

# CORE PRODUCT CATALOGUE

## TE'S CROMPTON INSTRUMENTS

Edition 11



## Table of content

### Digital 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.

4, 10, 12, 13

### Energy Meters



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

11

### Current Transformers



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.

14

### Programmable Transducer



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.

29

### 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.

31

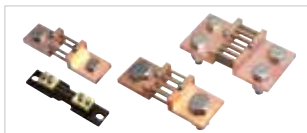
### LED Synchroscope & Analogue Instruments



LED Synchrosopes 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.

33 - 39

### Shunts



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

40

### Selector Switches



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.

41

### Complete Product Range



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

42

## 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](http://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	Part number
Integra Single Load multifunction DIN-rail mounted meter LCD Input 400 V L-L, 100 mA AC Modbus RTU RS 485 Self powered	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	Part number
Integra Dual Load multifunction DIN-rail mounted meter LCD Input 400 V L-L, 100 mA AC Modbus RTU RS 485 Self powered	DL1-01

### DUAL LOAD PARAMETERS

LOAD 1	LOAD 2	SYSTEM
Current L1	Current L1	Current L1
Current L2	Current L2	Current L2
Current L3	Current L3	Current L3
kW L1	kW L1	Voltage L1
kW L2	kW L2	Voltage L2
kW L3	kW L3	Voltage L3
Average System Volts	Average System Volts	Average System Volts
Average System Current	Average System Current	Average System Current
Average System kWh	Average System kWh	Average System kWh
kWh Import	kWh Import	kWh Import - Power
		kWh Import - Lighting
		kWh Import - Total
		Frequency
		Power Factor (PF)



Description	Part number
Integra Triload multifunction DIN-rail mounted meter LCD Input 400 V L-L, 100 mA AC Modbus RTU RS 485 Self powered	TL1-01

### TRILOAD LOAD PARAMETERS

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

Compatible RJ12 CT's on page 7

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






## 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

## 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

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



INTEGRA-1221  
RJ12 Connector



### 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	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

### 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	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. Compatible with all versions of INT 12XX meters.	600 mm	Q2C-VFO-0600-01
	1000 mm	Q2C-VFO-1000-01
	1200 mm	Q2C-VFO-1200-01
	1500 mm	Q2C-VFO-1500-01
	Other lengths available	



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. Compatible with all versions of INT-12XX meters.	600 mm	Q2C-VMM-0600-01
	1000 mm	Q2C-VMM-1000-01
	1200 mm	Q2C-VMM-1200-01
	1500 mm	Q2C-VMM-1500-01
	2000 mm	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



## 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.

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

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

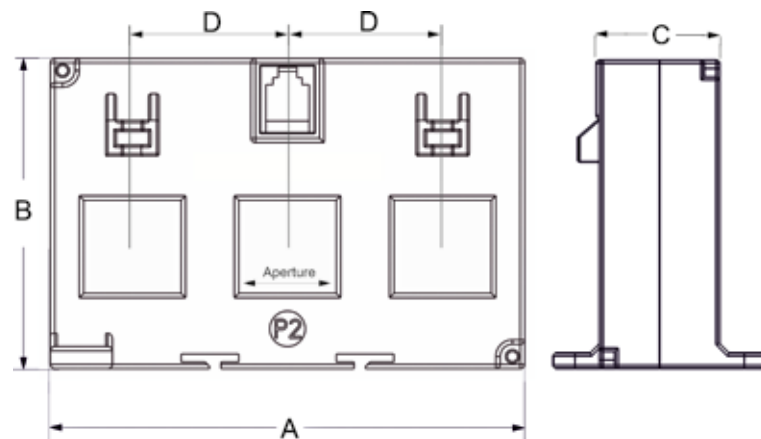
Part number	Primary Current	VA at Class 1	VA at Class 0.5	A (Width) mm	B (Height) mm	C (Depth) mm	D (Hole Centres) mm	Aperture mm
DL3N1-25-60/0.1	60A	0.25	-	76	78	30	25	3 @ 25 x 15
DL3N1-25-100/0.1	100A	0.35	0.25	76	78	30	25	3 @ 25 x 15
DL3N1-25-125/0.1	125A	0.35	0.25	76	78	30	25	3 @ 25 x 15
DL3N1-25-160/0.1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



## CT LABEL



## Integra DMS - Q2C Wiring Loom Solution



INTEGRA-1222  
Q2C



### FEATURES

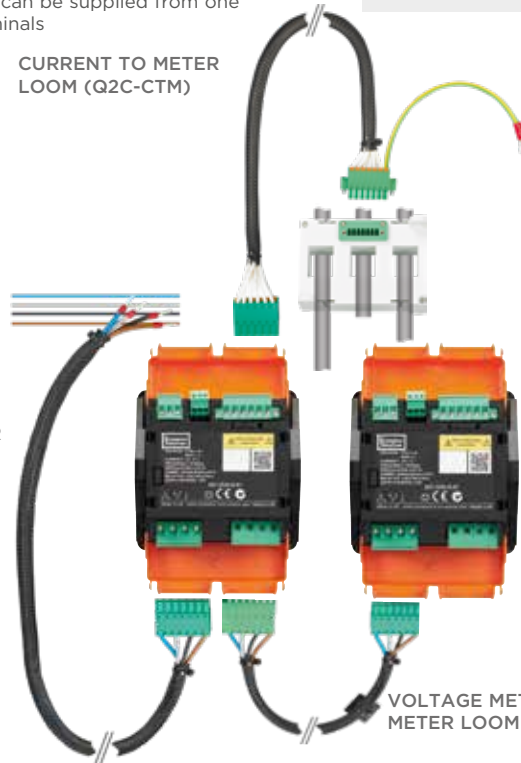
- A complete Quick 2 Connect wiring solution with integral connectors and earthing
- Screwless terminal connections, vibration proof and maintenance free
- Up to 32 meters can be supplied from one set of fused terminals

### BENEFITS

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

CURRENT TO METER  
LOOM (Q2C-CTM)

VOLTAGE METER  
TO OPEN LOOM  
(Q2C-VFO)



VOLTAGE METER TO  
METER LOOM (Q2C-VMM)



### 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

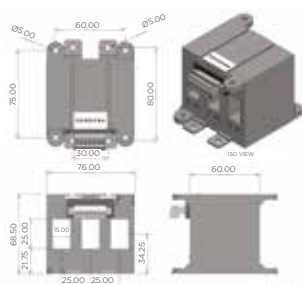


## FEATURES

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

## BENEFITS

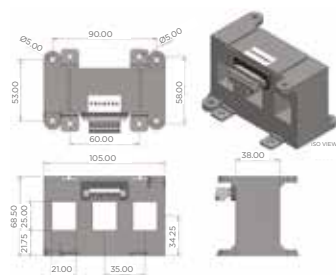
- Simple, easy and error free installation and wiring
- Applicable for most standard MCCB manufacturers



### QC3N1-25 - 25 MM CENTRES BETWEEN PHASES

76 mm wide x 60 mm deep x 68 mm high

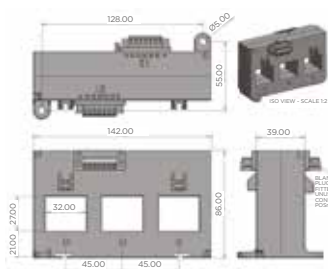
Part number	Ratio	Burden VA against class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
QC3N1-25-60/5	60/5	-	1	2	3@15x25
QC3N1-25-100/5	100/5	-	1.5	2.5	3@15x25
QC3N1-25-125/5	125/5	-	1.5	2.5	3@15x25
QC3N1-25-160/5	160/5	1.5	1.5	2.5	3@15x25



### QC3N1-35 - 35 MM CENTRES BETWEEN PHASES

105 mm wide x 38 mm deep x 68.5 mm high

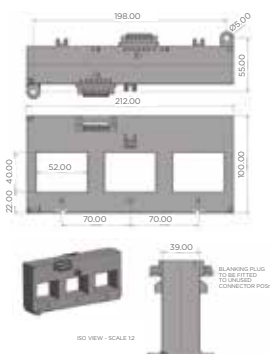
Part number	Ratio	Burden VA against class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
QC3N1-35-100/5	100/5	-	1.5	2	3@21x25
QC3N1-35-125/5	125/5	-	1.5	2.5	3@21x25
QC3N1-35-160/5	160/5	1.5	1.5	2.5	3@21x25
QC3N1-35-250/5	250/5	1.5	1.5	2.5	3@21x25



### 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 auxiliary 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
- Scalable 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 annunciators 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)

kVAh import (7-digit resolution)

kWh export (7-digit resolution)

kVAh 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

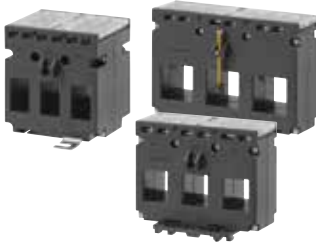


Description	Part number
Integra 2170 Power quality meter Accuracy: 0.5S%	INT-2170-M-01

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

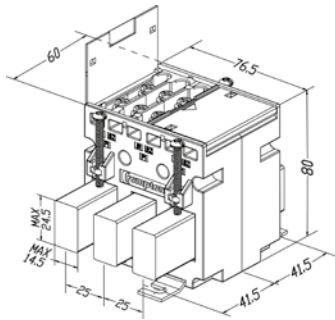


### FEATURES

- 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

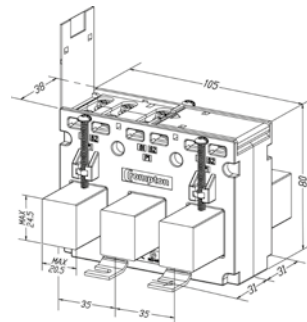
- Saving installation time where fitting three standard individual current transformers would be required
- Plug-in metal feet, DIN-rail clips and busbar mounting supplied as standard



### M3N1-25 25 MM CENTRES BETWEEN PHASES

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

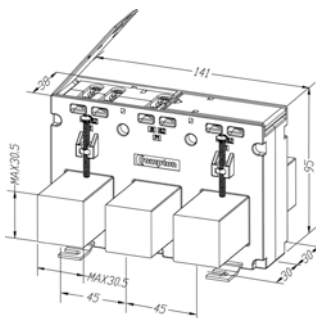
Part number	Ratio	Burden VA against Class index			Aperture (mm)
		Class 0.5	Class 1	Class 3	
M3N1-25-60/5	60/5	-	1	2	3@15 x 25 mm
M3N1-25-100/5	100/5	-	1.5	2.5	3@15 x 25 mm
M3N1-25-125/5	125/5	-	1.5	2.5	3@15 x 25 mm
M3N1-25-160/5	160/5	1.5	1.5	2.5	3@15 x 25 mm



### 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 Moulded 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.

### 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 <sub>th</sub> )	60 x I <sub>n</sub>
Dynamic short circuit current (I <sub>dyn</sub> )	2.5 x I <sub>th</sub>
Instrument security factor	5, 10, 15
Rated continuous thermal current	1,2 x I <sub>n</sub>
Degree of protection	IP20

### STANDARDS

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



### ACCURACY CLASSES

The Ebony Excel range includes a comprehensive range of class accuracies between 3, 1, & 0.5. Where higher accuracy classes are required, the Ebony Excel Plus range has class accuracies 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
XL0A, XL0B, 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 Moulded 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. XLOA-1/1A



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

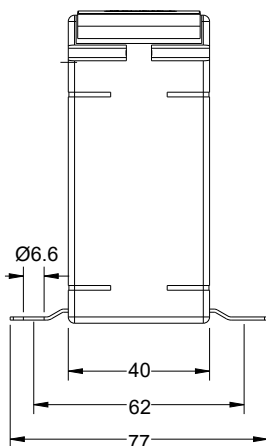
**Primary Rating:** 30 - 300A

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

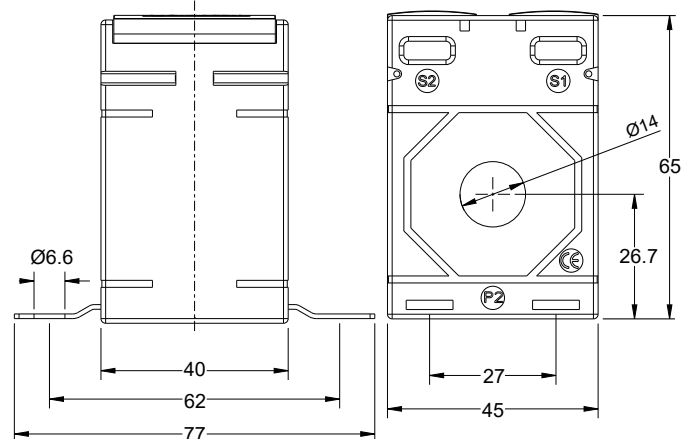


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL1A-30/5A	30A	-	1VA	1.5VA	-	5	5
XL1A-40/5A	40A	-	1VA	1.5VA	-	5	5
XL1A-50/5A	50A	-	1.5VA	2.5VA	-	5	5
XL1A-60/5A	60A	-	1.5VA	2.5VA	-	5	5
XL1A-75/5A	75A	1.5VA	2.5VA	3.75VA	5	5	5
XL1A-80/5A	80A	1.5VA	2.5VA	3.75VA	5	5	5
XL1A-100/5A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

## Current Transformers - Ebony Excel Moulded 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

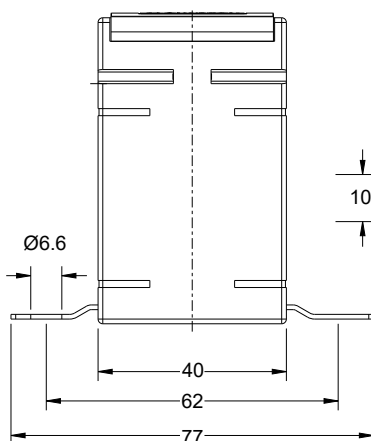
**Secondary Rating:** 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL2A-40/1A



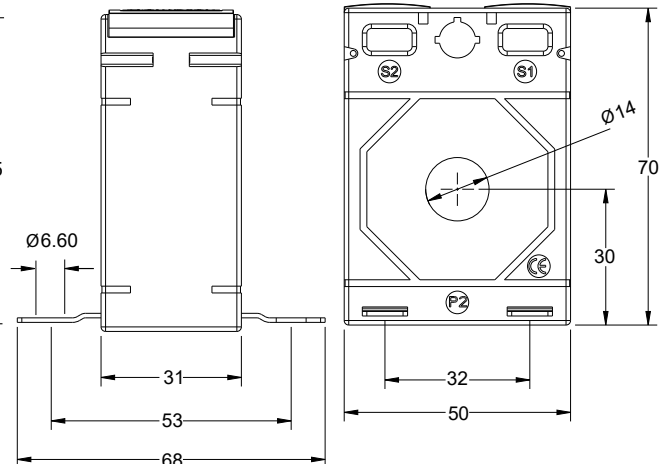
Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL2A-40/5A	40A	-	1VA	1.5VA	-	5	5
XL2A-50/5A	50A	-	1.5VA	2VA	-	5	5
XL2A-60/5A	60A	-	1.5VA	2VA	-	5	5
XL2A-75/5A	75A	-	1.5VA	2.5VA	-	5	5
XL2A-80/5A	80A	-	1.5VA	2.5VA	-	5	5
XL2A-100/5A	100A	2.5VA	3.75VA	5VA	5	5	5
XL2A-120/5A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

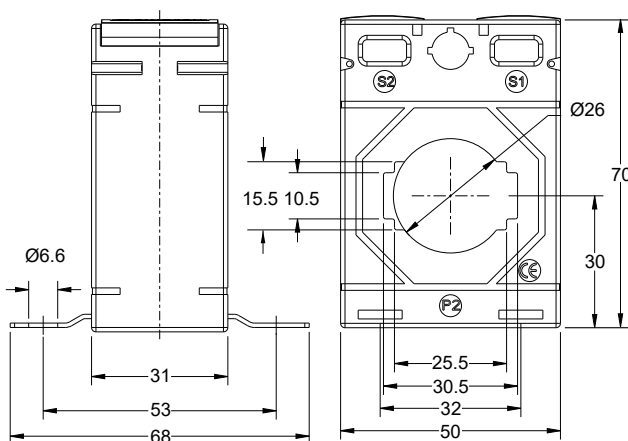
**Case size:** 62 mm wide x 40 mm deep x 78 mm high  
**Aperture:** 40.5 x 11 mm - 31 x 21 mm - Ø 31 mm  
**Primary Rating:** 200 - 800A  
**Secondary Rating:** 5A as below, 1A Ratio's available change part number to end in 1A e.g. XL3D-200/1A



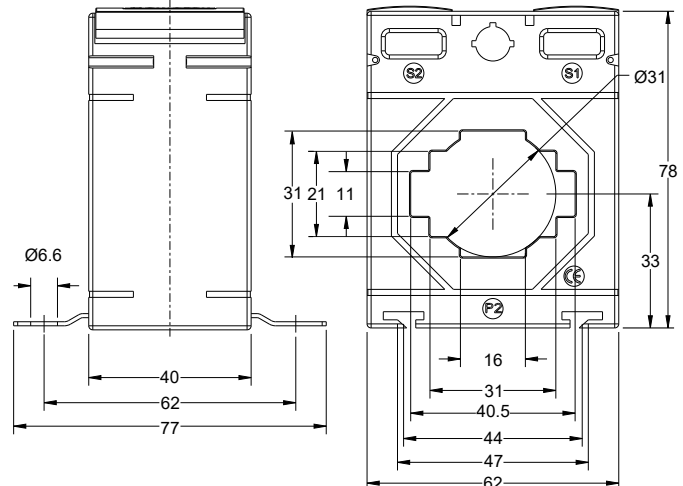
Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL3D-200/5A	200A	1.5VA	3.75VA	3.75VA	5	5	5
XL3D-250/5A	250A	2.5VA	5VA	5VA	5	5	5
XL3D-300/5A	300A	5VA	5VA	5VA	5	5	5
XL3D-400/5A	400A	5VA	5VA	7.5VA	5	5	5
XL3D-500/5A	500A	5VA	7.5VA	10VA	5	5	5
XL3D-600/5A	600A	7.5VA	10VA	12.5VA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

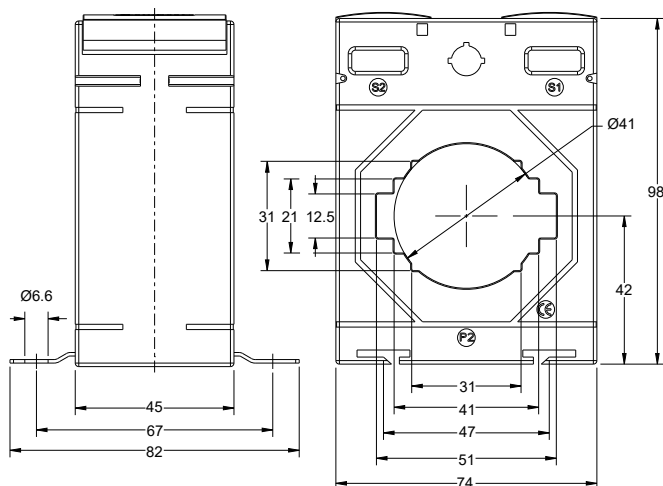
**Primary Rating:** 400 - 1600A

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

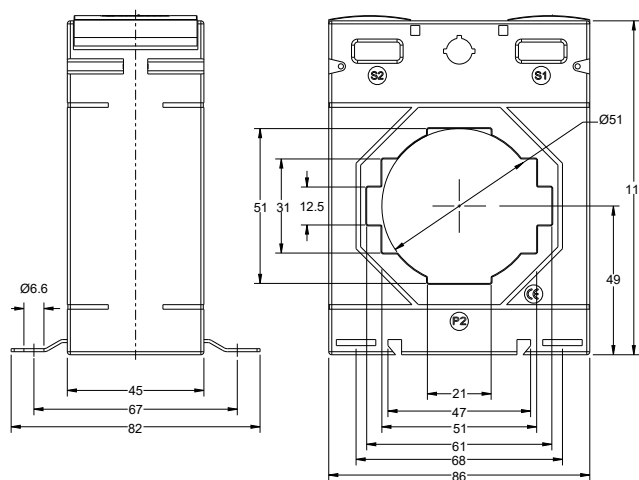


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL5C-400/5A	400A	10VA	12.5VA	15VA	5	5	5
XL5C-500/5A	500A	10VA	15VA	15VA	5	5	5
XL5C-600/5A	600A	15VA	15VA	20VA	5	5	5
XL5C-750/5A	750A	15VA	20VA	25VA	5	5	5
XL5C-800/5A	800A	20VA	20VA	25VA	5	5	5
XL5C-1000/5A	1000A	20VA	30VA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

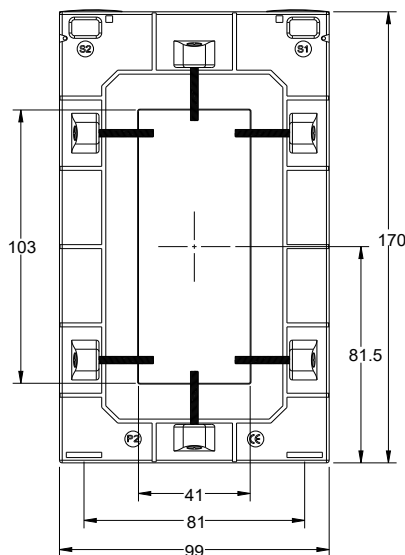
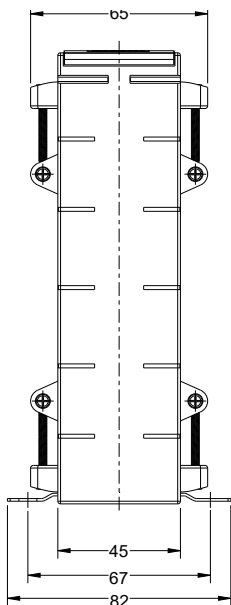
**Primary Rating:** 800 - 3200A

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

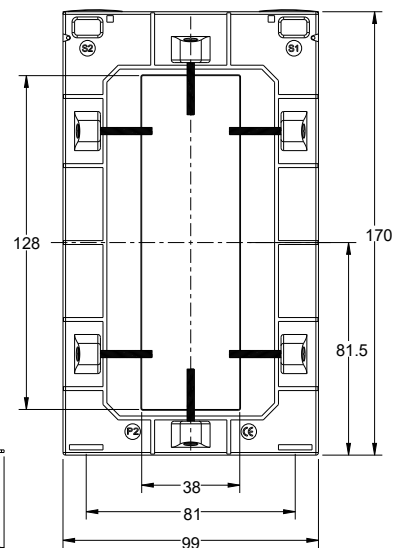
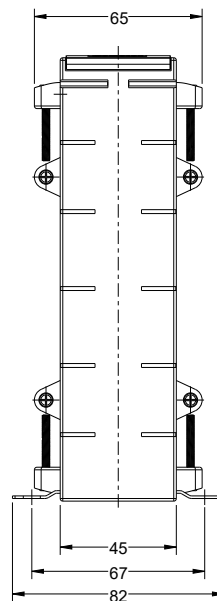


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL6B-800/5A	800A	5VA	10VA	10VA	10	5	5
XL6B-1000/5A	1000A	10VA	15VA	15VA	5	5	5
XL6B-1200/5A	1200A	10VA	15VA	15VA	5	5	5
XL6B-1250/5A	1250A	10VA	15VA	20VA	5	5	5
XL6B-1600/5A	1600A	15VA	30VA	30VA	5	5	5
XL6B-2000/5A	2000A	15VA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

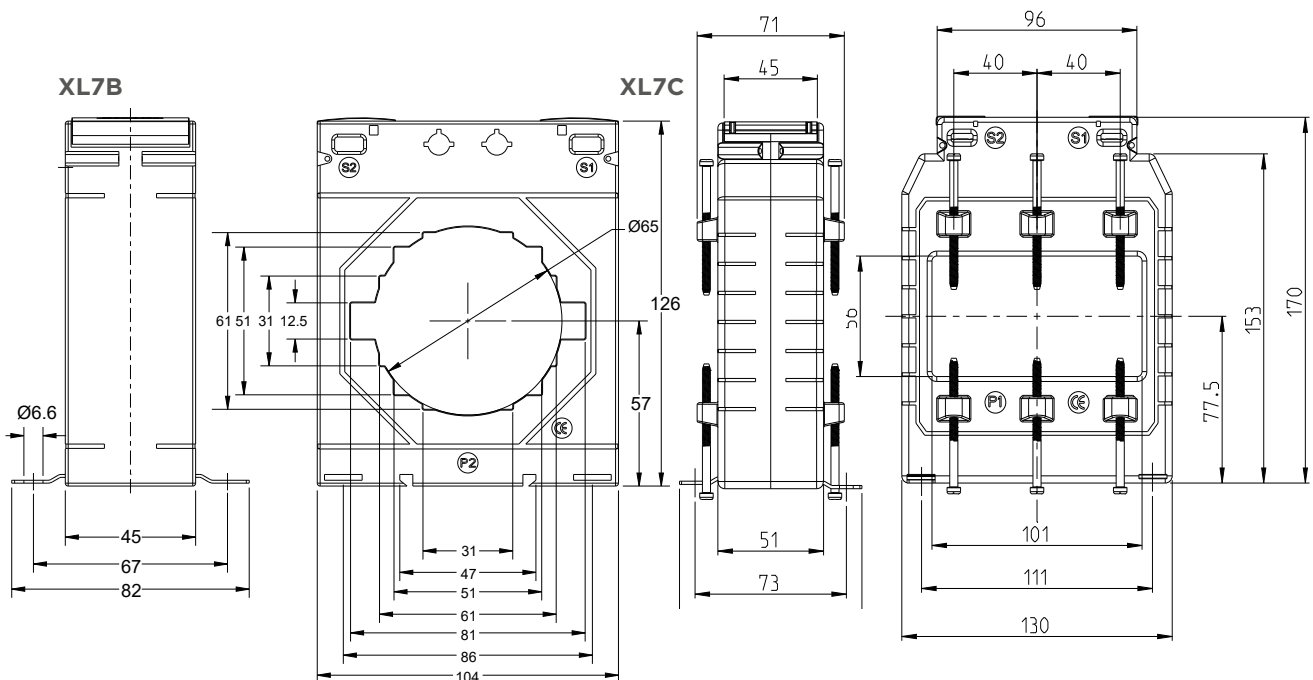
**Aperture:** 56 x 101 mm

**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 Moulded 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

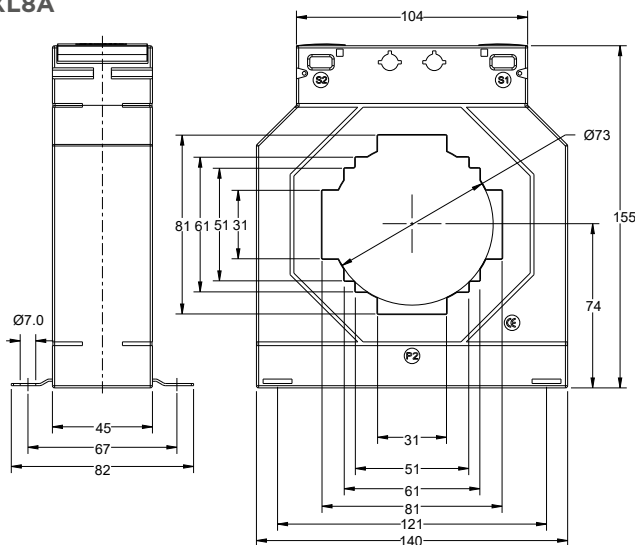
**Primary Rating:** 1600 - 4000A

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

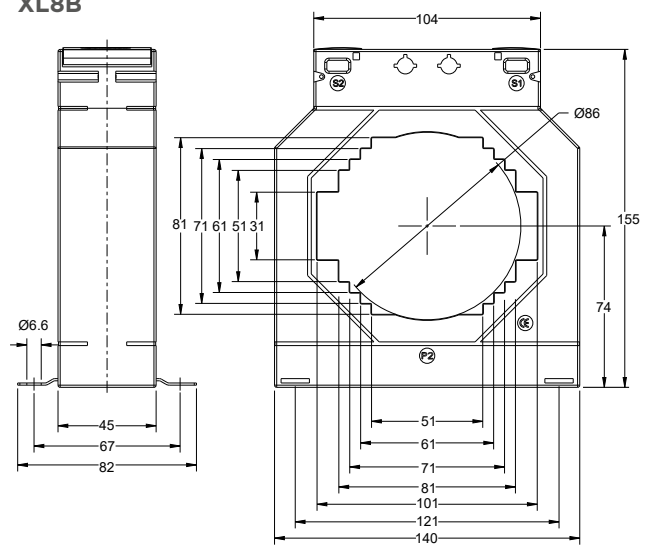


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL8B-1600/5A	1600A	20VA	45VA	45VA	5	5	5
XL8B-2000/5A	2000A	45VA	45VA	45VA	5	5	5
XL8B-2500/5A	2500A	45VA	45VA	45VA	5	5	5
XL8B-3000/5A	3000A	60VA	60VA	60VA	5	5	5
XL8B-4000/5A	4000A	60VA	60VA	60VA	5	5	5

XL8A



XL8B



Current Transformers

## 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

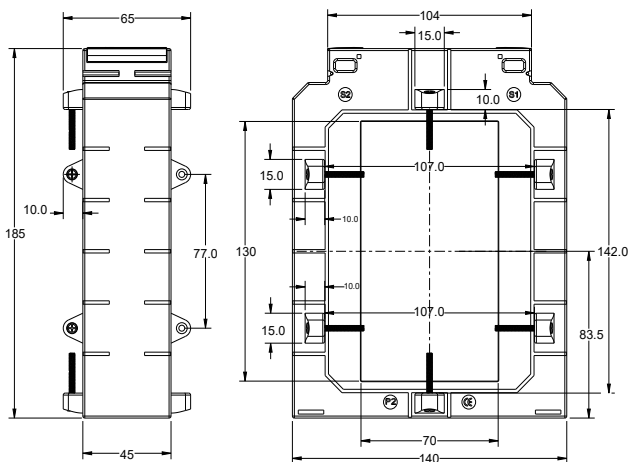
**Primary Rating:** 2500 - 6000A

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

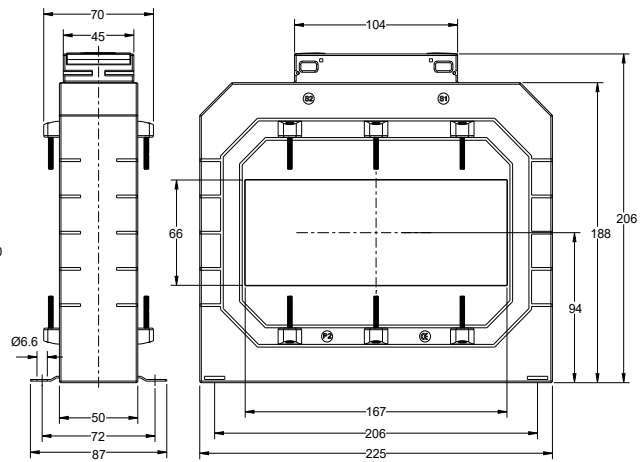


Part number	Primary current	Accuracy			Security Factor (ISF)		
		0.5	1	3	0.5	1	3
XL10B-2500/5A	2500A	30VA	45VA	45VA	10	5	5
XL10B-3000/5A	3000A	30VA	45VA	50VA	10	5	5
XL10B-4000/5A	4000A	30VA	45VA	50VA	10	10	10
XL10B-5000/5A	5000A	30VA	45VA	50VA	10	10	10
XL10B-6000/5A	6000A	30VA	45VA	50VA	10	10	10

### XL9A



### XL10B



## Current Transformers - Ebony Excel SC Moulded Case Current Transformers



### FEATURES

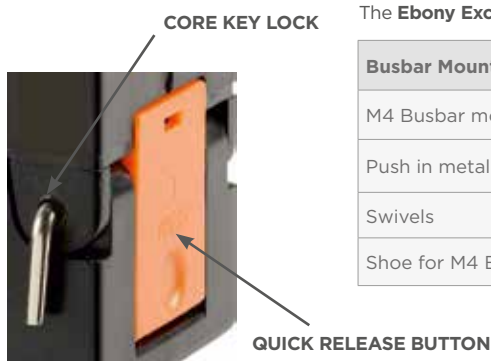
- CT ratios from 100A to 5000A with 5A and 1A secondary's
- Comprehensive range of class accuracy's
- Flame retardant UL94V-0 polycarbonate moulded case
- Wide range of system current ratings
- Wall or busbar and mounting
- Hinged terminal covers
- Laser etched rating plates
- Quick release button to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



### 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
- Moulded busbar mounting
- Primary copper busbar mounting
- Multi busbar mounting for two busbars

### 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 (I <sub>th</sub> )	60 x I <sub>n</sub>
Dynamic short circuit current (I <sub>dyn</sub> )	2.5 x I <sub>th</sub>
Instrument security factor	10, 15, 30
Rated continuous thermal current	1,2 x I <sub>n</sub>
Degree of protection	IP20

### ACCURACY CLASSES

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

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

## Current Transformers - Ebony Excel SC Moulded Case Current Transformers



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

### EBONY EXCEL SPLIT CORE RANGE

	Part number	Primary current	Accuracy		
			Class 3	Class 1	Class 0.5
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
Case 2	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
	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
Case 3	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
	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
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
	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
Case 5	XLSC5-3000/5A	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
	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

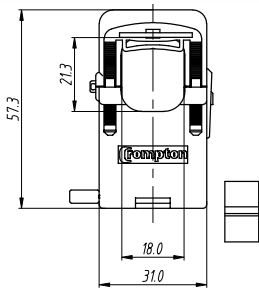


### SPECIFICATIONS

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 (Ith): for 1 sec
Overload withstand	1.2 x rated current continuously
Rated dynamic current	= 2.55 x Iht
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

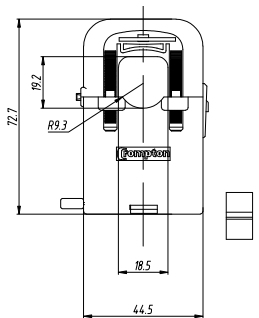
Case: 31 mm wide x 53 mm deep x 57.3 mm high  
Aperture: 18 mm, Cable length: 1 m



Part Number	Primary Current	Class	Burden VA
MSC1-60/1	60/1	3	0.1
MSC1-75/1	75/1	3	0.1
MSC1-80/1	80/1	3	0.15
MSC1-100/1	100/1	1	0.2

### MSC2

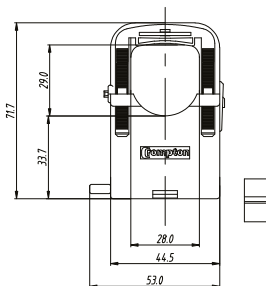
Case: 44.5 mm wide x 61.5 mm deep x 72.7 mm high  
Aperture: 18 mm, Cable length: 1 m



Part Number	Primary Current	Lead Length (m)	VA at CI 1	VA at CI 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	-

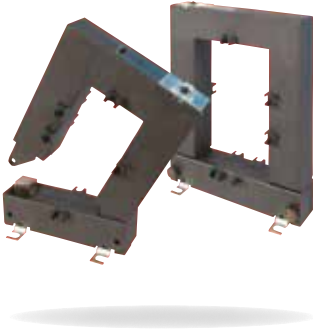
### MSC3

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 CI 1	VA at CI 3
MSC3-300/5	300/5	2.5	1.5	-
MSC3-400/5	400/5	2.5	2.5	-
MSC3-500/5	500/5	2.5	2.5	-

## 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	-	-	1.5
	SC1-150/5A	150/5 A	-	-	2
	SC1-200/5A	200/5 A	-	1.5	2.5
	SC1-250/5A	250/5 A	-	2	4
Case 2	SC2-250/5A	250/5 A	1	2	4
	SC2-300/5A	300/5 A	1.5	3	6
	SC2-400/5A	400/5 A	1.5	3	10
	SC2-500/5A	500/5 A	2.5	5	15
	SC2-600/5A	600/5 A	2.5	5	15
	SC2-800/5A	800/5 A	3	7.5	20
Case 3	SC3-600/5A	600/5 A	2.5	5	15
	SC3-800/5A	800/5 A	3	7.5	20
Case 4	SC4-1000/5A	1000/5 A	5	10	20
	SC4-1200/5A	1200/5 A	6	12.5	25
	SC4-1250/5A	1250/5 A	7.5	15	30
	SC4-1600/5A	1600/5 A	8	17	30
Case 5	SC5-2000/5A	2000/5 A	15	20	25
	SC5-2500/5A	2500/5 A	15	20	25
	SC5-3000/5A	3000/5 A	20	25	30

## Ring Current Transformers



### 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

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

# 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

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 CL0.2 and includes RS485 Modbus RTU communications protocol and pulse/alarm output as standard.

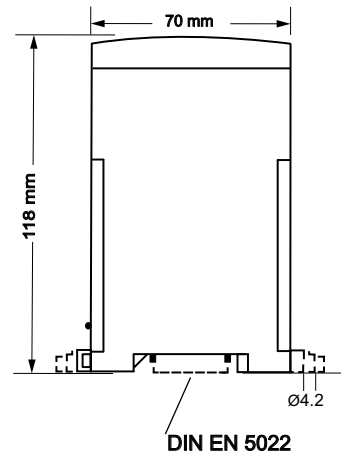
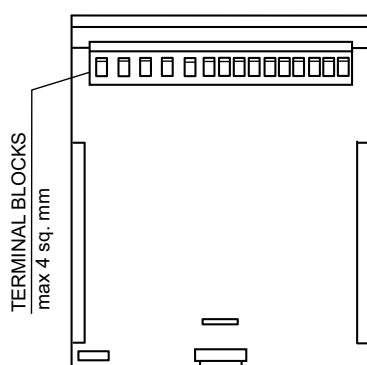
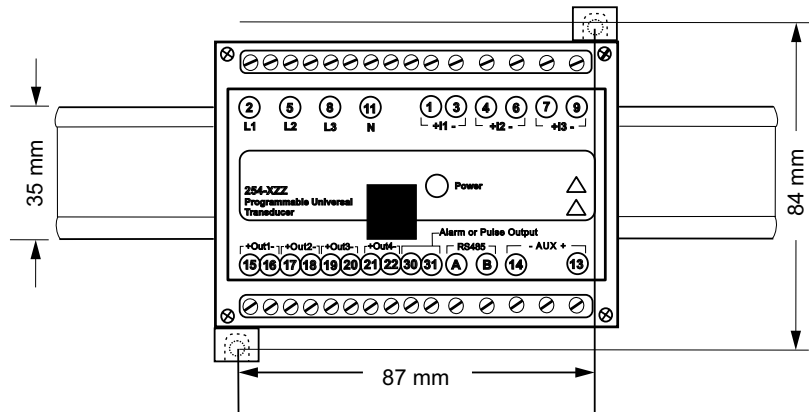
The Paladin Advantage 254-XZZ transducer is an accurate device for the conversion of all main electrical parameters into a Voltage or mA output and provides measurement, isolation and conversion of up to four user defined inputs and outputs. The device is supplied programmed to the users requirements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

### STANDARDS

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

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
THD	FREQ	Frequency
	THDV1	THD V1
	THDV2	THD V2
	THDV3	THD V3
	THD I1	THD I1
THD I2	THD I2	
THD I3	THD I3	
COSPFI	COSPFI 1	Displacement P.F
	COSPFI 2	Displacement P.F
	COSPFI 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 Milliamps 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 Synchrosopes 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.

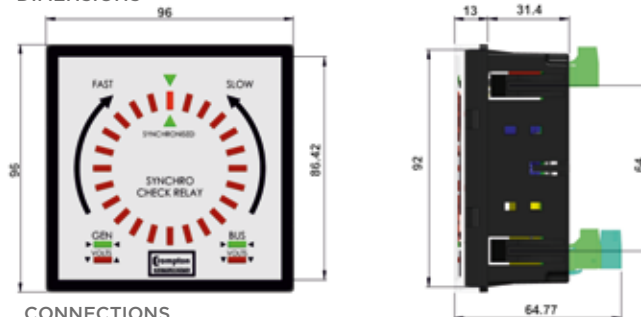
The LED indication gives real-time feedback on the synchronisation state with relay output for systems integration. Dead bus monitoring is also available, as an option, combined with the Voltage and phase monitoring.

### SPECIFICATIONS

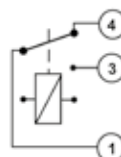
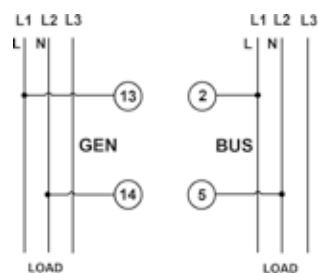
Nominal Voltage	±10% of range
Nominal Frequency	45 / 65 Hz
Operating Position	Panel Mounted (Vertical)
Accuracy	1%
Overload	1.2x range max, continuous, 2x for 5 secs
Relay Output Type	Single Pole changeover
Relay Output Rating	250 V, 5 A AC resistive
Operating Temperature	-20°C to +55°C (-4°F to 131°F )
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-V0
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	
244-14GG-L-01	100/120V AC	Synchro check relay, and Voltage Difference
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
1 mA 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



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.

### DIN72 - AC HOURS RUN METER

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		Part number	
	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

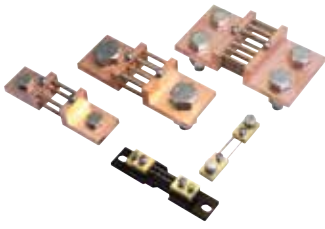
Description	Part number
1 mA DC indicator	E244-01A-G-FA-**-
10 mA DC indicator	E244-01A-G-GZ-**-
20 mA DC indicator	E244-01A-G-HF-**-
4-20 mA DC indicator	E244-01R-G-HG-**-

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.

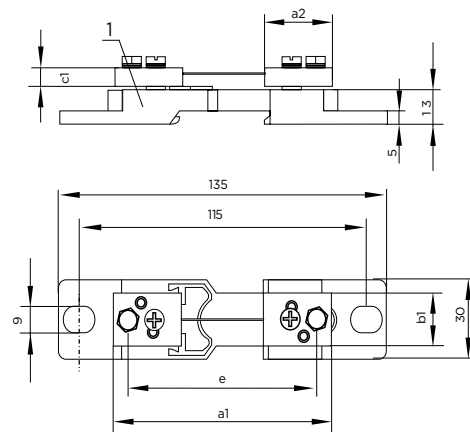
### SPECIFICATION

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

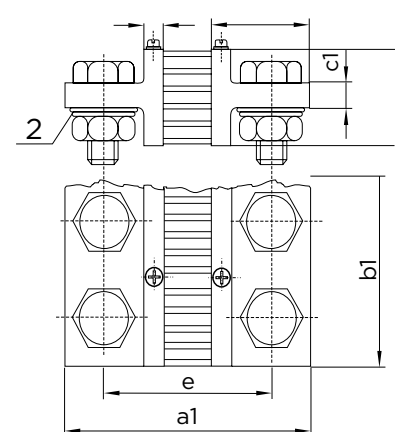


Part number	Ratio	Version as per drawings
ST1-40A/60MV	40 A-60 mV Class 0.5	A
ST1-60A/60MV	60 A-60 mV Class 0.5	A
ST1-80A/60MV	80 A-60 mV Class 0.5	A
ST1-100A/60MV	100 A-60 mV Class 0.5	A
ST1-150A/60MV	150 A-60 mV Class 0.5	A
ST2-200A/60MV	200 A-60 mV Class 0.5	B
ST2-250A/60MV	250 A-60 mV Class 0.5	B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

A



B



1 Insulating base - 2 Spring washer

# Selector switches

### FEATURES

- Compact size
- Reliable design
- Multi pole

### STANDARDS

- IEC EN 60947-3
- VDE 0660 part 107

### BENEFITS

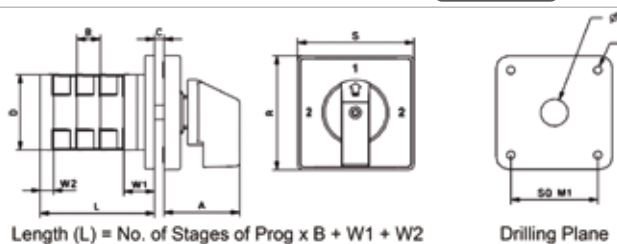
- Cost effective
- Easy to install
- High protection class



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.

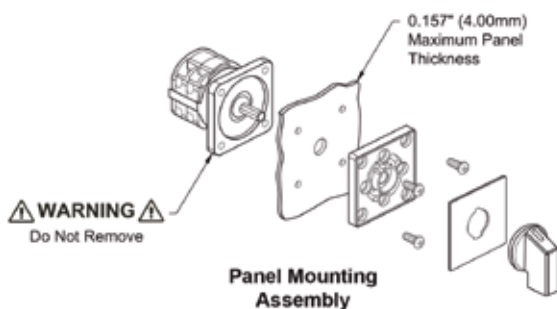
Each switch is supplied with both numbered and coloured annotation.

Description		Part number
		10A
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](http://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](http://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](http://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](http://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](http://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](http://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.

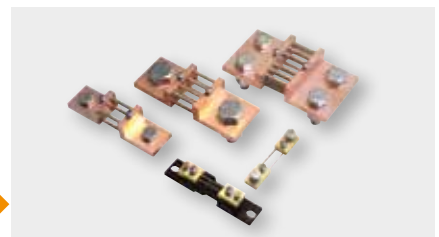
[www.crompton-instruments.com/relay.html](http://www.crompton-instruments.com/relay.html)



## 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](http://www.crompton-instruments.com/shunt.html)





TE Connectivity Ltd. is a \$14 billion global technology and manufacturing leader creating a safer, sustainable, productive, and connected future. For more than 75 years, our connectivity and sensor solutions, proven in the harshest environments, have enabled advancements in transportation, industrial applications, medical technology, energy, data communications, and the home. With 80,000 employees, including more than 8,000 engineers, working alongside customers in approximately 140 countries, TE ensures that EVERY CONNECTION COUNTS. Learn more at [www.te.com](http://www.te.com) and on LinkedIn, Facebook, WeChat and Twitter.

**Generation**

- Conventional Power
- Nuclear Power
- Wind/Solar
- Hydro-electric

**Transmission & Distribution**

- Substation
- Underground
- Overhead
- Street Lighting

**Industry**

- Mining
- Petrochemical
- Railway
- Shipbuilding

WHEREVER ELECTRICITY FLOWS, YOU'LL FIND TE ENERGY



[crompton-instruments.com](http://crompton-instruments.com)

**FOR MORE INFORMATION:**

**TE Technical Support Centres**

UK: Europe: Middle East: Africa: +44 870 870 7500  
USA: +1 800 327 6996  
Australia: +61 1300 656 090

[te.com/energy](http://te.com/energy)

© 2018 TE Connectivity Ltd. family of companies. All Rights Reserved. EPP-2077-08/20

TE Connectivity, the TE connectivity (logo) and Crompton Instruments are trademarks of the TE Connectivity Ltd. family of companies. Other logos, product and Company names mentioned herein may be trademarks of their respective owners. While TE has made every reasonable effort to ensure the accuracy of the information in this brochure, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this brochure are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.

