S.

APPLICATION NOTE:

In some cases, where CT model is marked with (*), to achieve class accuracy at low currents between 20A-40A, additional primary turns are required to achieve the required output. As such, these models are only suitable for cable conductors.

Current Transformers - Ebony Excel Moulded Case Current Transformers

EBONY EXCEL RANGE ACCESSORIES

Busbar Mounting Kits are supplied as standard with each Current Transformer.

The kit contains a selection of the below items based on what is required for each individual Current Transformer.

Busbar Mounting Kit Items			
M4 Busbar mounting Screws		Swivels	
Push in metal feet		Shoe for M4 Busbar mounting Screws	

Extra Busbar Mounting Kits are available to order, please see the below table

Current Transformer Model Type	Mounting Kit Part number	Items in each Mounting Kit
XLOA, XLOB, XL1A, XL1B	XL-KIT-001	2 x Push in metal feet
XL2A, XL2B, XL2C, XL2D, XL2E, XL2F	XL-KIT-002	2 x Busbar mounting screws M4 x 35mm 2 x Push in metal feet 2 x Swivels 2 x Shoe for self tapping M4 screws
XL3A, XL3B, XL3C, XL3D, XL3E XL4A, XL4B, XL4C, XL4D XL5A, XL5B, XL5C	XL-KIT-003	2 x Busbar mounting screws M4 x 45mm 2 x Push in metal feet 2 x Swivels 2 x Shoe for self tapping M4 screws
XL6A, XL6B	XL-KIT-004	2 x Busbar mounting screws M4 x 35mm 2 x Push in metal feet 2 x Shoe for self tapping M4 screws
XL7A, XL7B, XL7C	XL-KIT-005	4 x Busbar mounting screws M4 x 45mm 2 x Push in metal feet 2 x Swivels 4 x Shoe for self tapping M4 screws
XL8A, XL8B, XL8C	XL-KIT-006	4 x Busbar mounting screws M4 x 75mm 2 x Push in metal feet 4 x Swivels 4 x Shoe for self tapping M4 screws
XL9A	XL-KIT-007	1 x Busbar mounting screw M4 x 75mm 5 x Busbar mounting screws M4 x 45mm 2 x Push in metal feet 6 x Shoe for self tapping M4 screws
XL10A, XL10B	XL-KIT-008	6 x Busbar mounting screws M4 x 75mm 2 x Push in metal feet 6 x Shoe for self tapping M4 screws

DIN Rail Mounting Adapters (Available separately)

Current Transformer Model Type	Part number	
XL1A, XL1B	XL-DRBRK-1	
XL2A, XL2B, XL2C	XL-DRBRK-2	
XL3A, XL3B, XL3C, XL3D, XL3E XL4A, XL4B, XL4C, XL4D, XL5A, XL5B, XL5C XL7A, XL7B, XL7C	XL-DRBRK-3	

Current Transformers - Ebony Excel Molded Case Current Transformers

FEATURES

- CT ratios from 1A to 6000A with 5A & 1A secondary's
- Comprehensive range of class accuracy's
- Cost effective moulded case
- Wide range of system current ratings, busbar sizes, case dimensions and apertures
- Wall, cable, busbar and DIN rail mounting
- Hinged terminal covers

STANDARDS

- IEC 61869-2
- BS3938
- UL Recognised File No. E104604



BENEFITS

- Wide range of apertures and case sizes
- Reduction of high currents for ease of metering
- Long product life



XLOA RANGE

Case size: 62 mm wide x 40 mm deep x 78 mm high

Primary Rating: 1 - 30A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL0A-1/1A



Part number	Primary current	Accuracy		Security Factor (ISF)	
		0.5	1	0.5	1
XL0A-1/5A	1A	2.5VA	5VA	10	5
XL0A-5/5A	5A	2.5VA	5VA	10	5
XL0A-10/5A	10A	2.5VA	5VA	10	5
XL0A-15/5A	15A	2.5VA	5VA	10	5
XL0A-20/5A	20A	2.5VA	5VA	10	5
XL0A-25/5A	25A	2.5VA	5VA	10	5
XL0A-30/5A	30A	2.5VA	5VA	10	5



XL1A RANGE

Case size: 45 mm wide x 40 mm deep x 65 mm high

Aperture: Ø 14 mm

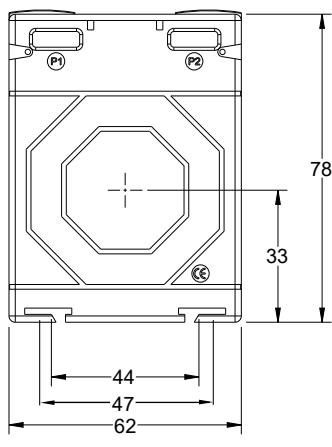
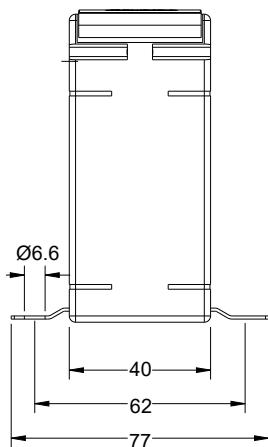
Primary Rating: 30 - 300A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL1A-30/1A

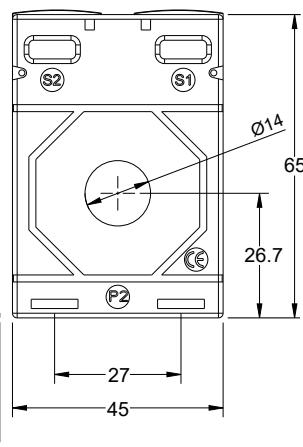
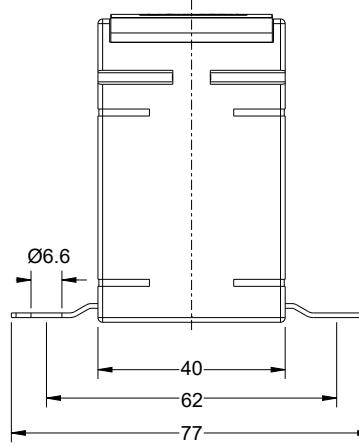


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL1A-30/5A	30A	-	1VA	1.5VA	-	5	5
XL1A-40/5A	40A	-	1VA	1.5VA	-	5	5
XL1A-50/5A	50A	-	1.5VA	2.5VA	-	5	5
XL1A-60/5A	60A	-	1.5VA	2.5VA	-	5	5
XL1A-75/5A	75A	1.5VA	2.5VA	3.75VA	5	5	5
XL1A-80/5A	80A	1.5VA	2.5VA	3.75VA	5	5	5
XL1A-100/5A	100A	1.5VA	3.75VA	3.75VA	5	5	5
XL1A-120/5A	120A	2.5VA	3.75VA	5VA	5	5	5
XL1A-125/5A	125A	2.5VA	3.75VA	5VA	5	5	5

XLOA



XL1A



Current Transformers - Ebony Excel Molded Case Current Transformers



XL1B RANGE

Case size: 45 mm wide x 40 mm deep x 65 mm high

Aperture: 21 x 10 mm - Ø 21 mm

Primary Rating: 50 - 400A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL1B-50/1A

Model type	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL1B-50/5A	50A	-	1.5VA	2VA	-	5	5
XL1B-60/5A	60A	-	1.5VA	2VA	-	5	5
XL1B-75/5A	75A	-	2.5VA	3VA	-	5	5
XL1B-80/5A	80A	1VA	2.5VA	3VA	5	5	5
XL1B-100/5A	100A	1.5VA	3.75VA	3.75VA	5	5	5
XL1B-120/5A	120A	1.5VA	3.75VA	3.75VA	5	5	5
XL1B-125/5A	125A	2.5VA	3.75VA	5VA	5	5	5
XL1B-150/5A	150A	2.5VA	5VA	5VA	5	5	5
XL1B-200/5A	200A	3.75VA	5VA	5VA	5	5	5
XL1B-250/5A	250A	5VA	5VA	7.5VA	5	5	5
XL1B-300/5A	300A	5VA	5VA	7.5VA	5	5	5
XL1B-400/5A	400A	5VA	5VA	7.5VA	5	5	5



Busbar and Mounting feet fixings are supplied as standard.
DIN Rail Mounting Adapters available - Part Number XL-DRBRK-1



XL2A RANGE

Case size: 50 mm wide x 31 mm deep x 70 mm high

Aperture: Ø 14 mm

Primary Rating: 40 - 160A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL2A-40/1A

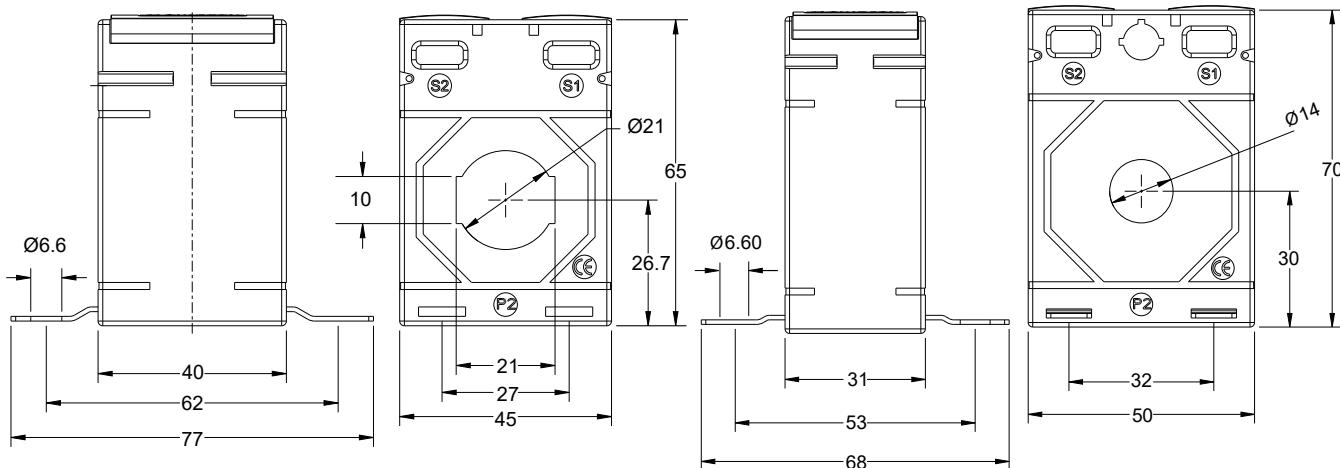
Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL2A-40/5A	40A	-	1VA	1.5VA	-	5	5
XL2A-50/5A	50A	-	1.5VA	2VA	-	5	5
XL2A-60/5A	60A	-	1.5VA	2VA	-	5	5
XL2A-75/5A	75A	-	1.5VA	2.5VA	-	5	5
XL2A-80/5A	80A	-	1.5VA	2.5VA	-	5	5
XL2A-100/5A	100A	2.5VA	3.75VA	5VA	5	5	5
XL2A-120/5A	120A	2.5VA	3.75VA	5VA	5	5	5
XL2A-125/5A	125A	2.5VA	3.75VA	5VA	5	5	5
XL2A-150/5A	150A	3.75VA	5VA	7.5VA	5	5	5
XL2A-160/5A	160A	3.75VA	5VA	7.5VA	5	5	5



Busbar and Mounting feet fixings are supplied as standard.
DIN Rail Mounting Adapters available - Part Number XL-DRBRK-2

XL1B

XL2A



Current Transformers - Ebony Excel Molded Case Current Transformers



XL2C RANGE

Case size: 50 mm wide x 31 mm deep x 70 mm high

Aperture: 30.5 x 10.5 mm - 25.5 x 15.5 mm - Ø 26 mm

Primary Rating: 80 - 600A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL2C-80/1A



Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL2C-80/5A	80A	-	1.5VA	2VA	-	5	5
XL2C-100/5A	100A	1VA	2.5VA	2.5VA	5	5	5
XL2C-120/5A	120A	1VA	2.5VA	3VA	5	5	5
XL2C-125/5A	125A	1VA	2.5VA	3VA	5	5	5
XL2C-150/5A	150A	2.5VA	3.75VA	3.75VA	5	5	5
XL2C-160/5A	160A	2.5VA	3.75VA	3.75VA	5	5	5
XL2C-200/5A	200A	2.5VA	5VA	5VA	5	5	5
XL2C-250/5A	250A	5VA	5VA	6.25VA	5	5	5
XL2C-300/5A	300A	5VA	5VA	6.25VA	5	5	5
XL2C-400/5A	400A	5VA	6.25VA	6.25VA	5	5	5
XL2C-500/5A	500A	5VA	6.25VA	7.5VA	5	5	5
XL2C-600/5A	600A	5VA	7.5VA	10VA	5	5	5

Busbar and Mounting feet fixings are supplied as standard.
DIN Rail Mounting Adapters available - Part Number XL-DRBRK-2



XL3D RANGE

Case size: 62 mm wide x 40 mm deep x 78 mm high

Aperture: 40.5 x 11 mm - 31 x 21 mm - Ø 31 mm

Primary Rating: 200 - 800A

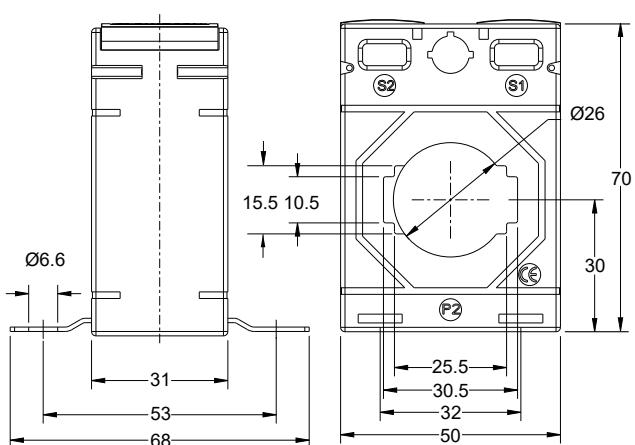
Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL3D-200/1A



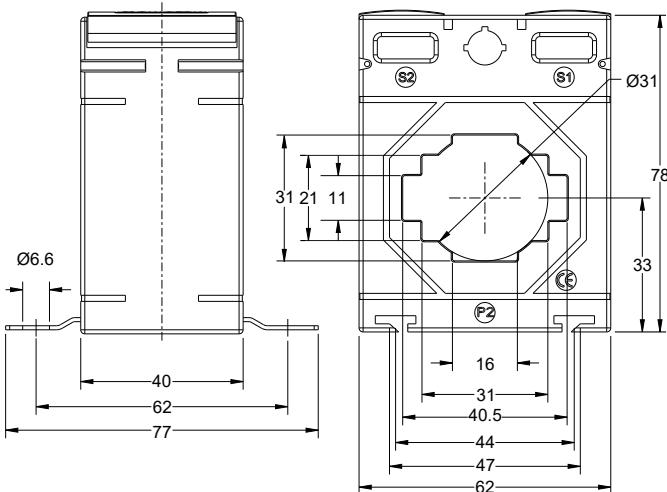
Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL3D-200/5A	200A	1.5VA	3.75VA	3.75VA	5	5	5
XL3D-250/5A	250A	2.5VA	5VA	5VA	5	5	5
XL3D-300/5A	300A	5VA	5VA	5VA	5	5	5
XL3D-400/5A	400A	5VA	5VA	7.5VA	5	5	5
XL3D-500/5A	500A	5VA	7.5VA	10VA	5	5	5
XL3D-600/5A	600A	7.5VA	10VA	12.5VA	5	5	5
XL3D-750/5A	750A	10VA	10VA	12.5VA	5	5	5
XL3D-800/5A	800A	10VA	10VA	12.5VA	5	5	5

Busbar and Mounting feet fixings are supplied as standard.
DIN Rail Mounting Adapters available - Part Number XL-DRBRK-3

XL2C



XL3D



Current Transformers - Ebony Excel Molded Case Current Transformers



XL4D RANGE

Case size: 74 mm wide x 45 mm deep x 98 mm high

Aperture: 51 x 12.5 mm - 41 x 21 mm - 31 x 31 mm - Ø 41 mm

Primary Rating: 400 - 1000A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL4D-400/1A



Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL4D-400/5A	400A	5VA	7.5VA	10VA	5	5	5
XL4D-500/5A	500A	7.5VA	10VA	12.5VA	5	5	5
XL4D-600/5A	600A	10VA	12.5VA	15VA	5	5	5
XL4D-750/5A	750A	12.5VA	15VA	20VA	5	5	5
XL4D-800/5A	800A	12.5VA	15VA	20VA	5	5	5
XL4D-1000/5A	1000A	12.5VA	15VA	20VA	5	5	5



XL5C RANGE

Case size: 86 mm wide x 45 mm deep x 110 mm high

Aperture: 61 x 12.5 mm - 51 x 31 mm - Ø 51 mm

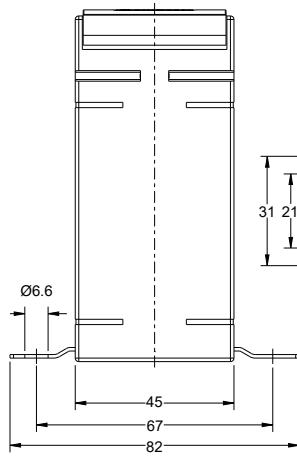
Primary Rating: 400 - 1600A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL5C-400/1A

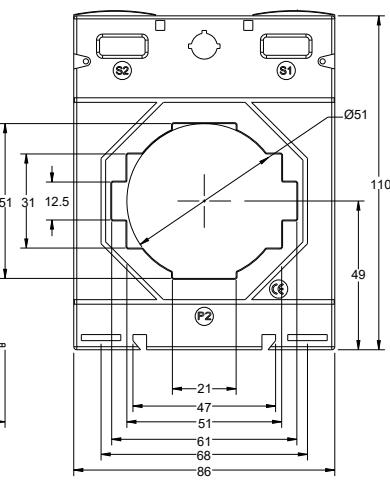
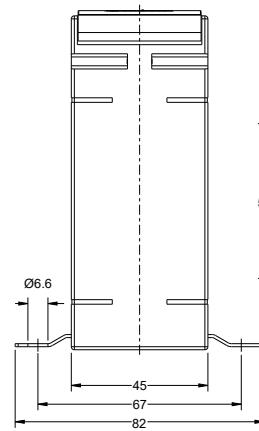
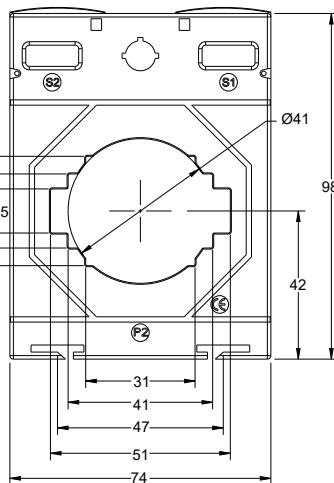


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL5C-400/5A	400A	10VA	12.5VA	15VA	5	5	5
XL5C-500/5A	500A	10VA	15VA	15VA	5	5	5
XL5C-600/5A	600A	15VA	15VA	20VA	5	5	5
XL5C-750/5A	750A	15VA	20VA	25VA	5	5	5
XL5C-800/5A	800A	20VA	20VA	25VA	5	5	5
XL5C-1000/5A	1000A	20VA	30VA	25VA	5	5	5
XL5C-1200/5A	1200A	20VA	30VA	25VA	5	5	5
XL5C-1600/5A	1600A	20VA	20VA	25VA	5	5	5

XL4D



XL5C



Current Transformers - Ebony Excel Molded Case Current Transformers



XL6A RANGE

Case size: 99 mm wide x 45 mm deep x 170 mm high

Aperture: 41 x 103 mm

Primary Rating: 1250 - 2500A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL6A-1250/1A



Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL6A-1250/5A	1250A	10VA	15VA	20VA	5	5	5
XL6A-1600/5A	1600A	15VA	30VA	30VA	5	5	5
XL6A-2000/5A	2000A	15VA	30VA	35VA	5	5	5
XL6A-2400/5A	2400A	15VA	20VA	35VA	10	5	5
XL6A-2500/5A	2500A	15VA	30VA	35VA	10	5	5



XL6B RANGE

Case size: 99 mm wide x 45 mm deep x 170 mm high

Aperture: 38 x 128 mm

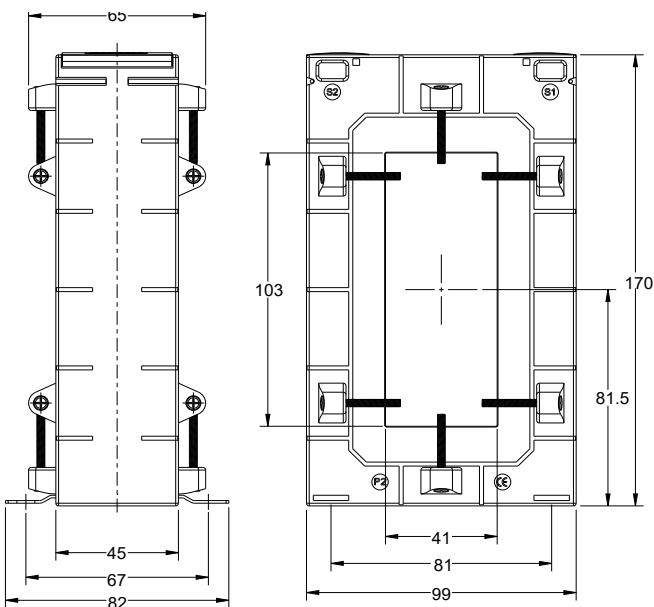
Primary Rating: 800 - 3200A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL6B-800/1A

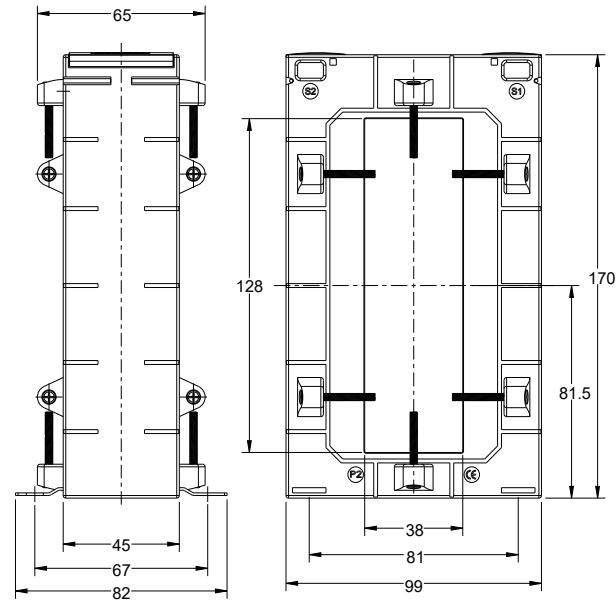


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL6B-800/5A	800A	5VA	10VA	10VA	10	5	5
XL6B-1000/5A	1000A	10VA	15VA	15VA	5	5	5
XL6B-1200/5A	1200A	10VA	15VA	15VA	5	5	5
XL6B-1250/5A	1250A	10VA	15VA	20VA	5	5	5
XL6B-1600/5A	1600A	15VA	30VA	30VA	5	5	5
XL6B-2000/5A	2000A	15VA	30VA	35VA	5	5	5
XL6B-2500/5A	2500A	15VA	30VA	35VA	10	5	5
XL6B-3200/5A	3200A	10VA	12.5VA	35VA	10	10	5

XL6A



XL6B



Current Transformers - Ebony Excel Molded Case Current Transformers



XL7B RANGE

Case size: 104 mm wide x 45 mm deep x 126 mm high

Aperture: 81 x 12.5 mm - 61 x 31 mm - 51 x 51 mm - Ø 65 mm

Primary Rating: 600 - 2000A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL7B-600/1A



Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL7B-600/5A	600A	10VA	12.5VA	12.5VA	5	5	5
XL7B-750/5A	750A	15VA	15VA	15VA	5	5	5
XL7B-800/5A	800A	15VA	15VA	15VA	5	5	5
XL7B-1000/5A	1000A	20VA	30VA	20VA	5	5	5
XL7B-1200/5A	1200A	20VA	30VA	30VA	5	5	5
XL7B-1250/5A	1250A	20VA	30VA	30VA	5	5	5
XL7B-1500/5A	1500A	20VA	30VA	30VA	5	5	5
XL7B-1600/5A	1600A	20VA	30VA	30VA	5	5	5
XL7B-2000/5A	2000A	20VA	30VA	35VA	5	5	5

Busbar and Mounting feet fixings are supplied as standard.
DIN Rail Mounting Adapters available - Part Number XL-DRBRK-3



XL7C RANGE

Case size: 130 mm wide x 51 mm deep x 170 mm high

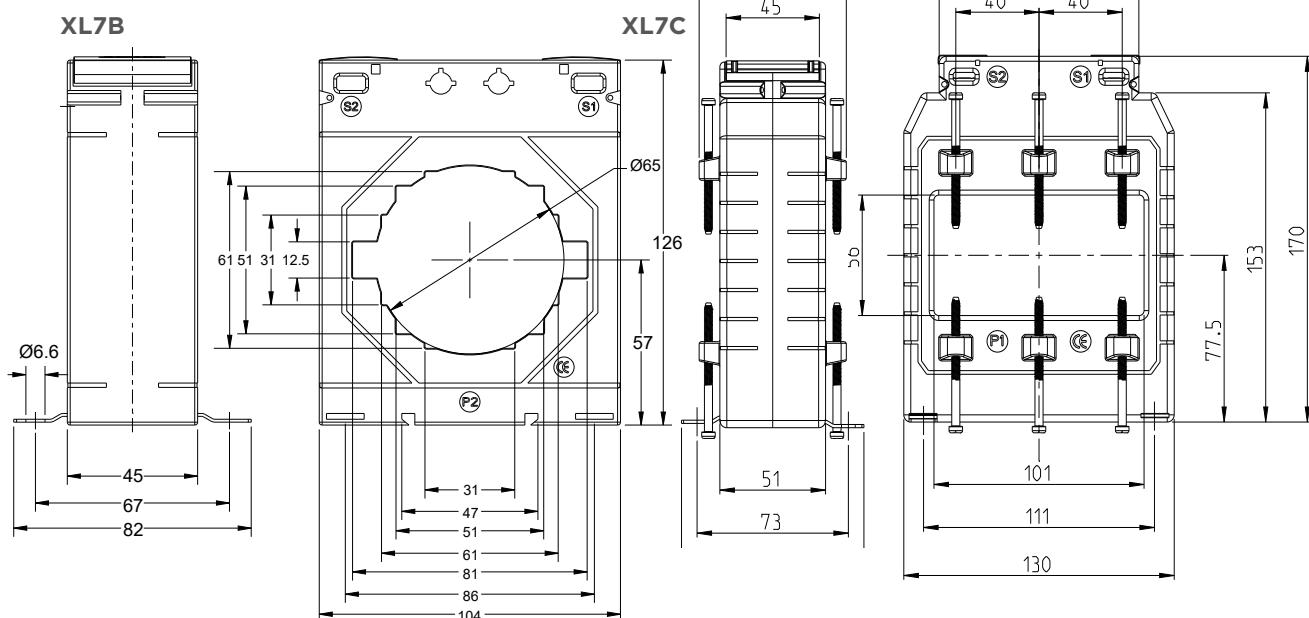
Aperture: 56 x 101 mm

Primary Rating: 600 - 3000A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL7C-600/1A



Model type	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL7C-1250/5A	1250A	15VA	15VA	15VA	5	5	5
XL7C-1500/5A	1500A	15VA	15VA	15VA	5	5	5
XL7C-1600/5A	1600A	15VA	15VA	15VA	5	5	5
XL7C-2000/5A	2000A	15VA	15VA	15VA	5	5	5
XL7C-2500/5A	2500A	15VA	15VA	15VA	10	10	5



Current Transformers - Ebony Excel Molded Case Current Transformers



XL8A RANGE

Case size: 140 mm wide x 45 mm deep x 155 mm high

Aperture: 81 x 31 mm - 61 x 51 mm - Ø 73 mm

Primary Rating: 800 - 2000A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL8A-800/1A



Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL8A-800/5A	800A	15VA	45VA	50VA	5	5	5
XL8A-1000/5A	1000A	30VA	60VA	60VA	5	5	5
XL8A-1200/5A	1200A	30VA	60VA	60VA	5	5	5
XL8A-1250/5A	1250A	60VA	60VA	60VA	5	5	5
XL8A-1500/5A	1500A	60VA	60VA	60VA	5	5	5
XL8A-1600/5A	1600A	60VA	60VA	60VA	5	5	5
XL8A-2000/5A	2000A	60VA	60VA	60VA	5	5	5



XL8B RANGE

Case size: 140 mm wide x 45 mm deep x 155 mm high

Aperture: 101 x 31 mm - 81 x 51 mm - 71 x 61 mm - Ø 86 mm

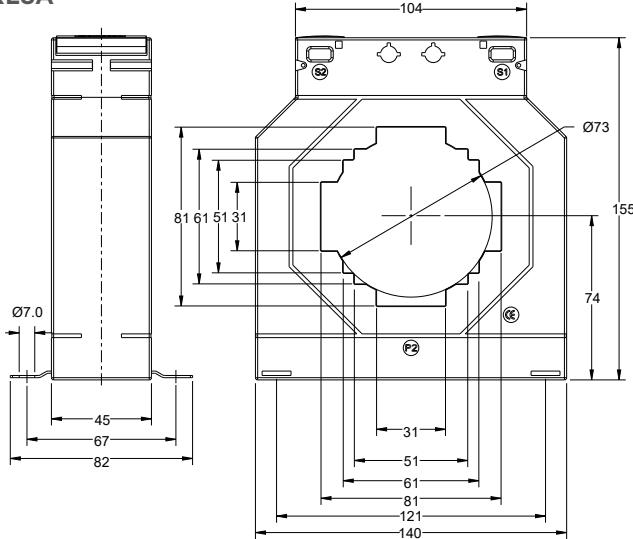
Primary Rating: 1600 - 4000A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL8B-1600/1A

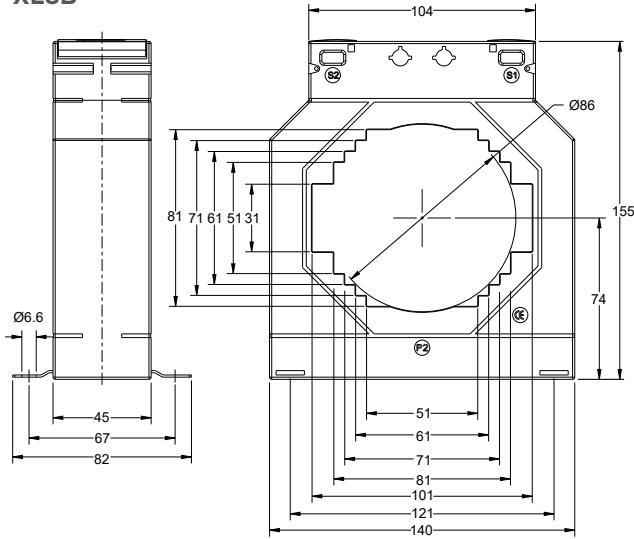


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL8B-1600/5A	1600A	20VA	45VA	45VA	5	5	5
XL8B-2000/5A	2000A	45VA	45VA	45VA	5	5	5
XL8B-2500/5A	2500A	45VA	45VA	45VA	5	5	5
XL8B-3000/5A	3000A	60VA	60VA	60VA	5	5	5
XL8B-4000/5A	4000A	60VA	60VA	60VA	5	5	5

XL8A



XL8B



Current Transformers - Ebony Excel Moulded Case Current Transformers



XL9A RANGE

Case size: 140 mm wide x 45 mm deep x 185 mm high

Aperture: 70 x 130 mm

Primary Rating: 2000 - 5000A

Secondary Rating: 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL9A-2000/1A

Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL9A-2000/5A	2000A	20VA	20VA	20VA	10	10	10
XL9A-2500/5A	2500A	20VA	20VA	25VA	10	10	10
XL9A-3000/5A	3000A	20VA	20VA	25VA	10	10	10
XL9A-3200/5A	3200A	20VA	20VA	30VA	10	10	10
XL9A-4000/5A	4000A	20VA	20VA	35VA	10	10	10
XL9A-5000/5A	5000A	20VA	20VA	35VA	15	15	15



XL10B RANGE

Case size: 225 mm wide x 50 mm deep x 206 mm high

Aperture: 167 x 66 mm

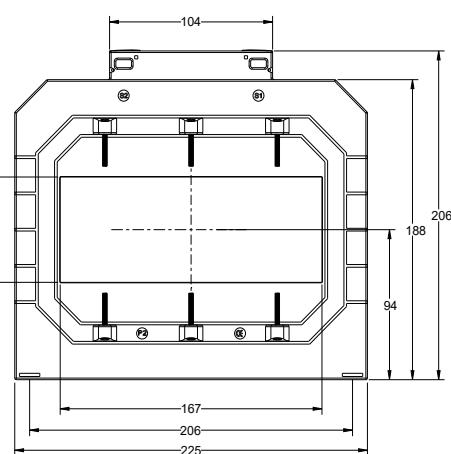
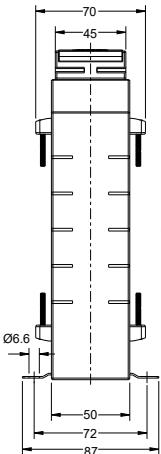
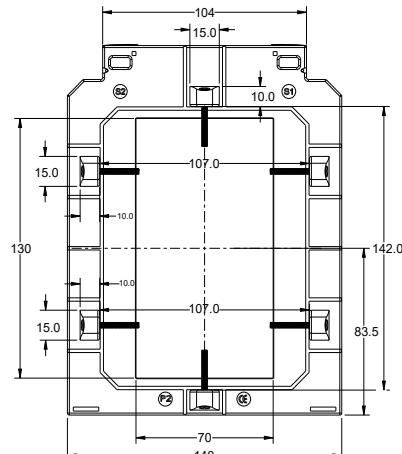
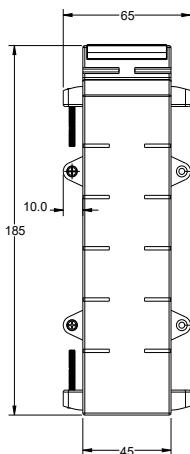
Primary Rating: 2500 - 6000A

Secondary Rating: 5A as below. 1A Ratio's available change part number to end in 1A e.g. XL10B-2500/1A

Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL10B-2500/5A	2500A	30VA	45VA	45VA	10	5	5
XL10B-3000/5A	3000A	30VA	45VA	50VA	10	5	5
XL10B-4000/5A	4000A	30VA	45VA	50VA	10	10	10
XL10B-5000/5A	5000A	30VA	45VA	50VA	10	10	10
XL10B-6000/5A	6000A	30VA	45VA	50VA	10	10	10



XL9A



Current Transformers - Ebony Excel SC Molded Case Current Transformers



EBONY EXCEL SPLIT CORE RANGE

TE's Crompton Instruments **Ebony Excel Split Core** range of Current Transformers offer wide system current ratings, apertures, busbar and case sizes to suit every application. The split core provides an efficient method by which the current can be measured without the need to break the conductor.

Manufactured to meet IEC61869-2, the range benefits include ratio rating from 100/5 to 5000/5, with performance class accuracies of class 3, 1 & 0.5. The range features hinged wire sealable terminal covers for safety and multiple mounting options. Additional features include quick push button for core opening and key lock safety feature to secure the CT core preventing accidental opening after installation.

CONSTRUCTION

The split core and secondary windings are encapsulated with UL94V-0 approved polycarbonate, in a moulded case providing excellent mechanical strength and electrical insulation.

INSTALLATION OPTIONS

- Plug-in metal feet for wall or base mounting
- Molded busbar mounting
- Primary copper busbar mounting
- Multi busbar mounting for two busbars

FEATURES

- CT ratios from 100A to 5000A with 5A and 1A secondary's
- Comprehensive range of class accuracy's
- Flame retardant UL94V-0 polycarbonate moulded case
- Wide range of system current ratings
- Wall or busbar and mounting
- Hinged terminal covers
- Laser etched rating plates
- Quick release button to open core
- Key lock to secure core

BENEFITS

- Wide range of apertures and case sizes
- Reduction of high currents for ease of metering
- Long product life

APPROVALS

- IEC 61869-2
- BS3938
- UL Recognised File No. E257877

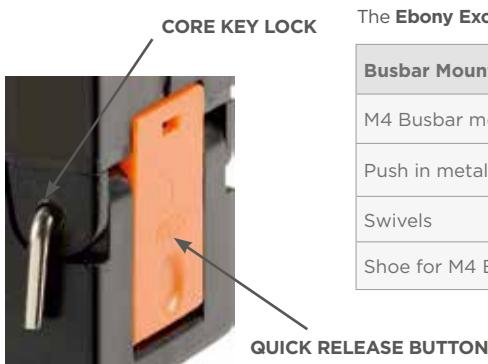
SPECIFICATION

Applicable Standards	IEC-61869-1&2 / IEC- 60044 -1, BS 3938, IS 2705 -1,2&3.
Case	Unfilled polycarbonate, flame retardant grades classified UL 94V-0
Connection	Two connection on each side. M4 screws with self lifting clamp strap assembly
Insulation Class	E (120°C Maximum)
System Voltage	720V maximum
Test Voltage	4KV 50Hz for 1 min
Operating Frequency	50Hz or 60Hz
Rated secondary output	5A standard (1A on request)
Rated burden	1, 1.25, 1.5, 2.5, 3.75, 5, 7.5, 10, 12.5, 15, 20, 30, 45, 60, 100VA
Class of accuracy	0.5 for accurate measuring, kWh 1 for general measurement 3 for indicating instruments
Ambient temperature	-25°C to +40°C
Storage temperature	-50°C...+80°C
Thermal short circuit current (Ith)	60 x In
Dynamic short circuit current (Idyn)	2.5 x Ith
Instrument security factor	10, 15, 30
Rated continuous thermal current	1.2 x in
Degree of protection	IP20

ACCURACY CLASSES

The **Ebony Excel SC** range includes a comprehensive range of class accuracys between 3, 1, & 0.5.

Busbar Mounting Kit Items	
M4 Busbar mounting screws	A row of four silver-colored M4 busbar mounting screws.
Push in metal feet	A row of four grey-colored push-in metal feet.
Swivels	An orange cylindrical swivel component.
Shoe for M4 Busbar mounting screws	A small orange cylindrical shoe for the busbar mounting screws.



Current Transformers - Ebony Excel SC Molded Case Current Transformers

EBONY EXCEL SPLIT CORE RANGE



Case size	Aperture
Case 1	23 x 33
Case 2	43 x 55
Case 3	55 x 85
Case 4	85 x 125
Case 5	85 x 172

Case	Part number	Primary current	Accuracy		
			Class 3	Class 1	Class 0.5
			3.5VA	1.5VA	-
Case 1	XLSC1-100/5A	100A	3.5VA	1.5VA	-
	XLSC1-150/5A	150A	3.75VA	1.75VA	-
	XLSC1-200/5A	200A	5VA	2.5VA	-
	XLSC1-250/5A	250A	6.25VA	3.75VA	-
	XLSC1-300/5A	300A	6.25VA	5VA	2.5VA
	XLSC1-400/5A	400A	10VA	6.25VA	3.75VA
	XLSC2-100/5A	100A	2.5VA	1.5VA	-
	XLSC2-125/5A	125A	2.5VA	1.5VA	-
	XLSC2-150/5A	150A	3.75VA	1.75VA	-
	XLSC2-200/5A	200A	5VA	3.75VA	1.5VA
Case 2	XLSC2-250/5A	250A	7.5VA	5VA	2.5VA
	XLSC2-300/5A	300A	7.5VA	5VA	2.5VA
	XLSC2-400/5A	400A	10VA	7.5VA	5VA
	XLSC2-500/5A	500A	10VA	7.5VA	5VA
	XLSC2-600/5A	600A	12.5VA	10VA	6.25VA
	XLSC2-750/5A	750A	15VA	12.5VA	7.5VA
	XLSC2-800/5A	800A	15VA	12.5VA	7.5VA
	XLSC3-250/5A	250A	3.75VA	2.5VA	1VA
	XLSC3-300/5A	300A	5VA	3.75VA	2.5VA
	XLSC3-400/5A	400A	5VA	3.75VA	2.5VA
Case 3	XLSC3-500/5A	500A	7.5VA	5VA	3.75VA
	XLSC3-600/5A	600A	10VA	7.5VA	5VA
	XLSC3-750/5A	750A	12.5VA	10VA	7.5VA
	XLSC3-800/5A	800A	12.5VA	10VA	7.5VA
	XLSC3-1000/5A	1000A	20VA	15VA	10VA
	XLSC3-1200/5A	1200A	20VA	15VA	10VA
	XLSC3-1250/5A	1250A	10VA	15VA	10VA
	XLSC3-1500/5A	1500A	20VA	15VA	10VA
	XLSC3-1600/5A	1600A	20VA	15VA	10VA
	XLSC3-2000/5A	2000A	20VA	15VA	10VA
Case 4	XLSC4-250/5A	250A	3.75VA	2.5VA	1VA
	XLSC4-300/5A	300A	5VA	3.75VA	1.5VA
	XLSC4-400/5A	400A	5VA	3.75VA	2.5VA
	XLSC4-500/5A	500A	7.5VA	5VA	3.75VA
	XLSC4-600/5A	600A	10VA	7.5VA	5VA
	XLSC4-750/5A	750A	12.5VA	10VA	7.5VA
	XLSC4-800/5A	800A	12.5VA	10VA	7.5VA
	XLSC4-1000/5A	1000A	20VA	15VA	10VA
	XLSC4-1200/5A	1200A	45VA	30VA	15VA
	XLSC4-1250/5A	1250A	45VA	30VA	15VA
Case 5	XLSC4-1500/5A	1500A	60VA	45VA	20VA
	XLSC4-1600/5A	1600A	60VA	45VA	20VA
	XLSC4-2000/5A	2000A	60VA	45VA	20VA
	XLSC4-2500/5A	2500A	60VA	45VA	25VA
	XLSC4-3000/5A	3000A	60VA	45VA	30VA
	XLSC5-500/5A	500A	7.5VA	5VA	1.25VA
	XLSC5-600/5A	600A	7.5VA	5VA	1.25VA
	XLSC5-750/5A	750A	12.5VA	10VA	5VA
	XLSC5-800/5A	800A	12.5VA	10VA	7.5VA
	XLSC5-1000/5A	1000A	12.5VA	10VA	7.5VA
Case 5	XLSC5-1200/5A	1200A	25VA	20VA	10VA
	XLSC5-1250/5A	1250A	25VA	20VA	15VA
	XLSC5-1500/5A	1500A	45VA	30VA	20VA
	XLSC5-1600/5A	1600A	45VA	30VA	20VA
	XLSC5-2000/5A	2000A	45VA	30VA	25VA
	XLSC5-2500/5A	2500A	45VA	30VA	25VA
	XLSC5-3000/5A	3000A	60VA	45VA	30VA
	XLSC5-4000/5A	4000A	60VA	45VA	30VA
	XLSC5-5000/5A	5000A	60VA	45VA	30VA

Current Transformers - Miniature Split Core Current Transformers



FEATURES

- Pre-wired with colour coded leads of up to 3 meters for connection
- Primary currents between 60-500A
- 5 A secondaries, 1 A secondaries available between ratio's 60-500A
- Class 1 accuracy performance

BENEFITS

- Supplied with removable shorting links
- No the need to break the conductor

ACCESSORIES



SHORTING LINK FOR
SAFE INSTALLATION.
(CT WILL NOT
OPERATE UNTIL
REMOVED).

Fixing kit supplied

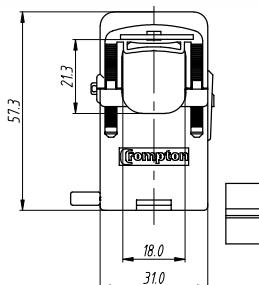


SPECIFICATIONS

System voltage	720 V maximum
Test voltage	3 kV for 1 minute
System frequency	50 Hz or 60 Hz
Primary ratings	60 A to 500 A
Short circuit thermal current	60 x rated primary current (I _{th}): for 1 sec
Overload withstand	1.2 x rated current continuously
Rated dynamic current	= 2.55 x I _{th}
Secondary leads	5 A (Length 1 m) 2.5 mm Wire
Enclosure	Flame retardant grade classified UL 94 V-O
Aperture holes centres	18 mm up to 250 A, 28 mm from 300 A - 500 A
Operating temperature	-20°C to +70°C
Accuracy Class	1
Compliant with	IEC 61869-2

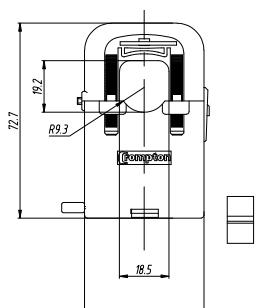
MSC1

Case: 31 mm wide x 53 mm deep x 57.3 mm high
Aperture: 18 mm, Cable length: 1 m



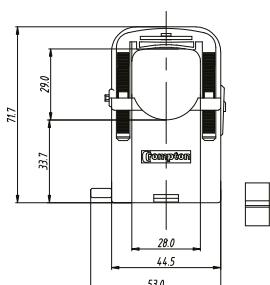
MSC2

Case: 44.5 mm wide x 61.5 mm deep x 72.7 mm high
Aperture: 18 mm, Cable length: 1 m



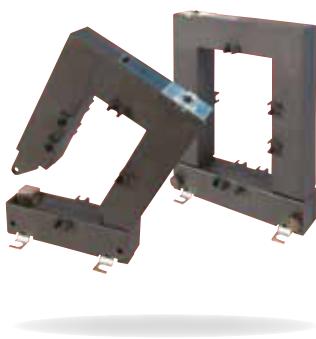
MSC3

Case: 44.5 mm wide x 62.2 mm deep x 71.7 mm high
Aperture: 28 mm, Cable length: 1 m



Part Number	Primary Current	Lead Length (m)	VA at Cl 1	VA at Cl 3
MSC2-100/5	100/5	1	1	-
MSC2-125/5	125/5	1	1	-
MSC2-150/5	150/5	1	1	-
MSC2-200/5	200/5	1	1	-
MSC2-250/5	250/5	1	1	-

Current Transformers - Split Core / Ring Current Transformers



Case size	Aperture
Case 1	20x30
Case 2	50x80
Case 3	80x80
Case 4	80x120
Case 5	80x160

FEATURES

- No need to break the conductor
- Cost effective and efficient

BENEFITS

- Reduced installation time

Part number	Ratio	Burden VA against Class index		
		0.5	1	3
Case 1	SC1-100/5A	100/5 A	-	-
	SC1-150/5A	150/5 A	-	-
	SC1-200/5A	200/5 A	-	1.5
	SC1-250/5A	250/5 A	-	2
	SC2-250/5A	250/5 A	1	2
	SC2-300/5A	300/5 A	1.5	3
	SC2-400/5A	400/5 A	1.5	3
	SC2-500/5A	500/5 A	2.5	5
	SC2-600/5A	600/5 A	2.5	5
	SC2-800/5A	800/5 A	3	7.5
Case 2	SC3-600/5A	600/5 A	2.5	5
	SC3-800/5A	800/5 A	3	7.5
Case 3	SC4-1000/5A	1000/5 A	5	10
	SC4-1200/5A	1200/5 A	6	12.5
	SC4-1250/5A	1250/5 A	7.5	15
	SC4-1600/5A	1600/5 A	8	17
Case 4	SC5-2000/5A	2000/5 A	15	20
	SC5-2500/5A	2500/5 A	15	20
	SC5-3000/5A	3000/5 A	20	25
Case 5				

Ring Current Transformers



MR transformers accurately measure high primary currents, converting the primary current into a proportional 5 Amp secondary current.

Part number	Ratio range	VA at Class 3	VA at Class 1	VA at Class 0.5
MR-28-40/5A	40/5	1.5	-	-
MR-28-60/5A	60/5	2.5	-	-
MR-42-100/5A	100/5	3.75	1.25	-
MR-42-150/5A	150/5	5	2.5	1
MR-42-200/5A	200/5	7.5	5	2.5
MR-42-250/5A	250/5	10	5	2.5
MR-45-300/5A	300/5	10	7.5	3.75
MR-45-400/5A	400/5	15	7.5	5
MR-60-400/5A	400/5	15	7.5	5
MR-60-500/5A	500/5	15	10	5
MR-60-600/5A	600/5	20	10	7.5
MR-85-800/5A	800/5	20	10	7.5
MR-85-1000/5A	1000/5	30	15	10
MR-85-1200/5A	1200/5	30	15	10
MR-85-1500/5A	1500/5	30	15	10
MR-85-1600/5A	1600/5	30	15	10
MR-125-2000/5A	2000/5	30	20	15
MR-125-2500/5A	2500/5	30	20	15

DIMENSIONS AND CONNECTIONS

Model type	A Inside diameter	B Outside diameter
MR-28	28	70
MR-42	42	80
MR-45	45	80
MR-60	60	100
MR-85	85	120
MR-125	125	165

Programmable Transducers - Paladin Advantage Universal



FEATURES

- DIN-rail enclosure
- Measurement, isolation and conversion of up to 4 parameters
- RS485 Modbus RTU protocol
- Alarm/pulsed output
- Programmable VT/CT ratio
- True rms measurement
- User programmable configuration using free PC software

STANDARDS

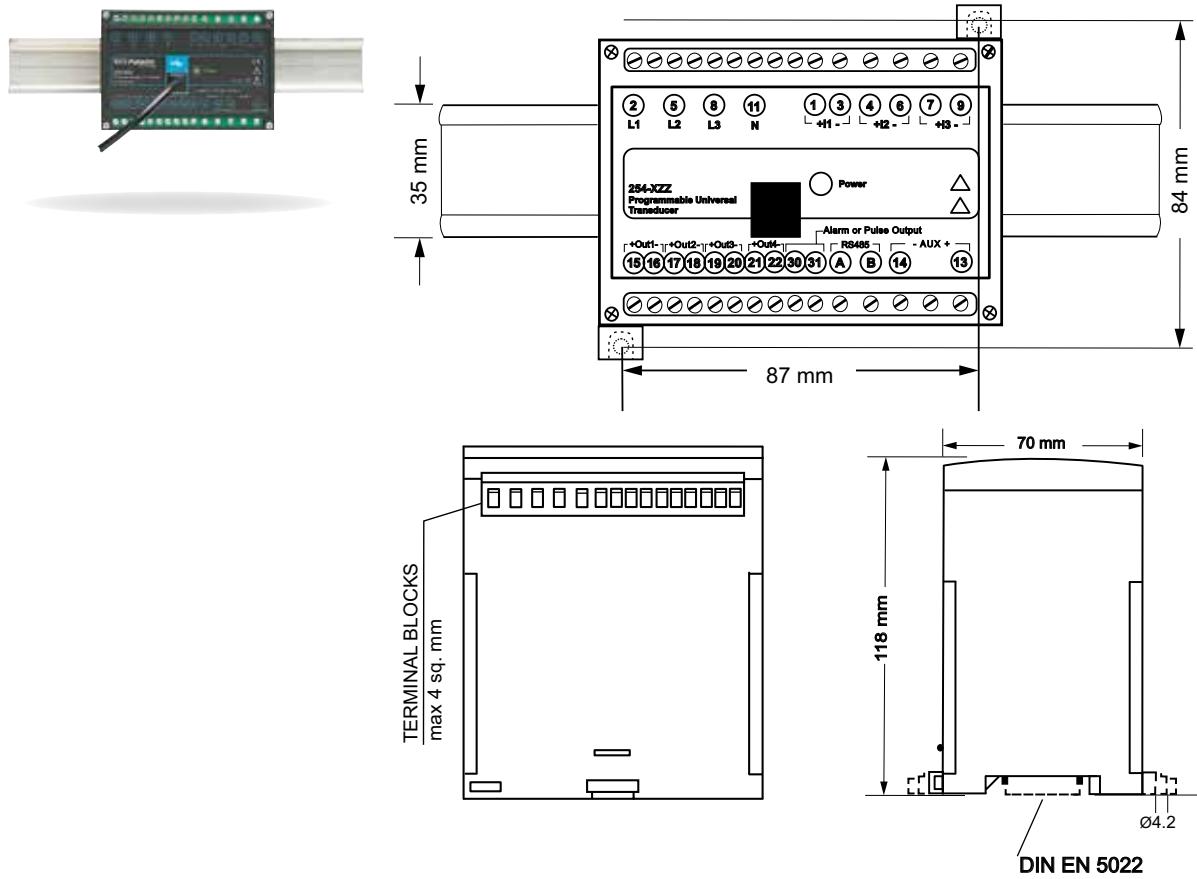
- IEC 61326
- IEC 61010-1
- IEC 62053-21
- EN60688
- RoHS Compliant

The Paladin Advantage 254-XZZ, programmable transducer provides measurement isolation and conversion of all main electrical parameters into an industry standard DC output signal. The 254-XZZ can be used in single and three-phase balanced or unbalanced three or four-wire electrical systems. The 254-XZZ has an accuracy of CLO.2 and includes RS485 Modbus RTU communications protocol and pulse/alarm output as standard.

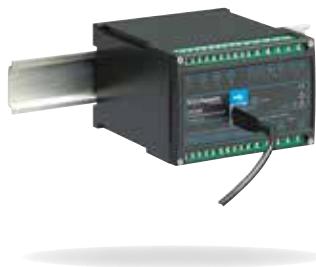
The Paladin Advantage 254-XZZ transducer is an accurate device for the conversion of all main electrical parameters into a Voltage or mA output and provides measurement, isolation and conversion of up to four user defined inputs and outputs. The device is supplied programmed to the users requirements but can be easily be reprogrammed to suit any application.

Designed, developed and manufactured in the EU, with integrated microprocessor for exceptional waveform handling of distorted waveforms. The 254-XZZ is ideal for low, medium and high voltage applications and provides a high protection against continuous and short circuit protection as well as galvanically isolated inputs and outputs.

Description	Part number
Paladin Advantage Aux: 20-60 V AC/DC (+/- 10%) 45-66 Hz, 6 VA. two outputs	254-XZZ-L-02
Paladin Advantage Aux: 80-260 V AC/DC (+/- 10%) 45-66 Hz, 6 VA. two outputs	254-XZZ-M-02
Paladin Advantage Aux: 20-60 V AC/DC (+/- 10%) 45-66 Hz, 6 VA. four outputs	254-XZZ-L-04
Paladin Advantage Aux: 80-260 V AC/DC (+/- 10%) 45-66 Hz, 6 VA. four outputs	254-XZZ-M-04



Programmable Transducers - Paladin Advantage Universal



BENEFITS

- Cost effective
- CL 0.2 accuracy
- Modbus communications
- Fully configurable

APPLICATIONS

- Motor control centres
- Energy/building management systems
- Switchgear
- Generator sets

INPUT PARAMETERS

Parameter	Id	Description
Voltage	VL1	Volts L1 - N
	VL2	Volts L2 - N
	VL3	Volts L3 - N
	2VL12	Volts L1 - L2
	VL23	Volts L2 - L3
	VL31	Volts L3 - L1
	AVG V12	Average Vvlt
	V23 V31	- age (L-L)
	AVG V1N	Average Vvlt-
	V2N V3N	age (L-N)
	DELTA V	Volts diff L-L
	DELTA VN	Volts diff L-N
Current	IL1	Current L1
	IL2	Current L2
	IL3	Current L3
	IN	Neutral I
	AVG I1 I2 I3	Average Current
	DELTA I	Current diff
	I1 MAX	I1 Max demand
	I2 MAX	I2 Max demand
	I3 MAX	I3 Max demand
	I1 AVG	Average I1
	I2 AVG	Average I2
	I3 AVG	Average I3
Active	P	System power
Power	P1	Power L1
	P2	Power L2
	P3	Power L3
	PMAX	Max power
	PAVG	Average power
Reactive	Q	System VAr
Power	Q1	System VAr L1
	Q2	System VAr L2
	Q3	System VAr L3
Apparent	S	System VA
Power	S1	System VA L1
	S2	System VA L2
	S3	System VA L3
Power	PF	Power factor
Factor	PF AVG	Average PF
	PF1	PF L1
	PF2	PF L2
	PF3	PF L3
ANGLE	SYS ANGLE	System angle
	ANGLE L1	Phase angle L1
	ANGLE L2	Phase angle L2
	ANGLE L3	Phase angle L3
	FREQ	Frequency
THD	THDV1	THD V1
	THDV2	THD V2
	THDV3	THD V3
	THD I1	THD I1
	THD I2	THD I2
	THD I3	THD I3
COSPHI	COSPHI 1	Displacement P.F
	COSPHI 2	Displacement P.F
	COSPHI 3	Displacement P.F

Protector Trip Relays



FEATURES

- LED fault indication
- Adjustable nominal voltages, trip points, time delay and differentials
- Compact DIN-rail enclosure
- Power on LED (Green)
- Designed to avoid nuisance tripping

BENEFITS

- Protection of power assets
- Detection and isolation of faults
- Maintains supply continuity of healthy circuits
- High speed tripping to avoid damage

An extensive range of electronic control products providing continuous monitoring and protection of any electrical parameter. When the monitored parameter deviates from the desired set trip limit, the relay will operate to prevent damage to power asset. This versatile range features a host of stylish DIN-rail protectors offering numerous trip functions for single and three-phase power systems, including over and under voltage, current, frequency, phase sequence/failure or balance, reverse power, synchro-check, speed sensing and finally DC inputs.

AC current protectors provide a continuous surveillance of monitored circuits and offer user adjustable trip points (set points) with time delay settings. When the current moves outside the set point limit for longer than the time delay, the relay will operate providing an alarm control or tripping signal.

Part number	Protection	System
PAU-5	Under current	1-phase, 5 A AC, 50/60 Hz, Aux 24/240 V AC/DC
PAO-5	Over current	1-phase, 5 A AC, 50/60 Hz, Aux 24/240 V AC/DC
PAD-5	Under/over current (2 output relays)	1-phase, 5 A AC, 50/60 Hz, Aux 24/240 V AC/DC
PAP/V-5	Under/over current (2 output relays)	3-phase, 3 or 4-wire, 5 A AC, 50/60 Hz, Aux 24/240 V AC/DC

AC voltage with adjustable differential and time delay

When the measured voltages moves outside the set point limit for longer than the time delay, the relay will operate giving an alarm control or tripping signal.

The Protector can be used for under and over voltage detection.



Part number	Protection	System
PVU/Z-173/240	Under voltage	1-phase, 100/139 V L-N AC, 50/60 Hz
PVU/Z-380/480	Under voltage	1-phase, 220/277 V L-N AC, 50/60 Hz
PVO/H-173/240	Over voltage	1-phase, 100/139 V L-N AC, 50/60 Hz
PVO/H-380/480	Over voltage	1-phase, 220/277 V L-N AC, 50/60 Hz
PVB-173/240	Under/over voltage (2 output relays)	1-phase, 100/139 V L-N AC, 50/60 Hz
PVB-380/480	Under/over voltage (2 output relays)	1-phase, 220/277 V L-N AC, 50/60 Hz
PVK/J-100/120	Under voltage	3-phase 3-wire, 100/120 V L-L AC, 50/60 Hz
PVK/J-380/480	Under voltage	3-phase 3-wire, 380/480 V L-L AC, 50/60 Hz
PVA/C-100/120	Over voltage	3-phase 3-wire, 100/120 V L-L AC, 50/60 Hz
PVA/C-380/480	Over voltage (2 output relays)	3-phase 3-wire, 380/480 V L-L AC, 50/60 Hz
PVM-100/120	Under/over voltage (2 output relays)	3-phase 3-wire, 100/120 V L-L AC, 50/60 Hz
PVM-380/480	Under/over voltage (2 output relays)	3-phase 3-wire, 380/480 V L-L AC, 50/60 Hz
PVV/X-100/120	Under voltage	3-phase 4-wire, 57.7/69.3 V L-N (100/120 V L-L) AC, 50/60 Hz
PVV/X-173/240	Under voltage	3-phase 4-wire, 100/139 V L-N (173/240 V L-L) AC, 50/60 Hz
PVV/X-380/480	Under voltage (2 output relays)	3-phase 4-wire, 220/277 V L-N (380/480 V L-L) AC, 50/60 Hz
PVP/S-380/480	Over voltage (2 output relays)	3-phase 4-wire, 220/277 V L-N (380/480 V L-L) AC, 50/60 Hz
PVE-380/480	Under/over voltage (2 output relays)	3-phase 4-wire, 220/277 V L-N (380/480 V L-L) AC, 50/60 Hz

The Frequency protector trip relay provides a continuous surveillance of the monitored circuits and offers user adjustable trip points (set points) with time delay and differential (hysteresis) settings. When the frequency moves outside the set point limits for longer than the time delay, the relay will operate giving an alarm control or tripping signal.



Part number	Protection	System
PHD-100/120	Under/over frequency (2 relays)	1-phase, 57.7/69.3 V L/N L/L AC (50, 60 and 400 Hz)
PHD-173/240	Under/over frequency (2 relays)	1-phase, 100/139 V L/N L/L AC (50, 60 and 400 Hz)
PHD-380/480	Under/over frequency (2 relays)	1-phase, 220/277 V L/N L/L AC (50, 60 and 400 Hz)
PHD-280/860	Under/over frequency (2 relays)	1-phase, 161-500 V L/N L/L AC (50, 60 and 400 Hz)

Protector Trip Relays - Earth Leakage Relays / Core Balanced CT's



The phase sequence and phase failure protector trip relay is designed to monitor the correct phase rotation or sequence of a three-phase supply system. It provides protection against incorrect phase sequence, loss of one phase and under voltage.

Part number	Protection	System
PVR3-100/120	Phase sequence under voltage	3-phase 3-wire, 100/120 V L-L AC, 50/60 Hz
PVR3-380/480	Phase sequence under voltage (2 output relays)	3-phase 3-wire, 380/480 V L-L AC, 50/60 Hz
PVR4-100/120	Phase sequence under voltage	3-phase 4-wire, 100/120 V L-L AC, 50/60 Hz
PVR4-380/480	Phase sequence under voltage (2 output relays)	3-phase 4-wire, 380/480 V L-L AC, 50/60 Hz



The phase balance, sequence and voltage protector trip relay, is designed to monitor a three-phase supply for phase imbalance, low or missing phases or incorrect phase sequence and to trip a relay if it detects any anomaly.

Part number	Protection	System
PSF/G3-100/120	Phase loss, unbalanced and under voltage	3-phase 3-wire, 100/120 V L-L AC, 50/60 Hz
PSF/G3-173/240	Phase loss, unbalanced and under voltage	3-phase 3-wire, 173/240 V L-L AC, 50/60 Hz
PSF/G3-380/480	Phase loss, unbalanced and under voltage	3-phase 3-wire, 380/480 V L-L AC, 50/60 Hz
PSF/G4-100/120	Phase loss, unbalanced and under voltage	3-phase 4-wire, 57.7/69.3V L-N (100/120V L-L) AC, 50/60Hz
PSF/G4-380/480	Phase loss, unbalanced and under voltage	3-phase 4-wire, 220/277V L-N (380/480V L-L) AC, 50/60Hz

Reverse power (current) with adjustable time delay

Part number	Protection	System
PAS-380/480	Reverse power	Single or 3-phase, 4-wire, 220/277 V L-N (380/480 V L-L) AC, 0-6 A AC, 50/60 Hz
PAT-380/480	Reverse power	3-phase, 3-wire, 380-480 V AC, 0-6 A AC, 50/60 Hz



The synchro-check (paralleling) protector trip relay compares the voltage, frequency and phase angle of two supplies and operates a relay according to the state of synchronisation of the supplies. If the two supplies are not synchronised, the relay operates to provide a control output.

Part number	Protection	System
PLL/D-100/120	Phase angle and voltage dead bus	Single or 3-phase, 4-wire, 57.7/69.3 V L-N L/L AC, 50/60 Hz
PLL/D-173/240	Phase angle and voltage dead bus	Single or 3-phase, 4-wire, 100/139 V L-N L/L AC, 50/60 Hz
PLL/D-380/480	Phase angle and voltage dead bus	Single or 3-phase, 4-wire, 220/277 V L-N L/L AC, 50/60 Hz
PLL/D-277/500	Phase angle and voltage dead bus	Single or 3-phase, 4-wire, 277/500 V L-N L/L AC, 50/60 Hz

The thermistor protector trip relay monitors the temperature of a motor using the PTC sensor (positive temperature coefficient resistor) or thermostat (TK) switch built in to the motor winding.

Part number	Protection	System
PMM/T-24/240	Over temperature	Input PTC thermistors, 24/240 V AC/DC Aux

DC Millivolts with adjustable time delay

Part number	Protection	System
PBT/S-24/240	High/low trip (2 output relays)	50, 75, 100 mV DC, 24/240 V AC/DC Aux

DC Millamps with adjustable time delay

Part number	Protection	System
PBV-24/240	High/low trip (2 output relays)	0/1, 0/10, 0/20, 4/20 mA DC, 24/240 V, AC/DC Aux

The Speed Sensing protector trip relay monitors rotating equipment using a magnetic pick-up and provides three output contacts which can be used to initiate alarms or shutdown signals.

Part number	Protection	System
PH3-12/24	3 Setpoints, 1 relay	Input Magnetic pickup, 12/24 V DC Aux

EARTH LEAKAGE RELAY - STANDARD (DPCO)

Part number	Description
ELRP/S-24/240	24-240 V AC/DC
ELRP/S-12/24	12-24 V DC

EARTH LEAKAGE RELAYS - CORE BALANCED CURRENT TRANSFORMERS

Part number	Description
XLCBCT-038	Aperture diameter 38 mm
XLCBCT-057	Aperture diameter 57 mm
XLCBCT-070	Aperture diameter 70 mm
XLCBCT-120	Aperture diameter 120 mm
XLCBCT-210	Aperture diameter 210 mm



LED Synchroscope

FEATURES

- Clear synchronising indication
- Relay output for remote indication



APPLICATIONS

- Switchgear panels

APPROVALS

- IEC 61010

360° LED SYNCHROSCOPE

LED Synchroscopes measure and display the frequency difference of two power sources. Monitoring the display allows the user to connect two synchronized power systems.

The LED indication gives real-time feedback on the synchronisation state. When the synchronised state is achieved, the indicator stays in the synchronising position.

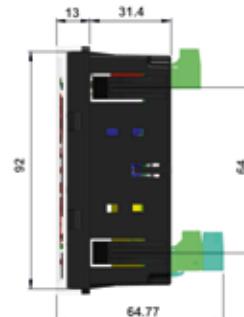
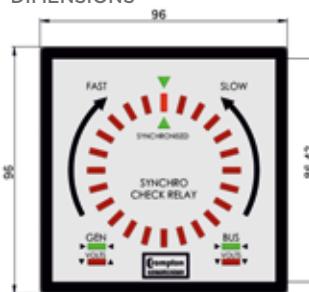
The LED indication gives real-time feedback on the synchronisation state with relay output for systems integration. Dead bus monitoring is also available, as an option, combined with the Voltage and phase monitoring.

SPECIFICATIONS

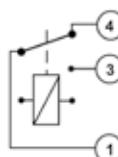
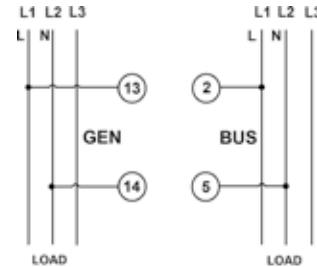
Nominal Voltage	$\pm 10\%$ of range
Nominal Frequency	45 / 65 Hz
Operating Position	Panel Mounted (Vertical)
Accuracy	1%
Overload	1.2x range max, continuous, 2x for 5 secs
Relay Output Type	Single Pole changeover
Relay Output Rating	250 V, 5 A AC resistive
Operating Temperature	-20°C to +55°C (-4°F to 131°F)
Storage Temperature	-30°C to +70°C (-22°F to 158°F)
Humidity	95% RH (non-condensing)
Insulation Between Circuits	2.2 kV
Insulation to Case	4 kV
Overvoltage Category	III
Pollution Degree	II
Enclosure Integrity	UL94-VO
Enclosure Style	DIN 96
Case Material	Polycarbonate
Ingress Protection	IP54 (with gasket)
Electrical Connections	Cage clamp, Plug / Socket
Mounting	Snap-in
Weight	200g
Burden	< 4VA
Phase Difference	Adjustable 0-20 Degrees
Time Delay	Adjustable 0-2.5 Seconds

Part number	Voltage	Operation
244-14HG-J-01	59/77V AC	Synchro check relay, Voltage Difference and Dead Bus
244-14HG-L-01	100/120V AC	
244-14HG-M-01	220/240V AC	
244-14HG-H-01	380/480V AC	
244-14GG-J-01	59/77V AC	Synchro check relay, and Voltage Difference
244-14GG-L-01	100/120V AC	
244-14GG-M-01	220/240V AC	
244-14GG-H-01	380/480V AC	

DIMENSIONS



CONNECTIONS



1 = Common
3 = Normally Open
4 = Normally Closed

Analogue Instruments - DIN48

FEATURES

- DIN instruments
- Panel indicators
- Complementary selector switches for line-to-line and line-to-neutral readings

BENEFITS

- Robust design
- Accurate measurement and display
- Suitable for most demanding of environments



DIN48 - AC AMMETERS 90°
MOVING IRON SHORTSCALE AC AMMETERS CT OPERATED

Description	Part number
5 A CT operated, scaled 0-60 A, 50/60 Hz	E242-75A-G-LS-NW-C7
5 A CT operated, scaled 0-100 A, 50/60 Hz	E242-75A-G-LS-PK-C7
5 A CT operated, scaled 0-150 A, 50/60 Hz	E242-75A-G-LS-PZ-C7
5 A CT operated, scaled 0-200 A, 50/60 Hz	E242-75A-G-LS-RL-C7
5 A CT operated, scaled 0-250 A, 50/60 Hz	E242-75A-G-LS-RS-C7
5 A CT operated, scaled 0-300 A, 50/60 Hz	E242-75A-G-LS-RX-C7
5 A CT operated, scaled 0-400 A, 50/60 Hz	E242-75A-G-LS-SC-C7



MOVING IRON SHORTSCALE AC AMMETERS X 6 OVERLOAD CT OPERATED

Description	Part number
5 A CT operated, scaled 0-60/360 A, 50/60 Hz	E242-756A-G-LS-NW-C7
5 A CT operated, scaled 0-100/600 A, 50/60 Hz	E242-756A-G-LS-PK-C7
5 A CT operated, scaled 0-150/900 A, 50/60 Hz	E242-756A-G-LS-PZ-C7
5 A CT operated, scaled 0-200/1200 A, 50/60 Hz	E242-756A-G-LS-RL-C7
5 A CT operated, scaled 0-250/1500 A, 50/60 Hz	E242-756A-G-LS-RS-C7
5 A CT operated, scaled 0-300/1800 A, 50/60 Hz	E242-756A-G-LS-RX-C7
5 A CT operated, scaled 0-400/2400 A, 50/60 Hz	E242-756A-G-LS-SC-C7



MOVING IRON SHORTSCALE AC AMMETERS DIRECT CONNECTED

Description	Part number
10 A direct connected, scaled 0-10 A, 50/60 Hz	E242-75A-G-MT-MT-C7
15 A direct connected, scaled 0-15 A, 50/60 Hz	E242-75A-G-ND-ND-C7
25 A direct connected, scaled 0-25 A, 50/60 Hz	E242-75A-G-NJ-NJ-C7
40 A direct connected, scaled 0-40 A, 50/60 Hz	E242-75A-G-NP-NP-C7

MOVING IRON SHORTSCALE AC AMMETERS X 6 OVERLOAD DIRECT CONNECTED

Description	Part number
10 A direct connected, scaled 0-10/60 A, 50/60 Hz	E242-756A-G-MT-MT-C7
15 A direct connected, scaled 0-15/90 A, 50/60 Hz	E242-756A-G-ND-ND-C7
25 A direct connected, scaled 0-25/150 A, 50/60 Hz	E242-756A-G-NJ-NJ-C7

Analogue Instruments - DIN48



DIN48 - AC VOLTMETERS 90°

Description	Part number
0-150 V direct connected, scaled 0-150 V, 50/60 Hz	E242-75V-G-PZ-PZ-C7
0-300 V direct connected, scaled 0-300 V, 50/60 Hz	E242-75V-G-RX-RX-C7
0-500 V direct connected, scaled 0-500 V, 50/60 Hz	E242-75V-G-SF-SF-C7
0-600 V direct connected, scaled 0-600 V, 50/60 Hz	E242-75V-G-SJ-SJ-C7



DIN48 - DC AMMETERS SHUNT OPERATED

Description	Part number
60 mV shunt operated, scaled 0-40 A	E242-89A-G-EF-NP
60 mV shunt operated, scaled 0-60 A	E242-89A-G-EF-NW
60 mV shunt operated, scaled 0-80 A	E242-89A-G-EF-PD
60 mV shunt operated, scaled 0-100 A	E242-89A-G-EF-PK
60 mV shunt operated, scaled 0-150 A	E242-89A-G-EF-PZ
60 mV shunt operated, scaled 0-200 A	E242-89A-G-EF-RL
60 mV shunt operated, scaled 0-250 A	E242-89A-G-EF-RS
60 mV shunt operated, scaled 0-400 A	E242-89A-G-EF-SC



DIN48 - FREQUENCY METERS 90°

Description	Part number
45-65 Hz 200-250 V, scaled 45/55/65 Hz	E242-41S-G-RN-AJ-AJ

DIN48 - DC INDICATORS STANDARD SCALE AS REQUIRED

Description	Part number
1mA DC indicator	E242-89A-G-FA-**
10 mA DC indicator	E242-89A-G-GZ-**
20 mA DC indicator	E242-89A-G-HF-**
4-20 mA DC indicator	E242-89R-G-HG-**

DIN48 - DC VOLTMETERS

Description	Part number
0-10 V DC voltmeter - standard scale as required	E242-89V-G-MT-**
0-15 V direct connected, scaled 0-15 V	E242-89V-G-ND-ND
0-30 V direct connected, scaled 0-30 V	E242-89V-G-NL-NL

Elapsed time meters (ETM) or hours run meters monitor ON/RUN time allowing the user to effectively control production efficiency, cost estimation and service period monitoring for preventative maintenance. Time is measured in increments of 0.01h up to 99999.99 hours after which the meter automatically resets to zero. Meters are non resettable before this time to prevent accidental resetting.

DIN48 - AC HOURS RUN METER

Description	Part number
100-125 V AC 50 Hz	M242-155-G-PL-ZH-C5
200-250 V AC 50 Hz	M242-155-G-RN-ZH-C5
380-440 V AC 50 Hz	M242-155-G-RY-ZH-C5
6-30 V DC	M242-157-G-BU-ZH-DC
10-80 V DC	M242-157-G-NR-ZH-DC
110 V DC	M242-157-G-PM-ZH-DC



Analogue Instruments - DIN72



DIN72 - DC AMMETERS SHUNT SHUNT OPERATED

Description	Part number
60 mV shunt operated, scaled 0-40 A	E243-01A-G-EF-NP
60 mV shunt operated, scaled 0-60 A	E243-01A-G-EF-NW
60 mV shunt operated, scaled 0-80 A	E243-01A-G-EF-PD
60 mV shunt operated, scaled 0-100 A	E243-01A-G-EF-PK
60 mV shunt operated, scaled 0-150 A	E243-01A-G-EF-PZ
60 mV shunt operated, scaled 0-200 A	E243-01A-G-EF-RL
60 mV shunt operated, scaled 0-250 A	E243-01A-G-EF-RS
60 mV shunt operated, scaled 0-400 A	E243-01A-G-EF-SC

DIN72 - DC INDICATORS

Description	Part number
1 mA DC indicator	E243-01A-G-FA-**
10 mA DC indicator	E243-01A-G-GZ-**
20 mA DC indicator	E243-01A-G-HF-**
4-20 mA DC indicator	E243-01R-G-HG-**



DIN72 - DC VOLTMETERS

Description	Part number
0-10 V DC voltmeter - standard scale as required	E243-01V-G-MT-**
0-15 V DC direct connected, scaled 0-15 V	E243-01V-G-ND-ND
0-30 V DC direct connected, scaled 0-30 V	E243-01V-G-NL-NL

DIN72 - AC AMMETERS 90°
MOVING IRON SHORTSCALE AC AMMETERS CT OPERATED

Description	Part number
5A CT operated, scaled 0-60 A, 50/60 Hz	E243-02A-G-LS-NW-C7
5A CT operated, scaled 0-100 A, 50/60 Hz	E243-02A-G-LS-PK-C7
5A CT operated, scaled 0-150 A, 50/60 Hz	E243-02A-G-LS-PZ-C7
5A CT operated, scaled 0-200 A, 50/60 Hz	E243-02A-G-LS-RL-C7
5A CT operated, scaled 0-250 A, 50/60 Hz	E243-02A-G-LS-RS-C7
5A CT operated, scaled 0-300 A, 50/60 Hz	E243-02A-G-LS-RX-C7
5A CT operated, scaled 0-400 A, 50/60 Hz	E243-02A-G-LS-SC-C7

MOVING IRON SHORTSCALE AC AMMETERS X 6 OVERLOAD CT OPERATED

Description	Part number
5A CT operated, scaled 0-60/360 A, 50/60 Hz	E243-026A-G-LS-NW-C7
5A CT operated, scaled 0-100/600 A, 50/60 Hz	E243-026A-G-LS-PK-C7
5A CT operated, scaled 0-150/900 A, 50/60 Hz	E243-026A-G-LS-PZ-C7
5A CT operated, scaled 0-200/1200 A, 50/60 Hz	E243-026A-G-LS-RL-C7
5A CT operated, scaled 0-250/1500 A, 50/60 Hz	E243-026A-G-LS-RS-C7
5A CT operated, scaled 0-300/1800 A, 50/60 Hz	E243-026A-G-LS-RX-C7
5A CT operated, scaled 0-400/2400 A, 50/60 Hz	E243-026A-G-LS-SC-C7

Analogue Instruments - DIN72



MOVING IRON SHORTSCALE AC AMMETERS DIRECT CONNECTED

Description	Part number
10 A direct connected, scaled 0-10 A, 50/60 Hz	E243-02A-G-MT-MT-C7
15 A direct connected, scaled 0-15 A, 50/60 Hz	E243-02A-G-ND-ND-C7
25 A direct connected, scaled 0-25 A, 50/60 Hz	E243-02A-G-NJ-NJ-C7
40 A direct connected, scaled 0-40 A, 50/60 Hz	E243-02A-G-NP-NP-C7

MOVING IRON SHORTSCALE AC AMMETERS X 6 OVERLOAD DIRECT CONNECTED

Description	Part number
10 A direct connected, scaled 0-10/60 A, 50/60 Hz	E243-026A-G-MT-MT-C7
15 A direct connected, scaled 0-15/90 A, 50/60 Hz	E243-026A-G-ND-ND-C7
25 A direct connected, scaled 0-25/150 A, 50/60 Hz	E243-026A-G-NJ-NJ-C7



DIN72 - AC VOLTMETERS 90°

Description	Part number
0-150 V direct connected, scaled 0-150 V, 50/60 Hz	E243-02V-G-PZ-PZ-C7
0-300 V direct connected, scaled 0-300 V, 50/60 Hz	E243-02V-G-RX-RX-C7
0-500 V direct connected, scaled 0-500 V, 50/60 Hz	E243-02V-G-SF-SF-C7
0-600 V direct connected, scaled 0-600 V, 50/60 Hz	E243-02V-G-SJ-SJ-C7



DIN72 - FREQUENCY METERS 90°

Description	Part number
45-65 Hz 200-250 V, scaled 45/55/65 Hz	E243-41S-G-RN-AJ-AJ



Description	Part number
100-125 V AC 50 Hz	M243-155-G-PL-ZH-C5
200-250 V AC 50 Hz	M243-155-G-RN-ZH-C5
380-440 V AC 50 Hz	M243-155-G-RY-ZH-C5
6-30 V DC	M243-157-G-BU-ZH-DC
10-80 V DC	M243-157-G-NR-ZH-DC
110 V DC	M243-157-G-PM-ZH-DC

Analogue Instruments - DIN96



DIN96 - AC AMMETERS 90°
AC AMMETERS CONNECT VIA CT X/5A WITH FIXED DIAL PLATE NORMAL SCALING

Description	Part number
5 A CT operated, scaled 0-60 A, 50/60 Hz	E244-02A-G-LS-NW-C7
5 A CT operated, scaled 0-100 A, 50/60 Hz	E244-02A-G-LS-PK-C7
5 A CT operated, scaled 0-150 A, 50/60 Hz	E244-02A-G-LS-PZ-C7
5 A CT operated, scaled 0-200 A, 50/60 Hz	E244-02A-G-LS-RL-C7
5 A CT operated, scaled 0-250 A, 50/60 Hz	E244-02A-G-LS-RS-C7
5 A CT operated, scaled 0-300 A, 50/60 Hz	E244-02A-G-LS-RX-C7
5 A CT operated, scaled 0-400 A, 50/60 Hz	E244-02A-G-LS-SC-C7

MOVING IRON SHORTSCALE AC AMMETERS X 6 OVERLOAD CT OPERATED

Description	Part number
5 A CT operated, scaled 0-60/360 A, 50/60 Hz	E244-026A-G-LS-NW-C7
5 A CT operated, scaled 0-100/600 A, 50/60 Hz	E244-026A-G-LS-PK-C7
5 A CT operated, scaled 0-150/900 A, 50/60 Hz	E244-026A-G-LS-PZ-C7
5 A CT operated, scaled 0-200/1200 A, 50/60 Hz	E244-026A-G-LS-RL-C7
5 A CT operated, scaled 0-250/1500 A, 50/60 Hz	E244-026A-G-LS-RS-C7
5 A CT operated, scaled 0-300/1800 A, 50/60 Hz	E244-026A-G-LS-RX-C7
5 A CT operated, scaled 0-400/2400 A, 50/60 Hz	E244-026A-G-LS-SC-C7

MOVING IRON SHORTSCALE AC AMMETERS DIRECT CONNECTED

Description	Part number
10 A direct connected, scaled 0-10 A, 50/60 Hz	E244-02A-G-MT-MT-C7
15 A direct connected, scaled 0-15 A, 50/60 Hz	E244-02A-G-ND-ND-C7
25 A direct connected, scaled 0-25 A, 50/60 Hz	E244-02A-G-NJ-NJ-C7
40 A direct connected, scaled 0-40 A, 50/60 Hz	E244-02A-G-NP-NP-C7

MOVING IRON SHORTSCALE AC AMMETERS X 6 OVERLOAD DIRECT CONNECTED

Description	Part number
10 A direct connected, scaled 0-10/60 A, 50/60 Hz	E244-026A-G-MT-MT-C7
15 A direct connected, scaled 0-15/90 A, 50/60 Hz	E244-026A-G-ND-ND-C7
25 A direct connected, scaled 0-25/150 A, 50/60 Hz	E244-026A-G-NJ-NJ-C7



Phase Sequence Indicators



Electronic phase sequence indicators ensure correct phase rotation and the presence of all 3-phase supplies. Incorrect or loss of phase can cause serious damage in a wide range of electrical machines. Ship-to-shore supplies, mobile generators and remote installations are particularly vulnerable to this problem.

Description	Part number			Part number		
Bezel size mm	DIN 72	Voltage	Frequency	DIN 96	Voltage	Frequency
Phase sequence indicator	E243-12PG-P3C7	151-300V	50-60Hz	E244-12PG-P2C7	100-150V	50-60Hz
	E243-12PG-P4C7	301-500V	50-60Hz	E244-12PG-P3C7	151-300V	50-60Hz
	E243-12PG-P3C4	151-300V	400Hz	E244-12PG-P4C7	301-500V	50-60Hz
	E243-12PG-P4C4	301-500V	400Hz	E244-12PG-P2C4	100-150V	400Hz
-	-	-	-	E244-12PG-P3C4	151-300V	400Hz
-	-	-	-	E244-12PG-P4C4	301-500V	400Hz

GENERAL SPECIFICATION

Max system voltage	600V
Frequency	50/60 Hz and 400HZ
Burden	2.5 VA/phase

Analogue Instruments - DIN96



DIN96 - AC VOLTMETERS 90°

Description	Part number
0-150 V direct connected, scaled 0-150 V. 50/60 Hz	E244-02V-G-PZ-PZ-C7
0-300 V direct connected, scaled 0-300 V.50/60 Hz	E244-02V-G-RX-RX-C7
0-500 V direct connected, scaled 0-500 V.50/60 Hz	E244-02V-G-SF-SF-C7
0-600 V direct connected, scaled 0-600 V.50/60 Hz	E244-02V-G-SJ-SJ-C7



DIN96 - FREQUENCY METERS 90°

Description	Part number
45-65 Hz 200-250 V, scaled 45/55/65 Hz	E244-41S-G-RN-AJ-AJ



DIN96 - DC AMMETERS SHUNT OPERATED

Description	Part number
60 mV shunt operated, scaled 0-40 A	E244-01A-G-EF-NP
60 mV shunt operated, scaled 0-60 A	E244-01A-G-EF-NW
60 mV shunt operated, scaled 0-80 A	E244-01A-G-EF-PD
60 mV shunt operated, scaled 0-100 A	E244-01A-G-EF-PK
60 mV shunt operated, scaled 0-150 A	E244-01A-G-EF-PZ
60 mV shunt operated, scaled 0-200 A	E244-01A-G-EF-RL
60 mV shunt operated, scaled 0-250 A	E244-01A-G-EF-RS
60 mV shunt operated, scaled 0-400 A	E244-01A-G-EF-SC

DIN96 - DC INDICATORS

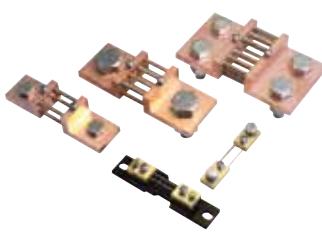
Description	Part number
1 mA DC indicator	E244-01A-G-FA-**
10 mA DC indicator	E244-01A-G-GZ-**
20 mA DC indicator	E244-01A-G-HF-**
4-20 mA DC indicator	E244-01R-G-HG-**



DIN96 - DC VOLTMETERS

Description	Part number
0-10 V DC voltmeter - standard scale as required	E244-01V-G-MT-**
0-15 V direct connected, scaled 0-15 V	E244-01V-G-ND-ND
0-30 V direct connected, scaled 0-30 V	E244-01V-G-NL-NL

Shunts - DC DIN Shunts



A range of direct current shunts provides an accurate millivolt signal, exactly proportional to the system current. They can be used to drive ammeter indicators, overload protection and control devices. These shunts enable the measurement of D.C. current in ranges from 10A to 10000A with various output options available.

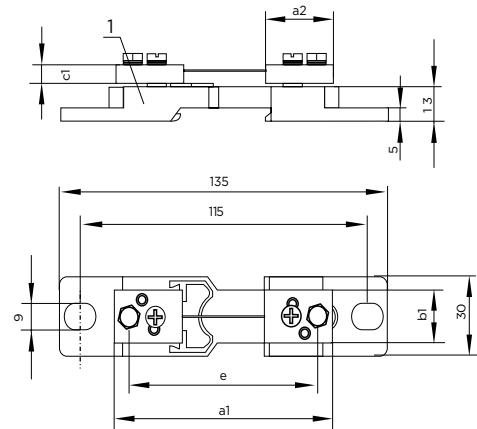
SPECIFICATION

Input	Test voltage 3kV for 1 minute
Accuracy class	0.5
Temperature Coefficient	0.1%/10°K
Overload withstand	1.2 rated current
5 second withstand	10A - 250A = 10 x rated current 250A - 2000A = 5 x rated current 2000A - 10000A = 2 x rated current
Operating temperature	-25°C to +55°C
Rating	10A up to 10000A
Outputs	50mV, 60mV, 75mV, 100mV, 150mV



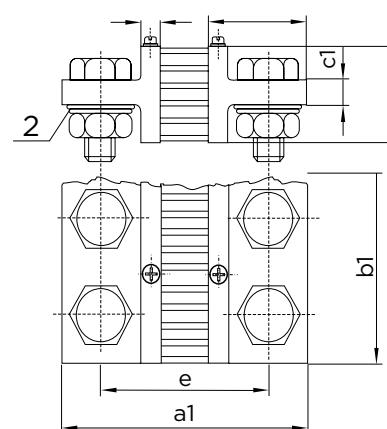
Part number	Ratio	Version as per drawings
ST1-40A/60MV	40 A-60 mV Class 0.5	A
ST1-60A/60MV	60 A-60 mV Class 0.5	A
ST1-80A/60MV	80 A-60 mV Class 0.5	A
ST1-100A/60MV	100 A-60 mV Class 0.5	A
ST1-150A/60MV	150 A-60 mV Class 0.5	A
ST2-200A/60MV	200 A-60 mV Class 0.5	B
ST2-250A/60MV	250 A-60 mV Class 0.5	B
ST2-400A/60MV	400 A-60 mV Class 0.5	B

A



1 Insulating base - 2 Spring washer

B



Selector switches

FEATURES

- Compact size
- Reliable design
- Multi pole

STANDARDS

- IEC EN 60947-3
- VDE 0660 part 107

BENEFITS

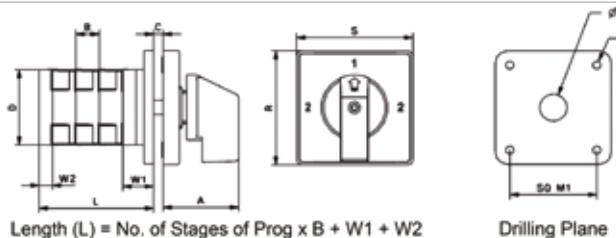
- Cost effective
- Easy to install
- High protection class



Panel mounted selector switches offer a 7-position voltmeter switch and a 4-position ammeter switch for reading line-to-line or line-to-neutral voltage and phase current.

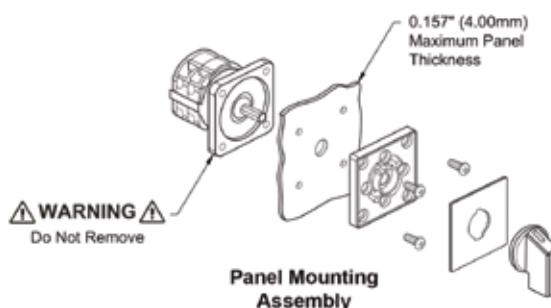
Each switch is supplied with both numbered and coloured annotation.

Description	Part number
Ammeter Selector Switch 5 Position Line Current with OFF with Neutral	SWA-5P-10A
Ammeter Selector Switch 4 Position Line Current with OFF	SWA-4P-10A
Voltmeter Selector Switch 4 Position Voltage between Phases with OFF	SWV-4P-10A-LL
Voltmeter Selector Switch 7 Position Voltage between Phases & Individual Phase to Neutral with OFF	SWV-7P-10A
Voltmeter Selector Switch 4 Position Phase to Neutral Voltages with OFF	SWV-4P-10A-LN



Rotary cam switches dimensional details

Type	A	B	C (max)	D	M1	M2	M3	R	S	W1	W2
Cam 10A	29	9.5	4	43	36	4	7	60	48	19	5



CROMPTON INSTRUMENTS COMPLETE PRODUCT RANGE

Integra Multi-function Metering Systems

Integra range of multi-function metering systems measure, display and communicate over 100 parameters. Integra systems can be integrated into energy management and SCADA systems. Options include pulsed, analogue and RS485 communication protocols, a choice of DIN, DIN-rail and ANSI case-styles and LED or LCD displays.

www.crompton-instruments.com/integra.html



Integra and Paladin Transducers

Extensive range of transducers providing measurement, isolation and conversion of electrical parameters into industry standard DC output signals, offering single or multiple analogue outputs within a single case housing.

www.crompton-instruments.com/transducer.html



Energy Meters

DIN-rail mounted or self-contained panel meters measure combined kWh or kVArh with pulsed or analogue output options and selectable CT and VT ratios. Microprocessor controlled circuitry provides up to Class 1.0 accuracy with outputs displayed directly on the instrument monitor or a remote PC.

www.crompton-instruments.com/kwh.html



Protector Trip Relays

Trip relays continuously monitor and protect any electrical parameter within a set point limit. The range offers single and multi parameter units, earth leakage protection, ground fault relays, vector shift and ROCOF.

www.crompton-instruments.com/protector.html



Analogue Instruments

Traditional range of analogue instruments includes ANSI switchboard meters, panel indicators, sealed and ruggedised instruments, and complementary selector switches for line-to-line and line-to-neutral readings. All instruments are available in a range of styles, sizes and performance specifications.

www.crompton-instruments.com/analogue.html



Current Transformers

Extensive range of current transformers for reducing high primary currents down to a consistent 5 or 1 Amp secondary current. Options include moulded case, busbar mountings, various aperture sizes, ring CT's tape wound, 3-in-1, balanced and split core Current Transformers. Wide range of current ratings.

www.crompton-instruments.com/ct.html



Meter Relays and Digital Indicators

Meter relays and digital indicators are ideal for monitoring, process control and load shedding applications. This range includes digital and analogue meter relays, digital bargraph indicators and controllers.

www.crompton-instruments.com/relay.html



Shunts

Shunts provides an accurate dc millivolt signal, exactly proportional to the system current, to drive ammeter indicators, overload protection and control devices. This range includes industrial, switchboard, DEF 66-13, DIN, base mounted, tag end, lightweight and panel meter shunts in a variety of formats and configurations.

www.crompton-instruments.com/shunt.html



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