

SMART METERING SOLUTIONS

Standard, Wireless Metering & Remote Monitoring



RFE (Reg Farrell Engineering Ltd)

Unit 19, Oak Road Business Park, Western Industrial Estate, Dublin 12.

Tel: +353 1 4659010 **Fax:** +353 1 4659011 **Email:** sales@rfe.ie



RFE.IE

RFE & Eastron Europe are leading the way with many successful energy management projects.



Full Energy Monitoring Solution Installed in Manufacturing Facility Without Disruption

“RFE were delighted to take the lead on this project and work directly with our customer, the project was delivered on time and on budget, much to the satisfaction of our client.”

Customer Case Study:

Full study of overall energy usage in an existing global plastics packaging manufacturing facility with over 100 powered machines of varying tasks within the manufacturing process.

Objectives:

- Specify and supervise installation of the best solution equipment available.
- To reduce carbon emissions.
- Reduce energy consumption.
- Reduce energy costs.
- Improve efficiency.
- Carry out survey and installation without disruption to production.

Method:

- Undertake pre-analysis and planning
- Review best available data and review current and past performance
- Use benchmarking as an effective strategy

The Result

The fulfilment of the customers criteria was met with a complete energy monitoring system design completed within a six-week time frame with minimum disruption to the workings of both the plant and personnel that provided:

- A complete energy monitoring and data logging network with HMI portal cloud-based capabilities.
- Over eighty individual machines with process monitoring and analysis capabilities.
- A reduction in the carbon emissions achieved through analysis of current and past performance in conjunction with benchmarking.
- A system capable of being extended seamlessly as new monitoring locations emerge.

Interested in finding out more: Reduce energy losses and increase efficiency.

Speak with our technical sales team today at Telephone 01 4659010 or email: sales@rfe.ie

Introduction

RFE & Eastron Europe, design, manufacture and stock a wide range of power and monitoring solutions, from a complete range of DIN rail mounted meters, panel mounted solutions, multi circuit systems, current transformers, AMR (Automatic Meter Reader), data logging (LoRa-WAN) (LoRa-Mesh) and software interfaces.

Index

	Pages		Pages
Easy Click SMART Meter X96-1	4-6	Prepaid Meters	
CT's RJ /Three Phase CT's	7-8	SDM320Y Single Phase	29-30
CT's ESCT Split Core	9	SDM530Y Three Phase	31-32
Connecting Cables	10		
		Wireless Solutions	
Panel Mounted Meter X96/X96 -5 Series	11-12	Meter Readers /Data Logging	34-35
CT's ESCT-T Split Core	13	LoRa-MESH/LoRa-WAN- Energy Monitoring	36-37
CT's TA/TAS	14-15		
		MultiClick	
Din Rail Mounted Meters		Modular Based Solution	38-39
SDM120 Single Phase	16-17	MCS-1 Module	40
SDM120 (CT) Single Phase	18-19	MSC-U Voltage & Communication Module	41
SDM230 Single Phase	20-21	MSD- D Display & Control Module	42
SDM230 M Single Phase	22-23		
SDM72 Three Phase	24	Software	
SDM72 (CT) Three Phase	25-26	Connex	43-46
SDM630 (CT) Three Phase	27-28		

EasyClick is a proven solution, making the installation process of power metering systems reliable, fast and error free.



EasyClick

**SAVE UP TO 85%
OF LABOUR COSTS**



Engineered and designed around a “plug and play” concept, consisting of a full range in plug in RJ12 Three phase current transformers and DIN rail and panel mounted Panel meters. This replaces the need to hardwire 6 individual secondary cables from the current transformer to the power meter. We also use a plug-in terminal for the voltage references (L1, L2, L3 and N). This not only reduces installation time by up to 85%, but also removes any potential wiring errors. Making the overall installation faster and error free.

It is also possible to have up to 32 devices powered from one voltage reference fused supply, as the meters have a voltage output plug in terminal, allowing you to daisy chain from one meter

to the next. We provide a full range of Current transformer, Voltage in and Voltage out looms. If you prefer to manufacture you own voltage looms, then this is also possible as we supply the terminal kits free of Charge with each meter.

Due to the demand of most applications requiring the power meters to be read remotely using the RS485 modbus output, we also provide free commissioning and configuration software. This allows the modbus network to be checked prior to installation of the panel / switchboard. It also allows you to set the programmable parameters from one central point and read each meter individually.

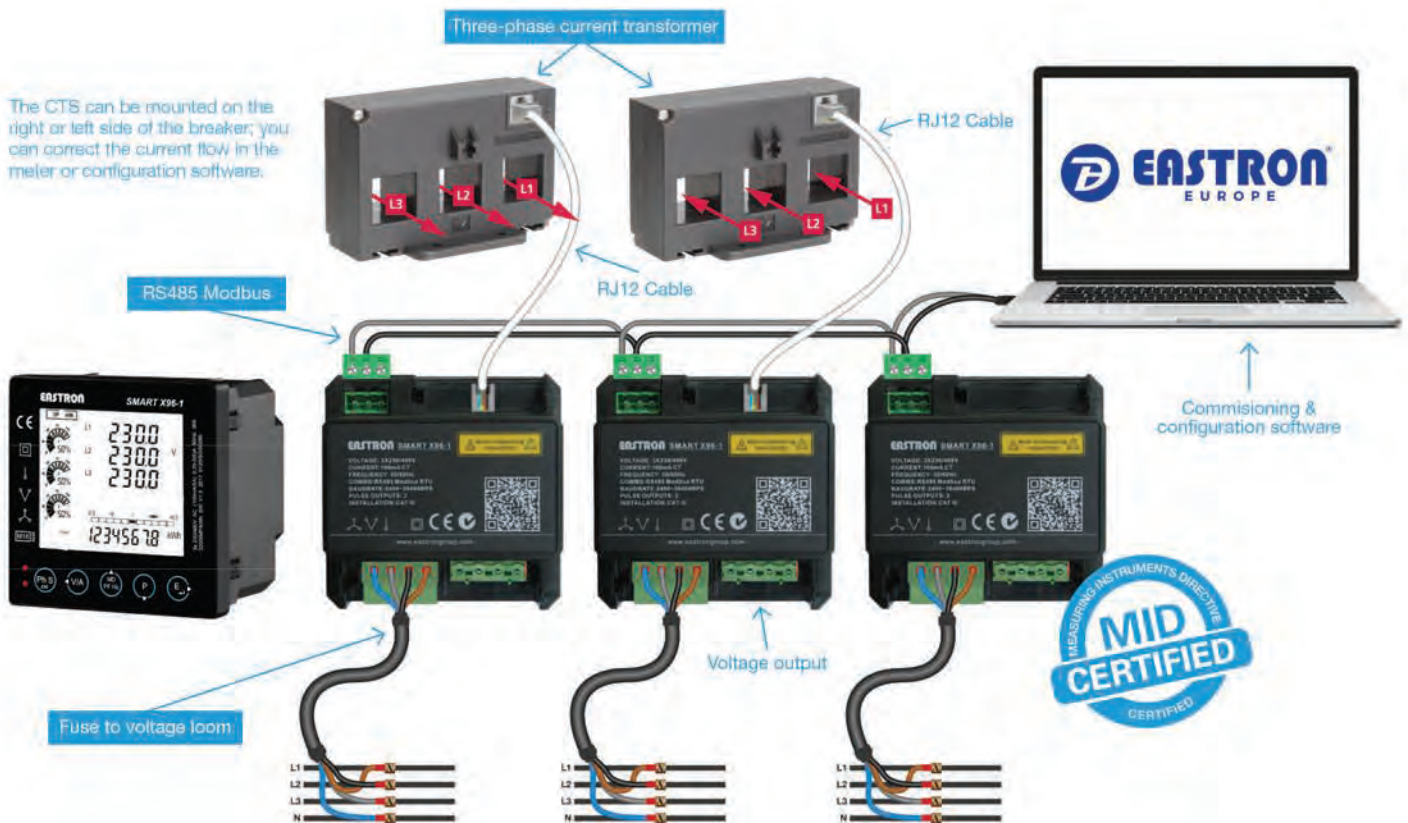
We have a full range from 96x96mm Panel mounted, DIN rail mounting (Single Load, Dual Load, Tri-Load and Quad Load).

If you also require a full end to end solution, we have the Eastron ConneX sub metering system which is integrated with our data logging, remote monitoring and HMI platform.

- CE and MID Certified
- Overall System Accuracy Class B (1%)
- Phase sequence indication
- Programmable Pulsed output
- Built in RS485 Modbus output
- individual phase summary display (Amps, Volts, Watts and kWh)
- Individual Harmonic Levels up to 61st Tested to 1% accuracy (SMART X96-1 only)
- Min and Max Voltage levels (SMART X96-1 Only)
- Lower specification option for further cost saving (SMART X96-1E)

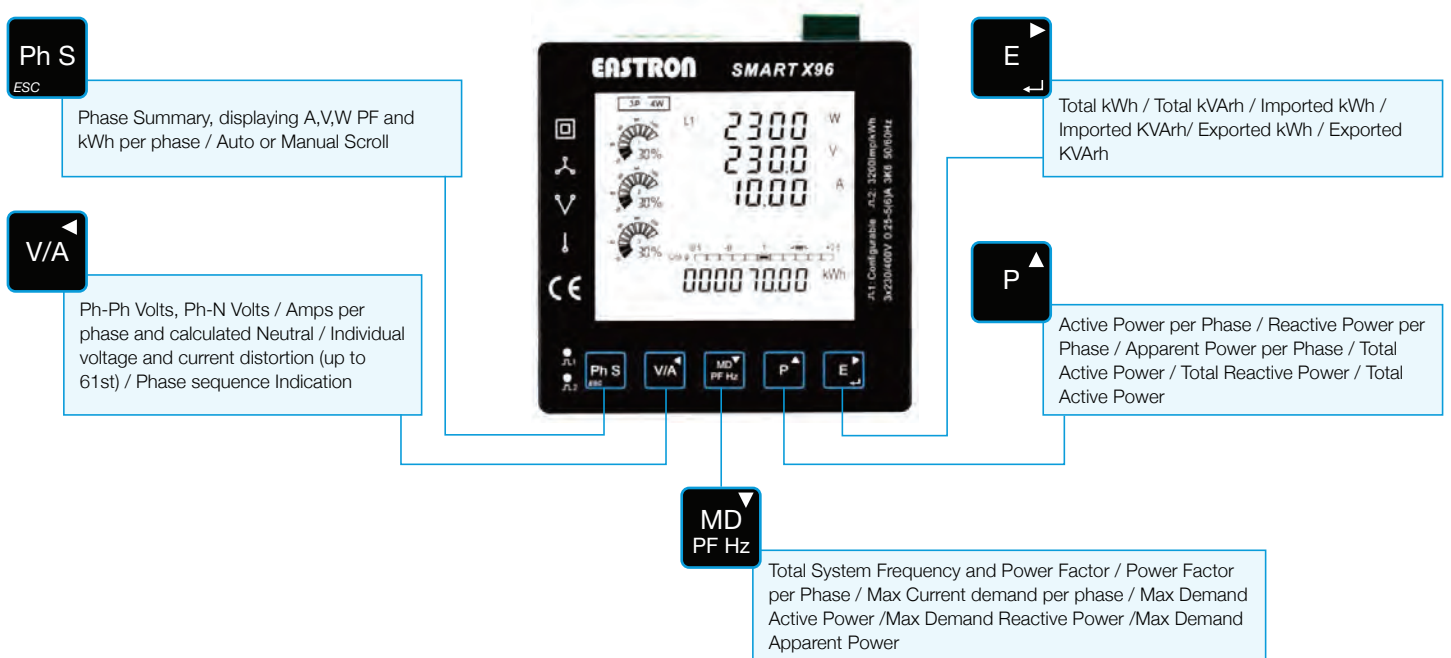


Example of installation



Meter Type	Description of Meter
SMART X96-1	Active Import/Export (kWh) 3x230/400V, 100mA/5(6)A, Transformer operated, Multifunction, RS485 Modbus RTU
SMART X96-1E	Active Import/Export (kWh) 3x230/400V, 100mA/5(6)A, Transformer operated, Multifunction, RS485 Modbus RTU, No THD, No Voltage Output and 1P2W and 3P4W only

Features



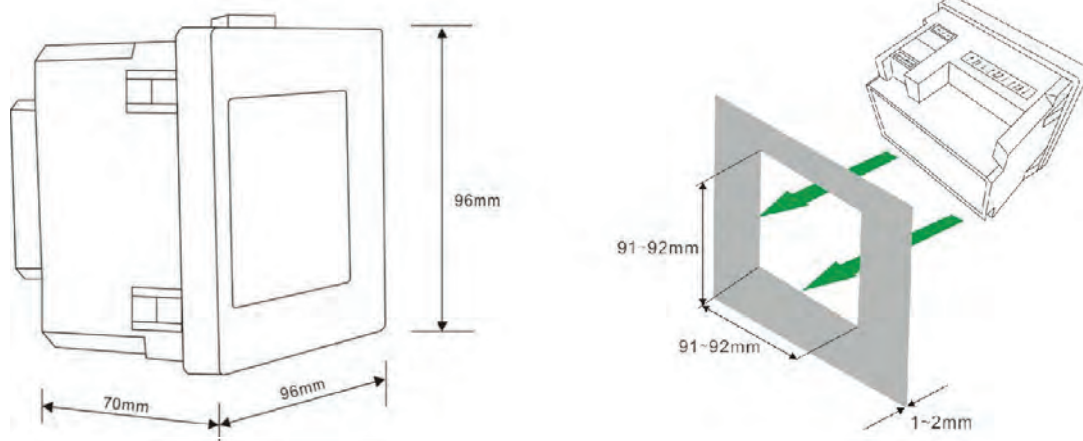
Conformity references:

Electromagnetic Compatibility: IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2,-3-4-5-6-8-11 IEC/EN50470-1/3

Accuracy: IEC/EN50470-1/3, IEC/EN62053-21, IEC/EN62053-23, DIRECTIVE 2014/32/EU

Safety: EC/EN61010, IEC/EN50470-1

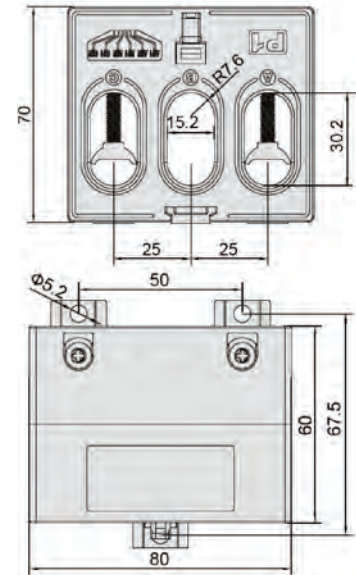
Dimension drawing



RJ325

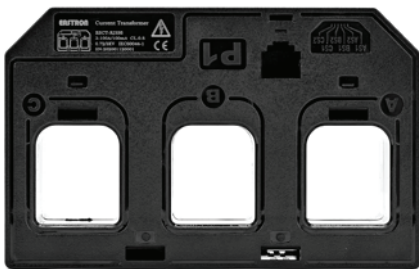


- Class 0.5 Accuracy
- 100mA Secondary
- RJ12 Connector Output
- 25mm Centres
- 60-200A Primary current options
- Tamper proof clip for RJ12 connection

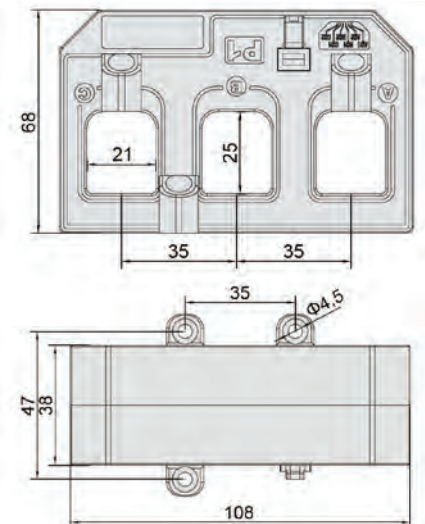


Model	Rated Amp	Output	Burden	
			Class 0.5	Class 1.0
ESCT-RJ325	60A	100mA	0.25	1
ESCT-RJ325	100A	100mA	0.25	1
ESCT-RJ325	120A	100mA	0.25	1.5
ESCT-RJ325	125A	100mA	0.25	1.5
ESCT-RJ325	150A	100mA	0.25	2.5
ESCT-RJ325	160A	100mA	0.25	2.5
ESCT-RJ325	200A	100mA	0.25	2.5

RJ335

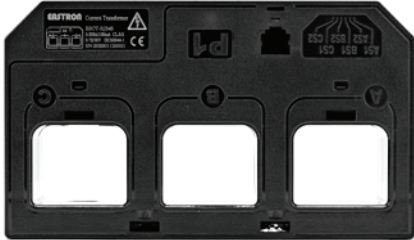


- Class 0.5 Accuracy
- 100mA Secondary
- RJ12 Connector Output
- 35mm Centres
- 60-250A Primary current options
- Tamper proof clip for RJ12 connection

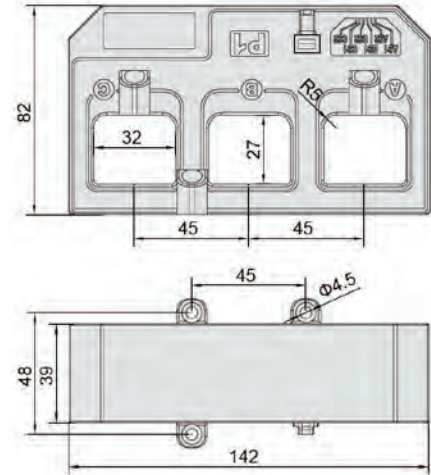


Model	Rated Amp	Output	Burden	
			Class 0.5	Class 1.0
ESCT-RJ335	63A	100mA	0.25	0.25
ESCT-RJ335	125A	100mA	0.25	0.5
ESCT-RJ335	160A	100mA	0.25	0.5
ESCT-RJ335	200A	100mA	0.25	0.5
ESCT-RJ335	250A	100mA	0.25	0.5

RJ345



- Class 0.5 Accuracy
- 100mA Secondary
- RJ12 Connector Output
- 45mm Centres
- 250-630A Primary current options
- Tamper proof clip for RJ12 connection

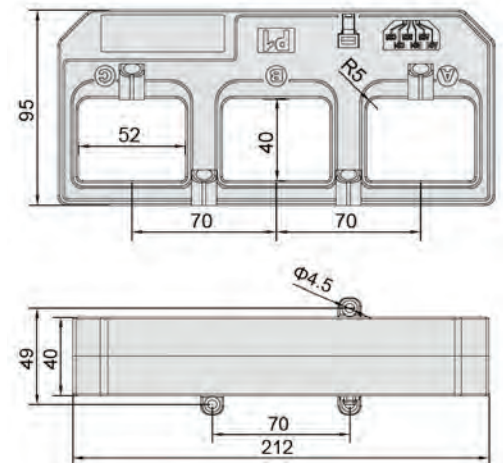


Model	Rated Amp	Output	Burden	
			Class 0.5	Class 1.0
ESCT-RJ345	250A	100mA	0.25	0.5
ESCT-RJ345	300A	100mA	0.25	0.5
ESCT-RJ345	400A	100mA	0.25	0.5
ESCT-RJ345	500A	100mA	0.25	0.5
ESCT-RJ345	600A	100mA	0.25	0.5
ESCT-RJ345	630A	100mA	0.25	0.5

RJ370



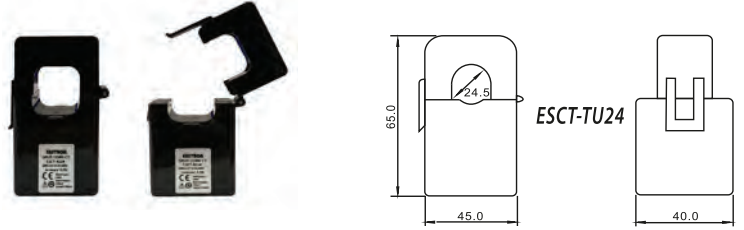
- Class 0.5 Accuracy
- 100mA Secondary
- RJ12 Connector Output
- 70mm Centres
- 600-1600A Primary current options
- Tamper proof clip for RJ12 connection



Model	Rated Amp	Output	Burden	
			Class 0.5	Class 1.0
ESCT-RJ370	600A	100mA	0.25	3.75
ESCT-RJ370	630A	100mA	0.25	3.75
ESCT-RJ370	800A	100mA	0.25	5
ESCT-RJ370	1000A	100mA	0.25	5
ESCT-RJ370	1200A	100mA	0.25	7.5
ESCT-RJ370	1600A	100mA	0.25	7.5

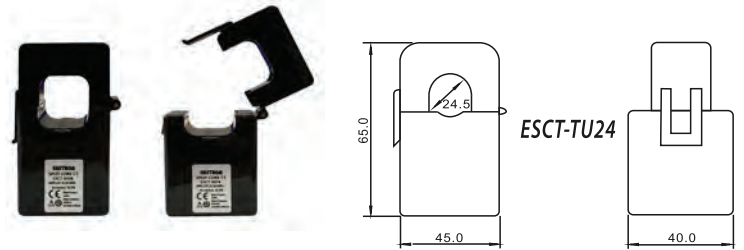
ESCT-TU 16

Product Codes	Primary Current	Accuracy Class	Aperture (WXH)
ESCT-TU16-5/100mV	5A	0.5	16mm ϕ
ESCT-TU16-10/100mV	10A	0.5	16mm ϕ
ESCT-TU16-50/100mV	50A	0.5	16mm ϕ
ESCT-TU16-100/100mV	100A	0.5	16mm ϕ
ESCT-TU16-150/100mV	150A	0.5	16mm ϕ



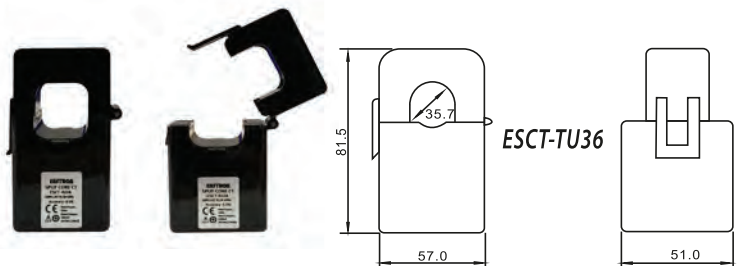
ESCT-TU 24

Product Codes	Primary Current	Accuracy Class	Aperture (WXH)
ESCT-TU24-10/100mV	10A	0.5	24mm ϕ
ESCT-TU24-50/100mV	50A	0.5	24mm ϕ
ESCT-TU24-100/100mV	100A	0.5	24mm ϕ
ESCT-TU24-250/100mV	250A	0.5	24mm ϕ
ESCT-TU24-300/100mV	300A	0.5	24mm ϕ



ESCT-TU 36

Product Codes	Primary Current	Accuracy Class	Aperture (WXH)
ESCT-TU36-20/100mV	20A	0.5	36mm ϕ
ESCT-TU36-100/100mV	100A	0.5	36mm ϕ
ESCT-TU36-250/100mV	250A	0.5	36mm ϕ
ESCT-TU36-400/100mV	400A	0.5	36mm ϕ
ESCT-TU36-600/100mV	600A	0.5	36mm ϕ



X96-C2

Voltage Input Cable. 4*1mm² cables, one end with male terminal.



0.3 Metre
0.5 Metre
1.0 Metre
1.5 Metre
2.0 Metre

X96-C3

Cable between meter voltage output to the voltage input of next meter. 4*1mm² cables, one end with male terminal and another end with female terminal.



0.3 Metre
0.5 Metre
1.0 Metre
1.5 Metre
2.0 Metre

RJ12CABLE-*CW

RJ12 cable from meter to CT.



1.0 Metre	6.0 Metre
2.0 Metre	7.0 Metre
3.0 Metre	8.0 Metre

Panel Mounted / Three Phase / CT Operated -SMART X96/X96-5 Series

- Three Phase 1/5A Current Transformer operated
- MID B+D Certified
- UL Registered
- Accuracy Class 0.5 (Active Energy)
- Bi-directional Measurement for kW and kWh
- Configurable Pulsed output (Import/ Export / Nett kWh)
- Modbus (SMART X96-5) or Mbus (SMART X96-5-Mbus)
- Multi Parameter measurement
- Phase Sequence indication
- Phase Summary Page
- 2nd~63rd Individual Harmonic Distortion
- Internal three phase supply
- Multi-Tariff
- Free Configuration software

The SMART X96 series is an advanced multifunction three-phase energy monitoring solution with optional outputs such as Pulsed, RS485 RTU Modbus and Mbus. Equipped with configuration and display buttons for ease of navigation through the various parameters and settings. Housed for 96mm panel mounting, IP51 protection and 1/5A current transformer operated. Selectable measurement modes using our free configurations software for kWh display, Total kWh (Import + Export), Import kWh and Net kWh (Export - Import) UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0288.

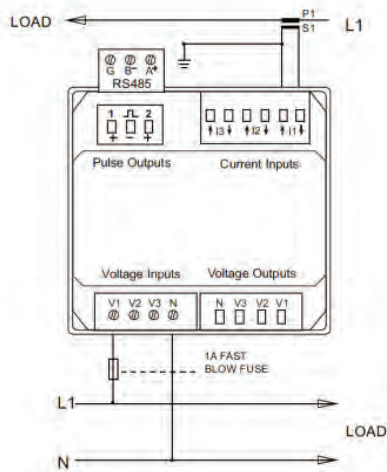


Specification table

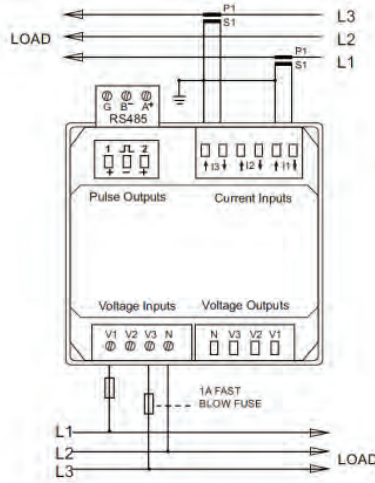
Input	
Nominal input voltage	100-276V AC (L-N) 173-480V AC(L-L)
Max. continuous input overload voltage	120% of nominal
Max. short duration input voltage	2 x nominal voltage for 1 second
Nominal input voltage burden	< 0.2VA per phase
Nominal input current	1/5A
Nom. Input current burden	< 0.1 VA
Max. continuous input overload current	120% of nominal
Max. short duration input current	20 x nominal current for 1 second
Power supply	
Operating range	Self powered (from any of the three phases)
Supply burden	< 2W / 10 VA
Accuracy	
Voltage (V)	0.5% of range maximum
Current (A)	0.5% of range maximum
Frequency (Hz)	0.2% of mid-frequency
Power factor (PF)	1% of unity (0.01)
Active power (W)	1.0% of range maximum
Reactive power (VAr)	1.0% of range maximum
Apparent power (VA)	1.0% of range maximum
Active energy (kWh)	Class 0.5S IEC62053-22 Class 1.0 IEC62053-21
Reactive energy (kVArh)	1.0% of range maximum to IEC 62053-24
THD	2% to 63rd harmonic
Environment	
Operating temperature	- 25°C to +55°C
Storage temperature	-40°C to +70°C
Relative humidity	0 to 95%, non-condensing
Shock	30g in 3 planes
Vibration	10Hz to 50Hz, IEC 60068-2-6, 2g
Dielectric Voltage	4kV between voltage and current to earth
Altitude	3000m
Warm-up	1 minute
Outputs	
Pulsed output relay (configurable)	Opto-coupled, potential-free SPST-NO contact
Contact Rating current	2-27mA at 27V DC
Contact Rating voltage	5-27V DC
Pulse Width	60 / 100 / 200 ms
Pulse rate of S0 1	0.01 / 0.1 / 1 / 10 / 100 kWh/kVArh
Pulsed output of S0 2 (non-configurable)	3200IMP/kWh
Communications	
Type	Modbus RTU (RS485)
Type	2-wire half duplex
Baud rate	2400,4800, 9600, 19200, 38400
Address	1 to 247
Enclosure	
Enclosure Style	DIN 96 panel mount
Dimensions	96x96x62 mm
Panel cut-out	92x92mm
Panel thickness	1-2 mm
Protection rating	Ip51 (Indoor)
Material	UL 94-V0
Weight	340 g
Cable size	0.05mm-4mm stranded wire
Terminals	Voltage: Shrouded screw-clamp. Current: RJ12

Panel Mounted / Three Phase / CT Operated -SMART X96/X96-5 Series

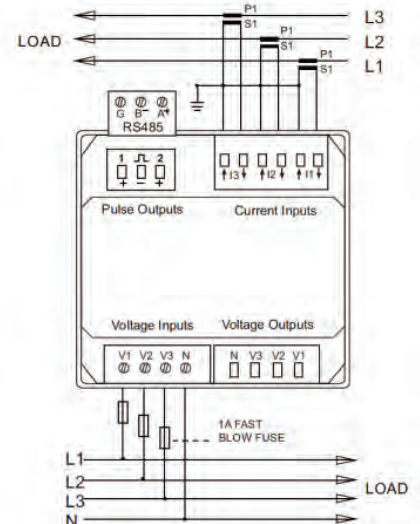
Wiring Configuration



Single phase two wires
(No Voltage Output on SMART X96-5E Model)

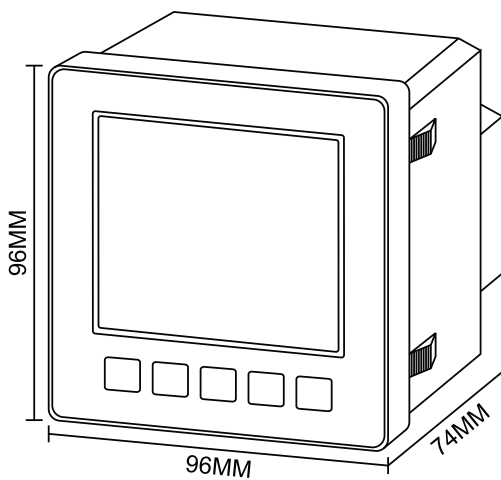


Three phase three wires
(N/A for SMART X96-5E Model)



Three phase four wires
(No Voltage Output on SMART X96-5E Model)

Dimension Drawing



Ordering options

Meter Type	Description of Meter
SMART X96-5	Active Import/Export (kWh) 3x230/400V, 0.25-5(6)A, Transformer operated, Multifunction, RS485 Modbus RTU
SMART X96-5E	Active Import/Export (kWh) 3x230/400V, 0.25-5(6)A, Transformer operated, Multifunction, RS485 Modbus RTU, No THD, No Voltage Output and 1P2W and 3P4W only.

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

- Cost effective single-phase split core
- Ratio's ranging from 100A to 600A
- Complete with 2 metre fly lead
- Clearly marked for ease of installation



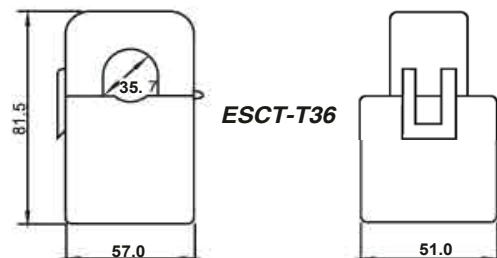
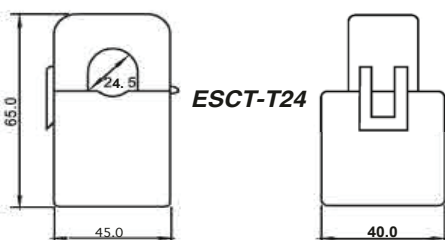
Rated Current	100-600A
Rated Output	1/5A (AC)
Accuracy	Class 0.5 from 20% to 120% orated current
Phase Angle	Less than 2 degrees from 50% of rated current
Insulation Voltage	600V
Max Primary Voltage	5000Vac (Insulated Conductor)
Dielectric Strength	2.5 kV/1mA/1 min
Operating Temperature	-15°C to 60°C
Operating Humidity	<85%
Case Material	PC / UL94-V0
Bobbin	PBT
Internal Structure	Epoxy
Core	Permalloy

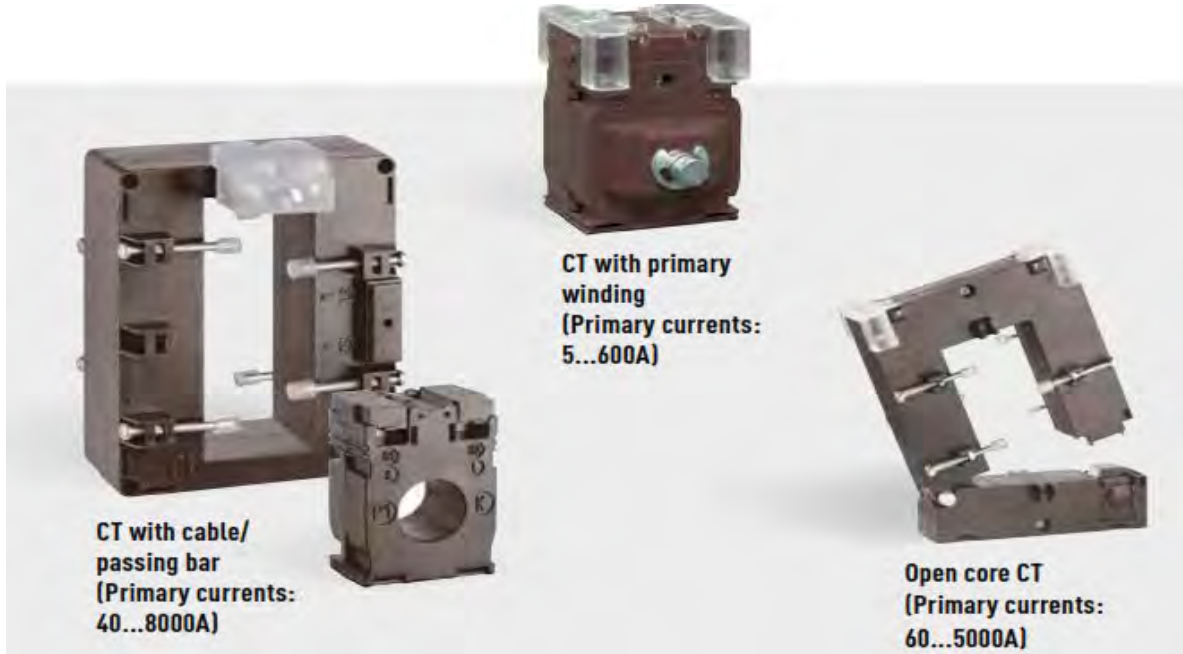
ESCT-T24

Product Codes	Primary Current	Accuracy Class	Aperture (WXH)
ESCT-T24 - 100/1A	100A	0.5/1/3	24mm ø
ESCT-T24 - 150/1A	150A	0.5/1/3	24mm ø
ESCT-T24 - 200/1A	200A	0.5/1/3	24mm ø
ESCT-T24 - 250/1A	250A	0.5/1/3	24mm ø
ESCT-T24 - 300/1A	300A	0.5/1/3	24mm ø
ESCT-T24 - 100/5A	100A	0.5/1/3	24mm ø
ESCT-T24 - 150/5A	150A	0.5/1/3	24mm ø
ESCT-T24 - 200/5A	200A	0.5/1/3	24mm ø
ESCT-T24 - 250/5A	250A	0.5/1/3	24mm ø
ESCT-T24 - 300/5A	300A	0.5/1/3	24mm ø

ESCT-T36


Product Codes	Primary Current	Accuracy Class	Aperture (WXH)
ESCT-T36 - 100/1A	100A	0.5/1/3	36mm ø
ESCT-T36 - 150/1A	150A	0.5/1/3	36mm ø
ESCT-T36 - 200/1A	200A	0.5/1/3	36mm ø
ESCT-T36 - 250/1A	250A	0.5/1/3	36mm ø
ESCT-T36 - 300/1A	300A	0.5/1/3	36mm ø
ESCT-T36 - 400/1A	400A	0.5/1/3	36mm ø
ESCT-T36 - 500/1A	500A	0.5/1/3	36mm
ESCT-T36 - 600/1A	600A	0.5/1/3	36mm
ESCT-T36 - 100/5A	100A	0.5/1/3	36mm ø
ESCT-T36 - 150/5A	150A	0.5/1/3	36mm ø
ESCT-T36 - 200/5A	200A	0.5/1/3	36mm ø
ESCT-T36 - 250/5A	250A	0.5/1/3	36mm ø
ESCT-T36 - 300/5A	300A	0.5/1/3	36mm ø
ESCT-T36 - 400/5A	400A	0.5/1/3	36mm ø
ESCT-T36 - 500/5A	400A	0.5/1/3	36mm ø
ESCT-T36 - 600/5A	400A	0.5/1/3	36mm ø





Please note **More options available **
To find out more Contact our sales team at
Telephone: **01 4659010** or Email: **sales@rfe.ie**

Cat. Nos.		TA221			
		Passing cable window/bar Ø 21mm - 20,5x10,5mm			
Isr 5A	Isr 1A	Primary current (A)	Accuracy class VA		
			cl. 0.5	cl. 1	cl.3
TA22150B500	TA22110B500	50	-	-	2.5
TA22150B600	TA22110B600	60	-	1.5	3
TA22150B700	TA22110B700	70	-	1.5	4
TA22150B750	TA22110B750	75	-	2	4
TA22150B800	TA22110B800	80	-	3	4
TA22150C100	TA22110C100	100	1.5	3	-
TA22150C120	TA22110C120	120	2.5	4	-
TA22150C125	TA22110C125	125	2.5	4	-
TA22150C150	TA22110C150	150	4	6	-
TA22150C160	TA22110C160	160	4	6	-
TA22150C200	TA22110C200	200	6	8	-
TA22150C250	TA22110C250	250	8	10	-
TA22150C300		300	8	10	-



OPEN CORE TRANSFORMERS

Model	TRA11	TRA15	TRA230	TRA580	TRA812	TRA816

Cat. Nos.

TA327

Passing cable window/bar Ø 27mm -
25.5x15.5mm - 32.5x10.5mm

Isr 5A	Isr 1A	Primary current (A)	Accuracy class VA		
			cl. 0.5	cl. 1	cl.3
TA32750B500	TA32710B500	50	-	-	1.5
TA32750B600	TA32710B600	60	-	-	2.5
TA32750B700	TA32710B700	70	-	1.5	3
TA32750B750	TA32710B750	75	-	1.5	3
TA32750B800	TA32710B800	80	-	2.5	3.5
TA32750C100	TA32710C100	100	1	2.5	-
TA32750C120	TA32710C120	120	2	3.5	-
TA32750C125	TA32710C125	125	2	3.5	-
TA32750C150	TA32710C150	150	3	4	-
TA32750C160	TA32710C160	160	3	5	-
TA32750C200	TA32710C200	200	4	7	-
TA32750C250	TA32710C250	250	6	8	-
TA32750C300	TA32710C300	300	8	10	-
TA32750C400	TA32710C400	400	10	12	-
TA32750C500	TA32710C500	500	12	15	-
TA32750C600	TA32710C600	600	15	20	-



Cat. Nos.

TAS64

Passing cable window/bar 51x31mm - 64x1

Isr 5A	Isr 1A	Primary current (A)	Accuracy class VA	
			cl. 0.5	cl. 1
TASI50C250	TASI10C250	250A	-	2.5
TASI50C300	TASI10C300	300A	-	3
TASI50C400	TASI10C400	400A	-	4
TASI50C500	TASI10C500	500A	2	4
TASI50C600	TASI10C600	600A	4	6
TASI50C700	TASI10C700	700A	6	8
TASI50C750	TASI10C750	750A	6	8
TASI50C800	TASI10C800	800A	6	8
TASI50D100	TASI10D100	1000A	5	10
TASI50D120	TASI10D120	1200A	10	12
TASI50D125	TASI10D125	1250A	10	12
TASI50D150	TASI10D150	1500A	10	12
TASI50D160	TASI10D160	1600A	10	12



TAS102



TAS102B



- **Single Phase 45A Direct Fed**
- **MID B+D Certified**
- **Accuracy Class 1 (Active Energy)**
- **Bi-directional Measurement for kW and kWh**
- **Configurable Pulsed output (Import/ Export / Nett kWh)**
- **Modbus (SDM120Modbus) or Mbus (SDM120Mbus)**
- **Multi Parameter measurement**
- **Free Configuration Software**

The SDM120 Series is an advanced multifunction single phase energy monitoring solution with optional outputs such as Pulsed, RS485 RTU Modbus and Mbus. Equipped with scroll display button for ease of navigation through the various parameters. Housed for DIN rail mounting, IP51 protection and current transformer operated 1/5A. Selectable measurement modes using our free configurations software for kWh display, Total kWh (Import + Export), Import kWh and Net kWh (Export - Import) UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0141.



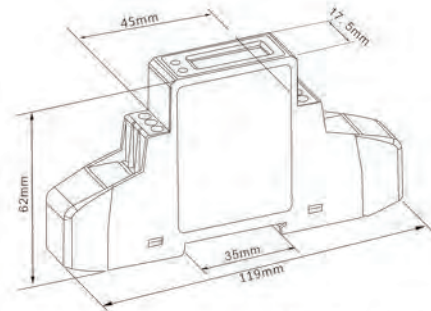
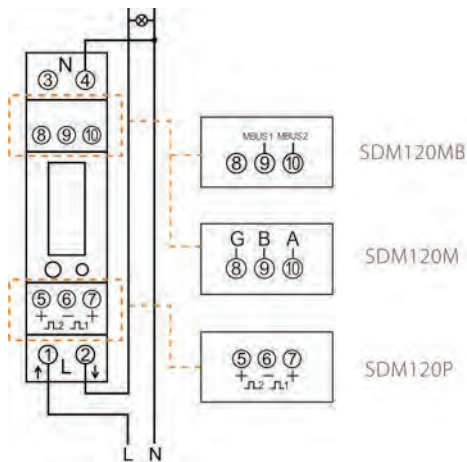
Specification table

Specification	
Nominal voltage(Un)	120V or 230V ac
Operational voltage	80%-120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Basic current (Ib)	5A
Maximum rated current (Imax)	45A
Operational current range	0.4% Ib-Imax
Over current withstand	30 Imax for 0.01s
Operational frequency range	50 / 60Hz
Internal power consumption	≤ 2W/10VA
Pulse output	1000imp/kWh
Display	LCD with backlight
Max reading	999999 kWh
Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C± 2°C
International standard	IEC 62053-21 / EN50470-1/3
Accuracy class	Class1/Class B
Installation category	CAT II
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51(indoor)
Insulating encased meter of protective class	II
Altitude	up to 2000m
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV
Surge	4kV
Radiated & conducted emissions	EN 55022

Accuracy	
Voltage,Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power , Apparent power	±1% of range maximum
Reactive power	±1% of range maximum
Reactive energy(Varh)	Class 2
Active energy (Wh)	Class 1
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
Data bit	8
Stop bit	1
M-bus	
Bus type	M-bus
Protocol	EN13757-3
Baud rate	300/600/1200/2400/4800/9600
Parity	NONE/EVEN/ODD
Stop bits	1 or 2
Primary Address	1 to 250
Secondary Address	00 00 00 01 to 99 99 99 99
Pulse output	
Pulse outputs	2
Pulse output type	Passive
Pulse Output 1	Configurable
Pulse width	200/100(default)/60ms
Pulse output 2	1000imp/kWh

Wiring Configuration

Dimension Drawing



Height 119mm
Width 17.5mm
Depth 62mm

Ordering options

Meter Type	Description of Meter
SDM120-Modbus	Single phase 2 wire, 120V or 230V AC, 0.25~5(45)A, 50/60Hz, backlighted LCD display, 2 Pulse outputs, RS485 Modbus communication. Measures active energy (kWh), reactive energy (kVarh), active power (W), reactive power (Var), apparent power (VA), voltage (V), current (A), power factor, demand and frequency etc.
SDM120-Mbus	Single phase 2 wire, 120V or 230V AC, 0.25~5(45)A, 50/60Hz, backlighted LCD display, 2 Pulse outputs, M-bus EN13757-3 communication. Measures active energy (kWh), reactive energy (kVarh), active power (W), reactive power (Var), apparent power (VA), voltage (V), current (A), power factor, demand and frequency etc.
SDM120-Pulse	Single phase 2 wire, 120V or 230V AC, 0.25~5(45)A, 50/60Hz, backlighted LCD display, 2 Pulse outputs. Measures active energy (kWh), reactive energy (kVarh), active power (W), reactive power (Var), apparent power (VA), voltage (V), current (A), power factor, demand and frequency etc.

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

- **Single Phase 5A Current Transformer operated**
- **MID B+D Certified**
- **Accuracy Class 1 (Active Energy)**
- **Bi-directional Measurement for kW and kWh**
- **Configurable Pulsed output (Import/ Export / Nett kWh)**
- **Modbus (SDM120CTModbus) or Mbus (SDM120CTMbus)**
- **Multi Parameter measurement**
- **Free Configuration Software**

The SDM120 Series is an advanced multifunction single phase energy monitoring solution with optional outputs such as Pulsed, RS485 RTU Modbus and Mbus. Equipped with scroll display button for ease of navigation through the various parameters. Housed for DIN rail mounting, IP51 protection and current transformer operated 1/5A. Selectable measurement modes using our free configurations software for kWh display, Total kWh (Import + Export), Import kWh and Net kWh (Export - Import) UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0141.

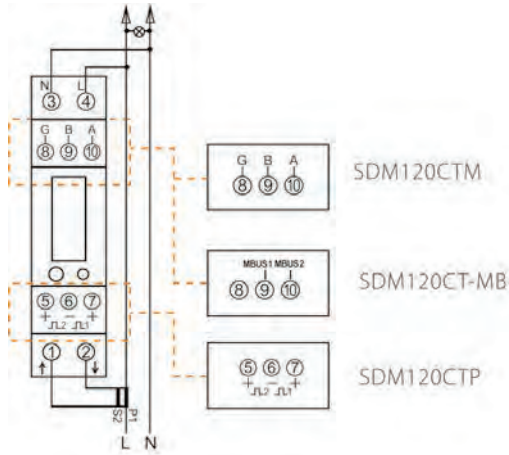


Specification table

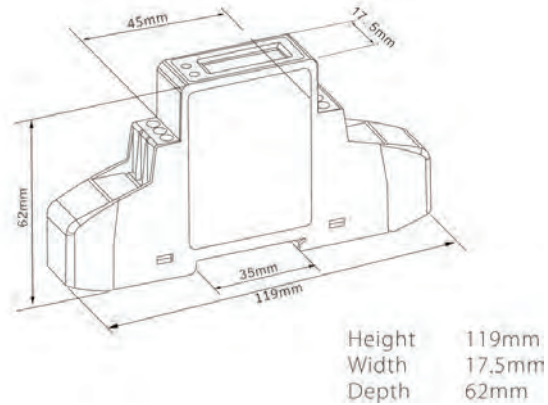
Specification	
Nominal voltage(Un)	120V or 230V ac
Operational voltage	80%-120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Primary current	5-9999A
Secondary input	1/5A AC Input
Over current withstand	20 Imax for 0.01s
Operational frequency range	50 or 60Hz
Internal power consumption	≤ 2W/10VA
Pulse output 1	configurable
Pulse output 2	1000imp/kWh
Display	LCD with backlight
Max reading	999999 kWh
Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C± 2°C
International standard	IEC 62053-21 / EN50470-1/3
Accuracy class	Class1/Class B
Installation category	CAT II
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51(indoor)
Insulating encased meter of protective class	II
Altitude	up to 2000m
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV
Surge	4kV
Radiated & conducted emissions	EN 55022

Accuracy	
Voltage, Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power , Apparent power	±1% of range maximum
Reactive power	±1% of range maximum
Reactive energy(Varh)	Class 2
Active energy (Wh)	Class 1
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
Data bit	8
Stop bit	1
M-bus	
Bus type	M-bus
Protocol	EN13757-3
Baud rate	300/600/1200/2400/4800/9600
Parity	NONE/EVEN/ODD
Stop bits	1 or 2
Primary Address	1 to 250
Secondary Address	00 00 00 01 to 99 99 99 99
Pulse output	
Bus type	M-bus
Protocol	EN13757-3
Baud rate	300/600/1200/2400/4800/9600
Parity	NONE/EVEN/ODD
Stop bits	1 or 2
Primary Address	1 to 250
Secondary Address	00 00 00 01 to 99 99 99 99

Wiring Configuration



Dimension Drawing



Ordering options

Meter Type	Description of Meter
SDM120CT-Modbus	Single phase 2 wire, 120V or 230V AC, CT operated, 50/60Hz. Backlighted LCD display, 2 Pulse outputs, RS485 Modbus communication. Measures active energy (kWh), reactive energy (kVarh), active power (W), reactive power (Var), apparent power (VA), voltage (V), current (A), power factor, demand and frequency etc.
SDM120CT-Mbus	Single phase 2 wire, 120V or 230V AC, CT operated, 50/60Hz. Backlighted LCD display, 2 Pulse outputs, M-bus EN13757-3 communication. Measures active energy (kWh), reactive energy (kVarh), active power (W), reactive power (Var), apparent power (VA), voltage (V), current (A), power factor, demand and frequency etc.
SDM120CT-Pulse	Single phase 2 wire, 120V or 230V AC, CT operated, 50/60Hz. Backlighted LCD display, 2 Pulse outputs. Measures active energy (kWh), reactive energy (kVarh), active power (W), reactive power (Var), apparent power (VA), voltage (V), current (A), power factor, demand and frequency etc.

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

- Single Phase 100A Direct Fed
- MID B+D Certified
- Accuracy Class 1 (Active Energy)
- Bi-directional Measurement for kW and kWh (SDM230BI)
- Fixed Pulsed output (1000imp/kWh)
- Active Energy and Power Measurement
- Low cost

The SDM230DR/BI is an entry level single-phase energy monitoring solution with a fixed pulsed output. This product will only measure and display total active energy (kWh) and Power (Watts) with Optional partial reset energy (SDM230DR) Or the (SDM230BI) Bi-directional version which will read Import/Export and Total Active Energy (kWh).Housed for DIN rail mounting, IP51 protection and direct connection up to 100A. UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0206.

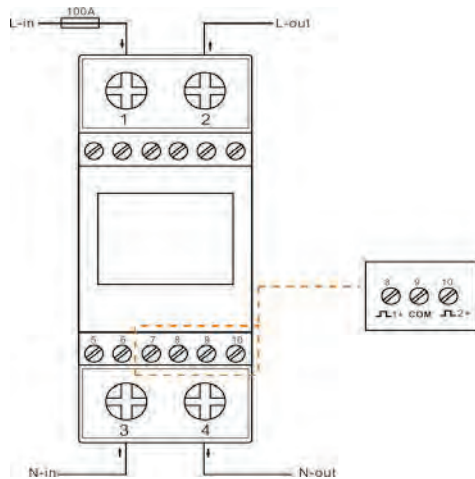


Specification table

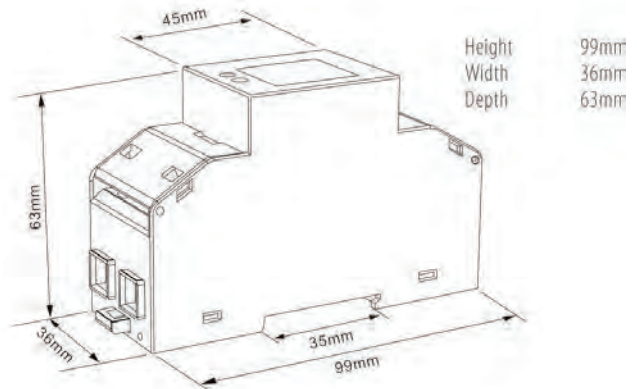
Specification	
Nominal voltage(Un)	120V or 230V ac
Operational voltage	80%-120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Basic current (Ib)	10A
Maximum rated current (Imax)	100A
Operational current range	0.4% Ib-Imax
Over current withstand	30 Imax for 0.01s
Operational frequency range	50 or 60Hz
Internal power consumption	≤ 2W/10VA
Pulse output 1	1000imp/kWh
Pulse output 2	1000imp/kWh(only for SDM230DR/Bi)
Max reading	999999.9 kWh
Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C± 2°C
International standard	IEC 62053-21 / EN50470-1/3
Accuracy class	Class1/Class B
Installation category	CAT II
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51(indoor)
Insulating encased meter of protective class	II
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV
Surge	4kV
Radiated & conducted emissions	EN 55022
Radiated & conducted emissions	EN 55022

Accuracy	
Voltage,Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power , Apparent power	±1% of range maximum
Reactive power	±1% of range maximum
Reactive energy(Varh)	Class 2
Active energy (Wh)	Class 1
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
M-bus	
Bus type	M-bus
Protocol	EN13757-3
Baud rate	300/600/1200/2400/4800/9600
Parity	NONE/EVEN/ODD
Stop bits	1 or 2
Primary Address	1 to 250
Secondary Address	00 00 00 01 to 99 99 99 99
Pulse output	
Pulse outputs	2
Pulse output type	Passive
Pulse Output 1	Configurable
Pulse width	200/100(default)/60ms
Pulse output 2	1000imp/kWh

Wiring Configuration



Dimension Drawing



Ordering options

Meter Type	Description of Meter
SDM230-DR	Single Phase 2 wire, 230V AC, 0.5~10(100)A, 50/60Hz Backlighted LCD display, 2 Pulse outputs, measures total active energy
SDM230-BI	Single Phase 2 wire, 230V AC, 0.5~10(100)A, 50/60Hz Backlighted LCD display, 2 Pulse outputs, Bi-directional measurement IMP & EXP Energy and Power

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

- Single Phase 100A Direct Fed
- MID B+D Certified
- UL Registered
- Accuracy Class 0.5 (Active Energy)
- Bi-directional Measurement for kW and kWh
- Configurable Pulsed output (Import/ Export / Nett kWh)
- Modbus (SDM230Modbus) or Mbus (SDM230Mbus)
- Multi Parameter measurement
- Multi-Tariff
- Free Configuration software

The SDM230 series is an advanced multifunction single-phase energy monitoring solution with optional outputs such as Pulsed, RS485 RTU Modbus and Mbus. Equipped with configuration and display buttons for ease of navigation through the various parameters and settings. Housed for DIN rail mounting, IP51 protection and direct connection up to 100A. Selectable measurement modes using our free configurations software for kWh display, Total kWh (Import + Export), Import kWh and Net kWh (Export - Import) UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0206.



Specification table

Specification	
Nominal voltage(Un)	120V or 230V ac
Operational voltage	80%-120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Basic current (Ib)	10A
Maximum rated current (I _{max})	100A
Operational current range	0.4% Ib-I _{max}
Over current withstand	30 I _{max} for 0.01s
Operational frequency range	50 or 60Hz
Internal power consumption	≤ 2W/10VA
Pulse output 1	1000imp/kWh
Pulse output 2	1000imp/kWh(only for SDM230DR/Bi)
Max reading	999999.9 kWh
Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C± 2°C
International standard	IEC 62053-21 / EN50470-1/3
Accuracy class	Class1/Class B
Installation category	CAT II
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51(indoor)
Insulating encased meter of protective class	II
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV
Surge	4kV
Radiated & conducted emissions	EN 55022
Radiated & conducted emissions	EN 55022

Accuracy	
Voltage,Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power , Apparent power	±1% of range maximum
Reactive power	±1% of range maximum
Reactive energy(Varh)	Class 2
Active energy (Wh)	Class 1

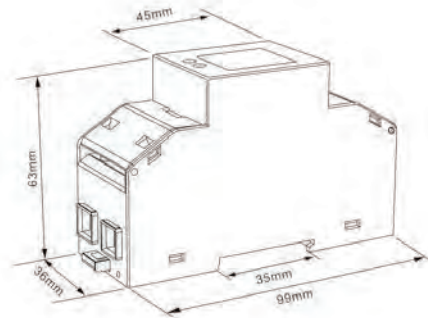
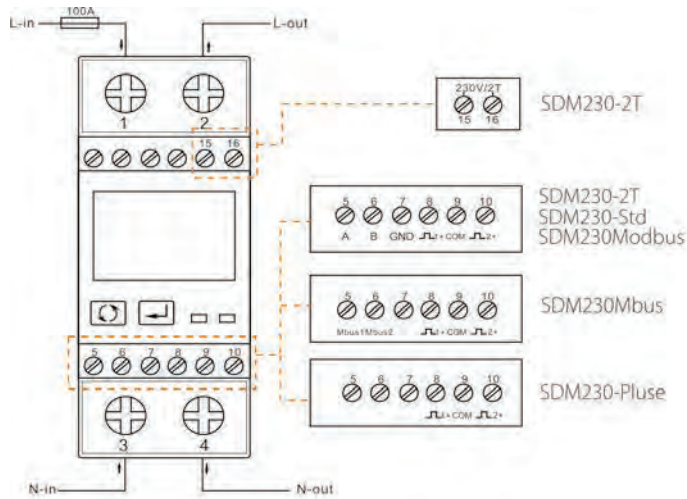
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE

M-bus	
Bus type	M-bus
Protocol	EN13757-3
Baud rate	300/600/1200/2400/4800/9600
Parity	NONE/EVEN/ODD
Stop bits	1 or 2
Primary Address	1 to 250
Secondary Address	00 00 00 01 to 99 99 99 99

Pulse output	
Pulse outputs	2
Pulse output type	Passive
Pulse Output 1	Configurable
Pulse width	200/100(default)/60ms
Pulse output 2	1000imp/kWh

Wiring Configuration

Dimension Drawing



Height 99mm
Width 36mm
Depth 63mm

Ordering options

Meter Type	Description of Meter
SDM230-Modbus	Single phase 2 wire, 230V AC, 0.5~10(100)A , 50/60Hz. Backlighted LCD display, 2 Pulse outputs, RS485 Modbus communication. Measures kWh, kVarh, W, Var, VA, V, A, PF, Hz, Max.DMD, Imp_kWh, Exp_kWh etc.
SDM230-Mbus	Single phase 2 wire, 230V AC, 0.5~10(100)A , 50/60Hz. Backlighted LCD display, 2 Pulse outputs, M-bus EN13757-3 communication. Measures kWh, kVarh, W, Var, VA, V, A, PF, Hz, Max.DMD, Imp_kWh, Exp_kWh etc.
SDM230-2T	Single phase 2 wire, 230V AC, 0.5~10(100)A , 50/60Hz. Backlighted LCD display, 2 Pulse outputs, RS485 Modbus communication, Multi-tariffs Measures kWh, kVarh, W, Var, VA, V, A, PF, Hz, Max.DMD, Imp_kWh, Exp_kWh etc.
SDM230-Std	Single phase 2 wire, 230V AC, 0.5~10(100)A , 50/60Hz. Backlighted LCD display, 2 Pulse outputs, RS485 Modbus communication. Measures total kWh, Imp_kWh, Exp_kWh etc.
SDM230-Pulse	Single phase 2 wire, 230V AC, 0.5~10(100)A , 50/60Hz Backlighted LCD display, 2 Pulse outputs Measures kWh, kVarh, W, Var, VA, V, A, PF, Hz, Max.DMD, Imp_kWh, Exp_kWh etc.

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

- Three Phase 100A Direct Fed
- MID B+D Certified
- Accuracy Class 1 (Active Energy)
- Bi-directional Measurement for kW and kWh (SDM72BI)
- Fixed Pulsed output
- RS485 Modbus option (SDM72D-M)
- Active Energy and Power Measurement
- Resettable energy counter
- Low cost

The SDM72DR/BI is a entry level three-phase energy monitoring solution with a fixed pulsed output or RS485 RTU Modbus (SDM72D-M) This product will only measure and display total active energy (kWh) and Power (Watts) with optional partial reset energy (SDM72DR) Or the Bi-directional version which will read Import/Export and Total Active Energy (kWh) (SDM72BI).Housed for DIN rail mounting, IP51 protection and direct connection up to 100A. UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0213



Specification table

Specification			
Model	SDM72D/BR/BI	Accuracy class	Class1/Class B
Nominal voltage(Un)	3x230/400 V ac	Installation category	CAT III
Operational voltage	80%~120% of Un	Mechanical environment	M1
Insulation capabilities		Electromagnetic environment	E2
- AC voltage withstand	4KV for 1 minute	Degree of pollution	2
- Impulse voltage withstand	6KV-1.2μS	Protection against penetration of dust and water	IP51(indoor)
Basic current (Ib)	10A	Insulating encased meter of protective class	II
Maximum rated current (Imax)	100A	Altitude	up to 2000m
Operational current range	0.4% Ib-Imax	Electrostatic discharges	8kV contact / 15kV air gap
Over current withstand	30 Imax for 0.01s	Electromagnetic HF fields	IEC 61000-4-3
Operational frequency range	50 or 60Hz	Electrical fast transients	4kV
Power consumption per phase	≤ 2W/10VA	Surge	4kV
Pulse output	1000imp/kWh	Radiated & conducted emissions	EN 55022
Display	LCD		
Max reading	999999.9 kWh		
Performance criteria		Modbus	
Operating humidity	≤ 90%	Bus type	RS485(semi-duplex)
Storage humidity	≤ 95%	Protocol	Modbus RTU
Operating temperature	-25°C - +55°C	Baud rate	1200/2400/4800/9600bps
Storage temperature	-40°C - +70°C	Address range	1-247
Reference temperature	23°C± 2°C	Max. Bus loading	64pcs
International standard	IEC 62053-21 / EN50470-1/3	Communication distance	1000M
		Parity	EVEN/ODD/NONE
		Data bit	8
		Stop bit	1

- Three Phase 1/5A Current Transformer operated
- MID B+D Certified
- Accuracy Class 1 (Active Energy)
- Bi-directional Measurement for kW and kWh
- Fixed Pulsed Output
- RS485 Modbus Option SDM72CT
- Active Energy and Power Measurement
- Resettable energy counter
- Low Cost

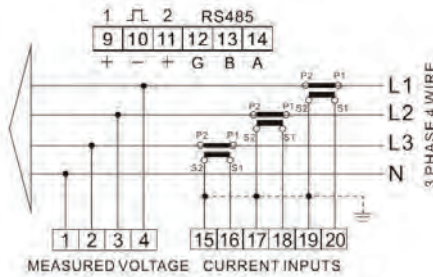
The SDM72CT-DR/BI is an entry level three-phase energy monitoring solution with a fixed pulsed output or RS485 RTU Modbus (SDM72CT-M) This product will only measure and display total active energy (kWh) and Power (Watts) with Optional partial reset energy (SDM72CT-DR) Or the Bi-directional version which will read Import/Export and Total Active Energy (kWh) (SDM72CT-BI).Housed for DIN rail mounting, IP51 protection and 1/5A current transformer operated. UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0213.



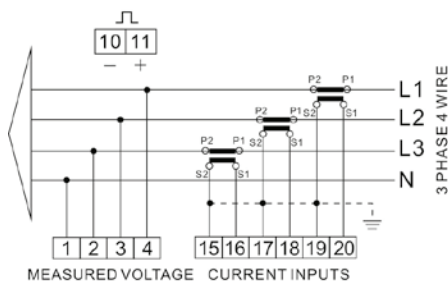
Specification table

Specification	
Model	72CT-D/DR/BI
Nominal voltage(Un)	3x230/400 V ac
Operational voltage	80%~120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Basic current (Ib)	5A
Maximum rated current (I _{max})	6A
Operational current range	0.4% Ib-I _{max}
Over current withstand	20 I _{max} for 0.01s
Operational frequency range	50 or 60Hz
Power consumption per phase	≤ 2W/10VA
Pulse output	1000imp/kWh
Display	LCD
Max reading	999999.9 kWh
Performance criteria	
Operating humidity	≤90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C± 2°C
International standard	IEC 62053-21 / EN50470-1/3
Accuracy class	Class1/Class B
Installation category	CAT III
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51(indoor)
Insulating encased meter of protective class	II
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV
Surge	4kV
Radiated & conducted emissions	EN 55022
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
Data bit	8
Stop bit	1

Wiring Configuration

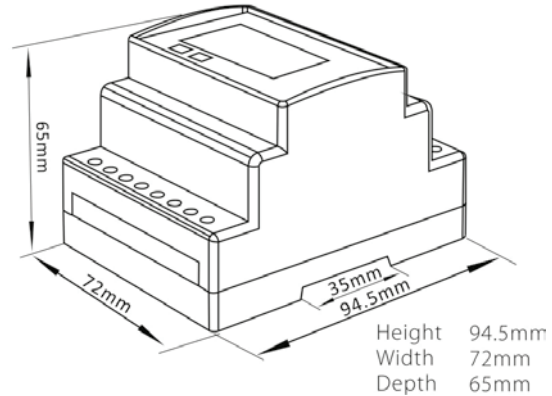


SDM72CT-M



SDM72CT-DR
SDM72CT-BI

Dimension Drawing



Height 94.5mm
Width 72mm
Depth 65mm

Ordering options

Meter Type	Description of Meter
SDM72CT-DR	3P4W, 3X230(400)V, Active energy (kWh) + active power (W) Resettable partial energy, Pulse output, Class 1.0 Accuracy, 72mm 4 module width, Din rail mounting, 1A/5A CT operated, Class 1.0 accuracy.
SDM72CT-BI	3P4W, 3X230(400)V, Active energy (kWh) + active power (W), Bi-directional measurement (Import & export), Pulse output, Class 1.0 Accuracy, 72mm 4 module width, Din rail mounting, 1A/5A CT operated, Class 1.0 accuracy.
SDM72CT-M	2P3W, 3P4W, 3X230(400)V, Measures active energy & power Bi-directional measurement IMP& EXP Resettable partial energy Pulse output RS485 Modbus RTU, 1A/5A CT operated, Accuracy better than class 1/B.

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

- Three Phase 1/5A Current Transformer operated
- MID B+D Certified
- UL Registered
- Accuracy Class 0.5 (Active Energy)
- Bi-directional Measurement for kW and kWh
- Configurable Pulsed output (Import/ Export / Nett kWh)
- Modbus (SDM630MCT) or Mbus (SDM630MCT-Mbus)
- Multi Parameter measurement
- Multi-Tariff
- 0.333mV Current Transformer input option (NON MID)
- Free Configuration software



The SDM630MCT series is an advanced multifunction three-phase energy monitoring solution with optional outputs such as Pulsed, RS485 RTU Modbus and Mbus. Equipped with configuration and display buttons for ease of navigation through the various parameters and settings. Housed for DIN rail mounting, IP51 protection and 1/5A current transformer operated. Selectable measurement modes using our free configurations software for kWh display, Total kWh (Import + Export), Import kWh and Net kWh (Export - Import) UK/EU Certified according to EU Directive 2014/32/EU. MID Certificate number 0120 / SGS0142

Specification table

Specification	
Nominal voltage(Un)	3x230/400 V ac
Operational voltage	60%~120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Rated current (Ib)	5A CT or 333mV CT input
Operational current range	0.4% Ib-I _{max}
Over current withstand	20 I _{max} for 0.01s
Operational frequency range	50 or 60Hz
Power consumption per phase	≤ 2W/10VA
Pulse output 1	Configurable
Pulse output 2	3200 imp/kWh
Display	LCD
Max reading	9999999.9 kWh/kVarh

Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C± 2°C
International standard	IEC 62053-21 / EN50470-1/3
Accuracy class	Class1/Class B
Installation category	CAT III
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51(indoor)
Insulating encased meter of protective class	II
Electrostatic discharges	8kV contact / 15kV air gap
Radiated & conducted emissions	EN 55022

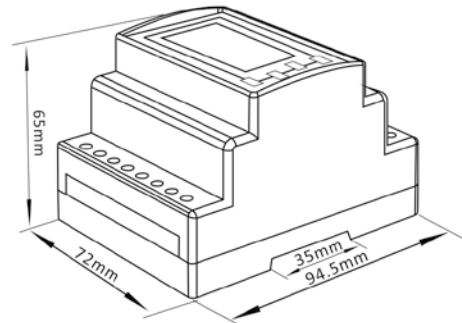
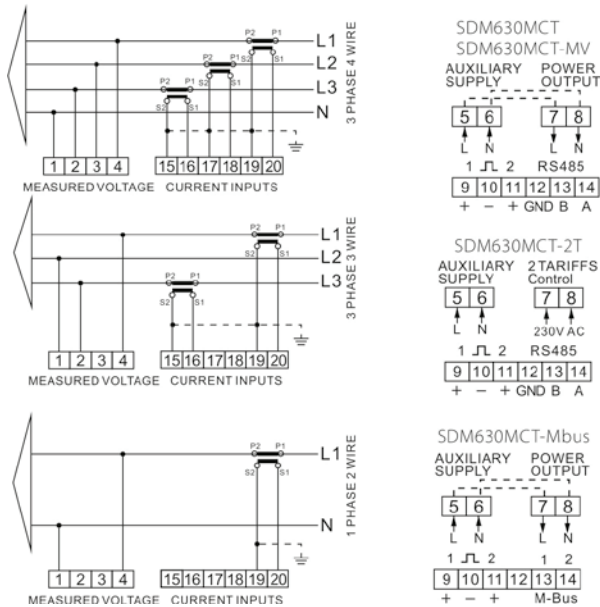
Accuracy	
Voltage, Current	0.5%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power , Apparent power	±1% of range maximum
Reactive power	±1% of range maximum
Reactive energy(Varh)	Class 2
Active energy (Wh)	Class 1

Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	2400/4800/9600/19200/38400bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
Data bit	8
Stop bit	1

M-bus	
Bus type	M-bus
Protocol	EN13757-3
Baud rate	300/600/1200/2400/4800/9600
Parity	NONE/EVEN/ODD
Stop bits	1 or 2
Primary Address	1 to 250
Secondary Address	00 00 00 01 to 99 99 99 99

Wiring Configuration

Dimension Drawing



Height 94.5mm
Width 72mm
Depth 65mm

Ordering options

Meter Type	Description of Meter
SDM630MCT-Modbus	3PH-4W, 3PH-3W, 1PH-2W, 3x230(400)V, 1A or 5A CT input, 50/60Hz, backlighted LCD display, 2 pulse outputs, RS485 Modbus RTU. Measures kWh, kVarh, W, Var, VA, V, A, PF, THD, Hz, Max.DMD, Imp_kWh, Exp_kWh etc.
SDM630MCT-Mbus	3PH-4W, 3PH-3W, 1PH-2W, 3x230(400)V, 1A or 5A CT input, 50/60Hz, backlighted LCD display, 2 pulse outputs, M-Bus EN13757-3. Measures kWh, kVarh, W, Var, VA, V, A, PF, THD, Hz, Max.DMD, Imp_kWh, Exp_kWh etc
SDM630MCT-2T	3PH-4W, 3PH-3W, 1PH-2W, 3x230(400)V, 1A or 5A CT input, 50/60Hz, backlighted LCD display, 2 pulse outputs, Rs485 Modbus RTU, 2 Tariffs. Measures kWh, kVarh, W, Var, VA, V, A, PF, THD, Hz, Max.DMD, Imp kWh, Exp_kWh etc.
SDM630MCT-MV	3PH-4W, 3PH-3W, 1PH-2W, 3x230(400)V, 333mV CT input, 50/60Hz, backlighted LCD display, 2 pulse outputs, RS485 Modbus RTU. Measures kWh, kVarh, W, Var, VA, V, A, PF, THD, Hz, Max.DMD, Imp_kWh, Exp_kWh etc.

Conformity References

Electromagnetic Compatibility: EN61326-1:2013 & EN61326-2-3:2013

Low Voltage Directive: EN61010-1-2010 & EN61010-2-30-2010

MID DIRECTIVE: 2014/32/EU

SDM320Y

SINGLE PHASE PREPAID MULTI-FUNCTION ENERGY METER

- Direct connection up to 100A
- Built-in relay, to stop power supply due to arrears
- Support overdraft basing on credit line
- Support prepaid setting
- Support load control
- Support abnormal power consumption monitoring
- Support lo-lo power alarm
- Support Multi-measurement
- S0 output for energy pulse emission
- Rs485 Modbus communication
- Support historical daily/ monthly energy statistic, daily data query
- Class 0.5S
- LCD display with 8 main digits



Introduction

SDM320Y prepaid energy meter is EASTRON's latest model of single phase electronic prepaid energy meter. It is in full compliance with technical requirements of IEC62053-22 standard for Class 0.5S energy meter. It has a complete prepaid management system, which is convenient for power purchase. The system automatically deducts fees according to electricity consumption. Recharging operation can be done through network remotely, no need any medium such as IC card. The meter has two-level balance alarm function and an emergency amount function. It will automatically stop power supply when tenant in arrears or credit become zero or reaching the pre-set value and the real-time monitoring the look whether there is any abnormal situation.

The meter is with excellent reliability that can display remaining capacity, available remaining, total power consumption/ purchase of electricity, credit line, overdraft consumption, load threshold, pay model, voltage, current, active power, active energy, import energy, export energy, power factor, frequency and time etc. The reactive power, apparent power can be read by Modbus.

SDM320Y is easy to install with nice appearance, small and light. With battery installed inside the meter, the value on the meter still can be read when grid power off.

SDM320Y is suitable for real-time power monitoring system and has the characteristics of multi-function, multi-purpose, high stability and long life.

The meter has 1 pulse output, and the pulse constant, pulse width and output unit all can be set.

It has RS485 communication interface, support high speed communication function of RS485 (9600bps). It is an ideal choice for power energy monitoring.

Multi-measurement

- Current-instantaneous: I
- Voltage & Frequency-instantaneous: V, F
- Power-instantaneous: P
- Power Factor-instantaneous: PF
- Active energy: kWh
- Reactive energy: kVarh

Conformity to Standards

- Active energy Class 0.5s according to IEC 62053-22
- Active energy Class 1.0 according to IEC 62053-21
- Reactive energy Class 2.0 according to IEC 62053-23

Applications

- Measurement of energy generated by renewable source such as solar, eolic etc.
- Accounting and billing of consumptions in camp in camp sites, mails, residential areas, naval ports, etc.
- Realization of energy monitoring systems.
- Remote survey of the consumptions and compute of the costs.
- Accounting of the consumption in buildings with executive office services.
- Internal allocation of the consumption in timeshare civilian and industrial buildings.
- Totalization of the electric consumption in hotel, congress centers, exhibition fairs.

Specification	
Nominal voltage(Un)	230V ac
Operational voltage	80%~120% of Un
Insulation capabilities	
- AC voltage withstand	4kV for 1 minute
- Impulse voltage withstand	6kV-1.2μS
Basic current (Ib)	10A
Operational current range	0.4% Ib-Imax
Over current withstand	30 Imax for 0.01s
Operational frequency range	50 or 60Hz
Power consumption per phase	≤ 2W/10VA
Display	LCD
Max reading	999999.99 kWh/kVarh

Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C ± 2°C
International standard	IEC 62053-22
Accuracy class	Class 0.5S
Installation category	CAT II
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51 (indoor)
Insulating encased meter of protective class	II
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV

Accuracy	
Voltage, Current	0.2%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power, Apparent power	±0.5% of range maximum
Reactive power	±1% of range maximum
Reactive energy (Varh)	Class 2
Active energy (Wh)	Class 0.5s / Class 1.0

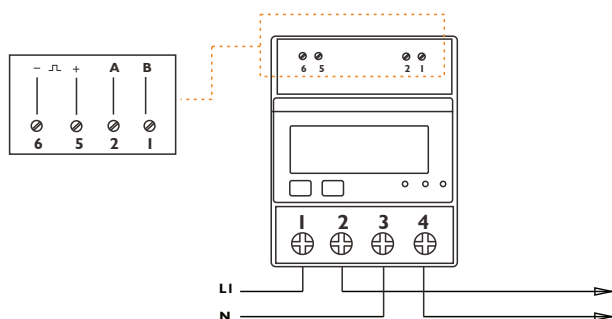
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
Data bit	8
Stop bit	1

Communication	
Terminal wire area	0.5-1mm ²
Recommended tightening torque	0.25Nm

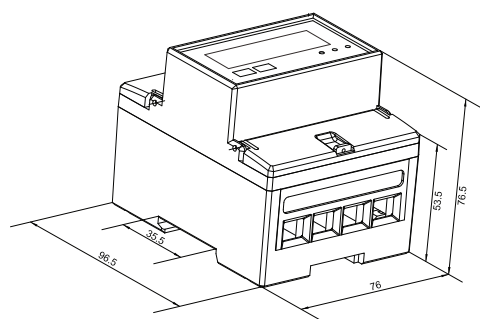
Pulse Output	
Pulse outputs	1
Pulse output type	Passive
Pulse Output 1	Configurable
Pulse width	200/100(default)/60ms
Pulse output 2	1000imp/kWh



Wiring diagram



Dimensions



Height 76.0mm
 Width 96.5mm
 Depth 76.5mm



SDM530Y

THREE PHASE PREPAID MULTI-FUNCTION ENERGY METER

- Direct connection up to 100A
- Built-in relay, to stop power supply due to arrears
- Support overdraft basing on credit line
- Support prepaid setting
- Support load control
- Support abnormal power consumption monitoring
- Support lo-lo power alarm
- Support
- Multi-measurement
- S0 output for energy pulse emission
- IRS485 Modbus communication
- Support historical daily/ monthly energy statistic, daily data query
- Class 0.5S
- LCD display with 8 main digits

Introduction

SDM530Y prepaid energy meter is EASTRON's latest model of three phase electronic prepaid energy meter. It is in full compliance with technical requirements of IEC62053-22 standard for Class 0.5S energy meter. It has a complete prepaid management system, which is convenient for power purchase. The system automatically deducts fees according to electricity consumption. Recharging operation can be done through network remotely, no need any medium such as IC card. The meter has two-level balance alarm function and an emergency amount function. It will automatically stop power supply when tenant in arrears or credit become zero or reaching the pre-set value and the real-time monitoring the look whether there is any abnormal situation.

The meter is with excellent reliability that can display remaining capacity, available remaining, total power consumption/ purchase of electricity, credit line, overdraft consumption, load threshold, pay model, voltage, current, active power, active energy, import energy, export energy, power factor, frequency and time etc. The reactive power, apparent power can be read by Modbus.

SDM530Y is easy to install with nice appearance, small and light. With battery installed inside the meter, the value on the meter still can be read when grid power off. SDM530Y is suitable for real-time power monitoring system and has the characteristics of multi-function, multi-purpose, high stability and long life.

The meter has 1 pulse output, and the pulse constant, pulse width and output unit all can be set.

It has RS485 communication interface, support high speed communication function of RS485 (9600bps). It is an ideal choice for power energy monitoring.

Multi-measurement

- Current-instantaneous: I1, I2, I3
- Voltage & Frequency-instantaneous: V1, V2, V3, F
- Power-instantaneous: P1, P2, P3, ΣP
- Power Factor-instantaneous: PF
- Active energy: kWh
- Reactive energy: kVarh

Conformity to Standards

- Active energy Class 0.5s according to IEC 62053-22
- Active energy Class 1.0 according to IEC 62053-21
- Reactive energy Class 2.0 according to IEC 62053-23

Applications

- Measurement of energy generated by renewable source such as solar, eolic etc.
- Accounting and billing of consumptions in camp in camp sites, mails, residential areas, naval ports, etc.
- Realization of energy monitoring systems.
- Remote survey of the consumptions and compute of the costs.
- Accounting of the consumption in buildings with executive office services.
- Internal allocation of the consumption in timeshare civilian and industrial buildings.
- Totalization of the electric consumption in hotel, congress centers, exhibition fairs.

Specification	
Nominal voltage(Un)	3x230/400V ac
Operational voltage	80%~120% of Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2μS
Basic current (Ib)	10A
Operational current range	0.4% Ib - I _{max}
Over current withstand	30 I _{max} for 0.01s
Operational frequency range	50 or 60Hz
Power consumption per phase	≤ 2W/10VA
Display	LCD
Max reading	999999.99 kWh/kVarh

Performance criteria	
Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Reference temperature	23°C ± 2°C
International standard	IEC 62053-22
Accuracy class	Class 0.5S
Installation category	CAT III
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2
Protection against penetration of dust and water	IP51 (indoor)
Insulating encased meter of protective class	II
Electrostatic discharges	8kV contact / 15kV air gap
Electromagnetic HF fields	IEC 61000-4-3
Electrical fast transients	4kV

Accuracy	
Voltage, Current	0.2%
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power, Apparent power	±0.5% of range maximum
Reactive power	±1% of range maximum
Reactive energy (Varh)	Class 2
Active energy (Wh)	Class 0.5s / Class 1.0

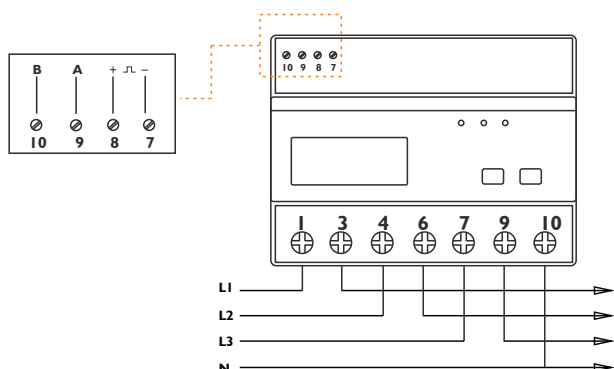
Modbus	
Bus type	RS485(semi-duplex)
Protocol	Modbus RTU
Baud rate	1200/2400/4800/9600bps
Address range	1-247
Max. Bus loading	64pcs
Communication distance	1000M
Parity	EVEN/ODD/NONE
Data bit	8
Stop bit	1

Communication	
Terminal wire area	0.5-1mm ²
Recommended tightening torque	0.25Nm

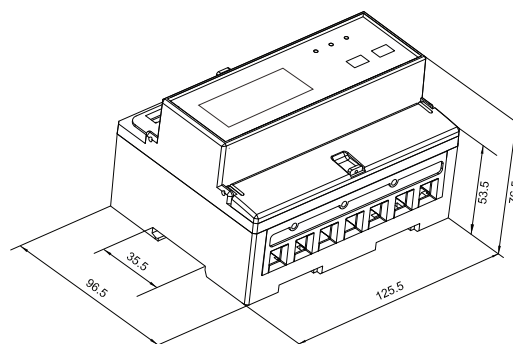
Pulse Output	
Pulse outputs	1
Pulse output type	Passive
Pulse Output 1	Configurable
Pulse width	200/100(default)/60ms
Pulse output 2	1000imp/kWh



Wiring diagram



Dimensions



Height 125.5mm
Width 96.5mm
Depth 76.5mm

- **Wireless & Remote Monitoring**
- **Multi Function Meters**
- **Software ConneX - Data Logging & Remote Metering**



RFE (Reg Farrell Engineering Ltd)

Unit 19, Oak Road Business Park, Western Industrial Estate, Dublin 12.

Tel: +353 1 4659010 **Fax:** +353 1 4659011 **Email:** sales@rfe.ie **Web:** www.rfe.ie

- **1 Module DIN rail mounted**
- **Long Range Wireless Solution**
- **Class 0 Sigfox Certification**
- **Configuration interface for programmable settings**
- **RS485 Modbus Input**
- **Radio Equipment Certified (RED Directive)**
- **Can monitor any parameter within the Eastron meter range**
- **Low Cost**
- **Available with built in Connectivity**
- **Optional Emig Software platform for remote monitoring and data storage**

The SDM1-AMR Datalogger is a low-cost solution for remotely monitoring Eastron power meters equipped with Modbus RS485 RTU.

This device utilizes the SIGFOX™ network to transfer data wirelessly from meter to the cloud. This data can be presented using our software, or if preferred, it can be provided in a raw format such as a CSV file allowing you to present the data through your own software.

SIGFOX™ is a leading cellular network dedicated to low bandwidth communications for connected devices. Its technology is particularly suited to connecting objects requiring a low-cost data transfer. This technology also eradicates the requirement for a SIM card.

The SDM1-AMR is specifically designed to enable a simple, low cost, remote wireless management solution that does not require specialist technical skills for installation.

Using our configuration interface, you can program the device to read your chosen parameters within the meters functionally, you can also set the frequency of data. For example you can select kWh, every 15 mins, kWh /Power/ Voltage every 15 minutes, kWh every 30 minutes. kWh / Power/Voltage every 30 minutes. You can have a maximum of 3 parameters on a 15 minute interval. This is due to the network restrictions and the type of subscription you require. You can provide your own subscriptions or we can supply with this included. We can also integrate into you own software or software provider.

Parameters that can be monitored are:

Total Active Energy (kWh) Import Active Energy (kWh) Export Active Energy (kWh) Current (A) Voltage (V) Instantaneous Power (kW) Power Factor (PF) Frequency (Hz)



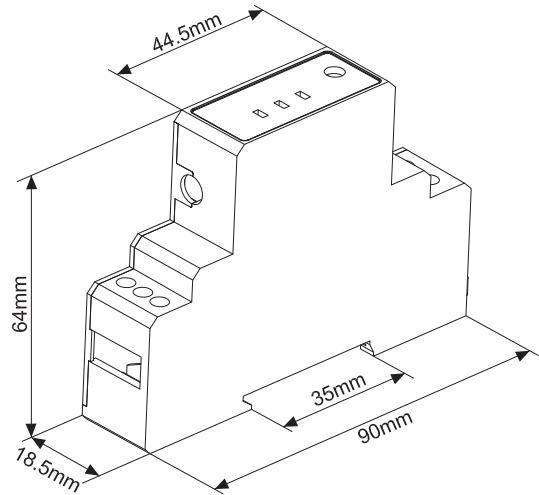
Specification table

Mounting	DIN rail (DIN 43880)
Sealing	IP51 indoor
Operating temperature	-5°C to +65°C*
Storage temperature	-25°C to +75°C*
Auxiliary Power Supply	85-264VAC, 100-370VDC
Power Consumption	20mW
Network	SIGFOX™
Freq. Tx	868.13MHz
Freq. Rx	869.525MHz
Comms Compatibility	Modbus RS485 RTU and M-Bus available
Comms Baud Rate	1200, 2400, 4800, 9600 (auto-sensing)

Wiring Configuration



Dimension Drawing



Conformity References

Safety Conformance: EN62638-1:2014+AC:2015 and EN62311:2008

Electromagnetic Compatibility: Draft EN301489-1 V2.2.1:2019, EN301489-3 V2.1.1:2019, EN61000-3-2-2014, EN61000-3-3-2013, EN61000-6-3:2007+A1:2011, EN IEC 61000-6-2-2019

The Efficient Use of Radio Spectrum: EN300 220-2 V3.1.1:2017



With the development of Internet of Things (IoT), LoRa has become an ideal wireless communication solution for energy usage monitoring and management. EASTRON is a leading provider of full LoRaWAN / LoRaMESH solution for smart meters: LoRa energy meters; converters; gateway and management software. The LoRa solution frees the user from communication cable wiring, provides more flexibility in installation and saves a lot of cost on maintenance. EASTRON LoRaWAN uses the standard LoRaWAN protocol, it is point to point link up to 1.5km. EASTRON LoRaMESH uses self-defined communication protocol, it supports 3 latching hopping, which cover a wider range up to 3km.

LoRaWAN Wireless Solution



SOM 230-LoRaWAN SINGLE PHASE MULTI-FUNCTION LORA METER

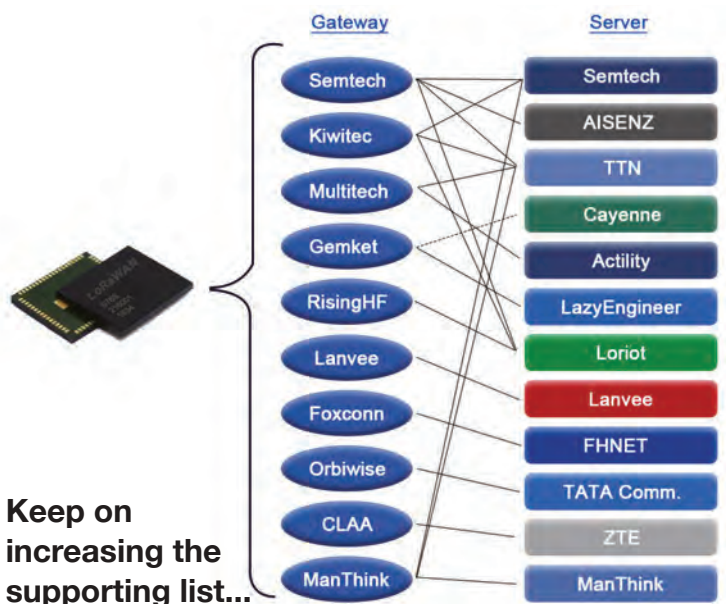
- Built-in LoRaWAN Module
- 100A Direct Load
- 2 Module 36mm Wide
- Multi - parameters
- Bi-directional Measurement
- 2 Pulse Outputs
- Class 0.5S Accuracy



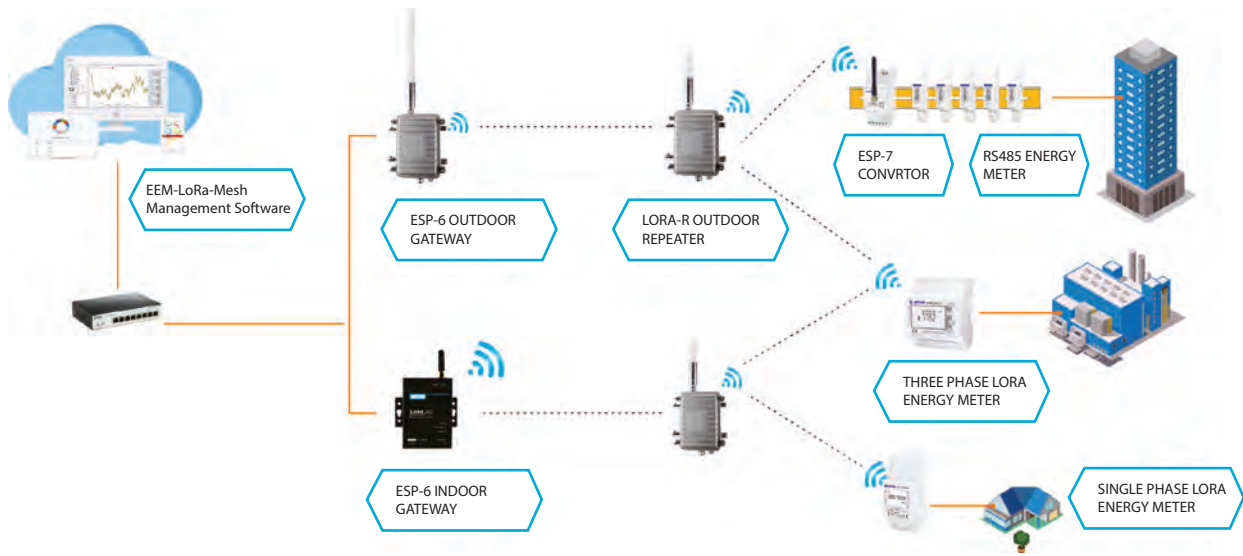
SDM630MCT-LoRaWAN SINGLE PHASE MULTI-FUNCTION LORA METER

- Built-in LoRaWAN Module
- 1/5A CT Operated
- 4 Module 72mm Wide
- Multi-parameters
- Bi-directional Measurement
- 2 Pulse Outputs
- Class 0.5S Accuracy

Compliant with multiple Gateway & Server Suppliers!!



Wiring Configuration



Specifications



Single Phase Energy Meter SDM230-LoRa	
Input Voltage	110V or 230V AC
Input Current	0.5-10(100)A
Frequency	50/60Hz
Network	L+N
Output	LoRaMESH
Communication Frequency	433/470/868/923/915/902MHz
Communication Speed	5.17-0.27kbps
Spreading Factor	7-12
Measurements	V,A,HZ,PF,kWh,kVarh,P,Q,S,etc.
Active energy accuracy	Cl.0.5S IEC62053-22
Reactive energy accuracy	Cl.2 IEC62053-23
Electromagnetic Compatibility	IEC61326-1:2013
Installation Category	CAT II



Three Phase Energy Meter SDM630MCT-LoRa	
Input Voltage	3x23/400V AC (40%~120%)
Input Current	1/5A CT operated
Frequency	50/60Hz
Network	3L+N; 3L; 2L+N;L+N
Output	LoRaMESH
Communication Frequency	433/470/868/923/915/902MHz
Communication Speed	5.17-0.27kbps
Spreading Factor	7-12
Measurements	V,A,HZ,PF,kWh,kVarh,P,Q,S,etc.
Active energy accuracy	Cl.0.5S IEC62053-22
Reactive energy accuracy	Cl.2 IEC62053-23
Electromagnetic Compatibility	IEC61326-1:2013
Installation Category	CAT III



RS485 - LoRa Converter ESP-7	
Input port	RS485 Modbus
Baudrate	1200-38400bps
Bus Line Load	32pcs nodes
Output	LoRaMESH / LoRaWAN
Communication Frequency	433/470/868/923/915/902MHz
Communication Speed	5.17-0.27kbps
Spreading Factor	7-12
Power Supplier	9-24V DC. or 230V AC



LoRaMESH Gateway ESP-6	
Input port	LoRaMESH
Communication Frequency	433/470/868/923/915/902MHz
Communication Speed	5.17-0.27kbps
Spreading Factor	7-12
Output port 1	RS485 Modbus
Baudrate	1200-38400bps
Output port 2	Ethernet
Power supply	9-24V DC



LoRa-R Outdoor Repeater	
Output	LoRaMESH
Communication Frequency	433/470/868/923/915/902MHz
Communication Speed	5.17-0.27kbps
Spreading Factor	7-12
Power Supply	Built-in rechargeable lithium battery;Solar PV Charging system
Battery	3.7V DC 8000mAh
IP level	IP66
Working temperature	-30~+70°C



Management Software EEM-LoRaMESH	
EASTRON LoRaMESH products data collection	
Parameters setting remotely	
Realtime measurement monitoring	
Graphic / Curves presentation	
Historical records for query	

Multiclick is a modular based solution for intelligent measuring and monitoring for power management and distribution, one central point for reading multiple circuits, saving space, time and cost on installations.



MCS-I



MCS-U



MCS-D

This new concept of intelligent measuring and monitoring of power management and distribution has been designed and engineered for new and retro fit applications. Up to 32 x Three Phase or 96 x Single Phase circuits measured and accessible from one centralized data display.

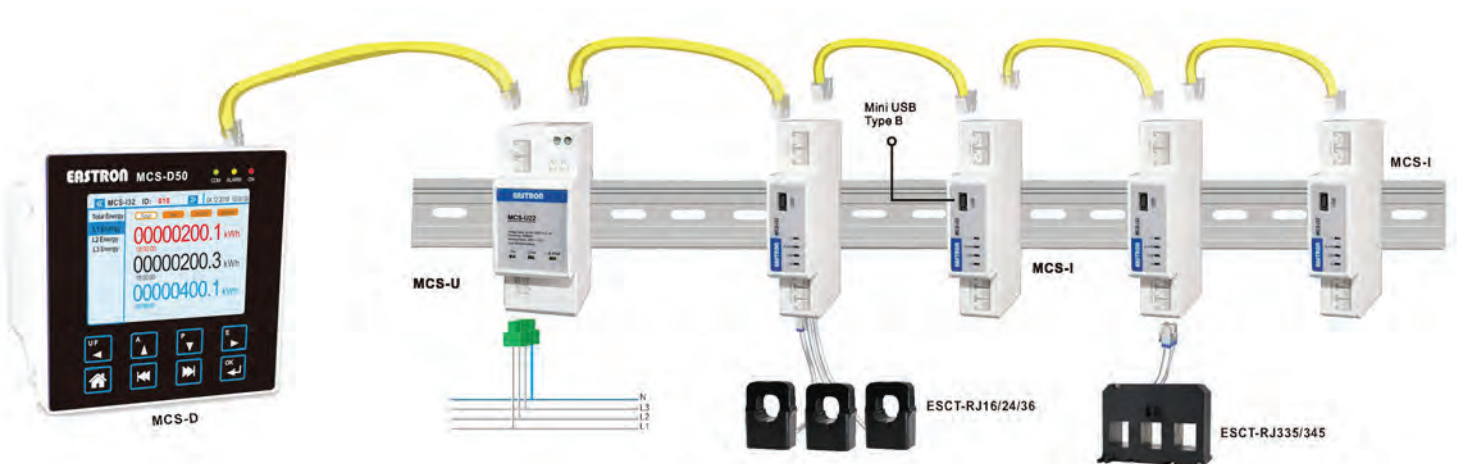
The current, Power and Energy is monitored by the MCS-I module, which has three RJ12 inputs for three individual split core sensors or alternatively you can just the first RJ12 input, if using our three-phase block sensor. There are three different levels of the MCS-I modules ranging from basic measurement to THD (Total Harmonic Distortion), power per phase and overload alarm functions. The MCS-I modules can then be interconnected via the RJ45 input/ output back to the Voltage and communication module (MCS-U) You can have up to 32 x MCS-I modules connected on one bus (32 x three phase or 96 x single phase circuits). There is no voltage reference required for the MCS-I module.

The MCS-U module is the Voltage and Communication module, you will connect your voltage reference for the complete system to this device (1ph2W or 3ph4W). It will be interconnected to the MCS-I module and the display Module (MCS-D) via RJ45 input / output ports. In the event you do not require a display, you can utilize the RS485 output on this module to program or to connect into a BMS system or energy management platform (Connex).

Depending on the level of requirements we can provide a basic 96x96mm display which will measure the multiple circuits, it can also be used for the setting up of the entire system. Alternatively, we can offer a HMI screen which in conjunction with our Eastron ConneX, which can be used as a centralised metering data point or as a sub metering remote monitoring and data logging end to end solution.

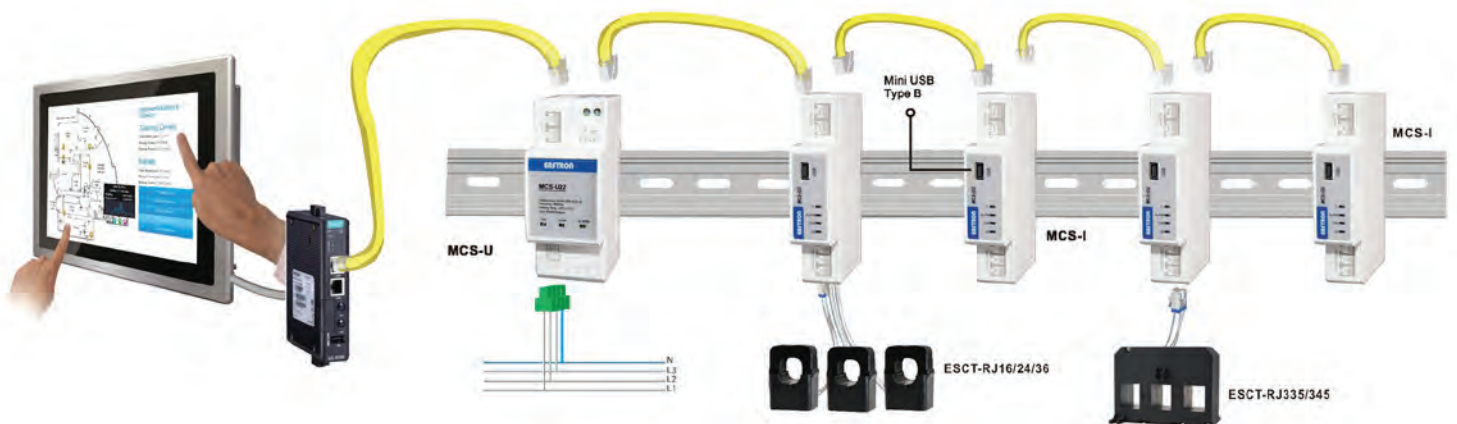
Examples of installation

Basic measurement and display



-100 metre maximum cable run from first device to the end device

HMI interface with Connex Software and Remote Monitoring



-100 metre maximum cable run from first device to the end device

- 1 DIN module (18x90mm)
- Three different variant options at different price points.
- No voltage reference required (Voltage reference is taken from the MCS-U module for entire system)
- 3 x RJ12 CT inputs (3 x Single phase or 1 x Three phase sensor)
- RJ45 input and output for the interconnecting on the bus network
- Up to 32 x MCS-I modules on one network
- Entire network of MCS-I modules measured and displayed from one centralised point



MCS-I Current Module	Module Functions
MCS-130	Total / Net / Imp / Exp Kwh / Kvarh, and I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF
MCS-131	Total / Net / Imp / Exp Kwh / Kvarh, I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF, P, Q, S, PF Per Phase and THD-I
MCS-132	Total / Net / Imp / Exp Kwh / Kvarh, I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF, P, Q, S, PF Per Phase, THD-I, Max Demand and Overload Alarm Function

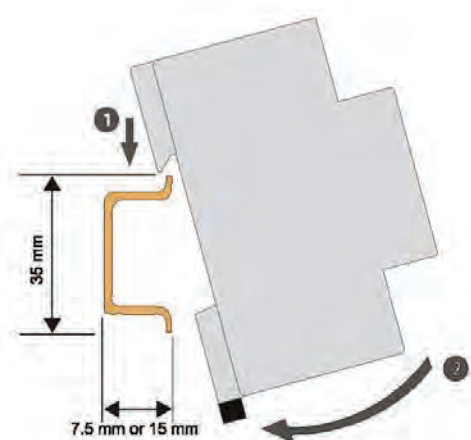
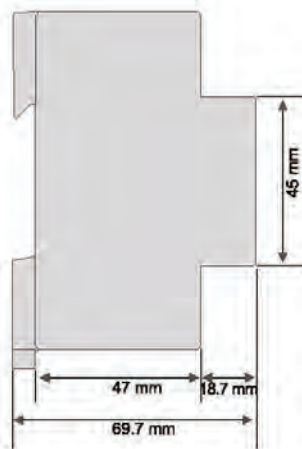
Conformity references:

Electromagnetic Compatibility: IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2,-3-4-5-6-8-11 IEC/EN50470-1/3

Accuracy: IEC60253-22 Class 0.5s, IEC61557-12 Class 0.5

Safety: EC/EN61010, IEC/EN50470-1

Dimension drawing



Installation

- 2 DIN Module (36x90mm)
- Three different variant options at different price points.
- One voltage reference required for entire system (1ph2W or 3ph3W)
- Plug in voltage terminal
- RJ45 input and output ports for interconnection of MCS-D and MCS-I modules
- Can connect up to 32 x MCS-I modules to 1 x MCS-U Module
- RS485 Output Modbus RTU



MCS-U Voltage Module	Module Functions
MCS-U20	U12,U23,U31,U1,U2,U3 and Frequency
MCS-I21	U12,U23,U31,U1,U2,U3, Frequency, THD-U and Alarm Threshold
MCS-U22	U12,U23,U31,U1,U2,U3, Frequency, THD-U, Alarm Threshold and RS485 Port

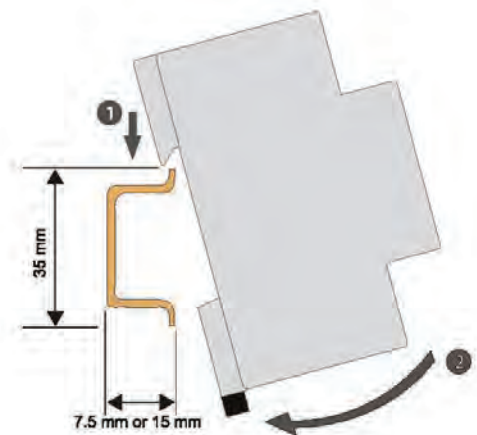
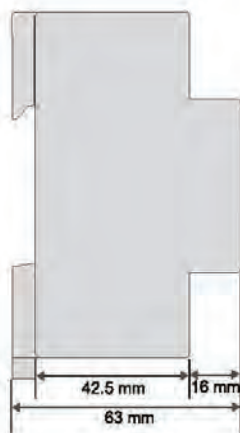
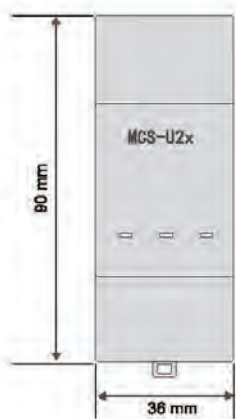
Conformity references:

Electromagnetic Compatibility: IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2,-3-4-5-6-8-11 IEC/EN50470-1/3

Accuracy: IEC60253-22 Class 0.5s, IEC61557-12 Class 0.5

Safety: EC/EN61010, IEC/EN50470-1

Dimension drawing



Installation

- 96x96mm Panel Mounted
- Three different variant options at different price points.
- Operates as a Data Concentrator with 1G memory
- High resolution colour FTF LCD display
- Configuration tool with auto address of modules on the bus network
- Detects Modbus address conflicts and can automatically correct
- Modbus RS485 RTU output or Ethernet Modbus TCP
- Operates as a gateway (MCS-D50/60 only equipped with ethernet port)
- SOE Management (Sequence of Events)



MCS-D Display	Display Functions
MCS-D40	Multi-points display with RS485 Modbus RTU
MCS-D50	Multi-points display with RS485 Modbus RTU and Ethernet Modbus TCP
MCS-D60	Multi-points display with RS485 Modbus RTU, Ethernet Modbus TCP and embedded web server power and energy monitoring

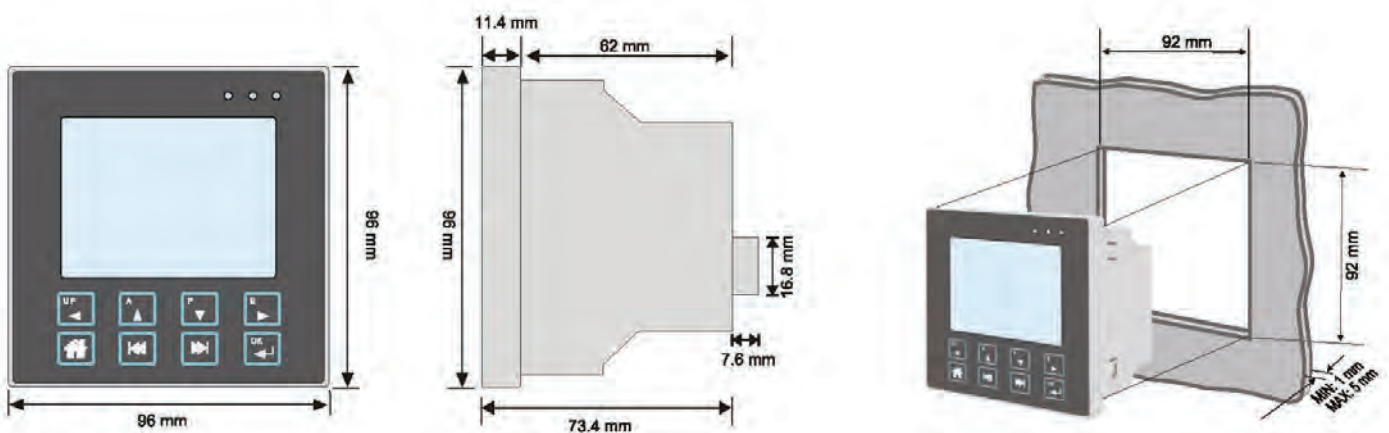
Conformity references:

Electromagnetic Compatibility: IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2,-3-4-5-6-8-11 IEC/EN50470-1/3

Accuracy: IEC60253-22 Class 0.5s, IEC61557-12 Class 0.5

Safety: EC/EN61010, IEC/EN50470-1

Dimension drawing

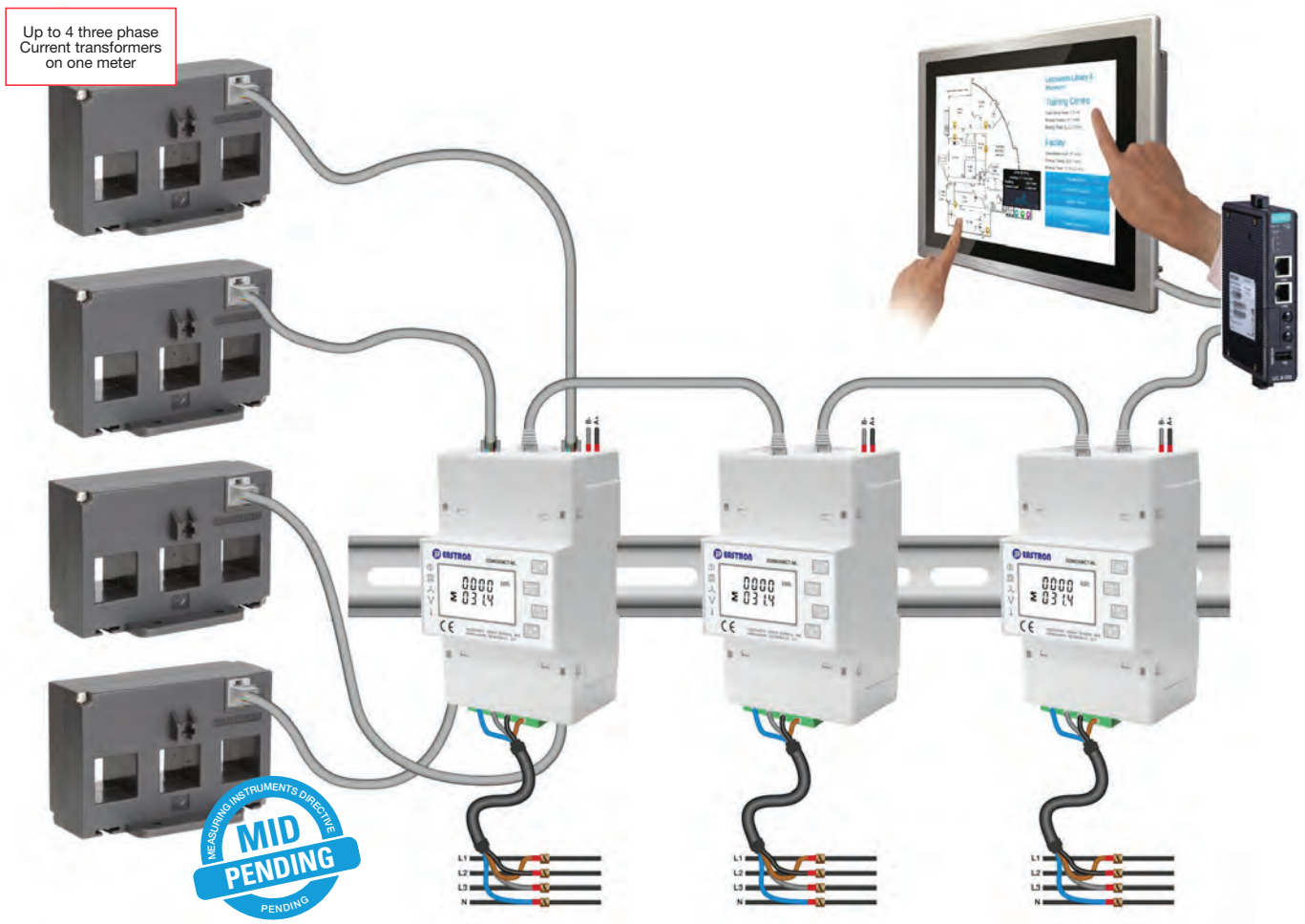


Installation

- Remote Monitoring or Central Data Point access within the building (Or both)
- Prewired and commissioned solution
- No ongoing software license costs
- Auto-Detect function re meter id's
- Upload floor plan and drag and drop metering points for easy to use navigation
- Graphs and reporting function
- Optional HMI web-based touchscreen
- MOXA UC-8112-LX Industrial PC and fully integrated into all Eastron products



Example of installation



EASTRON ConneX Sub-Metering - Software Platform

Sub-Meter Data Logging & HMI Hardware - MOXA UC-8112-LX Industrial PC

The Eastron ConneX Sub-Metering software platform runs on a dedicated Industrial PC, the MOXA UC-8112-LX. This device runs a Linux operating system (Debian) to provide a stable and versatile platform on which the ConneX “GoConfigure” software can run. The ConneX “GoConfigure” software system is developed in-house by PAD Technology Ltd, Eastron Europe’s software and hardware integration partner.

This device is able to store data locally on an Industrial SD card using robust SLC NAND Flash, suitable for long term storage of data under harsh environments.

Data logging frequency can be configured to the application, typically 1 minute or 5 minute reads being suitable for most applications. Where higher read frequencies are required, e.g. sub-minute reads, this can also be accommodated by the platform.



Simplified Commissioning

The ConneX “GoConfigure” software automatically detects new meters added to the sub-metering network, streamlining initial commissioning, extension and repair of metering networks.

Datalogging Cloud Storage

The ConneX “GoConfigure” software may also be configured to push data reads to the PAD Technology “eMIG” cloud based service to allow on-line access to your sub-metering data. eMIG provides secure access to graphical and reporting views of your data.

Automatically paging views of your sub-meters allow you to keep an eye on the state of your plant’s energy consumption in detail, without the need to manually search through for individual meters.

Local-only Data Storage

Occasionally the internal security arrangements of an organisation make it impossible to push data to the cloud for long term storage. We are able to offer “local-only” long term data storage, using a local server and optional network attached storage solution. This provides robust storage and backup of your data on RAID 1 redundant hard drives. Where the metering system is on a totally isolated LAN, the server workstation can also be used for interrogating the metering data, generating CSV reports and saving data to memory sticks for processing elsewhere.

Human Machine Interface - HMI

The ConneX “GoConfigure” software runs a Web-HMI. This may be displayed on a dedicated HMI touch screen, for example the IP65 ARCHMI-815P 15” HMI touchscreen, or the HMI may be accessed from any PC or laptop on the same local area network, using an Internet Browser.

The HMI provides an auto-paging view of all meters on the system, providing instantaneous power and energy readings for each individual meter. This view may be accessed from (for example) a separate smart TV or display PC, to allow continuous monitoring of your sub-metering system in your office.

Where required, we are able to integrate your logo or text into the display.

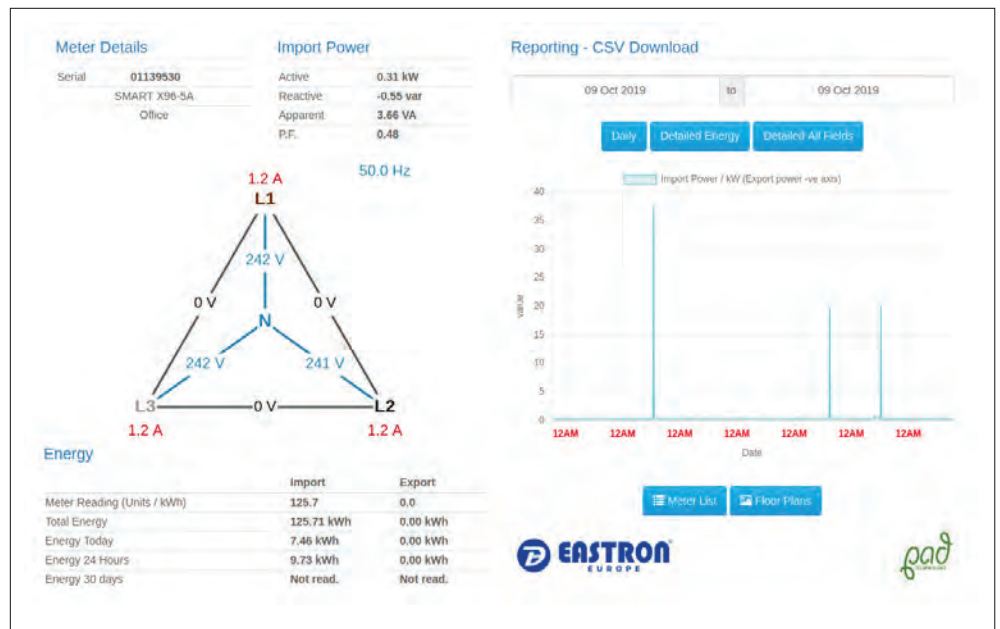
The HMI allows you to set up any number of plant-specific views of your meters, using e.g. a floor plan, or a plant schematic that you create. Floor plans or schematics can be uploaded to the HMI as JPG, PNG or GIF files. The administrator of the system can then position meters on to the floor plan or schematic.

This example shows a library with a number of sub-meters annotated on it.

Here the user has clicked on one of the meters to see a quick ‘pop-up’ view of the current reading and power information for the meter.



Double clicking on the meter then takes the user to the detailed meter view:



In this view the user is able to interrogate information such as line to line voltages, reactive power, power factor and mains frequency, to allow them to diagnose issues with individual power supplies in the network.

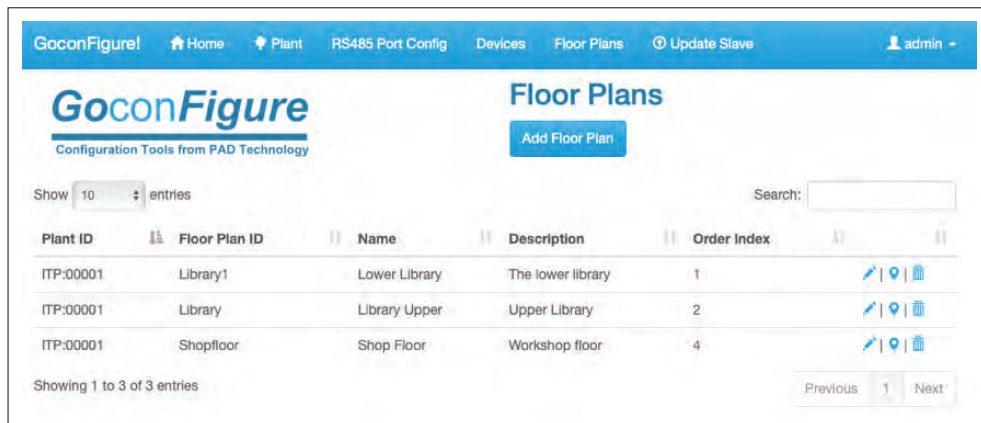
The user can view energy usage over time.

Additionally, this page provides meter specific graphical plots and reading downloads in a variety of forms, for opening in spreadsheet software such as Microsoft Excel.

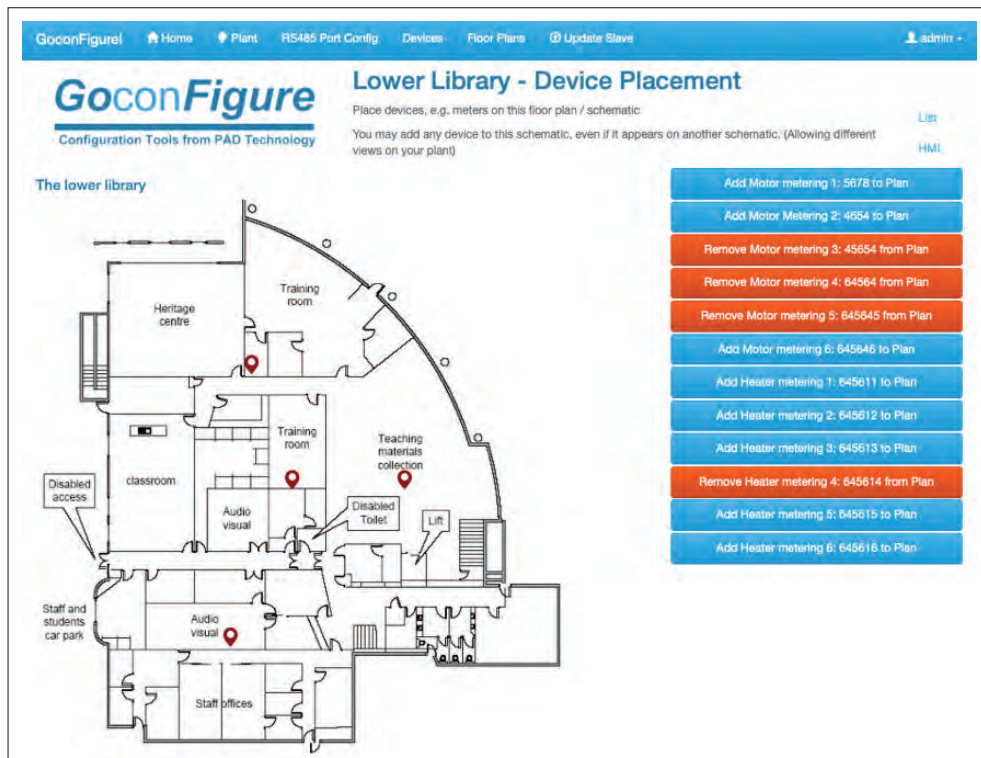
Easy Configuration

Adding new view on the data, by uploading bespoke images and positioning meter on to them is very easy. This is secured by an administrator login username / password.

The user may upload an image file from their local computer by clicking on “Add Floor Plan” and adding basic information about the view (for example the view name, description and the order in which it should appear in a list).



The user may then add or remove any of the meters in the network to overlay the graphic, ready for them to view in the HMI.





EasyClick &
Standard Metering



DIN Rail Mounted
Metering



EV Charger
Solutions



MultiClick Multi
Circuit Monitoring



Wireless & Remote
Monitoring



Current
Transformers

Fast, easy, reliable solutions for Installing Power Metering systems

- EasyClick & Standard Metering
 - DIN Rail Mounted Metering
 - EV Charger Solutions
- MultiClick Multi Circuit Monitoring
 - Wireless & Remote Monitoring
 - Current Transformers



RFE (Reg Farrell Engineering Ltd)

Unit 19, Oak Road Business Park, Western Industrial Estate, Dublin 12.

Tel: +353 1 4659010 **Fax:** +353 1 4659011 **Email:** sales@rfe.ie