GEE TECH

PowerLogic System

Energy management, revenue metering and power quality monitoring

www.schneider-electric.co.uk

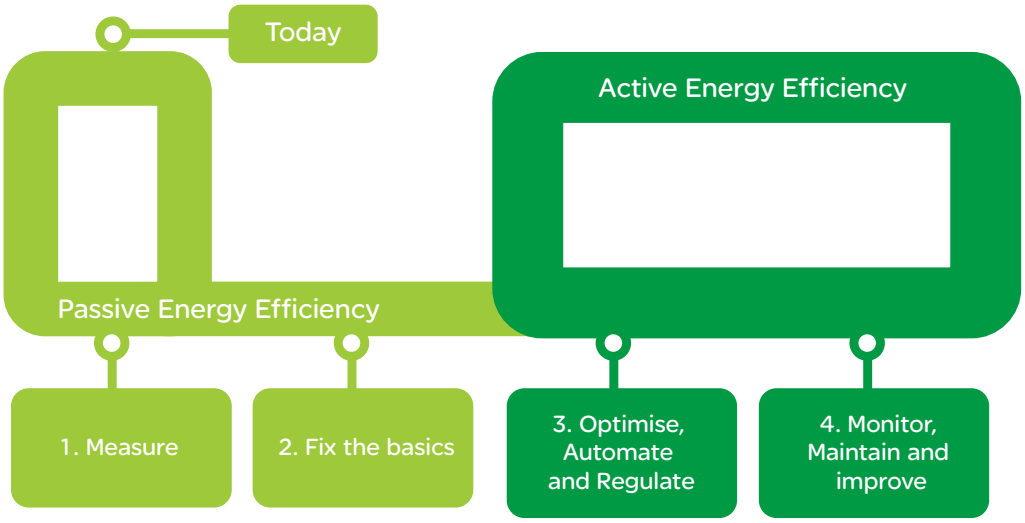
Life Is On Schneider Electric


GEE TECH

Contents

PowerLogic System is…

Schneider Electric believes every business can increase productivity while consuming less and achieving energy savings of 10% to 30%.



Saving energy reduces costs and pollution, but you need the tools to uncover all opportunities, avoid risks, track progress against goals, and verify success. Schneider Electric provides these tools via the world's most advanced energy intelligence technology: PowerLogic.

The PowerLogic range of meters and software help manage all energy assets, every second of the day. A PowerLogic system enables all stakeholders, from CEO to facility and engineering managers, to respond quickly to potential problems and manage energy in financial and environmental terms.

PowerLogic technology delivers the key performance indicators and analytics that you need to strategically balance emissions, efficiency, reliability and cost.

PowerLogic technology forms one part of your total energy management solution from Schneider Electric. As the global energy management specialist, we offer end-to-end power, building and process management solutions that help you optimise energy use and costs, improve performance, enhance comfort and safety, and deliver uninterrupted service while taking responsible care of our planet.

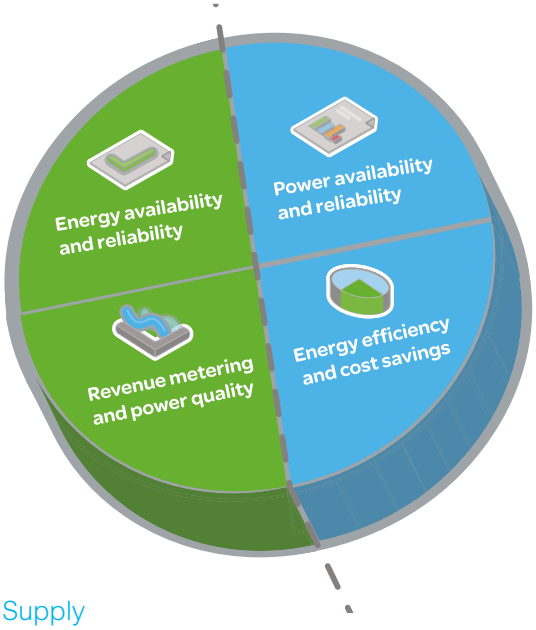
Our expert services can help you audit your energy use and build your energy action plan. From power factor correction systems, harmonic filtering and variable speed drives to HVAC and lighting controls, we offer a complete range of energy efficient technologies.

Gain energy insight and control with PowerLogic™

Cutting-edge technology to increase profitability

PowerLogic technology converts the complex dynamics governing the relationship between power generation and distribution on the utility side, and energy consumption, cost and reliability on the consumer side, into timely, easily understood information. Businesses can use this powerful to improve tactical actions and strategic decision making.

From a single facility to an entire enterprise, PowerLogic meters monitor key distribution points 24 hours a day. Whether from generators, substations, service entrances, mains, feeders, loads or 3rd party equipment and systems, PowerLogic technology tracks, records and reports all real-time conditions and historical performance data. Intuitive web-based interfaces give stakeholders access to this data as well as advanced analytics, alarm annunciation and control capabilities. It supports comprehensive energy management programs by tracking performance and empowering you to make effective decisions.



Supply

Energy availability and reliability

- Improve T&D network reliability
- Enhance substation automation
- Maximise the use of your existing infrastructure

Revenue metering and power quality

- Maximise metering accuracy at all interchange points
- Verify compliance with new power quality standards
- Analyse and isolate the source of power quality problems

Demand

Power availability and reliability

- Validate that power quality complies with the energy contract
- Verify the reliable operation of power and mitigation equipment
- Improve response to power-related problems
- Leverage existing infrastructure capacity and avoid over-building
- Support proactive maintenance to prolong asset life

Energy efficiency and cost savings

- Measure efficiency, reveal opportunities and verify savings
- Manage green house gas emissions
- Allocate energy costs to departments or processes
- Reduce peak demand and power factor penalties
- Enable participation in loadcurtailment programs (e.g. demand response)
- Strengthen rate negotiation with energy suppliers
- Identify billing discrepancies
- Sub-bill tenants for energy costs

Market segments

Industry

From finance to engineering, PowerLogic technology gives industry professionals the energy intelligence and control they need to support strategic decisions and establish best energy practices. It will help you reduce operational costs and meet new emissions standards without compromising production schedules or product quality.

Key points are monitored throughout your power distribution, building and backup systems. Enterprise-level software helps you maximise the use of your existing energy assets, increase energy efficiency and avoid demand or power factor penalties. Use it to uncover hidden power problems that can shorten equipment life or cause costly downtime.

- cost allocation
- procurement optimisation
- power factor correction

Buildings

Building managers through operations staff can cut energy and maintenance costs without effecting the comfort or productivity of their tenants, employees, students, patients or customers. A PowerLogic system will track all utilities and equipment conditions, and enterprise-level software will help you analyse and improve electrical reliability.

You can forecast energy requirements, optimise multi-site contracts and accurately allocate or sub-bill costs. Key performance indicators help you find and sustain energy savings, reduce emissions and meet “green” building standards in order to increase asset value and attract or retain tenants..

- tenant sub-billing
- cost allocation
- energy efficiency / benchmarking
- procurement optimisation
- power availability
- demand response / load curtailment

Utilities

Today's energy market is more complex than ever before. Whether you generate, transmit or distribute electricity, more stakeholders need shared access to timely, accurate energy data from more exchange points and you need to maintain power availability and reduce price volatility in the face of rising demand and transmission congestion. A PowerLogic energy information system helps you meet all of these challenges by:

- Metering all key interchange points with the highest possible accuracy
- Improving the quality of power delivered to your customers
- Essuring the reliability and efficiency of your network and equipment.

From advanced energy and power quality metering systems to enterprise-level analytic software, PowerLogic solutions deliver business-critical information that conventional metering, SCADA and billing systems cannot. It gives you the energy intelligence and control needed to track performance, stay informed of critical conditions and empower you to make strategic decisions. It will help you increase reliability, maximise the use of resources and improve service.

- revenue metering
- power availability and reliability

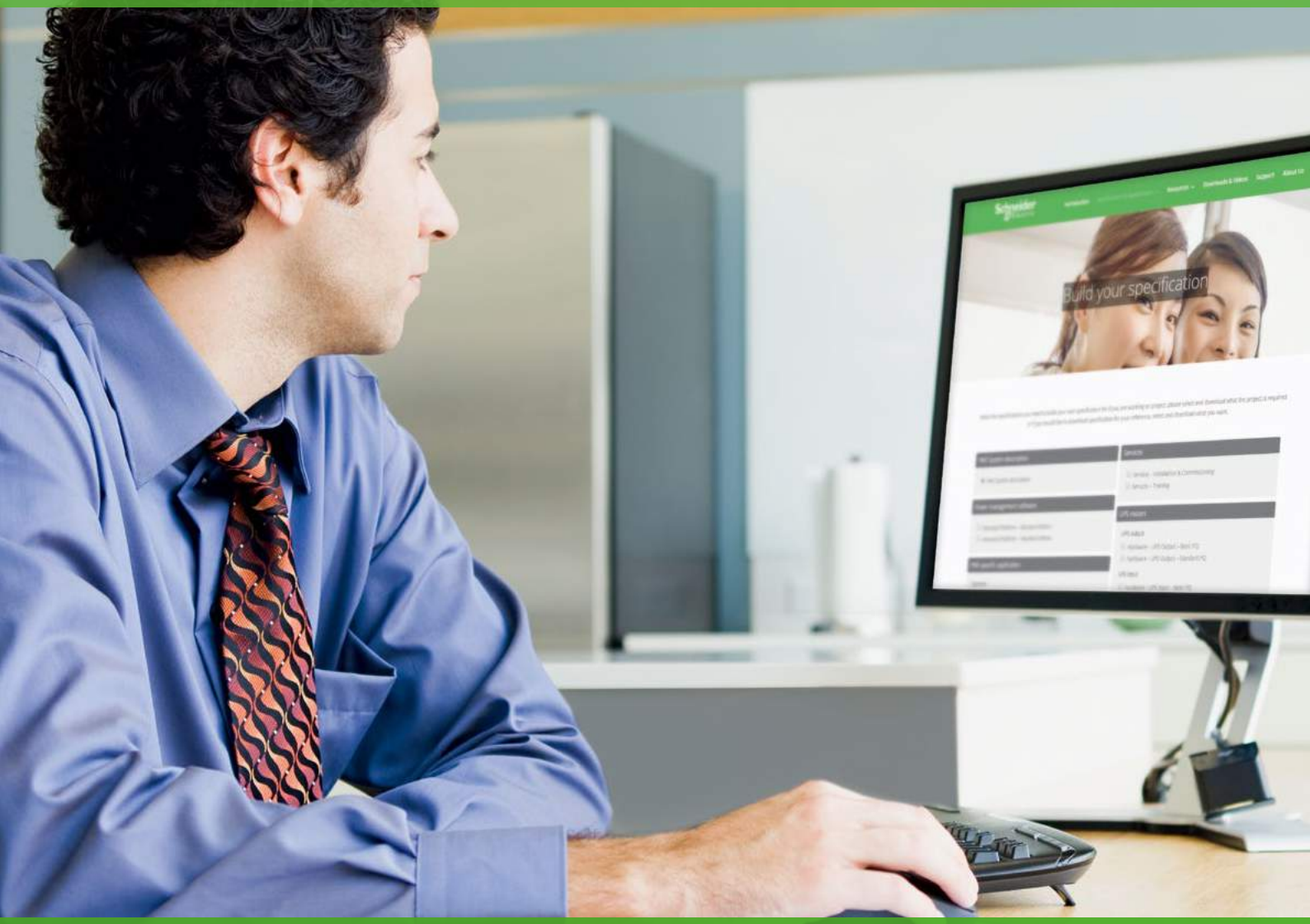
Critical infrastructure

PowerLogic technology helps keep your systems operating continuously and securely with an economical supply of energy. Whether you manage data, communication, transportation or environmental services, minimising the risk of power-related downtime and keeping costs under control is a priority.

A PowerLogic solution monitors all power and cooling systems and accurately tracks their energy consumption. Enterprise-level software delivers insightful diagnostics and metrics to help verify the reliability of your backup systems and maximise the use of existing capacity to defer new capital investments. You can also reveal energy inefficiencies and strengthen energy procurement across multiple sites.

- infrastructure optimisation
- power quality analysis compliance
- alarming and event notification
- energy efficiency
- cost allocation
- procurement optimisation

Tools to help you...



PowerLogic Toolkit

Simplifying Specification

- Product selector
- Build your own specification
- Live updates to CPD course calendar
- Keep track of most current legislation
- Dedicated resource area for tech and spec sheets

Download here: schneider-electric.co.uk/pltoolkit

Meter Selector App

Your unique metering system in the palm of your hand

- Easy to use meter selection tool based on your requirements
- Search by feature, application or competitive offer
- Access and download product data sheets
- Direct link to customer support

Scan the QR code to download
your App on iOS or Android

Life Is On Schneider Electric™

Basic energy metering

Applications

Basic energy meters are designed for sub-metering/billing and cost allocation of energy consumed for each sector, unit, workshop etc. in buildings, industry, data centres and infrastructure.

Product overview

Basic energy metering

Energy meters designed to gather the data you need to clearly understand your energy costs. Whether you require a single-phase kWh meters or full-featured, dual tariff energy meter, Schneider Electric is introducing a NEW iEM2100 series meter that is the best fit for your customer's application.

- PowerLogic iEM2000 series
- NEW PowerLogic iEM2100 series
- PowerLogic iEM3000 series


Schneider Electric
IEM2000
Imax: 40A Cl. 1
kWh
Schneider Electric
kWh
999.99
V
OK
ESC
Schneider Electric
IEM3155
ON
500 imp/kWh
Total Ea Import
110489.2
KWh
3X100V (173V)...3X277V (480V)
50/60Hz
-25°C +55°C
V
OK
ESC
Config
Reset

Acti9 iEM2000 Series

The Acti9 iEM2000 series energy meters offer a cost-attractive, competitive range of single-phase DIN rail-mounted energy meters ideal for sub-billing and cost allocation applications.

Applications

- To monitor the power consumption of each sector, unit, workshop…
- To manage an electrical installation and optimise your building's power efficiency
- For business, industrial and residential applications

The solution for

All markets that can benefit from a solution that includes PowerLogic iEM2000 series meters:

- Buildings eg. student accommodation
- Industry
- Data Centre & networks
- Infrastructures (airport, road tunnels, telecom).

Benefits

The Acti 9 iEM2000 series meters are economical and easy to install in all switchboards up to 10 kVA.

Competitive advantages

- MID compliant (selected models) providing certified accuracy and data security
- Compact size
- A complete range of energy meters
- Compatible with Acti9 range

Energy management system:

To get the most effective use from your Schneider Electric measurement and metering devices, we offer a range of dedicated data logger and gateway for your building energy management. See Page 114

Conformity of standards

- IEC 62053-21
- IEC 61557-12
- EN50470-3

Feature selection

	iEM2000T	iEM2000	iEM2010
Self-powered	■	■	■
Display	n/a	■	■
Width (mm)	18	18	18
Current input	40A	40A	40A
Active Energy accuracy	Class 1	Class 1	Class 1
Reactive Energy accuracy	n/a	n/a	n/a
Four quadrant Energy measurement	n/a	n/a	n/a
Multi-tariff	n/a	n/a	n/a
Digital inputs	n/a	n/a	n/a
Digital outputs	1 P/O	n/a	1 P/O
Communication protocol	n/a	n/a	n/a
MID for billing application	n/a	n	n
Ordering reference	A9MEM2000T	A9MEM2000	A9MEM2010

Acti9 iEM2100 Series

The Acti9 iEM2100 series energy meters are ideal for basic Kwh metering and billing applications and support two protocols (Modbus and M-bus) that allow them to integrate seamlessly into your customers' existing networks.

Applications

- To monitor the power consumption of each sector, unit, workshop…
- To manage an electrical installation and optimise your building's power efficiency
- For business, industrial and residential applications

The solution for

All markets that can benefit from a solution that includes PowerLogic iEM2100 series meters:

- Buildings eg. student accommodation
- Industry
- Data Centre & networks
- Infrastructures (airport, road tunnels, telecom).

Benefits

The Acti 9 iME kilowatt-hour meters are specially economic and easy to install in all switchboards.

Competitive advantages

- Compact size
- MID compliant (selected models) providing certified accuracy and data security
- Four quadrant measurement
- Electrical parameter measurement eg. V, I, P, PF
- Onboard Modbus or M-bus communication
- A complete range of energy meters
- Compatible with Acti9 range

Energy management system:

To get the most effective use from your Schneider Electric measurement and metering devices, we offer a range of dedicated data logger and gateway for your building energy management. See page 114

Conformity of standards

- IEC61557-21
- IEC 62053-23
- EN50470-3

Feature selection

	iEM2100	iEM2105	iEM2110	iEM2135	IEM2150	iEM2155
Self-powered	■	■	■	■	■	■
Display	■	■	■	■	■	■
Width (mm)	36	36	36	36	36	36
Current input	63A	63A	63A	63A	63A	63A
Active Energy accuracy	Class 1	Class 1	Class 1	Class 1	Class 1	Class 1
Reactive Energy accuracy	n/a	n/a	n/a	n/a	Class 2	Class 2
Four quadrant Energy measurement	n/a	n/a	■	■	■	■
Multi-tariff	n/a	n/a	2	2	n/a	2
Digital inputs	n/a	n/a	1 (tariff switching)	n/a	n/a	n/a
Digital outputs	n/a	1 P/O	2 P/O's	n/a	n/a	n/a
Communication protocol	n/a	n/a	n/a	M-bus	Modbus RS485	Modbus RS485
MID for billing application	n/a	n/a	■	■	n/a	■
Ordering reference	A9MEM2100	A9MEM2105	A9MEM2110	A9MEM2135	A9MEM2150	A9MEM2155

Acti9 iEM3000 Series

The Acti 9 iEM3000 series energy meters is a cost-attractive, feature-rich energy metering offer for DIN rail, modular enclosures. With Modbus, BACnet, M-bus and LON protocol support, you can easily integrate these meters into commercial and non-critical buildings to add simple energy management applications to any BMS, AMR or EMS system.

Applications

Cost management applications

- Bill checking to verify that you are only charged for the energy you use
- Sub billing individual tenants for their energy consumption, including WAGES
- Aggregation of energy consumption, including WAGES, and allocating costs per area, per usage, per shift, or per time within the same facility

Network management applications

- Basic metering of electrical parameters to better understand the behaviour of your electrical distribution system

More than just kWh meters, the Acti 9 iEM3000 series meters provide a full view of both energy consumption and on-site generation with full four-quadrant measurement of active and reactive energy delivered and received. Additionally, extensive real-time measurements (V, I, P, PF) give customers greater detail on their energy usage, and multiple tariffs give customers the flexibility to match the billing structure of their utility.

The solution for

All markets that can benefit from a solution that includes PowerLogic iEM3000 series meters:

- Buildings & industry
- Data centres and networks
- Infrastructure (airports, road tunnels, telecom)

Benefits

Optimise your energy consumption & enable energy efficiency practices

- Collect and analyse energy consumption data from each area for each type of load or circuit
- Gain an accurate understanding of business expenses by allocating the energy-related costs
- Use information to implement actions designed to reduce energy consumption

Monitor the energy consumption of your tenants or customers and establish accurate invoices

- Drive energy-efficient behaviour
- Allow building owners to bill tenants for individual measured utility usage
- Give accurate and achievable objectives for energy savings

Competitive advantages

- Compact size
- MID compliant (selected models) providing certified accuracy and data security
- Programmable digital inputs/ouputs
- Multi-tariff capability
- Onboard Modbus, LON, M-bus or BACnet communication
- A complete range of energy meters
- Compatible with Acti9 range

Energy management system:

To get the most effective use from your Schneider Electric measurement and metering devices, we offer a range of dedicated data logger and gateway for your building energy management. See Page 114

Conformity of standards

- IEC 61557-12
- IEC 62053-21/22
- IEC 62053-23
- EN 50470-3
- IEC 61036
- IEC 61010

Acti9 iEM3000 Series

Feature selection

		iEM3100 iEM3200 iEM3300	iEM3110 iEM3210 iEM3310	iEM3115 iEM3215	iEM3135 iEM3235 iEM3335	iEM3150 iEM3250 iEM3350	iEM3155 iEM3255 iEM3355	iEM3165 iEM3265 iEM3365	iEM3175 iEM3275 iEM3375
Self powered		■	■	■	■	■	■	■	■
Width (18mm module)		5/5/7	5/5/7	5/5	5/5/7	5/5/7	5/5/7	5/5/7	5/5/7
Direct measurement (up to)		63A/-/125A	63A/-/125A	63A/-	63A/-/125A	63A/-/125A	63A/-/125A	63A/-/125A	63A/-/125A
Measurement input through CTs (1A, 5A)		- / ■ /-	- / ■ /-	- / ■	- / ■ /-	- / ■ /-	- / ■ /-	- / ■ /-	- / ■ /-
Measurement input through VTs					- / ■ /-	- / ■ /-	- / ■ /-	- / ■ /-	- / ■ /-
Active Energy measurements class		1/0.5S/1	1/0.5S/1	1/0.5S	1/0.5S/1	1/0.5S/1	1/0.5S/1	1/0.5S/1	1/0.5S/1
Four Quadrant Energy measurement					■		■	■	■
Electrical parameter measurements (I, V, P,...)					■	■	■	■	■
Multi-tariff (internal clock)				4	4		4	4	4
Multi-tariff (external control)				4	2		2	2	2
Measurement display (no. of line)		3	3	3	3	3	3	3	3
Digital inputs	Programmable (Tariff control or WAGES input)				1		1	1	1
	Tariff control only			2					
Digital outputs	Programmable (Kwh pulse or KW overload alarm)				1		1	1	
	Kwh pulse only		1						
Communication protocols	M-bus				■				
	Modbus					■	■		
	BACnet							■	
	Lon								■
MID (legal metrology certification)			■	■	■		■	■	■
Ordering references		A9MEM3100	A9MEM3110	A9MEM3115	A9MEM3135	A9MEM3150	A9MEM3155	A9MEM3165	A9MEM3175
		A9MEM3200	A9MEM3210	A9MEM3215	A9MEM3235	A9MEM3250	A9MEM3255	A9MEM3265	A9MEM3275
		A9MEM3300	A9MEM3310		A9MEM3335	A9MEM3350	A9MEM3355	A9MEM3365	A9MEM3375

How to read table: If a cell contains a single value, that value applies to all meter models identified in the header cell(s). For cells with multiple values, the values correspond from left to right with the meter models listed from top to bottom for each associated header cell. For example, a cell with "A / B / C" means A for iEM31xx models, B for iEM32xx models, and C for iEM33xx models

Technical Specifications

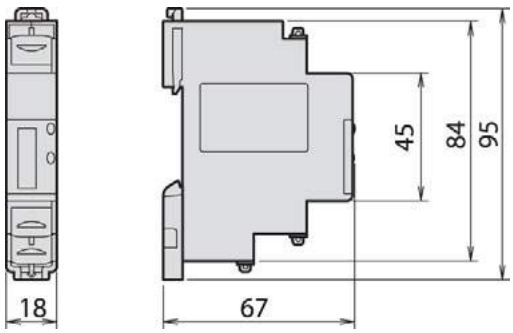
Basic energy metering

Acti9 iEM2000 Series

Technical specifications

	iEM2000T	iEM2000	iEM2010
Direct connection	40A	40A	40A
Pulse output operation	100 pulses/kwh (120ms long)	n/a	n/a
Display capacity	999999.9KWh		
Voltage range (L-N)	184 to 276 Vac		
Operating frequency	50/60Hz		
Meter constant LED	3200 flashes per KWh		
Wiring capacity (Top)	4 mm2		
Wiring capacity (Bottom)	10 mm2		
Consumption	<10 VA		
IP protection	IP40 front panel and IP20 casing		
Temperature	-10°C to +55°C		
Active energy	■	■	■
Reactive energy	n/a	n/a	n/a
Active power	n/a	n/a	n/a
Reactive power	n/a	n/a	n/a
Power Factor	n/a	n/a	n/a
Current and voltage	n/a	n/a	n/a
Frequency	n/a	n/a	n/a

iEM2000 dimensions



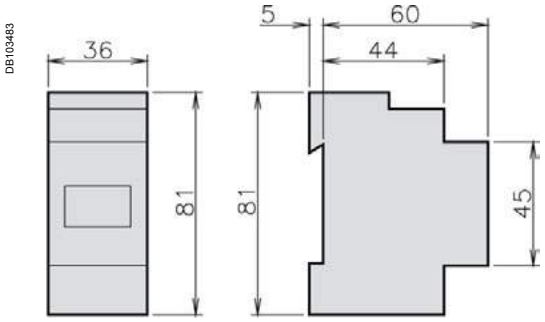
NOTE: See the appropriate product Installation Guide for complete instructions.

Acti9 iEM2100 Series

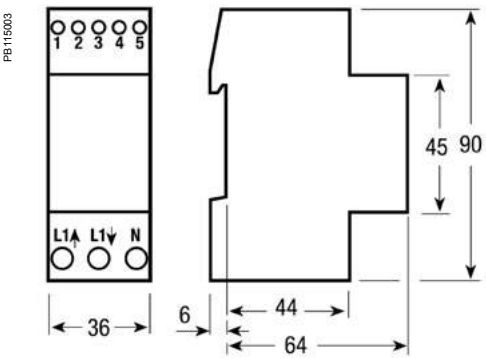
Technical specifications

	iEM2100	iEM2105	iEM2110	iEM2135	IEM2150	iEM2155
Direct connection	63A	63A	63A	63A	63A	63A
Pulse output operation	n/a	1 pulse/kwh (200ms long)	1 to 1000 pulses / kwh or kvarh (30 to 100ms long)	n/a	n/a	n/a
Display capacity	99999 KWh or 999.99 MWh		999999.99KWh			
Voltage range (L-N)	184 to 276 Vac		92 to 276 Vac			
Operating frequency	50/60Hz					
Meter constant LED	1000 flashes per KWh					
Wiring capacity (Top)	6 mm2		4 mm2			
Wiring capacity (Bottom)	32 mm2 (16 mm2 iEM2100/iEM2105)					
Consumption	2.5 VA		3 VA			
IP protection	IP40 front panel and IP20 casing					
Temperature	-25°C to +55°C					
Active energy	■	■	■	■	■	■
Reactive energy	n/a	n/a	■	■	■	■
Active power	n/a	n/a	■	■	■	■
Reactive power	n/a	n/a	■	■	■	■
Power Factor	n/a	n/a	■	■	■	■
Current and voltage	n/a	n/a	■	■	■	■
Frequency	n/a	n/a	■	■	■	■

iEM2100/iEM2105 dimensions



iEM2110/iEM2135/iEM2150/iEM2155 dimensions



NOTE: See the appropriate product Installation Guide for complete instructions.

Acti9 iEM3100/iEM3300

Technical specifications

	iEM3100 iEM3300	iEM3110 iEM3310	iEM3115	iEM3135 iEM3335	iEM3150 iEM3350	iEM3155 iEM3355	iEM3165 iEM3365	iEM3175 iEM3375
Max current (direct connection)	63A for iEM3100 models, 125A for iEM3300 models							
Meter constant LED	500/kWh							
Pulse output		Up to 1000p/kWh		Up to 1000p/kWh		Up to 1000p/kWh		
Multi-tariff			4 tariffs	4 tariffs		4 tariffs		
Communication				M-bus	Modbus	Modbus	BACnet	LON
DI/DO		0/1	2/0	1/1		1/1	1/1	1/0
MID (EN50470-3)		n		n		n	n	n
Network	1P+N, 3P, 3P+N							
Accuracy class	Class 1 (IEC 62053-21 and IEC61557-12) Class B (EN50470-3)							
Wiring capacity	16 mm² for iEM3100 models, 50 mm² for iEM3300 models							
Display max.	LCD 99999999.9kWh							
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	5 x 18 mm for iEM3100 models, 7 x 18 mm for iEM3300 models							
Overvoltage and measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■		■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■

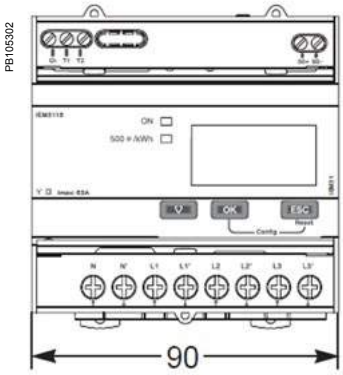
Acti9 IEM3200

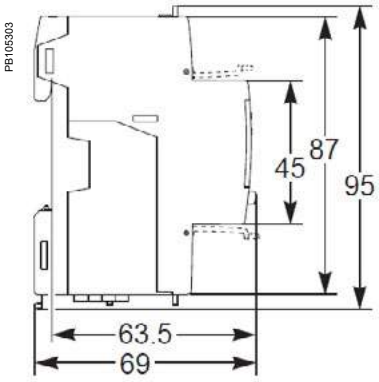
Technical specifications

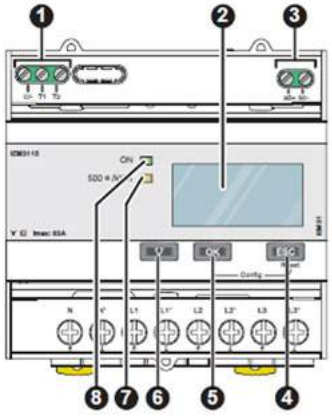
	iEM3200	iEM3210	iEM3215	iEM3235	iEM3250	iEM3255	iEM3265	iEM3275
Max current (1A/5A CT connected)	6 A							
Meter constant LED	5000/kWh							
Pulse output frequency		Up to 500p/kWh		Up to 500p/kWh		Up to 500p/kWh		
Multi-tariff			4 tariff	4 tariffs		4 tariffs		
Communication				M-bus	Modbus	Modbus	BACnet	LON
DI/DO		0/1	2/0	1/1		1/1	1/1	1/0
MID (EN50470-3)		n	n	n		n	n	n
Network	1P+N, 3P, 3P+N support CTs			1P+N, 3P, 3P+N support CTs & VTs				
Accuracy class	Class 0.5S (IEC 62053-22 and IEC61557-12) Class C (EN50470-3)(1)							
Wiring capacity	6 mm² for currents and 4 mm² for voltages							
Display max.	LCD 99999999.9kWh or 99999999.9MWh							
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	5 steps of 18 mm							
Overvoltage & measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■		■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■

(1) For 1 A CTs Class 1 (IEC6253-21 and IEC61557-12 Class B (EN50470-3)

iEM3000/iEM3200 series dimensions

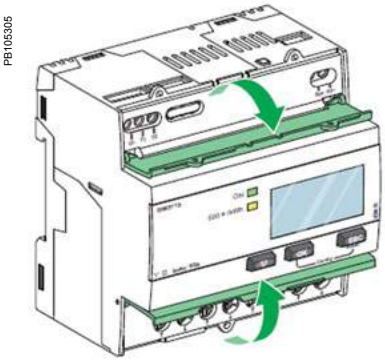


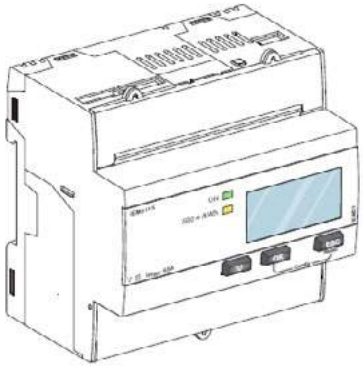




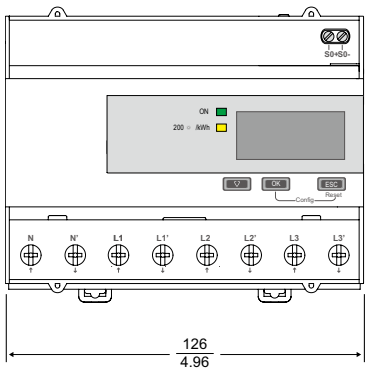
Acti 9 iEM3000 Series parts
1. Digital inputs for tariff control (iEM3115 / iEM3215)
2. Display for measurement and configuration
3. Pulse out for remote transfer (iEM3110 / iEM3210)
4. ESC Cancellation
5. OK Confirmation
6. ▽ Selection
7. Flashing yellow meter indicator to check accuracy
8. Green indicator: on/off, error

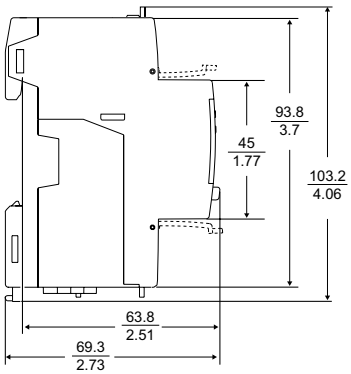
Acti 9 iEM3100/iEM3200 Series front flaps open and closed

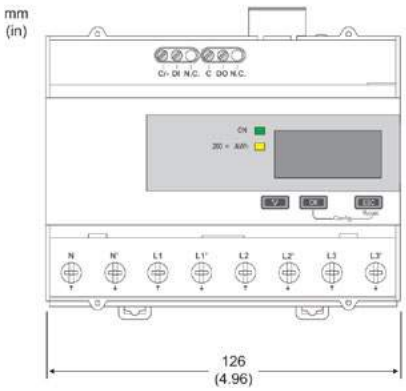


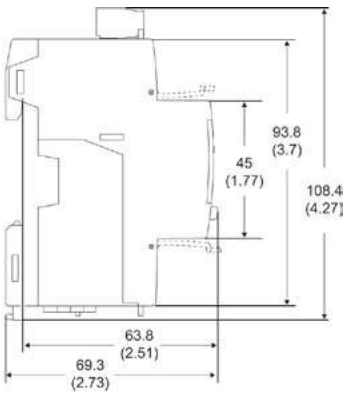


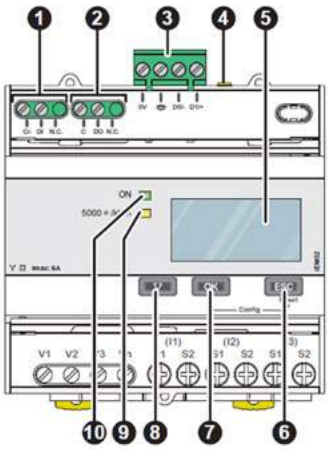
iEM3300 series dimensions











Acti 9 iEM3000 Series parts
1. Digital inputs for tariff control (iEM3115 / iEM3215)
2. Display for measurement and configuration
3. Pulse out for remote transfer (iEM3110 / iEM3210)
4. ESC Cancellation
5. OK Confirmation
6. ▽ Selection
7. Flashing yellow meter indicator to check accuracy
8. Green indicator: on/off, error

Basic multi-function metering

Applications

Basic multi-function meters are designed for optimising energy use and costs across your entire organisation. They provide the measurement capabilities needed to allocate energy usage, perform tenant metering and sub-billing.

As well as pin-point energy savings, optimise equipment efficiency and utilisation Basic multi-function meters perform a high level assessment of the power quality in an electrical network.

Product overview

Basic multi-function metering

A range of meters designed for cost management and simple network management. Affordable to buy and easy to choose, the highly-capable PowerLogic PM5000 series meters are designed to provide the best combination of features to match all your energy cost management needs.

- PowerLogic PM3000
- PowerLogic PM5000


Schneider Electric
PM3250
max. 6A
Summary
Summry
I
U-V
PQS
Vavg 232.5 V
Iavg 100.8 A
Ptot 56.25 kW
E 113284.1 kWh
ESC
OK


Schneider Electric
PowerLogic™ PM5300
Summary
Vavg 348.01 V
Iavg 151.56 A
Ptot 135.649 kW
E Del 685.45 MWh
I U-V Harm

PM3000 series

The PowerLogic PM3000 series power meters are a cost-attractive, feature-rich range of DIN rail-mounted power meters that offers all the measurement capabilities required to monitor an electrical installation.

Ideal for power metering and network monitoring applications that seek to improve the availability and reliability of your electrical distribution system, the meters are also fully capable of supporting sub-metering and cost allocation applications.

Applications

Cost management applications

- Bill checking to verify that you are only charged for the energy you use
- Aggregation of energy consumption, including WAGES, and cost allocation per area, per usage, per shift or per time within the same facility
- Energy cost and usage analysis per zone, per usage or per time period to optimise energy usage

Network management applications

- Metering of electrical parameters to better understand the behaviour of your electrical distribution system

The solution for

All markets that can benefit from a solution that includes PowerLogic PM3000 series meters:

- Buildings
- Industry
- Data centres and networks
- Infrastructure (eg. airports, road tunnels, telecom)

Benefits

Optimise your energy consumption & enable energy efficiency practices

- Collect and analyse energy consumption data from each area for each type of load or circuit
- Gain an accurate understanding of business expenses by allocating the energy-related costs
- Identify savings opportunities
- Use information to implement actions designed to reduce energy consumption

Competitive advantages

Connectivity advantages

- Programmable digital input
  - External tariff control signal (4 tariff)
  - Remote Reset partial conter
  - External status like breaker statues
  - Collect WAGES pulses
- Programmable digital output
  - Alarm (PM3255)
  - KWh pulses
- Graphic LCD display
- Modbus RS485 with screw terminals

Multi-tariff capability

The PM3000 series allow to arrange KWh consumption in four different registers. This can be controlled by

- Digital inputs. Signal can be provided by PLC or utilities
- Internal clock programmable by HMI
- Through communication

This function allows users to:

- Make tenant metering for dual source applications to differentiate backup source or utility source
- Understand well the consumption during peak time and off-peak time, weekdays and weekends, holiday and working days etc
- Follow up feeders consumption in line with utility tariff rates

Power management solutions

Schneider Electric provides innovative power management solutions to increase your energy efficiency and cost savings, maximise electrical network reliability and availability, and optimise electrical asset performance. See Page 114

Conformity of standards

- IEC 61557-12
- IEC 62052-11
- IEC 62053-21
- IEC 62053-22
- IEC 62053-23
- EN 50470-1
- EN 50470-3
- IEC 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- EN55022

Feature selection

	PM3200	PM3210	PM3250	PM3255
Performance standard				
IEC61557-12 PMD/Sx/K55/0.5	■	■	■	■
General				
Use on LV and HV systems	■	■	■	■
Number of samples per cycle	32	32	32	32
CT input 1A/5A	■	■	■	■
VT input	■	■	■	■
Multi-tariff	4	4	4	4
Multi-lingual backlit display	■	■	■	■
Instantaneous rms values				
Current, voltage Per phase and average	■	■	■	■
Active, reactive, apparent power Total and per phase	■	■	■	■
Power factor Total and per phase	■	■	■	■
Energy values				
Active, reactive and apparent energy; import and export	■	■	■	■
Demand value				
Current, power (active, reactive, apparent) demand; present	■	■	■	■
Current, power (active, reactive, apparent) demand; peak		■	■	■
Power quality measurements				
THD Current and voltage		■	■	■
Data recording				
Min/max of the instantaneous values	■	■	■	■
Power demand logs				■
Energy consumption log (day, week, month)				■
Alarms with time stamping		5	5	15
Digital inputs/digital outputs		0/1		2/2
Communication				
RS-485 port			■	■
Modbus protocol			■	■
Ordering reference	METSEPM3200	METSEPM3210	METSEPM3250	METSEPM3255

PM5000 series

The PowerLogic PM5000 series power meters are the new benchmark in affordable, precision metering.

The ideal fit for high-end cost management applications, providing the measurement capabilities needed to allocate energy usage, perform tenant metering and sub-billing, pin-point energy savings, optimise equipment efficiency and utilisation, and perform a high level assessment of the power quality in an electrical network.

Applications

Capable of essential cost management:

- Sub-billing/tenant metering
- Equipment sub-billing
- Energy cost allocation

Also ideal for electrical network management:

- Track real-time power conditions
- Monitor control functions
- Provide basic power quality values
- Monitor equipment and network status

The solution for

All markets that can benefit from a solution that includes PowerLogic PM5000 series:

- Buildings
- Industry
- Healthcare
- Data Centre and networks
- Infrastructure

Benefits

System integrators' benefit

- Ease of integration
- Ease of setup
- Cost effectiveness

Panel builders' benefit

- Ease of installation
- Cost effectiveness
- Aesthetically pleasing
- Simplified ordering

End users' benefit

- Ease of use
- Precision metering & sub-billing
- Billing flexibility
- Comprehensive, consistent and superior performance

Competitive advantages

- Easy to install and operate
- Easy for circuit breaker monitoring and control
- Direct metering of neutral circuit and calculated ground current value to avoid overload and resulting outage (PM556x)
- Power quality analysis??
- Load management combined with alarm and timestamping
- High performance and accuracy
- MID ready compliance for legal billing application

Power management solutions

Schneider Electric provides innovative power management solutions to increase your energy efficiency and cost savings, maximise electrical network reliability and availability, and optimise electrical asset performance. See Page 114

Conformity of standards

- IEC61557-12
- IEC62053-22
- IEC62053-24
- EN50470-1
- EN50470-3
- IEC 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- Etc.

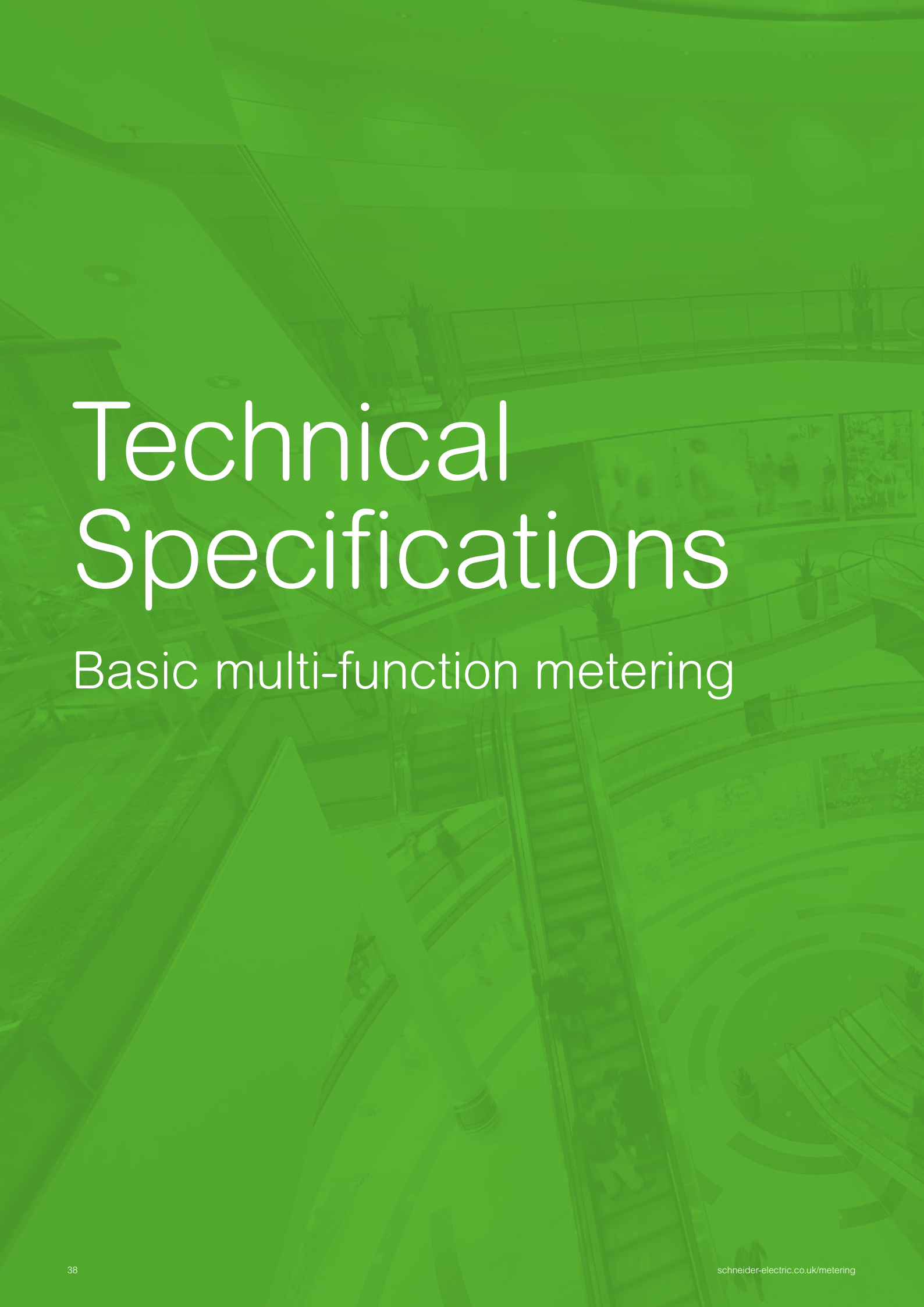
Feature selection

	PM5100		PM5300				PM5500	
Short reference numbers	PM5100	PM5110	PM5310	PM5320	PM5330	PM5340	PM5560	PM5563
Commercial reference numbers	METSE PM5100	METSE PM5110	METSE PM5310	METSE PM5320	METSE PM5330	METSE PM5340	METSE PM5560	METSE PM5563
Installation								
Fast installation, panel mount with integrated display	■	■	■	■	■	■	■	–
Fast installation, DIN rail mountable	–	–	–	–	–	–	–	■
Accuracy	CL 0.5S	CL 0.5S	CL 0.5S	CL 0.5S	CL 0.5S	CL 0.5S	CL 0.2S	CL 0.2S
Display								
Backlit LCD, multilingual, bar graphs, 6 lines, 4 concurrent values	■	■	■	■	■	■	■	■
Power and energy metering								
3-phase voltage, current, power, demand, energy, frequency, power factor	■	■	■	■	■	■	■	■
Multi-tariff	–	–	4	4	4	4	8	8
Power quality analysis								
THD, thd, TDD	■	■	■	■	■	■	■	■
Harmonics, individual (odd) up to	15th	15th	31st	31st	31st	31st	63rd	63rd
I/Os and relays								
I/Os	1DO	1DO	2DI/2DO	2DI/2DO	2DI/2DO	2DI/2DO	4DI/2DO	4DI/2DO
Relays	0	0	0	0	2	2	0	0
Alarms and control								
Alarms	33	33	35	35	35	35	52	52
Set point response time, seconds	1	1	1	1	1	1	1	1
Single and multi-condition alarms	–	–	■	■	■	■	■	■
Boolean alarm logic	–	–	–	–	–	–	■	■
Memory for data logging			256KB	256KB	256KB	256KB	1.1 MB	1.1 MB
Communications								
Serial ports with modbus protocol	–	1	1	–	1	–	1	1
Ethernet port with Modbus TCP protocol	–	–	–	1	–	1	2**	2**
Onboard web server with web pages	–	–	–	–	–	–	■	■
Serial to Ethernet gateway	–	–	–	–	–	–	■	■
MID ready compliance, EN50470-1/3, Annex B and Annex D Class C		PM5111 METSEPM5111			PM5331 METSEPM5331	PM5341 METSEPM5341	PM5561 METSEPM5561	

** 2 Ethernet ports for daisy chain, one IP address

Other related products

	Ordering reference
A package of PM5563 meter with remote display	METSEPM5563RD
Remote display for PM5563	METSEPM5RD
Hardware kit for PM51xx	METSEPM51HK
Hardware kit for PM53xx	METSEPM53HK
Hardware kit for PM55xx	METSEPM55HK



Technical Specifications

Basic multi-function metering

PM3000 series

Technical specifications

Type of measurement	True rms up to the 15th harmonic on three-phase (3P,3P+N) and single-phase AC systems. 32 samples per cycle
Measurement accuracy	
Current with x/5A CTs	0.3% from 0.5A to 6A
Current with x/1A CTs	0.5% from 0.1A to 1.2A
Voltage	0.3% from 50V to 330V (Ph-N), from 80V to 570V (Ph-Ph)
Power factor	±0.005 from 0.5A to 6A with x/5A CTs; from 0.1A to 1.2A with x/1A CTs and from 0.5L to 0.8C
Active/Apparent Power with x/5A CTs	Class 0.5
Active/Apparent Power with x/1A CTs	Class 1
Reactive power	Class 2
Frequency	0.05% from 45 to 65Hz
Active energy with x/5A CTs	IEC62053-22 Class 0.5s
Active energy with x/1A CTs	IEC62053-21 Class 1
Reactive energy	IEC62053-23 Class 2
Data update rate	
Update rate	1s
Input-voltage characteristics	
Measured voltage	50V to 330V AC (direct / VT secondary Ph-N) 80V to 570V AC (direct / VT secondary Ph-Ph) up to 1MV AC (with external VT)
Frequency range	45Hz to 65Hz
Input-current characteristics	
CT primary	Adjustable from 1A to 32767A
CT secondary	1A or 5A
Measurement input range with x/5A CTs	0.05A to 6A
Measurement input range with x/1A CTs	0.02A to 1.2A
Permissible overload	10A continuous, 20A for 10s/hour
Control Power	
AC	100/173 to 277/480V AC (+/-20%), 3W/5VA; 45Hz to 65Hz
DC	100 to 300V DC, 3W
Input	
Digital inputs (PM3255)	11 to 40V DC, 24V DC nominal, <=4mA maximum burden, 3.5kVrms insulation
Output	
Digital output (PM3210)	Optocoupler, polarity sensitive, 5 to 30V, 15mA max, 3.5kVrms insulation
Digital outputs (PM3255)	Solid state relay, polarity insensitive, 5 to 40V, 50mA max, 50Ω max, 3.5kVrms insulation

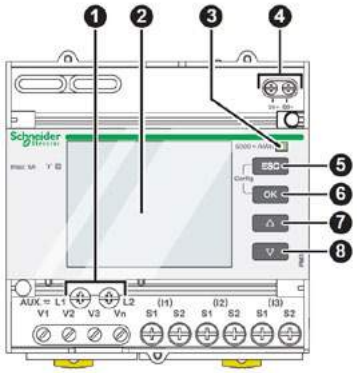
PM3000 series

Technical specifications

Mechanical characteristics	
Weight	0.26kg
IP degree of protection (IEC60529)	IP40 front panel, IP20 meter body
Dimension	90 x 95 x 70mm
Environmental conditions	
Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +85 °C
Humidity rating	5 to 95% RH at 50°C (non-condensing)
Pullution degree	2
Metering category	III, for distribution systems up to 277/480VAC
Dielectric withstand	As per IEC61010-1, Doubled insulated front panel display
Altitude	3000m max
Electromagnetic compatibility	
Electrostatic discharge	Level IV (IEC61000-4-2)
Immunity to radiated fields	Level III (IEC61000-4-3)
Immunity to fast transients	Level IV (IEC61000-4-4)
Immunity to surge	Level IV (IEC61000-4-5)
Conducted immunity	Level III (IEC61000-4-6)
Immunity to power frequency magnetic fields	0.5mT (IEC61000-4-8)
Conducted and radiated emissions	Class B (EN55022)
Safety	
	CE as per IEC61010-1 (1)
Communication	
RS485 port	Half duplex, from 9600 up to 38400 bauds, Modbus RTU (double insulation)
Display characteristics	
Dimensions (VA)	43mm x 34.6mm
Display resolution	128 x 96 dots
Standard compliance	
	IEC61557-12, EN61557-12 IEC61010-1, UL61010-1 IEC62052-11, IEC62053-21, IEC62053-22, IEC62053-23 EN50470-1, EN50470-3

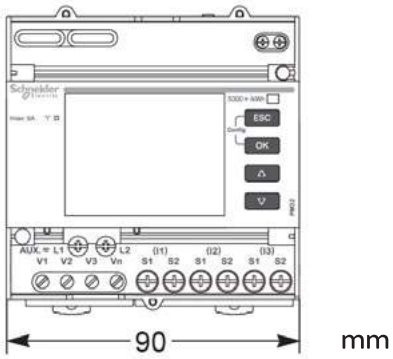
(1) Protected throughout by double insulation

PM3200 series front of meter



Front of meter parts
1 Control power
2 Display with white backlit
3 Flashing yellow meter indicator (to check accuracy)
4 Pulse output for remote transfer (PM3210)
5 Cancellation
6 Confirmation
7 Up
8 Down

PM3200 series dimensions



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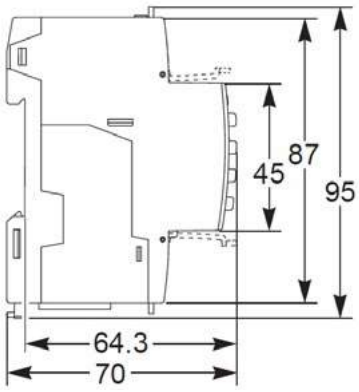
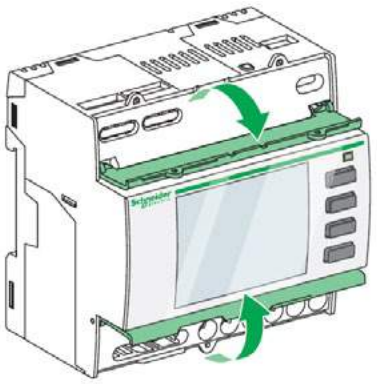
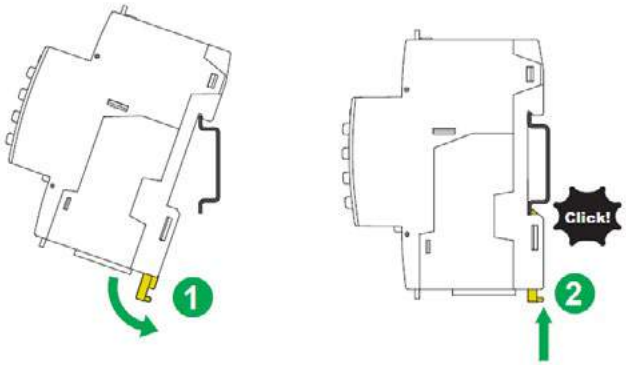




PM3200 top and lower flaps

PM3200 series easy installation



PM5000 series

Technical specifications

		PM5100	PM5300	PM5500
Use on LV and MV systems			■	
Basic metering with THD and min/max readings			■	
Instantaneous rms values				
Current	per phase, neutral and ground (PM5500)		■	
Voltage	Total, per phase L-L and L-N		■	
Frequency			■	
Real, reactive, and apparent power	Total and per phase		Signed, Four Quadrant	
True Power Factor	Total and per phase		Signed, Four Quadrant	
Displacement PF	Total and per phase		Signed, Four Quadrant	
% Unbalanced I, VL-N, VL-L			■	
Direct monitoring of neutral current				■
Energy values				
Accumulated Active, Reactive and Apparent Energy			Received/Delivered; Net and absolute; Time Counters	
Demand value				
Current average			Present, Last, Predicted, Peak, and Peak Date Time	
Active power			Present, Last, Predicted, Peak, and Peak Date Time	
Reactive power			Present, Last, Predicted, Peak, and Peak Date Time	
Apparent power			Present, Last, Predicted, Peak, and Peak Date Time	
Peak demand with time stamping D/T for current and powers			■	
Demand calculation	Sliding, fixed and rolling block, thermal methods		■	
Synchronisation of the measurement window to input, communication command or internal clock			■	
Settable Demand intervals			■	
Demand calculation for Pulse input (WAGES)				■
Other measurements				
I/O timer			■	
Operating timer			■	
Load timer			■	
Alarm counters and alarm logs			■	
Power quality measurements				
THD, thd (Total Harmonic Distortion) I, VLN, VLL per phase			I,VLN, VLL	
TDD (Total Demand Distortion)			■	
Individual harmonics (odds)		15th	31st	63rd
Neutral Current metering with ground current calculation				■
Data recording				
Min/max of instantaneous values, plus phase identification*			■	
Alarms with 1s timestamping*			■	
Data logging			2 fixed parameters kWh and kVAh with configurable interval and duration (e.g. 2 parameters for 60 days at 15 minutes interval)	Up to 14 selectable parameters with configurable interval and duration (e.g. 6 parameters for 90 days at 15 minutes interval)
Memory capacity			256 kB	1.1 MB
Min/max log		■	■	■
Maintenance, alarm and event logs			■	■
Customisable data logs				■

Technical specifications

		PM5100	PM5300	PM5500
Inputs / Outputs / Mechanical Relays				
Digital inputs			2 (SI1, SI2)	4 (SI1, SI2, SI3, SI4) with WAGES support
Digital outputs		1 (kWh only)	2 (configurable)	2 (configurable)
Form A Relay outputs			2	
Timestamp resolution in seconds		1	1	1
Whetting voltage			■	
Type of measurement: True rms on three-phase (3P, 3P + N), zero blind		64 samples per cycle		128 samples per cycle
Measurement accuracy	IEC 61557-12	PMD/[SD|SS]/K70/0.5		PMD/[SD|SS]/K70/0.2
	Active Energy	Class 0.5S as per IEC 62053-22		Class 0.2S as per IEC 62053-22
	Reactive Energy	Class 2S as per IEC62053-24		Class 1S as per IEC62053-24
	Active Energy	±0.5%		±0.2%
	Reactive Energy	±2%		±1%
	Active Power	Class 0.5 as per IEC 61557-12		Class 0.2 as per IEC 61557-12
	Apparent Power	Class 0.5 as per IEC 61557-12		
	Current, Phase	Class 0.5 as per IEC 61557-12		±0.15%
	Voltage, L-N	Class 0.5 as per IEC 61557-12		±0.1%
	Frequency	±0.05%		
	MID Directive EN50470-1, EN50470-3	Annex B and Annex D (Optional model references) Class C		
Input-voltage (up to 1.0 MV AC max, with voltage transformer)	Nominal Measured Voltage range	20 V L-N / 35 V L-L to 400 V L-N /690 V L-L absolute range 35 V L-L to 760 V L-L		20 V L-N / 20 V L-L to 400 V L-N /690 V L-L absolute range 20 V L-L to 828 V L-L
	Impedance	5 M Ω		
	F nom	50 or 60 Hz ±5%		50 or 60 Hz ±10%
Input-current (configurable for 1 or 5 A secondary CTs)	I nom	5 A		
	Measured Amps with over range and Crest Factor	Starting current: 5mA Operating range: 50mA to 8.5A		Starting current: 5m A Operating range: 50 mA to 10 A
	Withstand	Continuous 20A, 10s/hr 50A, 1s/hr 500A		
	Impedance	< 0.3 mΩ		
	F nom	50 or 60 Hz ±5%		50 or 60 Hz ±10%
	Burden	<0.026VA at 8.5A		
AC control power	Operating range	100 - 277 V AC L-N / 415 V L-L +/-10% CAT III 300V class per IEC 61010		100-480 V AC ±10% CAT III 600V class per IEC 61010
	Burden	<5 W,11 VA at 415V L-L		<5W/16.0 VA at 480 V AC
	Frequency	45 to 65 Hz		
	Ride-through time	80 mS typical at 120V AC and maximum burden. 100 mS typical at 230 V AC and maximum burden 100 mS typical at 415 V AC and maximum burden		35 ms typical at 120 V L-N and maximum burden 129 ms typical at 230 V L-N and maximum burden
DC control power	Operating range	125-250 V DC ±20%		
	Burden	<4 W at 250 V DC		typical 3.1W at 125 V DC, max. 5W
	Ride-through time	50 mS typical at 125 V DC and maximum burden		

PM5000 series

Technical specifications

			PM5100	PM5300	PM5500
Outputs	Relay	Max output frequency		0.5 Hz maximum (1 second ON / 1 second OFF - minimum times)	
		Switching current		250 V AC at 8.0 Amps, 25 k cycles, resistive 30 V DC at 2.0 Amps, 75 k cycles, resistive 30 V DC at 5.0 Amps, 12.5 k cycles, resistive	
		Isolation		2.5 kV rms	
	Digital outputs	Digital outputs	1	2	2
		Max load voltage	40 V DC		30 V AC / 60 V DC
		Max load current	20 mA		125 mA
		On Resistance	50 Ω max		8 Ω
		Meter constant	from 1 to 9,999,999 pulses per kWh		
		Pulse width for Digital Output	50% duty cycle		
		Pulse frequency for Digital Output	25 Hz max.		
		Leakage current	0.03 micro Amps		1 micro Amps
		Isolation	5 kV rms		2.5 kV rms
	Optical outputs	Pulse width (LED)	200 ms		
		Pulse frequency	50 Hz. max.		2.5 kHz. max
		Meter constant	from 1 to 9,999,999 pulses per k_h		
Status Inputs	ON Voltage			18.5 to 36 V DC	30 V AC / 60 V DC max
	OFF Voltage			0 to 4 V DC	
	Input Resistance			110 k Ω	100 k Ω
	Maximum Frequency			2 Hz (T ON min = T OFF min = 250 ms)	25 Hz (T ON min = T OFF min = 20 ms)
	Response Time			20 ms	10 ms
	Opto Isolation			5 kV rms	2.5 kV rms
	Whetting output			24 V DC/ 8mA max	
	Input Burden			2mA @24V DC	2 mA @ 24 V AC/DC
Mechanical characteristics					
Product weight			380 g	430 g	450 g
IP degree of protection (IEC 60529)			IP52 front display, IP30 meter body		
Dimensions W x H x D [protrusion from cabinet]			96 x 96 x 72mm (77mm for PM5500) (depth of meter from housing mounting flange) [13mm]		
Mounting position			Vertical		
Panel thickness			6 mm maximum		
Environmental characteristics					
Operating temperature	Meter		-25 °C to 70 °C		

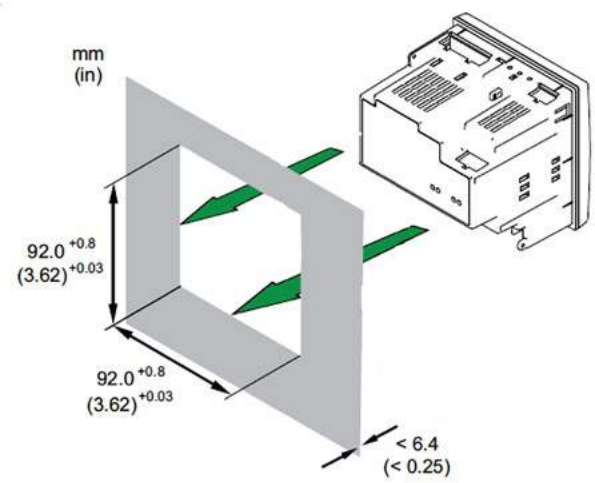
Technical specifications

	Display (Display functions to -25º with reduced performance)	-25 °C to +70 °C	
Storage temp.		-40 °C to +85 °C	
Humidity range		5 to 95 % RH at 50 °C (non-condensing)	
Polution degree		2	
Altitude		2000 m CAT III / 3000 m CAT II	3000 m max. CAT III
Electromagnetic compatibility			
Harmonic current emissions		IEC 61000-3-2	
Flicker emissions		IEC 61000-3-3	
Electrostatic discharge		IEC 61000-4-2	
Immunity to radiated fields		IEC 61000-4-3	
Immunity to fast transients		IEC 61000-4-4	
Immunity to surge		IEC 61000-4-5	
Conducted immunity 150kHz to 80MHz		IEC 61000-4-6	
Immunity to magnetic fields		IEC 61000-4-8	
Immunity to voltage dips		IEC 61000-4-11	
Radiated emissions		FCC part 15, EN 55022 Class B	
Conducted emissions		FCC part 15, EN 55022 Class B	

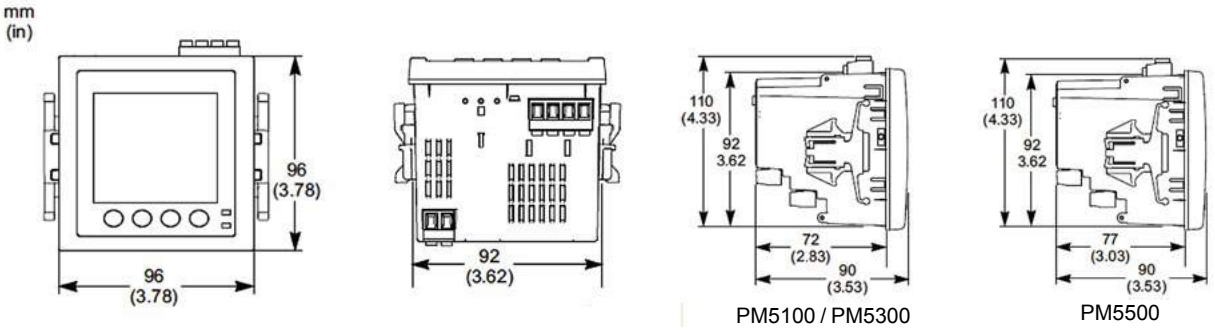
Safety

		PM5100	PM5300	PM5500
Europe		CE, as per IEC 61010-1 Ed. 3, IEC 62052-11 & IEC61557-12		
U.S. and Canada		cULus as per UL61010-1 (3rd Edition)		
Measurement category (Voltage and Current inputs)		CAT III up to 400 V L-N / 690 V L-L		
Dielectric		As per IEC/UL 61010-1 Ed. 3		
Protective Class		II, Double insulated for user accessible parts		
Communication				
RS 485 port Modbus RTU, Modbus ASCII (7 or 8 bit), JBUS		2-Wire, 9600,19200 or 38400 baud, Parity - Even, Odd, None, 1 stop bit if parity Odd or Even, 2 stop bits if None; (Optional in PM51x and PM53x)		
Ethernet port: 10/100 Mbps; Modbus TCP/IP			1 Optional	2 (for daisy chain only, one IP address)
Firmware and language file update		Meter firmware update via the communication ports		
Isolation		2.5 kVrms, double insulated		
Human machine interface				
Display type		Monochrome Graphics LCD		
Resolution		128 x 128		
Backlight		White LED		
Viewable area (W x H)		67 x 62.5 mm		
Keypad		4-button		
Indicator Heartbeat / Comm activity		Green LED		
Energy pulse output / Active alarm indication (configurable)		Optical, amber LED		
	Wavelength	590 to 635 nm		
	Maximum pulse rate	2.5 kHz		

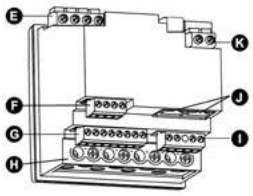
PM5000 Series meter flush mounting



PM5000 Series meter dimensions

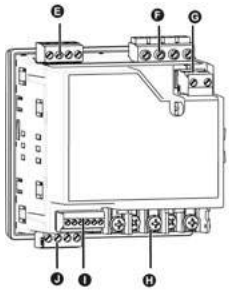


PM5000 meter parts
A Menu selection buttons
B LED indicators
C Navigation or menu selections
D Maintenance and alarm notification area



PM5500

PM5500 meter parts
E Voltage inputs
F RS-485 comms
G Digital inputs
H Current inputs
I Digital outputs
J Ethernet ports
K Control power



PM5100 / PM5300 meter parts
E Relay output (PM5300 only)
F Voltage inputs
G Control power
H Current inputs
I Status inputs/digital outputs
J Communications port: Ethernet (PM5300 only) or RS-485)

*Please see the **Installation Guide** for accurate and complete information on the installation of this product.*

Intermediate metering

Applications

Intermediate meters are designed for low to high voltage network management applications for your critical loads, feeders and LV incomers.

These meters seek to improve the availability and reliability of your electrical system in industrial facilities, data centres, commercial buildings, utilities networks, or critical power environments. They are fully capable of supporting billing and cost allocation applications.

Product overview

Intermediate metering

A range of power and energy meters designed for network monitoring applications like tracking real-time power conditions, monitoring network and equipment status, load trending, harmonics measurement, and alarm & event logging & reporting.

Introducing the NEW PowerLogic PM8000 series meters, ensure the reliability and efficiency of your power-critical facility

- NEW PowerLogic PM8000


PowerLogic™ PM8000
01/03/2013 1:37:42 PM
I3 Harmonics
THD: 5%
THD Even: 2%
THD Odd: 2%
Harmonic: 32
Mag: 424.7 (63%)
Angle: 42
10%
5%
0%
10
20
30
40
50
60
Schneider Electric

PM8000 Series

The PowerLogic PM8000 series meters are compact, cost-effective multifunction power meters that will help you ensure reliability and efficiency of your power-critical facility.

Reveal and understand complex power quality conditions. Measure, understand and action insightful data gathered from your entire power system. Designed for key metering points throughout your energy infrastructure, the PowerLogic PM8000 series meter has the versatility to perform nearly any job you need a meter to do, wherever you need it!

Applications

Ideal for low to high voltage applications in industrial facilities, commercial buildings, utility networks, or critical power environments.

*PM800 series and ION7300 series were replaced by the NEW PM8000 series in September 2015.

The solution for

All markets that can benefit from a solution that includes PowerLogic PM8000 series meters:

- Healthcare
- Data Centers
- Buildings
- Industry
- Infrastructure
- Utility

Benefits

- Makes understanding power quality simple to help operations personal avoid downtime and ensure increased productivity and equipment life.
- Makes energy and power quality immediately relevant and actionable to support your operational and sustainability goals.

Competitive advantages

- ION technology
- MID approved options
- Colour screen
- Multiple communication options

Power management solutions

Schneider Electric provides innovative power management solutions to increase your energy efficiency and cost savings, maximise electrical network reliability and availability, and optimise electrical asset performance. See Page 114

Conformity of standards

- IEC 61557-12
- IEC 62586
- IEC 62053-22
- IEC 62053-24
- EN50470-1
- EN50470-3
- IEC 61000-4-30
- EN50160
- IEC 62053-11
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC61000-4-8
- IEC 61010
- Etc.

PowerLogic PM8000 series meter.

PowerLogic PM8000 series meter - rear view.

PowerLogic PM8000 DIN rail mounted meter.

Main characteristics

- Precision metering:
  - IEC 61557-12 PMD Sx K70 3000m 0.2 (performance measuring and monitoring functions).
  - Class 0.2S accuracy IEC 62053-22, ANSI C12.20 Class 0.2 (active energy).
  - Industry leading Class 0.5S* accuracy for reactive energy (IEC 62053-24).
  - Cycle-by-cycle RMS measurements updated every ½ cycle.
  - Full 'multi-utility' WAGES metering support.
  - Net metering.
  - Anti-tamper protection seals.

- PQ compliance reporting and basic PQ analysis.
  - Monitors and logs parameters in support of international PQ standards,
    - IEC 61000-4-30 Class S
    - IEC 62586 PQI-S
    - EN 50160
  - Generates onboard PQ compliance reports accessible via onboard web pages:
    - Basic event summary and pass/fail reports, such as EN 50160 for power frequency, supply voltage magnitude, supply voltage dips, short and long interruptions, temporary over voltages, voltage unbalance and harmonic voltage.
    - ITIC (CBEMA) and SEMI curves, with alarm categorisation to support further analyses.
    - NEMA Motor Derating curve.
    - Basic meter provides EN 50160 but can be configured to provide IEEE 519.
  - Harmonic analysis:
    - THD on voltage and current, per phase, min/max, custom alarming.
    - Individual harmonic magnitudes and angles on voltage and current, up to the 63rd harmonic.
  - High resolution waveform capture: triggered manually or by alarm, captured waveforms available directly from the meter via FTP in a COMTRADE format.
  - Disturbance detection and capture: sag/swell on any current and voltage channel, alarm on disturbance event, waveform capture with per-event information.
  - Patented disturbance direction detection: provides indication of the captured disturbance occurring upstream or downstream of the meter; timestamped results provided in the event log, with degree of certainty of disturbance direction.

- Used with StruxureWare Power Monitoring Expert software, provides detailed PQ reporting across entire network:
  - EN 50160 report.
  - IEC 61000-4-30 report.
  - PQ compliance summary.
  - ISO 50001.
  - Display of waveforms and PQ data from all connected meters.
  - Onboard data and event logging.
  - 512MB of standard non-volatile memory. 10 MB of standard non-volatile memory dedicated to capture billing data, events, and waveforms.

PowerLogic remote display.

PowerLogic I/O module.

PowerLogic PM8000 series meter with remote display.

- No data gaps due to network outages or server downtime.
- Min/Max log for standard values.
- 50 user-definable data logs, recording up to 16 parameters on a cycle-by-cycle or other user definable interval.
- Continuous logging or 'snapshot' triggered by setpoint and stopped after defined duration.
- Trend energy, demand and other measured parameters.
- Forecasting via web pages: average, minimum and maximum for the next four hours and next four days.
- Time-of-use in conjunction with StruxureWare software.
- Event log: alarm conditions, metering configuration changes, and power outages, timestamped to 1 millisecond.

- Alarming and control.
  - 50+ definable alarms to log critical event data, trigger waveform recording, or perform control function.
  - Trigger on any condition, with cycle-by-cycle and 1-second response time.
  - Combine alarms using Boolean logic and to create alarm levels.
  - Alarm notification via email text message.
  - In conjunction with StruxureWare Power Monitoring Expert, software alarms and alarm frequency are categorized and trended for easy evaluation of worsening/improving conditions.

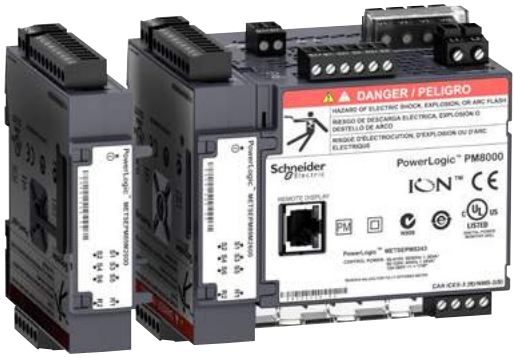
- Excellent quality: ISO 9001 and ISO 14000 certified manufacturing.

Usability

- Easy installation and setup.
  - Panel and DIN rail mounting options, remote display option.
  - Pluggable connectors.
  - Free setup application simplifies meter configuration.

- Front panel.
  - Easy to read colour graphic display.
  - Simple, intuitive menu navigation with multi-language (8) support.

- Flexible remote communications.
  - Multiple simultaneously operating communication ports and protocols allow interfacing with other automation systems; (e.g. waveforms, alarms, billing data, etc.) can be uploaded for viewing/analysis while other systems access real-time information.
  - Supports Modbus, ION, DNP3, IEC 61850.
  - Dual port Ethernet: 10/100base-TX; daisy-chaining capability removes need for additional switches.
  - Create redundant network loop using Rapid Spanning Tree Protocol (RSTP) and managed Ethernet switches.
  - Customise TCP/IP port numbers enable/disable individual ports.
  - RS-485 2-wire connection, up to 115200 baud, Modbus RTU and ION protocols, DNP3 is also supported via RS-485.
  - Ethernet to serial gateway with Modbus Master functionality, connecting to 31 downstream serial Modbus devices. Also supports Modbus Mastering over TCP/IP (Ethernet) network.
  - Full function web server with factory and customisable pages to access real-time and PQ compliance data.
  - Push historical data via email.
  - Advanced security: Up to 16 configurable user accounts.



PowerLogic PM8000 series meter with I/O modules.

- Time synchronisation via:
  - GPS clock (RS485) or IRIG-B (digital input) to +/- 1 millisecond.

Also supports Network Time Protocol (NTP/SNTP) and time set function from StruxureWare software server.

Adaptability

- ION™ frameworks allow customisable, scalable applications, object-oriented programming, compartmentalises functions, and increases flexibility and adaptability.
- Applications include: access and aggregate data from Modbus devices on serial port or across the network (Modbus TCP/IP), logging and/or processing data by totaling, unit conversion or other calculations, applying complex logic for alarming or control operations, data visualisation via web pages.

Standard meter I/O

- 3 digital status/counter inputs.
- 1 KY (form A) energy pulse output for interfacing with other systems.

Modular I/O options

- Optional expansion modules
- up to 2 modules per panel mounted meter
- up to 4 module per DIN-rail mounted meter

Option modules include:

- Digital module
  - 6 digital status/counter inputs.
  - 2 Form C relay outputs, 250V, 8A.
- Analogue module
  - 4 analogue inputs (4-20mA; 0-30V).
  - 2 analogue outputs (4-20mA; 0-10V) for interfacing with building management sensors and systems.

Feature selection

Ordering reference	Description
METSEPM8240	96x96 panel mount meter
METSEPM8243	DIN rail mount meter
METSEPM8244	DIN rail mount meter with remote display
METSEPM82401	MID approved panel mount meter
Accessories	**Description**
METSEPM89RD96	Remote display, 3 metre cable, mounting hardware for 30mm hole (nut & centering pin), mounting hardware for DIN96 cutout (92x92mm) adapter plate
METSEPM89M2600	Digital I/O module (6 digital inputs & 2 relay outputs)
METSEPM89M0024	Analogue I/O module (4 analogue inputs & 2 analogue outputs)
METSEPM8000SK	Terminal covers for utility sealing

Feature guide

		PM8000
General		
Use on LV and MV systems		■
Current accuracy (5A Nominal)		0.1 % reading
Voltage accuracy (57 V LN/100 V LL to 400 V LN/690 V LL)		0.1 % reading
Active energy accuracy		0.2 %
Number of samples/cycle or sample frequency		256
Instantaneous rms values		
Current, voltage, frequency		■
Active, reactive, apparent power	Total and per phase	■
Power factor	Total and per phase	■
Current measurement range (autoranging)		0.05 - 10A
Energy values		
Active, reactive, apparent energy		■
Settable accumulation modes		■
Demand values		
Current	Present and max. values	■
Active, reactive, apparent power	Present and max. values	■
Predicted active, reactive, apparent power		■
Synchronisation of the measurement window		■
Setting of calculation mode	Block, sliding	■
Power quality measurements		
Harmonic distortion	Current and voltage	■
Individual harmonics	Via front panel and web page	63
	Via StruxureWare software	127
Waveform capture		■
Detection of voltage swells and sags		■
Fast acquisition	1/2 cycle data	■
EN 50160 compliance checking		■
Customisable data outputs (using logic and math functions)		■
Data recording		
Min/max of instantaneous values		■
Data logs		■
Event logs		■
Trending/forecasting		■
SER (Sequence of event recording)		■
Time stamping		■
GPS synchronisation (+/- 1 ms)		■
Memory (in Mbytes)		512
Display and I/O		
Front panel display		■
Wiring self-test		■
Pulse output		1
Digital or analogue inputs(max)		27 digital 16 analogue
Digital or analogue outputs (max, including pulse output)		1 digital 8 relay 8 analogue
Communication		
RS 485 port		1
Ethernet port		2
Serial port (Modbus, ION, DNP3)		■
Ethernet port (Modbus/TCP, ION TCP, DNP3 TCP, IEC 61850 (2))		■
Ethernet gateway		■
Alarm notification via email		■
HTTP web server		■
SNMP with custom MIB and traps for alarms		■
SMTP email		■
NTP time synchronisation		■
FTP file transfer		■

Technical Specifications

Intermediate metering

PM8000 series

Technical specifications

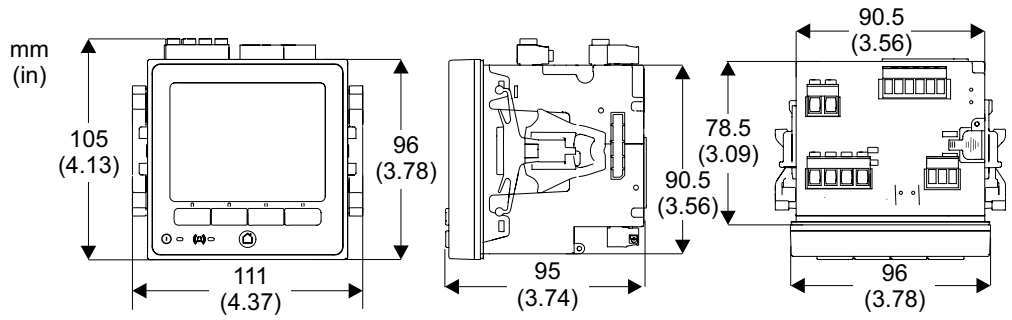
Electrical characteristics		
Type of measurement		True rms to 256 samples per cycle
Measurement accuracy	Current & voltage	Class 0.2 as per IEC 61557-12
	Active Power	Class 0.2 as per IEC 61557-12
	Power factor	Class 0.5 as per IEC 61557-12
	Frequency	Class 0.2 as per IEC 61557-12
	Active energy	Class 0.2S IEC 62053-22 (In=5A) Class 0.2 IEC 61557-12, ANSI C12.20 Class 0.2
	Reactive Energy	Class 0.5S IEC 62053-24*
	MID Directive	EN50470-1, EN50470-1, AnnexB & AnnexD (optional model)
Data update rate		1/2 cycle or 1 second
Input-voltage characteristics	Specified accuracy voltage	57 VLN/100 VLL to 400 VLN/690 VLL
	Impedance	5 MΩ per phase
	Specified accuracy frequency - Frequency	42 to 69Hz (50/60Hz nominal)
	Limit range of operation - frequency	20 to 450Hz
Input-current characteristics	Rated nominal current	1A (0.5S), 5A (0.2S) , 10A (0.2 ANSI)
	Specified accuracy current range	Starting Current: 5mA Accurate Range: 50mA - 10A
	Permissible overload	200 A rms for 0.5s, non-recurring
	Impedance	0.0003 Ω per phase
	Burden	0.024 VA at 10A
Power supply	AC	90-415 V AC ±10% (50/60Hz ± 10%)
	DC	120-300 V DC ±10%
	Ride-through time	100 ms (6 cycles at 60 Hz) min., any condition 200 ms (12 cycles at 60 Hz) typ., 120 V AC 500 ms (30 cycles at 60 Hz) typ., 415 V AC
	Burden	Meter Only: 18 VA max at 415V AC, 6W at 300V DC Fully optioned meter: 36 VA max at 415V AC, 17W at 300V DC.
Input/outputs	Meter Base Only	3 form A digital inputs (30V AC/60 V DC) 1 form A (KY) solid state digital output (30V AC/60 V DC, 75mA).
	Optional	Digital - 6 form A digital inputs (30V AC / 60V DC) wetted + 2 form C relay outputs (250VAC, 8A)
		Analogue - 4 analogue inputs (4-20mA, 0-30Vdc) + 2 analogue outputs (4-20mA, 0-10Vdc).
Mechanical characteristics		
Weight		Integrated Display Model 0.581 kg DIN rail mounted Model 0.528 kg IO modules 0.140 kg Remote display 0.300 kg
IP degree of protection		IP 54, UL type 12: Panel mount and Remote display, front. IP 30: Panel mount rear, DIN rail mount, I/O modules.
Dimensions	Panel mount model	96 x 96 x 77.5 mm
	DIN model	90.5 x 90.5 x 90.8 mm
	Remote display	96 x 96 x 27 mm
	IO modules	90.5 x 90.5 x 22 mm
Environmental conditions		
Operating temperature		-25ºC to +70ºC
Remote Display Unit		-25ºC to +60ºC
Storage temperature		-40ºC to +85ºC
Humidity rating		5% to 95% non-condensing
Installation category		III
Operating altitude (maximum)		3000m above sea level

PM8000 series

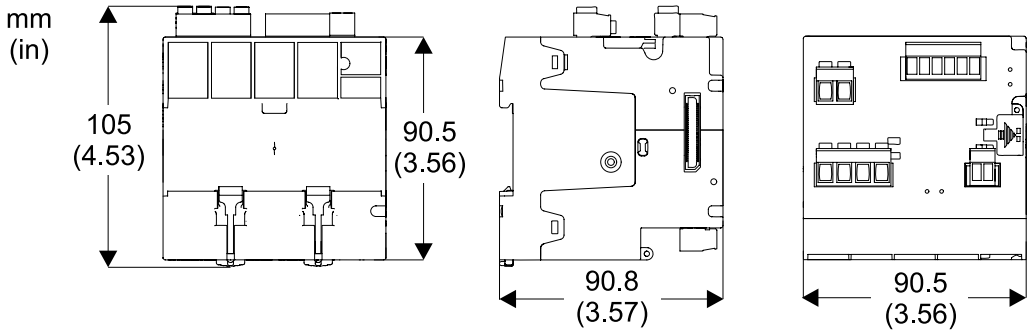
Electromagnetic compatibility	
Product standards	IEC 62052-11 and IEC 61326-1
Immunity to electrostatic discharge	IEC 61000-4-2
Immunity to radiated fields	IEC 61000-4-3
Immunity to fast transients	IEC 61000-4-4
Immunity to surges	IEC 61000-4-5
Immunity to conducted disturbances	IEC 61000-4-6
Immunity to power frequency magnetic fields	IEC 61000-4-8
Immunity to conducted disturbances, 2-150kHz	CLC/TR 50579
Immunity to voltage dips & interruptions	IEC 61000-4-11
Immunity to ring waves	IEC 61000-4-12
Conducted and radiated emissions	EN 55022, EN 55011, FCC part 15, ICES-003
Surge withstand Capability (SWC)	IEEE C37.90.1
Safety	
Safety Construction	IEC/EN 61010-1 ed.3, CAT III, 400 VLN / 690 V LL UL 61010-1 ed.3 and CSA-C22.2 No. 61010-1 ed.3, CAT III, 347 V LN / 600 V LL IEC/EN 62052-11, protective class II
Communication (1)	
Ethernet to serial line gateway	Communicates directly with up to 32 unit load ION slave devices.
Web server	Customisable pages, new page creation capabilities, HTML/XML compatible.
Serial port RS 485	Baud rates of 2400 to 115200, pluggable screw terminal connector.
Ethernet port(s)	2x 10/100Base-TX, RJ45 connector (UTP).
Protocol	Modbus, ION, DNP3, IEC 61850, HTTP, FTP, SNMP, SMTP, DPWS, RSTP, NTP, SNTP, GPS protocols.
Firmware characteristics	
High-speed data recording	Down to 1/2 cycle interval burst recording, stores detailed characteristics of disturbances or outages. Trigger recording by a user-defined setpoint, or from external equipment.
Harmonic distortion	Up to 63rd harmonic (127th via StruxureWare software) for all voltage and current inputs.
Sag/swell detection	Analyse severity/potential impact of sags and swells: magnitude and duration data suitable for plotting on voltage tolerance curves per phase triggers for waveform recording, control.
Disturbance direction detection	Determine the location of a disturbance more quickly and accurately by determining the direction of the disturbance relative to the meter. Analysis results are captured in the event log, along with a timestamp and confidence level indicating level of certainty.
Instantaneous	High accuracy of standard speed (1s) and high-speed (1/2 cycle) measurements, including true rms per phase and total for: voltage, current, active power (kW),reactive power (kvar), apparent power (kVA), power factor, frequency, voltage and current unbalance, phase reversal.
Load profiling	Channel assignments (800 channels via 50 data recorders) configurable for any measurable parameter, including historical trend recording of energy, demand, voltage, current, power quality, or any measured parameter. Trigger recorders based on time interval, calendar schedule, alarm/event condition, or manually.
Trend curves	Historical trends and future forecasts to better manage demand, circuit loading, and other parameters. Provides average, min, max and standard deviation every hour for last 24 hours, every day for last month, every week for last 8 weeks and every month for last 12 months.
Waveform captures	Simultaneous capture of all voltage and current channels sub-cycle disturbance capture, maximum cycles is 100,000 (16 samples/cycle x 96 cycles, 10MBytes memory), max 256 samples/cycle.
Alarms	Threshold alarms: adjustable pickup and dropout setpoints and time delays, numerous activation levels possible for a given type of alarm, user-defined or automatic alarm threshold settings, user-defined priority levels (optional automatic alarm setting).

Firmware characteristics (cont.)	
Advanced security	Up to 16 users with unique access rights. Perform resets, time sync, or meter configurations based on user privileges.
Memory	512MB (10MB for programming and interval logging).
Firmware update	Update via the communication ports.
Display characteristics	
Integrated or Remote display	320x240 (1/4 VGA) Colour LCD, configurable screens , 5 buttons and 2 LED indicators (alarm and meter status).
Languages	English, French, Spanish, Russian, Portugese,German, Italian, Chinese.
Notations	IEC, IEEE.
The HMI menu includes	
Alarms	Active alarms, historic alarms.
Basic Reading	Voltage, current, frequency, power summary.
Power	Power summary, demand, power factor.
Energy	Energy total, delivered, received.
Events	Timestamped verbose event log.
Power Quality	EN 50160, harmonics, phasor diagrams.
Inputs/Outputs	Digital inputs, digital outputs, analogue inputs, analogue outputs.
Nameplate	Model, serial and FW version.
Custom Screens	Build your own metrics.
Setup Menu	Meter setup, communications setup, display setup, date/time/clock setup, alarm setup, language setup, time of use setup, resets, password setup.

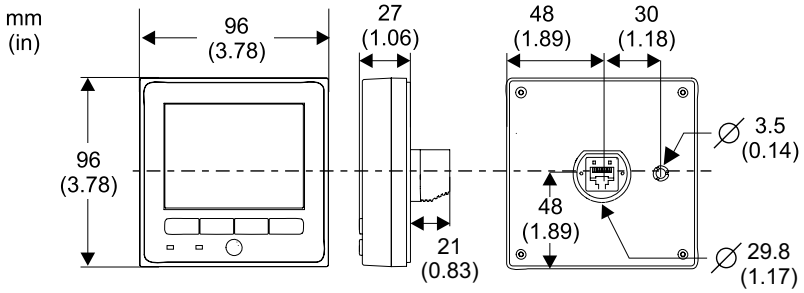
PM8240 & PM82401 dimensions



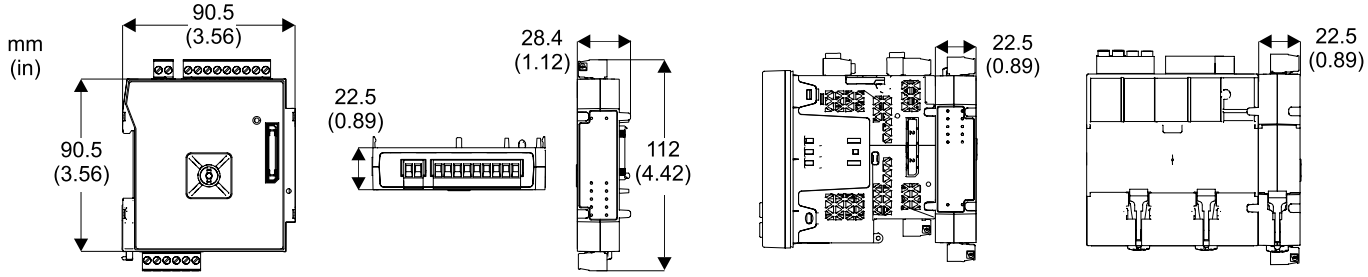
PM8243 dimensions



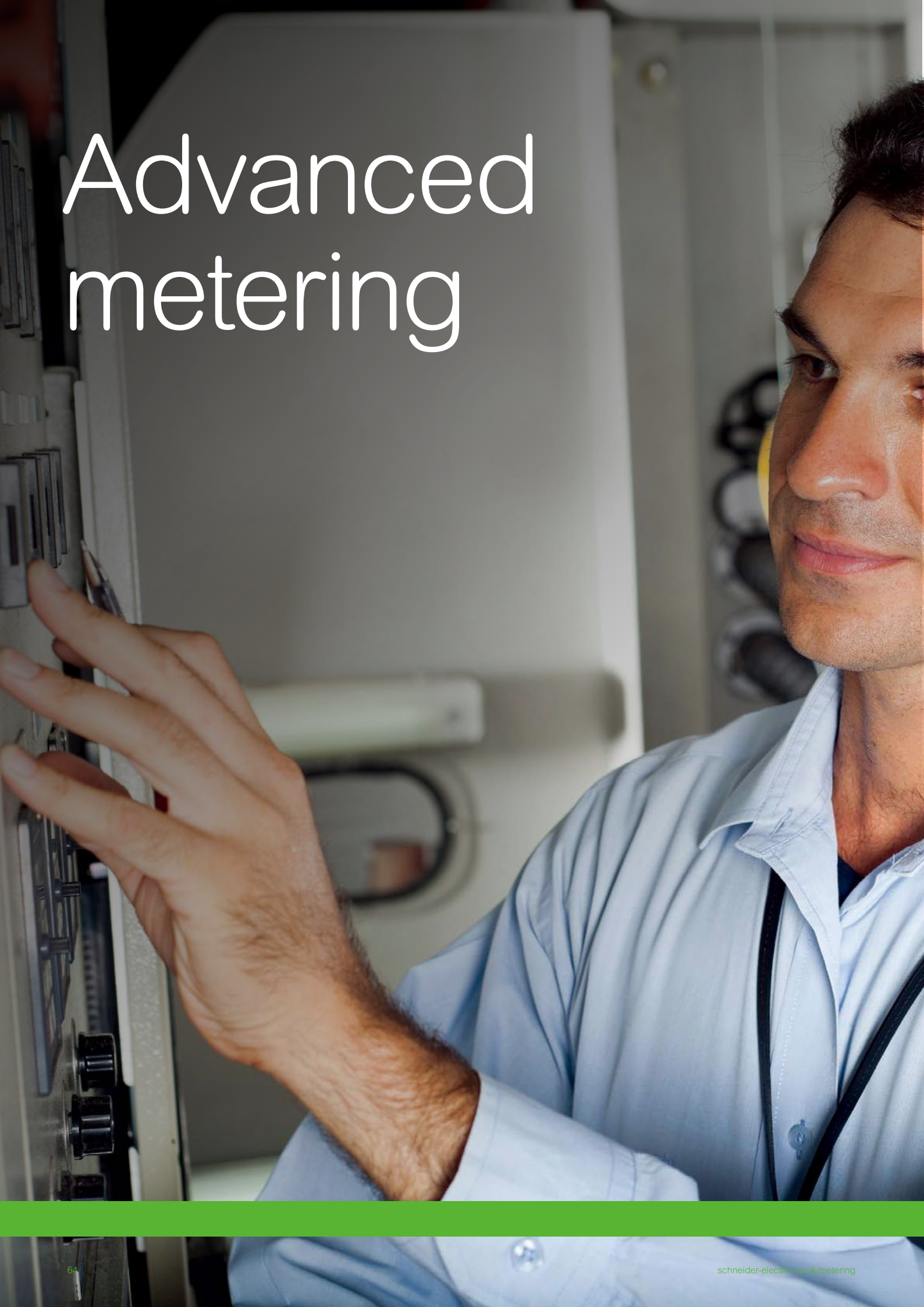
PM89RD96 dimensions



PM89M2600 & PM89M0024 dimensions



Advanced metering



Applications

Advanced high performance meters are designed for mains or critical loads on MV/LV networks. They provide analysis of efficiency, losses and capacity, bill verification, power quality compliance monitoring, problem notification and diagnosis and control of loads etc.

Product overview

Advanced metering

Power quality meters are classified as advanced meters designed to monitor service entrances and critical network locations to maximise power availability and reliability by providing a comprehensive system load profile, power quality and root cause analyses.

- PowerLogic ION7550/7650


Schneider Electric
PowerLogic
ION 7650
V3 Harmonics
10/23/2006 14:23:37
Vc HARMONICS
THD 5.0%
THD Even 2.0%
THD Odd 2.0%
10%
5%
0%
1
10
20
30
40
50
60
V2 Harm
V3 Harm
V4 Harm
I1 Harm
I2 Harm
ESC
PROG

ION7550/7650 series

Ideal for both energy suppliers and consumers and loaded with advanced functionality for monitoring key distribution points and sensitive loads, the PowerLogic ION7650/7550 power and energy meter offers an unmatched feature set including advanced power quality analysis coupled with revenue accuracy, multiple communications options, web compatibility and control capabilities.

Applications

- Analysis of efficiency, losses and capacity
- Bill verification, cost allocation and sub-metering
- Power quality compliance monitoring
- Problem notification and diagnosis
- Demand or power factor management
- Control of loads, generators or other equipment

The solution for

All markets that can benefit from a solution that includes PowerLogic ION7550/7650 series meters:

- Critical buildings
- Industry
- Data centres and networks
- Infrastructure (eg. Airports, road tunnels, telecom)

Competitive advantages

ION technology

- Customise metering or analysis functions at your work station without hard wiring
- Just link drag-and-drop icons or select default settings

Flexibility of connectivity

- Be integrated with Power Monitoring Experts or be shared the data with SCADA system via multiple communication channels and protocols

Benefits

The PowerLogic ION7650/ION7550 meters help you:

- reduce energy and operations costs
- improve power quality, reliability and uptime
- optimise equipment use for optimal management of your electrical installation and greater productivity.

Power management solutions

Schneider Electric provides innovative power management solutions to increase your energy efficiency and cost savings, maximise electrical network reliability and availability and optimise electrical asset performance. See Page 114

Conformity of standards

- IEC 62053-22
- IEEE 519
- IEEE 1159
- CNEMA/ITIC
- IEC 61000-4-30*
- EN 50160*
- IEC 61000-4-7*
- IEC 61000-4-15*
- IEEE 1453*
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- CISPR 22
- IEC 61010-1

*ION7650 only

Main characteristics

- Anticipate, diagnose and verify to increase efficiency
  - Reveal energy inefficiencies or waste and optimise equipment operation to increase efficiency. Isolate reliability risks, diagnose power-related equipment issues and verify reliable operation.
- Summarise power quality, set targets, measure and verify results
  - Consolidate all the power quality characteristics into a single trendable index. Benchmark power quality and reliability and compare against standards, or compare facilities or processes.
- Easy to use, multilingual, IEC/IEEE configureable display
  - Bright LCD display with adjustable contrast. Screen-based menu system to configure meter settings including IEC or IEEE notations. Multilingual support for English, French, Spanish and Russian. 12/24 hour clock support in multiple formats.
- Modbus Master functionality
  - Read information from downstream Modbus devices and view it via the front panel or store in memory until you upload to the system level.
- IEC 61850 protocol
- Increase interoperability and decrease engineering time using standard protocol.
- Gateway functionality
  - Access through the meter's Ethernet port (EtherGate) or telephone network (ModemGate) to Modbus communicating devices connected to meter serial ports.
  - Detect and capture transients as short as 20µs at 50Hz (17µs at 60 Hz)
  - Identify problems due to short disturbances, e.g. switching of capacitors, etc.
- Power quality compliance monitoring
  - Monitor compliance with international quality-of-supply standards (IEC 61000-4-30 class A ed. 2(1), EN50160(1), IEC 61000-4-7(1), IEC 61000-4-15(1), IEEE 519, IEEE 1159, and CBEMA/ITIC). Evaluate flicker based on IEC 61000-4-15(1) and IEEE 1453(1).
- Detect waveshape changes
  - Detection of phase switching phenomena (for example during the transfer of a high-speed static switch) not detected by classical threshold-based alarms.
- Record ultra-fast electrical parameters every 100 ms or every cycle
  - Preventive maintenance: acquisition of a motor startup curve, etc.
- Trend curves and short-term forecasting
  - Rapid trending and forecasting of upcoming values for better decision making.
- Disturbance direction detection
  - Determine disturbance location and direction relative to the meter. Results captured in the event log, along with a timestamp and certainty level.
- Alarm setpoint learning
  - The meter analyses the circuit and recommends alarm setpoints to minimise nuisance or missed alarms.
- Notify alarms via email
  - High-priority alarms sent directly to the user's PC. Instant notification of power quality events by email.(1)

(1) ION7650 only

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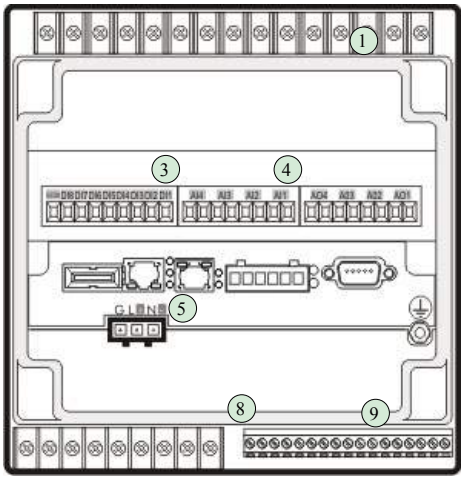
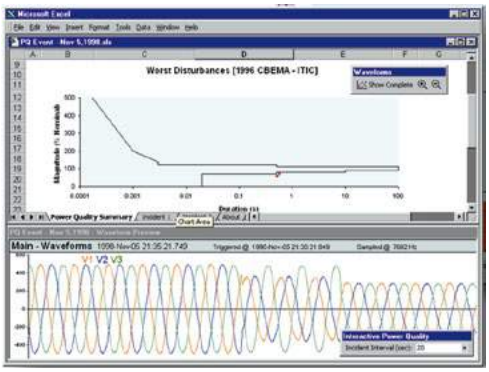


PowerLogic™ ION7550 / ION7650 rear view.

1 *Current/voltage inputs*
2 *Digital inputs*
3 *Analogue inputs*
4 *Analogue outputs*
5 *Communications card*
6 *Power supply*
7 *Form C digital outputs*
8 *Digital inputs*
9 *Form A digital outputs*



Disturbance waveform capture and power quality report

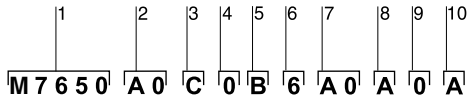
Selection guide

		ION7550	ION7650
General			
Use on LV and HV systems		■	■
Current accuracy (1A to 5A)		0.1 % reading	0.1 % reading
Voltage accuracy (57V to 288V)		0.1 % reading	0.1 % reading
Energy accuracy Nbr of samples/cycle or sample frequency		0.2 % 256	0.2 % 1024
Instantaneous rms values			
Current, voltage, frequency		■	■
Active, reactive, apparent power	Total and per phase	■	■
Power factor	Total and per phase	■	■
Current measurement range (autoranging)		0.01 - 20A	0.01 - 20A
Energy values			
Active, reactive, apparent energy		■	■
Settable accumulation modes		■	■
Demand values			
Current	Present and max. values	■	■
Active, reactive, apparent power	Present and max. values	■	■
Predicted active, reactive, apparent power		■	■
Synchronisation of the measurement window		■	■
Setting of calculation mode	Block, sliding	■	■
Power quality measurements			
Harmonic distortion	Current and voltage	■	■
Individual harmonics	Via front panel	63	63
	Via ION Enterprise	127	511
Waveform capture		■	■
Detection of voltage swells and sags		■	■
Detection and capture of transients		-	20 µs(1)
Flicker		-	■
Fast acquisition of 100 ms or 20 ms data		■	■
EN50160 compliance checking		-	■
Programmable (logic and math functions)		■	■
Data recording			
Min/max of instantaneous values		■	■
Data logs		■	■
Event logs		■	■
Trending/forecasting		■	■
SER (Sequence of event recording)		■	■
Time stamping		■	■
GPS synchronisation (1 ms)		■	■
Memory (in Mbytes)		10	10
Display and I/O			
Front panel display		■	■
Wiring self-test		■	■
Pulse output		1	1
Digital or analogue inputs(max)		20	20
Digital or analogue outputs (max, including pulse output)		12	12
Communication			
RS 485 port		1	1
RS 485 / RS 232 port		1	1
Optical port		1	1
Modbus protocol		■	■
IEC 61850 protocol		■	■
Ethernet port (Modbus/TCP/IP protocol, IEC 61850 (2))		1	1
Ethernet gateway (EtherGate)		1	1
Alarms (optional automatic alarm setting		■	■
Alarm notification via email		■	■
HTML web page server (WebMeter)		■	■
Internal modem		1	1
Modem gateway (ModemGate)		■	■
DNP 3.0 through serial, modem, and I/R ports		■	■

(1) For 50 Hz line frequency; 17µs for 60 Hz line frequency.

Part numbers

	Item	Code	Description
1	Model	M7650	Advanced meter with wide-range voltage inputs (57-347V line-neutral or 100-600V line-line), transient detection, data and waveform recording, IEC 61000-4-30 Class A & EN50160.Supports ION, IEC 61850 (only for meters with 5MB memory and Ethernet comm card) Modbus-RTU, and DNP 3.0.
		M7550	Advanced meter with wide-range voltage inputs (57-347V line-neutral or 100-600V line-line), sag/swell detection, data and waveform recording. Supports ION, IEC 61850 (only for meters with 5MB memory and Ethernet comm card) Modbus-RTU, and DNP 3.0.
2	Form Factor	A0	Integrated display with front optical port, 5 MB logging memory, and 512 samples/cycle resolution (ION7650) or 256 samples/cycle (ION7550).
		A1	ION7650 only. Integrated display with front optical port, 5 MB logging memory, and 1024 samples/cycle resolution.
		B0	Integrated display with front optical port, 10 MB logging memory, and 512 samples/cycle resolution (ION7650) or 256 samples/cycle (ION7550).
		B1	ION7650 only. Integrated display with front optical port, 10 MB logging memory, and 1024 samples/cycle resolution.
		T0	Transducer (no display) version, with 5 MB logging memory, and 512 samples/cycle resolution (ION7650) or 256 samples/cycle (ION7550).
		T1	ION7650 only. Transducer (no display) version, with 5 MB logging memory, and 1024 samples/cycle resolution.
		U0	Transducer (no display) version, with 10 MB logging memory, and 512 samples/cycle resolution (ION7650) or 256 samples/cycle (ION7550).
		U1	ION7650 only. Transducer (no display) version, with 10 MB logging memory, and 1024 samples/cycle resolution.
3	Current Inputs	C	5 Amp nominal, 20 Amp full scale current input
		E	1 Amp nominal, 10 Amp full scale current input
		F	Current Probe Inputs (for 0-1 VAC current probes; sold separately)
		G	Current Probe Inputs with three Universal Technic 10A clamp on CTs; meets IEC 1036 accuracy
4	Voltage Inputs	0	57 to 347 VAC line-to-neutral / 100 to 600 VAC line-to-line
5	Power Supply	B	Standard power supply (85-240 VAC, ±10%/47-63 Hz / 110-300 VDC, ±10%)
		C	Low voltage DC power supply (20-60 VDC)
6	System Frequency	5	Calibrated for 50 Hz systems
		6	Calibrated for 60 Hz systems
7	Communications	A0	Standard communications (1 RS-232/RS-485 port, 1 RS-485 port). Integrated display models include 1 ANSI Type 2 optical port.
		C1	Standard communications plus 10Base-T/100Base-TX Ethernet (RJ45), 56k universal internal modem (RJ11). Ethernet and modem gateway functions each use a serial communications port.
		D7	Standard communications plus 10Base-T/100Base-TX Ethernet (RJ45) and 100BaseFX Ethernet Fiber, 56k universal internal modem (RJ11). Ethernet/modem gateway uses serial port.
		E0	Standard communications plus 10Base-T/100Base-TX (RJ45). Ethernet gateway function uses a serial communications port.
		F1	Standard communications plus 10Base-T/100Base-TX Ethernet (RJ45) and 100Base-FX (SC male Fiber Optic connection). Ethernet gateway function uses a serial port.
		M1	Standard communications plus 56k universal internal modem (RJ11). Modem gateway function uses a serial port.
8	I/O	A	Standard I/O (8 digital ins, 3 Form C relays, 4 Form A solid-state out)
		E	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 20 mA analogue inputs)
		K	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 20 mA analogue outputs)
		N	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 20 mA analogue inputs and four 0 to 20 mA outputs)
		P	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 1 analogue inputs and four -1 to 1 mA analogue outputs)
9	Security	0	Password protected, no hardware lock
		1	Password protected, hardware lockable (enabled/disabled via jumper on comm card)
		6	Password protected with security lock enabled, terminal cover and UK OFGEM labels



Example ION7650 product part number.

1 *Model.*
2 *Form factor.*
3 *Current Inputs.*
4 *Voltage Inputs.*
5 *Power supply.*
6 *System frequency.*
7 *Communications.*
8 *Inputs/outputs.*
9 *Security.*
10 *Special order.*

ION75XX/76XX Accessories

Communication Card for ION7550/7650	Ordering reference
Standard Comms: 1 RS232/RS485 port (COM1), 1 RS485 port (COM2), Front optical port (COM3)	P765CA0A
Standard Comms: 1 RS232/RS485 port (COM1), 1 RS485 port (COM2), Front optical port (COM3), tropicalisation treatment applied	P765CA0C
Standard plus Ethernet (10/100BASE-T), 56k universal internal modem (RJ11; shares COM3)	P765CC1A
Standard plus Ethernet (10/100BASE-T), 56k universal internal modem (RJ11; shares COM3), tropicalisation treatment applied	P765CC1C
Standard plus Ethernet (10/100BASE-T, 100BASE-FX), 56k internal modem (RJ11)	P765CD7A
Standard plus Ethernet (10/100BASE-T, 100BASE-FX), 56k internal modem (RJ11), tropicalisation treatment applied	P765CD7C
Standard plus Ethernet (10/100BASE-T)	P765CE0A
Standard plus Ethernet (10/100BASE-T), tropicalisation treatment applied	P765CE0C
Standard plus Ethernet (10/100BASE-T, 100BASE-FX)	P765CF1A
Standard plus Ethernet (10/100BASE-T, 100BASE-FX), tropicalisation treatment applied	P765CF1C
Standard plus 56k universal internal modem (RJ11; shares COM3)	P765CM1A
Standard plus 56k universal internal modem (RJ11; shares COM3),tropicalisation treatment applied	P765CM1C
Analogue I/O cards	**Ordering reference**
four 0 to 20 mA analogue inputs & 8 digital inputs	P760AEA
four 0 to 20 mA analogue inputs & 8 digital inputs,tropicalisation treatment applied	P760AEC
four 0 to 20 mA analogue outputs & 8 digital inputs	P760AKA
four 0 to 20 mA analogue outputs & 8 digital inputs,tropicalisation treatment applied	P760AKC
four 0 to 20 mA analogue inputs, four 0 to 20 mA analogue outputs & 8 digital inputs	P760ANA
four 0 to 20 mA analogue inputs, four 0 to 20 mA analogue outputs & 8 digital inputs,tropicalisation treatment applied	P760ANC
four 0 to 1 analogue inputs, four -1 to 1 mA analogue outputs & 8 digital inputs.	P760APA
four 0 to 1 analogue inputs, four -1 to 1 mA analogue outputs & 8 digital inputs,tropicalisation treatment applied	P760APC
ION 7550/7650 Related Items	**Ordering reference**
Serial Optical Probe (DB-9) via IR port	OPTICAL-PROBE
USB Optical Probe via IR port	OPTICAL-PROBE-USB
Gasket for ION7x50 meters and RTU - IP 52 & UL NEMA 12	P765GSKT
ION7550/7650 remote display, Schneider Electric branded	M765RD
ION7550/7650 remote display kit, includes display, 24 VDC power supply and Ethernet cable, Schneider Electric branded	M765RDPS
Terminal strip cover	TERMCVR-7550
10A/1 VAC Universal Technic Clamp On Current Probe (Price per probe)	M1UB10A1V-10A
1000A/1 VAC Universal Technic Clamp On Current Probe (Price per probe)	P32UEP813-1000A
3000A/1 VAC Universal Technic Clamp On Current Probe (Price per probe)	P32UEP815-3000A
300A/0.333 VAC Magnelabs Split Core Current Probe (Price per probe)	SCT1250-300-300A

Technical Specifications

Advanced metering

ION7550/ION7650 series

Technical specifications

Electrical characteristics		
Type of measurement		True rms to 1024 samples per cycle (ION7650)
Measurement accuracy	Current and voltage	±0.01% of reading + ±0.025% of full scale
	Power	±0.075% of reading + ±0.025% of full scale
	Frequency	±0.005Hz
	Power factor	±0.002 from 0.5 leading to 0.5 lagging
	Energy:	IEC62053-22 0,2S, 1A and 5A
Data update rate		1/2 cycle or 1 second
Input-voltage characteristics	Measurement range	Autoranging 57V through 347V LN / 600V LL
	Impedance	5 MΩ/phase (phase - Vref)
	Frequency measurement range	42 to 69Hz
Input-current characteristics	Rated nominal current	1A, 2A, 5A, 10A
	Measurement range	0.005 - 20 A autoranging (standard range) 0.001 - 10 A autoranging (optional range)
	Permissible overload	500 A rms for 1 s, non-recurring (5A) 50 A rms for 1s, non-recurring (1A)
	Impedance	0.002 Ω per phase (5A) 0.015 Ω per phase (1A)
	Burden	0.05 VA per phase (5 A) 0.015 VA per phase (1 A)
Power supply	AC	85-240 V AC ±10% (47-63 Hz)
	DC	110-300 V DC ±10%
	DC low voltage (optional)	20-60 V DC ±10%
	Ride-through time	100 ms (6 cycles at 60 Hz) min.
	Burden	Standard: typical 20 VA, max 45 VA Low voltage DC: typical 15 VA, max 20 VA
Input/outputs(1)	Standard	8 digital inputs (120 V DC) 3 relay outputs (250 V AC / 30 V DC) 4 digital outputs (solid state)
	Optional	8 additional digital inputs 4 analogue outputs, and/or 4 analogue inputs
Mechanical characteristics		
Weight		1.9 kg
IP degree of protection (IEC 60529)		Integrated display, front: IP 50; back: IP 30 Transducer unit (no display): IP 30
Dimensions	Standard model	192 x 192 x 159 mm
	TRAN model	235.5 x 216.3 x 133.1 mm
Environmental conditions		
Operating temperature	Standard power supply	-20 to +70 ºC
	Low voltage DC supply	-20 to +50 ºC
	Display operating range	-20 to +60 ºC
Storage temperature	Display, TRAN	-40 to +85 ºC
Humidity rating		5 to 95% non-condensing
Installation category		III (2000m above sea level)
Dielectric withstand		As per EN 61010-1, IEC 62051-22A(2)
Electromagnetic compatibility		
Electrostatic discharge		IEC 61000-4-2
Immunity to radiated fields		IEC 61000-4-3
Immunity to fast transients		IEC 61000-4-4
Immunity to surges		IEC 61000-4-5
Conducted and radiated emissions		CISPR 22
Safety		
Europe		IEC 61010-1
Communication		
RS 232/485 port (1)		Up to 115,200 bauds (57,600 bauds for RS 485), ION, DNP 3.0, Modbus, GPS, EtherGate, ModemGate, Modbus Master
RS 485 port (1)		Up to 57,600 bauds, ION, DNP 3.0, Modbus, GPS, EtherGate, ModemGate, Modbus Master
Infrared port(1)		ANSI type 2, up to 19,200 bauds, ION, Modbus, DNP 3.0
Ethernet port		10Base-T/100Base-TX, RJ45 connector, 100 m link
Fibre-optic Ethernet link		100 Base FX, SC duplex connector, 1300 nm, FO multimode with gradient index 62.5/125 µm or 50/125 µm, 2000 m link

(1) Consult the ION7550 / ION7650 installation guide for complete specifications. (2) IEC 62051-22B with serial ports only.

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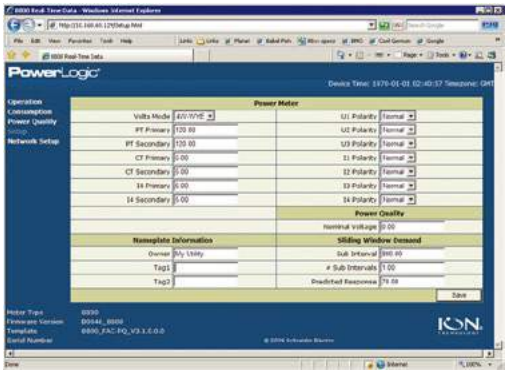

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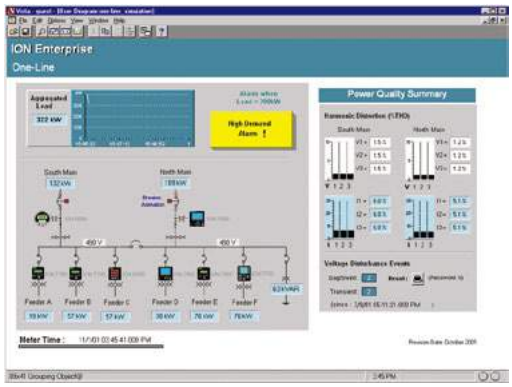
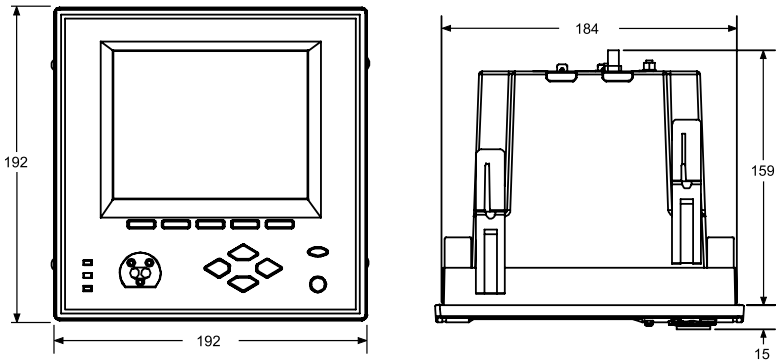


Example showing instantaneous values and alarm.

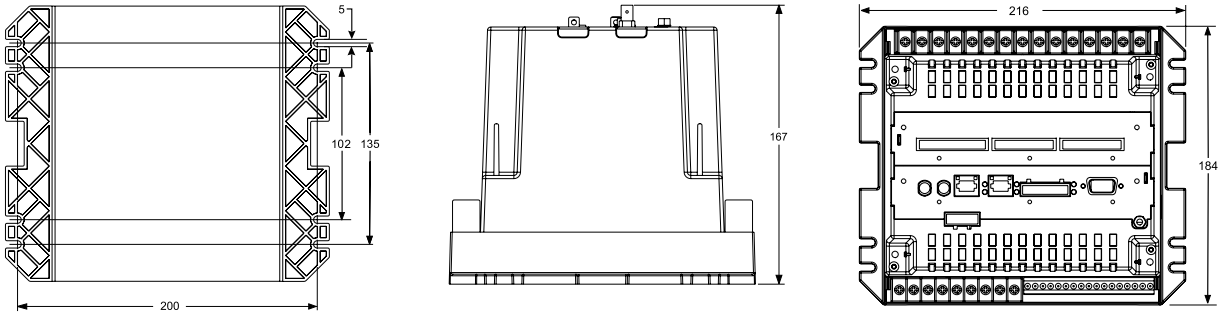
Communication (cont.)	
Protocol	ION, Modbus, TCP/IP, DNP 3.0, Telnet, IEC 61850(2)
EtherGate	Communicates directly with up to 62 slave devices via available serial ports
ModemGate	Communicates directly with up to 31 slave devices
Ethernet port	10Base-T/100Base-TX, RJ45 connector, 100 m link
WebMeter	5 customisable pages, new page creation capabilities, HTML/XML compatible
Firmware characteristics	
High-speed data recording	Down to 5ms interval burst recording, stores detailed characteristics of disturbances or outages. Trigger recording by a user-defined setpoint, or from external equipment.
Harmonic distortion	Up to 63rd harmonic (511th for ION7650 via ION Enterprise software) for all voltage and current inputs
Sag/swell detection	Analyse severity/potential impact of sags and swells: magnitude and duration data suitable for plotting on voltage tolerance curves per phase triggers for waveform recording, control
Disturbance direction detection	Determine the location of a disturbance more quickly and accurately by determining the direction of the disturbance relative to the meter. Analysis results are captured in the event log, along with a timestamp and confidence level indicating level of certainty.
Instantaneous	High accuracy (1s) or high-speed (1/2 cycle) measurements, including true rms per phase / total for: voltage and current active power (kW) and reactive power (kvar) apparent power (kVA) power factor and frequency voltage and current unbalance phase reversal
Load profiling	Channel assignments (800 channels via 50 data recorders) configurable for any measurable parameter, including historical trend recording of energy, demand, voltage, current, power quality, or any measured parameter. Trigger recorders based on time interval, calendar schedule, alarm/event condition, or manually.
Trend curves	Access historical data at the front panel. Display, trend and continuously update historical data with date and timestamps for up to four parameters simultaneously.
Waveform captures	Simultaneous capture of all voltage and current channels sub-cycle disturbance capture maximum cycles is 214,000 (16 samples/cycle x 96 cycles, 10Mbytes memory) 256 samples/cycle (ION7550) 512 samples/cycle standard, 1024 samples/cycle optional (ION7650) COMTRADE waveform format available direct from the meter (Ethernet port option only)
Alarms	Threshold alarms: adjustable pickup and dropout setpoints and time delays, numerous activation levels possible for a given type of alarm user-defined priority levels boolean combination of alarms is possible using the operators NAND, OR, NOR and XOR
Advanced security	Up to 16 users with unique access rights. Perform resets, time syncs, or meter configurations on user privileges
Transformer correction	Correct for phase / magnitude inaccuracies in current transformers (CTs), potential transformers (PTs)
Memory	5 to 10 Mbytes (specified at time of order)
Firmware update	Update via the communication ports
Display characteristics	
Integrated display	Back lit LCD, configurable screens
Languages	English, French, Spanish, Russian
Notations	IEC, IEEE

(1) Consult the ION7550 / ION7650 installation guide for complete specifications.
(2) IEC 62051-22B with serial ports only.

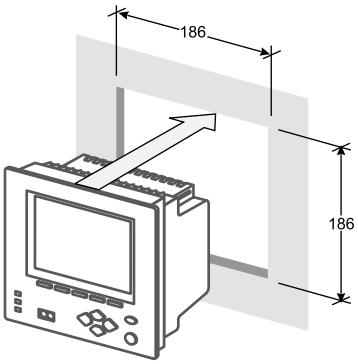
ION7550/ION7650 dimensions



ION7550 / ION7650 TRAN dimensions



Front-panel mounting



ION7550 and ION7650 meter can have integrated or remote display. The meter with integrated display is designed to fit DIN standard 192 cutout (186 mm by 186 mm) . The remote display is intalled through a circular cutout (22.5 mm diameter) at the panel door and it has a front and a back module that is connected to the meter mounted in a DIN rail at the back.

Advanced utility metering

Applications

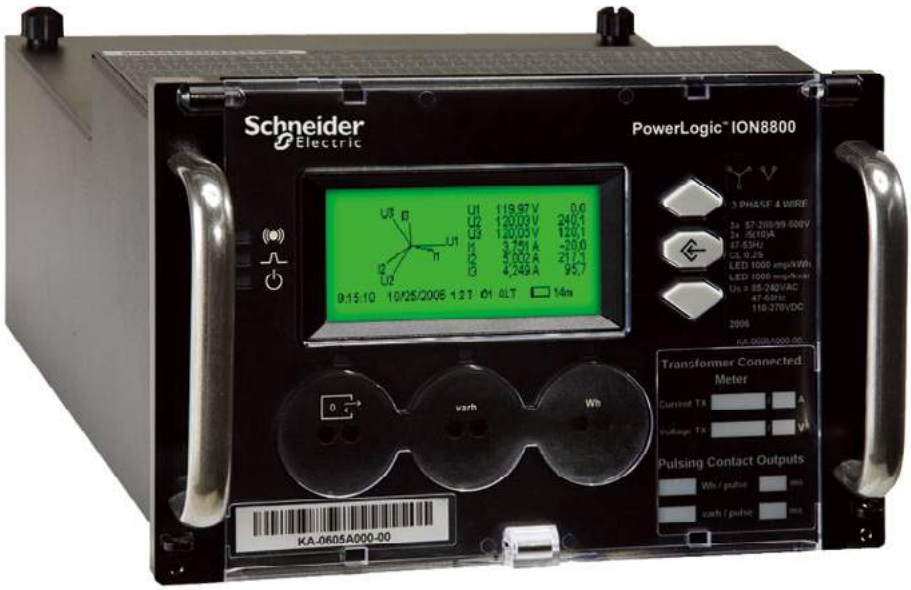
Power quality and revenue meters are designed for utility network monitoring, eg. transmission and distribution network monitoring.

Product overview

Advanced utility metering

Revenue and power quality meters designed for precision metering at key transmission network inter-ties, distribution substations and service entrances to optimise power reliability and energy efficiency in utility smart grids.

- PowerLogic ION8800


Schneider
Electric
PowerLogic™ ION8800
Transformer Connected
Meter
Pulsing Contact Outputs
KA-0605A000-00

ION8800 series

Providing high accuracy and a wide range of features for transmission and distribution metering, the PowerLogic ION8800 advanced revenue and power quality meter has the flexibility to change along with your needs. The meter provides the tools necessary to:

- Manage energy procurement and supply contracts
- Perform network capacity planning and stability analysis'
- Monitor power quality compliance, supply agreements, and regulatory requirements

Applications

- Transmission and distribution metering
- Revenue metering
- Extensive power quality monitoring and analysis
- Power quality compliance monitoring
- Digital fault recording
- Instrument transformer correction

The solution for

All markets that can benefit from a solution that includes PowerLogic ION8800 series meters:

- Transmission networks
- Distribution network

Benefits

- Reduce operations costs
- Improve power quality
- Improve continuity of service

Competitive advantages

- Be integrated into existing wholesale settlement system
- Be able to use Power Monitoring Expert software for data analysis or share operation data with SCADA systems through multiple communication channels and protocols
- Transformer/line loss compensation
- Instrument transformer correction

Power management solutions

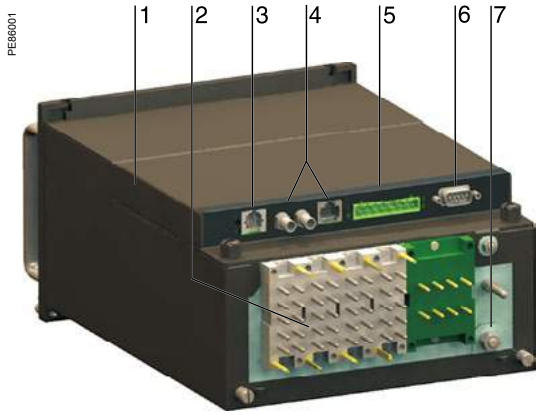
Schneider Electric provides innovative power management solutions to increase your energy efficiency and cost savings, maximise electrical network reliability and availability, and optimise electrical asset performance. See Page 114

Conformity of standards

- IEC 62053-22/23
- IEC 61000-4-30
- EN 50160
- IEC 61000-4-7
- IEC 61000-4-15
- IEEE 1159
- IEEE 519
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-12
- CISPR 22
- IEC 62052-11
- IEC 60950

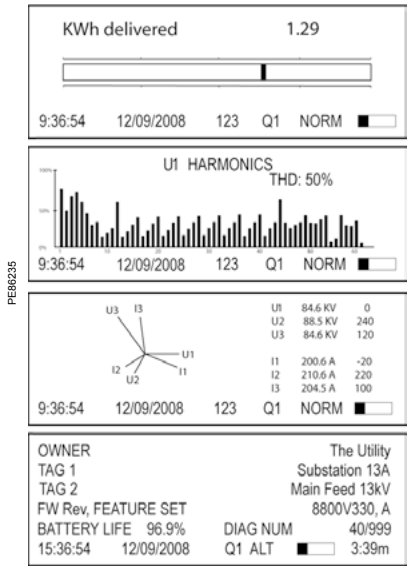
Main characteristics

- IEC 19-inch rack mount design to DIN 43862 standard
  - Use Essailec connectors with common measurement and energy pulsing pin-out to easily retrofit into existing systems.
- Accurate metering
  - Interconnection points on medium, high, and ultra-high voltage networks are in compliance with IEC 62053-22/23 Class 0,2S.
- Power quality compliance monitoring
  - Monitor compliance with international quality-of-supply standards (IEC 61000-4-30 Class A/S, EN50160, IEC 61000-4-7, IEC 61000-4-15, IEEE 1159, IEEE 519).
- Power quality summary
  - Consolidate power quality characteristics into easily viewable reports indices.
- Digital fault recording
  - Capture voltage and current channels simultaneously for sub-cycle disturbances.
- Complete communications
  - Use the IEC1107 optical port or the optional communications module that supports concurrent Ethernet, serial, and modem communications.
- Multiple tariffs and time-of-use
  - Apply tariffs and seasonal rate schedules to measure energy and demand values for time periods with specific billing requirements.
- Alarms and I/O functions
  - Use up to 65 setpoints for single/multi-condition alarms and I/O functions with response times down to 1/2 cycle.
- Alarm notification via email
  - High-priority alarms, data logs sent directly to the user's PC. Instant notification of power quality events by email.
- Software integration
  - Easily integrate the meter with StruxureWare Power Monitoring (ION Enterprise) or other utility software; MV-90, Pacis and third-party SCADA packages.
- Transformer/line loss compensation
  - Compensate for system losses in real time directly in the meter.
- Instrument transformer correction
  - Save money and improve accuracy by correcting for less accurate transformers.



PowerLogic ION8800 meter

1 *Optional communications module.*
2 *Essailec connectors.*
3 *Internal modem.*
4 *Optional Ethernet communications.*
5 *Selectable RS 485 serial port.*
6 *Selectable RS 232 or RS 485 serial port.*
7 *Ground terminal.*



Display screen examples: KWh disk simulator, voltage harmonics histogram, phasor diagram, and name plate1.

(1) ION8800A only.

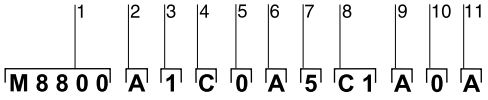
(2) ION8800B only.

Selection guide

		ION8800A ION8800B	ION8800C
General			
Use on LV, MV and HV systems		■	■
Current accuracy		0.1 %	0.1 %
Voltage accuracy		0.1 %	0.1 %
Power accuracy		0.2 %	0.2 %
Samples/cycle		1024	1024
Instantaneous rms values			
Current, voltage, frequency (Class 0,2S)		■	■
Active, reactive, apparent power	Total and per phase	■	■
Power factor	Total and per phase	■	■
Current measurement range		0.001 - 10A	0.001 - 10A
Current measurement range		0.001 - 10A	0.001 - 10A
Energy values			
Active, reactive, apparent energy		■	■
Settable accumulation modes		■	■
Demand values			
Current		■	■
Active, reactive, apparent		■	■
Predicted active, reactive, apparent		■	■
Demand modes (block, sliding, thermal, predicted)		■	■
Power quality measurements			
Detection of voltage dips (sags) and swells		10 ms	10 ms
Symmetrical components: zero, positive, negative		■	-
Transient detection, microseconds (50 Hz)		20 (1)	20 (1)
Harmonics: individual, even, odd, total up to		63rd	63rd
Harmonics: magnitude, phase and inter-harmonics		50th	40th
EN 50160 compliance		■	
IEC 61000-4-30 class A		■	
IEC 61000-4-30 class S		■ (2)	
IEC 61000-4-15 (Flicker)		■	-
Configurable for IEEE 519 - 1992, IEEE1159-1995		■(1)	-
Programmable (logic and math functions)		■	■
Data recording			
Min/max logging for any parameter		■	■
Historical logs	Maximum # of records	800(1) 640(2)	32
Waveform logs	Maximum # of records	96 (1)	-
Timestamp resolution in seconds		0.001	0.001
Setpoints, minimum response time		½ cycle	½ cycle
Number of setpoints		65	65
GPS time synchronisation (IRIG-B)		■	■
Could add transient logs. COMTRADE fault records.		■	■
User configurable log memory		10 Mbytes	10 Mbytes
Display and I/O			
Front panel display		■	■
Active/reactive energy pulser, LED and IEC 1107 style port		■	■
Digital pulse outputs, optional	Solid state Form A	8	8
Digital pulse outputs	Solid state Form C	4	4
Alarm relay output	Form C	1	1
Digital inputs (optional)		3	3
Communications			
RS 232/485 port		1	1
RS 485 port		1	1
Ethernet port		1	1
IEC 1107 optical port		1	1
Internal modem		1	1
3-port DNP 3.0 through serial, modem, Ethernet and I/R ports		■	■
Modbus RTU master / slave (serial, modem and I/R ports)		■ / ■	- / ■
Modbus TCP master / slave (via Ethernet port)		■ / ■	- / ■
Data transfer between Ethernet and RS 485 (EtherGate)		■	■
Data transfer between internal modem, RS 485 (ModemGate)		■	■
Alarms, single or multi-condition		■	■
Alarm notification & logged data via email		■	■
Embedded web server (WebMeter)		■	■

Part numbers

Item		Code	Description
1	Model	M8800	ION8800 IEC/DIN 43862 19" rack mount energy and power quality meter.
2	Feature Set	A	Class A power quality analysis, waveforms and transient capture with 1024 samples/cycle.
		B	Energy meter Class S EN50160 power quality monitoring.
		C	Basic tariff/energy revenue meter with sag/swell monitoring.
3	Memory/Form Factor	1	10 MB logging memory, Essailec connectors.
		2	5 MB logging memory, Essailec connectors, with IEC61850 protocol
4	Current Inputs	C	(I1-I3): Configured for 5 A nominal, 10 A full scale, 14 A fault capture, 0.001 A starting current.
		E	(I1-I3): Configured for 1 A nominal, 10 A full scale, 14 A fault capture, 0.001 A starting current.
5	Voltage Inputs	0	(V1-V3): Autoranging (57-288 VAC L-N or 99-500 VAC L-L)
6	Power Supply	B	Single phase power supply: 85-240 VAC ±10% (47-63 Hz) or 110-270 VDC.
7	System Frequency	5	Calibrated for 50 Hz systems.
		6	Calibrated for 60 Hz systems.
8	Communications module (field serviceable)	Z0	No communications module - meter includes Base Onboard I/O and comms (see below for details).
		A0	Standard communications: 1 RS 232/RS 485 port, 1 RS 485 port (COM2) (1).
		C1	Standard communications plus 10Base-T Ethernet (RJ45), 56 k universal internal modem (RJ11).
		D1	Standard communications plus 10Base-T Ethernet (RJ45) / 10Base-FL Ethernet Fiber, 56 k universal internal modem (RJ11).
		E0	Standard communications plus 10Base-T Ethernet (RJ45).
		F0	Standard communications plus 10Base-T Ethernet (RJ45) / 10Base-FL (ST male Fiber Optic connection).
		M1	Standard communications plus 56k universal internal modem (RJ11).
9	Onboard I/O and communications (not field serviceable, part of base unit)	A	Base option AND 8 Form A digital outputs (2), 1 RS-485 (COM2) port (1).
		B	Base Option AND 8 Form A digital outputs (2), 3 digital inputs (20-56 VDC/AC).
		C	Base Option AND 8 Form A digital outputs (2), 3 digital inputs (80-280 VDC/AC).
		D	Base Option AND 1 IRIG-B time sync port (2), 1 RS-485 port (COM2), 3 digital inputs (20-56 V DC/AC) (1).
		E	Base Option AND 1 IRIG-B time sync port (2), 1 RS-485 port (COM2), 3 digital inputs (80-280 V DC/AC) (1).
10	Security	0	Password protected, no security lock.
		1	Password protected with security lock enabled.
11	Special Order	A	None.
		C	Tropicalisation treatment applied.



Example product part number.

1 *Model.*
2 *Feature set.*
3 *Memory / form factor.*
4 *Current Inputs.*
5 *Voltage inputs.*
6 *Power supply.*
7 *System frequency.*
8 *Communications.*
9 *Onboard inputs/outputs.*
10 *Security.*
11 *Special order.*

(1) Channel COM2 is available on the port at the back of the meter OR on the Comm Module (if installed). You must select which connectors your communications wiring is connected to during meter setup.
(2) All Onboard I/O and Comms (Base Option) options include: 4 Form C solid-state digital outputs, 1 Form C mechanical relay output, one IEC 1107 optical communications port, two IEC 1107 style optical pulsing ports.

ION8800 Accessories

Communication Card for ION8800	Ordering reference
Std. comms: 1 RS-232/RS-485 port, **1 RS-485 port (COM2)	P880CA0A
Std. comms: 1 RS-232/RS-485 port, **1 RS-485 port (COM2), tropicalisation treatment applied	P880CA0C
Std. comms AND 10BASE-T Ethernet (RJ45), 56k universal internal modem (RJ11)	P880CC1A
Std. comms AND 10BASE-T Ethernet (RJ45), 56k universal internal modem (RJ11), tropicalisation treatment applied	P880CC1C
Std. comms AND 10BASE-T Ethernet (RJ45) / 10BASE-FL Ethernet Fiber, 56k universal internal modem (RJ11)	P880CD1A
Std. comms AND 10BASE-T Ethernet (RJ45) / 10BASE-FL Ethernet Fiber, 56k universal internal modem (RJ11), tropicalisation treatment applied	P880CD1C
Std. comms AND 10BASE-T Ethernet (RJ45)	P880CE0A
Std. comms AND 10BASE-T Ethernet (RJ45), tropicalisation treatment applied	P880CE0C
Std. comms AND 10BASE-T Ethernet (RJ45) / 10BASE-FL (ST Fiber Optic connection)	P880CF0A
Std. comms AND 10BASE-T Ethernet (RJ45) / 10BASE-FL (ST Fiber Optic connection), tropicalisation treatment applied	P880CF0C
Std. comms AND 56k universal internal modem (RJ11)	P880CM1A
Std. comms AND 56k universal internal modem (RJ11), tropicalisation treatment applied	P880CM1C
ION88000 related items	**Ordering reference**
Replacement batteries for the ION 8600 or ION 8800, quantity 10	BATT-REPLACE-8XXX
IEC/DIN 34862 19” Rack with female mating voltage/current and I/O blocks unassembled.	RACK-8800-RAW
IEC 61107 compliant Optical Probe (DB-9) for use with ION 8800 meters	IEC-OPTICAL-PROBE

Optional ION8800 communications module

Technical Specifications

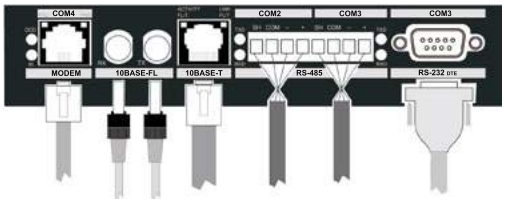
Advanced utility metering

ION8800 series

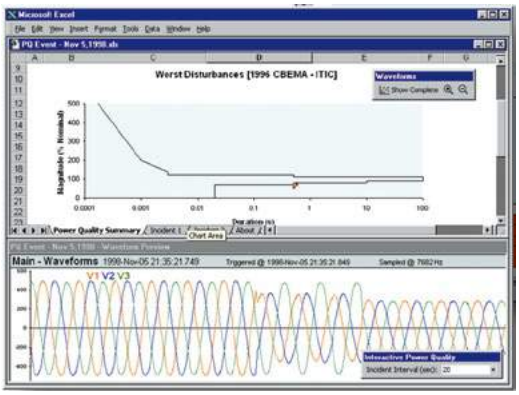
Technical Specification

Electrical characteristics		
Type of measurement		True rms 1024 samples per cycle
Measurement accuracy	Current and voltage	0.1 %
	Power	0.2 %
	Frequency	±0.005 Hz
	Power factor	0.1%
	Energy	IEC 62053-22/23 Class 0.2 S
Data update rate		½ cycle or 1 second
Input-voltage characteristics	Inputs	U1, U2, U3, Uref
	Measurement range	57-288 LN VAC rms (99-500 LL VAC rms)
	Dielectic withstand	3320 VAC rms
	Impedance	5 MΩ /phase (phase-Uref/Ground)
Input-current characteristics	Rated nominals	5 A, 1 A, 2 A
	Permissible overload	200A rms for 0.5s, non-recurring (IEC 62053-22)
	Impedance	10 mΩ /phase
	Burden	0.01 VA per phase (1A), 0.25 VA per phase (5 A)
Power supply	AC	85 - 240 VAC (+/- 10%), 47-63 Hz
	DC	110 - 270 VDC (+/- 10%)
	Burden	Typical (without comm module): 13 VA, 8 W Typical (with comm module): 19 VA, 12 W Max (without comm module): 24 VA, 10 W Max (with comm module): 32 VA, 14 W
	Ride-through time	Typical: 0.5 s to 5 s depending on configuration Min: 120 ms (6 cycles @ 50 Hz)
	Dielectric withstand	2000 VAC
Input/outputs	Mechanical alarm relay	1 Form C digital output (250 V AC / 125 V DC, 1 A AC / 0.1 A DC max)
	Digital outputs (Form C)	4 Solid state relay outputs (210 V AC / 250 V DC) 100 mA AC/DC
	Digital outputs (Form A)	8 Solid state relay outputs (210 V AC / 250 V DC) 100 mA AC/DC
	Digital inputs	3 Solid state digital inputs (low-voltage inputs 15 to 75 V AC/DC; high-voltage inputs 75 to 280 V AC/DC; 3 mA max.)
	Pulse rate	20 Hz maximum
Mechanical characteristics		
Weight		6.0 kg (6.5 kg with optional communications module)
IP degree of protection (IEC 60529)		IP51
Dimensions		202.1 x 261.51 x 132.2 mm
Environmental conditions		
Mounting location		Indoor
Maximum altitude		2000 m above sea level
Limit range of operation		-25°C to +70°C
Specified operating temperature		-10°C to +45°C (as per 62052-11)
Display operating range		-10°C to +60°C
Storage temperature		-25°C to +70°C
Humidity rating		5 to 95 % RH non-condensing
Pollution degree		2
Installation category		Power supply (II) Metering inputs (III)
Electromagnetic compatibility		
Electrostatic discharge		IEC 61000-4-2
Immunity to radiated fields		IEC 61000-4-3
Immunity to fast transients		IEC 61000-4-4
Immunity to surge waves		IEC 61000-4-5
Conducted immunity		IEC 61000-4-6
Damped oscillatory waves immunity		IEC 61000-4-12
Conducted and radiated emissions		CISPR 22 (class B)
Safety		
Europe		As per IEC 62052-11
International		As per IEC 60950
Utility approval		
EGR, GOST, ESKOM, NMI		

(1) Consult the ION7550 / ION7650 installation guide for complete specifications. (2) IEC 62051-22B with serial ports only.



Ports on the optional communications module.

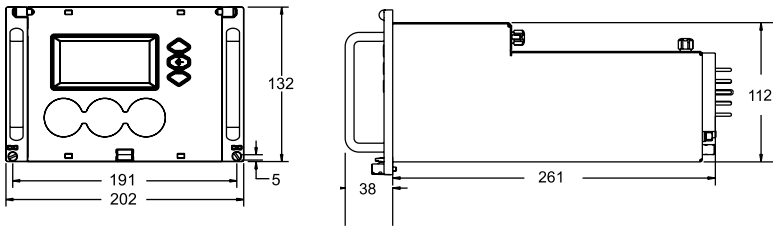


Example embedded webserver page (WebMeter) showing realtime values.

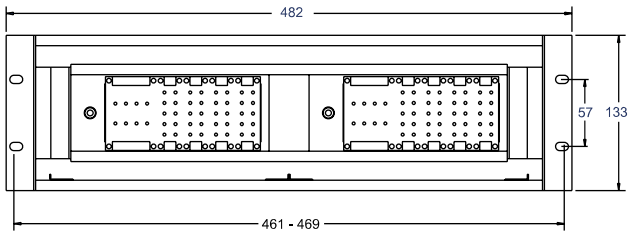
Technical Specification

Communication	
IEC 1107 optical port	2/4 wires, up to 19200 bauds
RS 485 port	Up to 57600 bauds, direct connection to a PC or modem, protocols: ION, Modbus RTU, Modbus Master, DNP 3.0, GPSTRUETIME/DATUM, DLMS
Communications module (optional)	
RS 232/485 port	300 - 115,200 bauds (RS 485 limited to 57,600 bauds); protocols: same as RS 485 port
Internal modem port	300 bauds - 56000 bauds, RJ11 connector
Ethernet port	10 BaseT, RJ45 connector, 100 m link; protocols: DNP TCP, ION, Modbus TCP, Modbus Master, IEC 61850
Fiber-optic Ethernet link	10 Base FL, ST connector, 1300 nm, FO multimode with gradient index 62.5/125 µm or 50/125 µm, 2000 m link; protocols: same as Ethernet port
EtherGate	Communicates directly with up to 62 slave devices via available serial ports
ModemGate	Communicates directly with up to 31 slave devices
Firmware characteristics	
High-speed data recording	Up to ½-cycle interval burst recording, stores detailed characteristics of disturbances or outages Trigger recording by a user-defined setpoint, or from external equipment.
Harmonic distortion	Up to 63rd harmonic for all voltage and current inputs
Dip/swell detection	Analyse severity/potential impact of sags and swells: magnitude and duration data suitable for plotting on voltage tolerance curves per phase triggers for waveform recording or control operations
Instantaneous	High accuracy measurements with 1s or 1/2 cycle update rate for: voltage and current active power (kW) and reactive power (kvar) apparent power (kVA) power factor and frequency voltage and current unbalance phase reversal
Load profiling	Channel assignments (800 channels via 50 data recorders) are configurable for any measureable parameter, including historical trend recording of energy, demand, voltage, current, power quality, or any measured parameter Trigger recorders based on time interval, calendar schedule, alarm/event condition, or manually.
Modbus Master	Master up to 32 slave devices per serial channel and store their data at programmable intervals. Use this data to aggregate and sum energy values and perform complex totaling.
Waveform captures	Simultaneous capture of all voltage and current channels sub-cycle disturbance capture maximum cycles is 214,000 (16 samples/cycle x 96 cycles, 10 Mbytes memory) 1024 samples/cycle
Alarms	Threshold alarms: adjustable pickup and dropout setpoints and time delays, numerous activation levels possible for a given type of alarm user-defined priority levels boolean combination of alarms possible
Advanced security	Up to 16 users with unique access rights. Perform resets, time syncs, or meter configurations based on user priviledges.
Transformer correction	Correct for phase / magnitude inaccuracies in current transformers (CTs), potential transformers (PTs)
Memory	5 -10 Mbytes (specified at time of order)
Firmware update	Update via the communication ports
Display characteristics	
Type	FSTN transreflective LCD
Backlight	LED
Languages	English

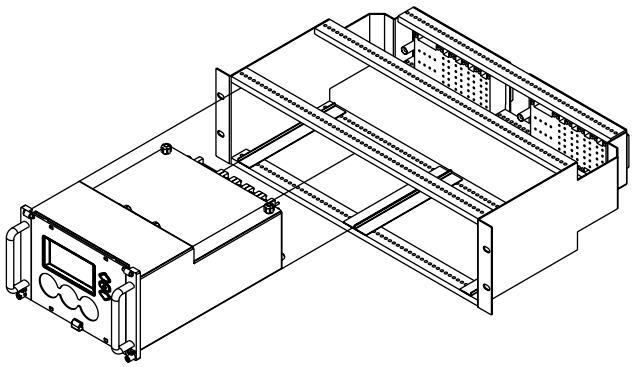
ION8800 dimensions



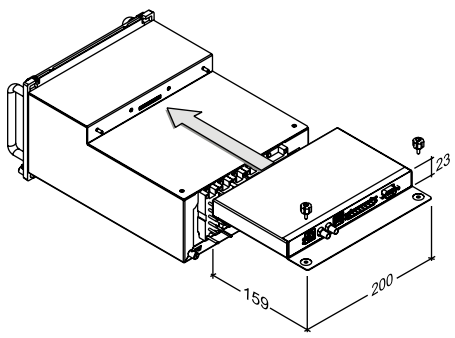
ION8800 Essailec rack dimensions



Rack mounting the ION8800



ION8800 communication module dimensions



Multi-circuit metering

Applications

This is an integrated solution for monitoring multi-circuits and mains by using a single meter. The meter is designed for use in both new build and retrofit and is used for critical power operations in data centres and energy management in buildings.

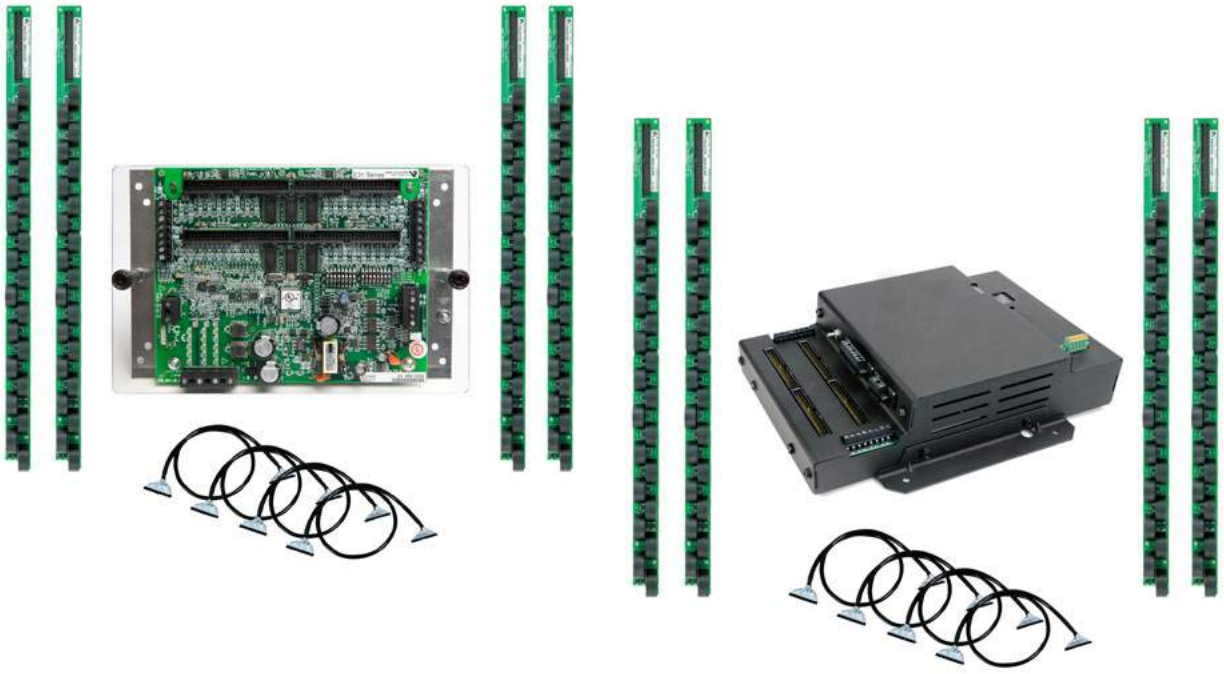
Product overview

Multi-circuit metering

The ideal solution for data centre managers, energy or facility managers, engineers and operational executives who are responsible for delivering power to critical applications.

In corporate and hosted data centre facilities, this technology helps you plan and optimise the critical power infrastructure to meet the demands of continuous availability.

- PowerLogic BCPM



PowerLogic BCPM

The PowerLogic BCPM is a highly accurate, full-featured metering product designed for the unique, multi-circuit and minimal space requirements of a high performance power distribution unit (PDU) or remote power panel (RPP).

It offers class 1 (1%) power and energy system accuracy (including 50A or 100A CTs) on all branch channels. The BCPM monitors up to 84 branch circuits and the incoming power mains to provide information on a complete PDU. Full alarming capabilities ensure that potential issues are dealt with before they become problems.

Applications

- Maximise uptime and avoid outages
- Optimise existing infrastructure
- Improve power distribution efficiency
- Track usage and allocate energy costs
- Enable accurate sub-metering

The solution for

All markets that can benefit from a solution that includes PowerLogic BCPM series meters:

- Data centres
- Buildings

Benefits

The flexible BCPM fits any PDU or RPP design and supports both new and retrofit installations. It has exceptional dynamic range and accuracy, and optional feature sets to meet the energy challenges of mission critical data centres.

Competitive advantages

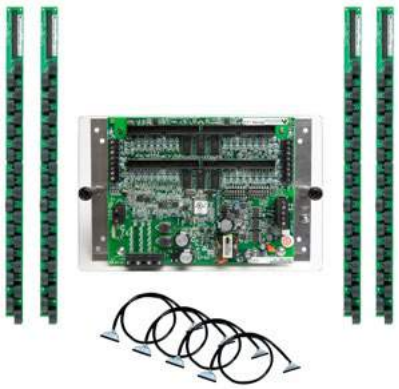
- Fit any PDU or RPP design for both new and retrofit projects
- Class 1.0 system accuracy
- Ethernet communication

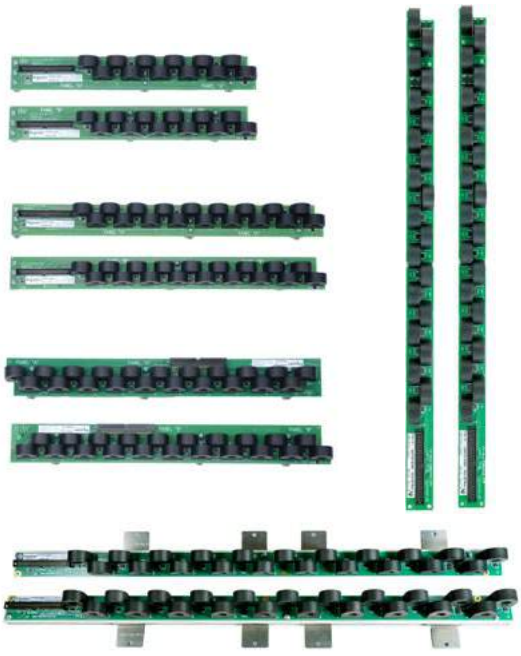
Power management solutions

Schneider Electric provides innovative power management solutions to increase your energy efficiency and cost savings, maximise electrical network reliability and availability, and optimise electrical asset performance. See pagexxx

Conformity of standards

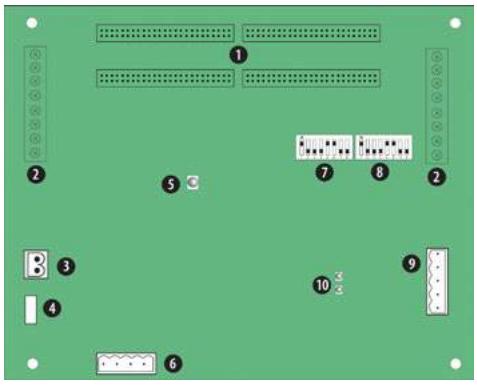
- IEC 61010





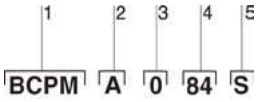
Main characteristics

- Monitor up to 84 branch circuits with a single BCPM.
- Ideal for installation in both new PDUs and retrofit projects
- New installations:
  - BCPM with solid core CTs monitors up to 84 branch circuits using 2 or 4 CT strips. Solid core CTs are rated to 100 A CTs and are mounted on strips to simplify installation. CT strips are available with 12, 8 or 21 CTs per strip on 18 mm spacings. 21 CT strips with 3/4" or 1" spacings are also available.
- Retrofit projects:
  - BCPMSC with split core CTs is ideal for retrofits. Any number of split core CTs, up to 84 maximum, can be installed with a single BCPM. Three sizes of CT are supported (50 A, 100 A, and 200 A) and all three CT sizes can be used on a single BCPM. Adapter boards with terminals for split-core CTs can be mounted using DIN-rail, Snaptrack or on a common mounting plate with the main board (42 ch Y63 models only).
- IEC Class 1 metering accuracy
  - Accurately monitor very low current levels, down to a quarter-Amp.
  - Easily differentiate between the flow of low current and a trip where no current flows.
- Class 1.0 system accuracy for Revenue Grade measurements
  - Branch Power and Energy measurements fully meet ANSI and IEC class 1 accuracy requirements with 50 or 100 Amp CTs included. No need to de-rate meter branch accuracy to allow for CTs. Voltage and current measurement accuracy is 0.5% and currents are measured down to 50mA. Easily differentiate between the flow of low current and a trip where no current flows.
- Designed to fit any PDU or RPP design
  - Lowers your total installation costs as well as the cost per meter point by supporting both new and retrofit installations.
- New models with integrated Ethernet offer broad protocol support
  - All models integrate easily into existing networks using Modbus RTU communications over an RS-485 serial link. BCPME and BCPMSCE models offer integrated Ethernet and add support for Modbus TCP, BACnet IP, BACnet MS/TP and SNMP. An optional external gateway can be added to all other models to add the same capability.
- Compatible with PowerLogic power monitoring software
  - Easily turn the large amount of data collected by the devices into useful decision-making information.
- Flexible Configuration capability
  - Set the ordering and orientation of CT strips, assign individual CT size and phases, support for 1, 2, and 3-pole breakers in any configuration.



PowerLogic BCPM
1 50-pin ribbon cable connectors (data acquisition board).
2 Auxiliary inputs.
3 Control (mains) power connection.
4 Control power fuse.
5 Alive LED.
6 Voltage taps.
7 Communications address DIP switches.
8 Communications settings DIP switch.
9 RS-485 2 connection.
10 RS-485 LEDs.

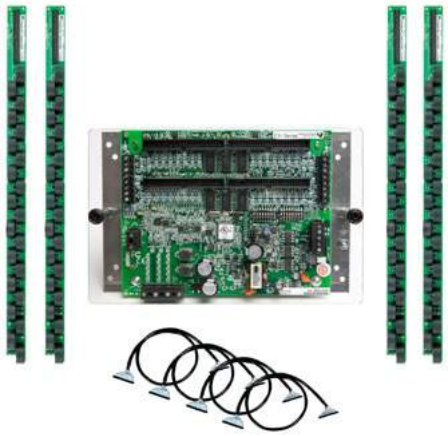
Feature selection		BCPMA	BCPME
General			
Use on LV systems		■	■
Power and energy measurements			
Mains		■	■
Branch circuits		■	■
Instantaneous rms values			
Voltage, frequency		■	■
Current		■	■
Active power	Total and per phase	■	■
Power factor	Total and per phase	■	■
Energy values			
Active energy		■	■
Demand values			
Total active power	Present and max. values	■	■
Power quality measurements			
Detection of over-voltage/under-voltage		■	■
Sampling rate points per cycle		2560Hz	2560Hz
Alarming			
Alarms		■	■
Power supply			
AC version		90-277 V ac	100-277 V ac
Communication			
RS 485 port		■	■
Modbus protocol		■	■
Ethernet Port		1*	■
Modbus RTU protocol		1*	■
BACnet IP protocol		1*	■
BACnet MS/TP protocol		1*	■
SNMP protocol		1*	■



Example BCPM with solid core CTs part number.

1 Model
2 Feature set
3 CT spacing (solid-core models only)
4 Number of circuits
5 Brand

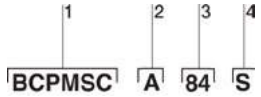
The PowerLogic BCPM uses .333 VAC output split-core CTs for the auxiliary inputs. These CTs are ordered separately from the BCPM.



* Quantity and style of CT strips and cables included varies by model

BCPM part numbers

BCPM with solid core CTs			
Item		Code	Description
1	Model	BCPM	BCPM with solid core CTs. Highly accurate meter that monitors branch circuits and the incoming power mains and includes full alarming capabilities
2	Feature set	A	Advanced - Monitors power & energy per circuit & mains, Modbus RTU only (add E8951 for other protocols), Meter Main Board comes on an aluminum mounting plate
		E	Advanced, with Ethernet - Monitors power & energy per circuit & mains, Meter Main Board is enclosed in a metal housing
3	CT spacing	0	3/4" (19 mm) CT spacing
		1	1" (26 mm) CT spacing
		2	18 mm CT spacing
4	Number of circuits	24	24 circuits, (2) 18-CT strips (18 mm spacing only)
		36	36 circuits, (2) 18-CT strips (18 mm spacing only)
		42	42 circuits, (2) 21-CT strips
		48	48 circuits, (4) 18-CT strips (18 mm spacing only)
		72	72 circuits, (4) 18-CT strips (18 mm spacing only)
		84	84 circuits, (4) 21-CT strips
5	Brand	S	Schneider Electric



Example BCPMSC with split core CTs part number.

1 Model.
2 Feature set.
3 Number of circuits.
4 Brand.

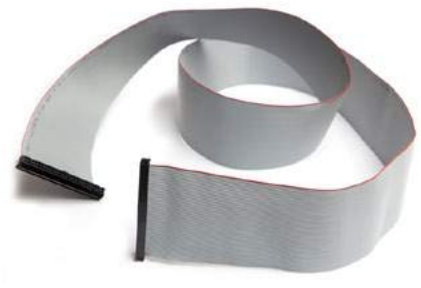
BCPM part numbers (contd.)

BCPM with split core CTs BCPM with split core CTs			
1	Model	BCPMSC	BCPM with split core CTs. Highly accurate meter that monitors branch circuits and the incoming power mains and includes full alarming capabilities
2	Feature set	A	Advanced - Monitors power and energy per circuit and mains, Modbus RTU only (add E8951 for other protocols), Meter Main Board comes on an aluminum mounting plate
		B	Intermediate - Monitors current per circuit, power and energy per mains, Modbus RTU only (add E8951 for other protocols), Meter Main Board comes on an aluminum mounting plate
		C	Basic - Monitors current only per circuit and mains, Modbus RTU only (add E8951 for other protocols), Meter Main Board comes on an aluminum mounting plate
		E	Advanced, with Ethernet - Monitors power & energy per circuit & mains, Meter Main Board is enclosed in a metal housing
3	Number of circuits	1	42 circuits (no branch CTs or ribbon cables, order separately)
		2	84 circuits (no branch CTs or ribbon cables, order separately)
		30	30 split core CTs (50 A)
		42	42 split core CTs (50 A)
		60	60 split core CTs (50 A)
		84	84 split core CTs (50 A)
		Y63	42 circuits – main and adapter boards on single mounting plate (no branch CTs or ribbon, order separately) - Feature set A only
4	Brand	S	Schneider Electric

*The BCPMSC models with 1, 2 or Y63 as the number of circuits DO NOT INCLUDE ANY branch CTs or ribbon cables (they include only the Main board and adapater board assemblies) . These models are provided to allow users to order a specific combination of CT quantities, CT sizes, CT lead lengths and ribbon cable styles and lengths. The CTs and cables must be ordered separately.

Models with more than 2 as the number of circuits include 50A branch CTs with 2 meter leads and 1.8M round ribbon cables.

The PowerLogic BCPMSC uses .333 VAC output split-core CTs for the auxiliary inputs. These CTs are ordered separately from the BCPM.



Flat ribbon cable

Round ribbon cable

Cabling and connection

Flat ribbon cables are recommended for use when the BCPM printed circuit board will be mounted inside of the PDU that is being monitored. Round ribbon cables are the prefered choice when the ribbon cable will be threaded through conduit.

BCPM part numbers for solid and split core CTs (contd.)

BCPM with split core CTs	
Part number	Description
BCPMA042S	42-circuit solid-core power & energy meter, 100A CTs (2 strips), ¾" spacing
BCPMA084S	84-circuit solid-core power & energy meter, 100A CTs (4 strips), ¾"spacing
BCPMA142S	42-circuit solid-core power & energy meter, 100A CTs (2 strips), 1" spacing
BCPMA184S	84-circuit solid-core power & energy meter, 100A CTs (4 strips), 1" mm spacing
BCPMA224S	24-circuit solid-core power & energy meter, 100A CTs (2 strips), 18mm spacing
BCPMA236S	36-circuit solid-core power & energy meter, 100A CTs (2 strips), 18mm spacing
BCPMA242S	42-circuit solid-core power & energy meter, 100A CTs (2 strips), 18mm spacing
BCPMA248S	48-circuit solid-core power & energy meter, 100A CTs (4 strips), 18mm spacing
BCPMA272S	72-circuit solid-core power & energy meter, 100A CTs (4 strips), 18mm spacing
BCPMA284S	84-circuit solid-core power & energy meter, 100A CTs (4 strips), 18mm spacing
BCPME042S	42-circuit solid-core power & energy meter w/Ethernet, 100A CTs (2 strips), ¾" spacing
BCPME084S	84-circuit solid-core power & energy meter w/Ethernet, 100A CTs (4 strips), ¾"spacing
BCPME142S	42-circuit solid-core power & energy meter w/Ethernet, 100A CTs (2 strips), 1" spacing
BCPME184S	84-circuit solid-core power & energy meter w/Ethernet, 100A CTs (4 strips), 1" mm spacing
BCPME224S	24-circuit solid-core power & energy meter w/Ethernet, 100A CTs (2 strips), 18mm spacing
BCPME236S	36-circuit solid-core power & energy meter w/Ethernet, 100A CTs (2 strips), 18mm spacing
BCPME242S	42-circuit solid-core power & energy meter w/Ethernet, 100A CTs (2 strips), 18mm spacing
BCPME248S	48-circuit solid-core power & energy meter w/Ethernet, 100A CTs (4 strips), 18mm spacing
BCPME272S	72-circuit solid-core power & energy meter w/Ethernet, 100A CTs (4 strips), 18mm spacing
BCPME284S	84-circuit solid-core power & energy meter w/Ethernet, 100A CTs (4 strips), 18mm spacing

BCPMSCxY63S 42-circuit split-core models come with the main board, (2) adapter boards and ribbon cables all mounted on a backplate, to simplify installation.

PE86183

PowerLogic™ LVCT0xxxxS Split-core Low-voltage (1/3V) CTs for Aux inputs (Mains) are ideal for retrofit applications

PB113652
PB113657
PB113658

PowerLogic™ LVCT2xxxxS Low-voltage (1/3V) solid-core CTs for Aux inputs (Mains) are ideal for panel builders (small, medium, large)

BCPM part numbers for solid and split core CTs (contd.)

BCPM with split core CTs	
Part number	Description
BCPMSCA1S	42-circuit split-core power and energy meter, CTs and cables sold separately
BCPMSCA2S	84-circuit split-core power and energy meter, CTs and cables sold separately
BCPMSCA30S	30-circuit split-core power and energy meter, (30) 50A CTs & (2) 4’ cables
BCPMSCA42S	42-circuit split-core power and energy meter, (42) 50A CTs & (2) 4’ cables
BCPMSCA60S	60-circuit split-core power and energy meter, (60) 50A CTs & (4) 4’ cables
BCPMSCAY63S	42-circuit split core power and energy meter, all boards on backplate, CTs and cables sold separately
BCPMSCA84S	84-circuit split-core power and energy meter, with (84) 50A CTs & (4) 4’ cables
BCPMSCE1S	42-circuit split-core power and energy meter w/Ethernet, CTs and cables sold separately
BCPMSCE2S	84-circuit split-core power and energy meter w/Ethernet, CTs and cables sold separately
BCPMSCE30S	30-circuit split-core power and energy meter w/Ethernet, (30) 50A CTs & (2) 4’
BCPMSCE42S	42-circuit split-core power and energy meter w/Ethernet, (42) 50A CTs & (2) 4’ cables
BCPMSCE60S	60-circuit split-core power and energy meter w/Ethernet, (60) 50A CTs & (4) 4’ cables
BCPMSCE84S	84-circuit split-core power and energy meter w/Ethernet, (84) 50A CTs & (4) 4’ cables

The PowerLogic™ BCPM uses .333 VAC output split-core CTs for the auxiliary inputs. These CTs are ordered separately from the BCPM.

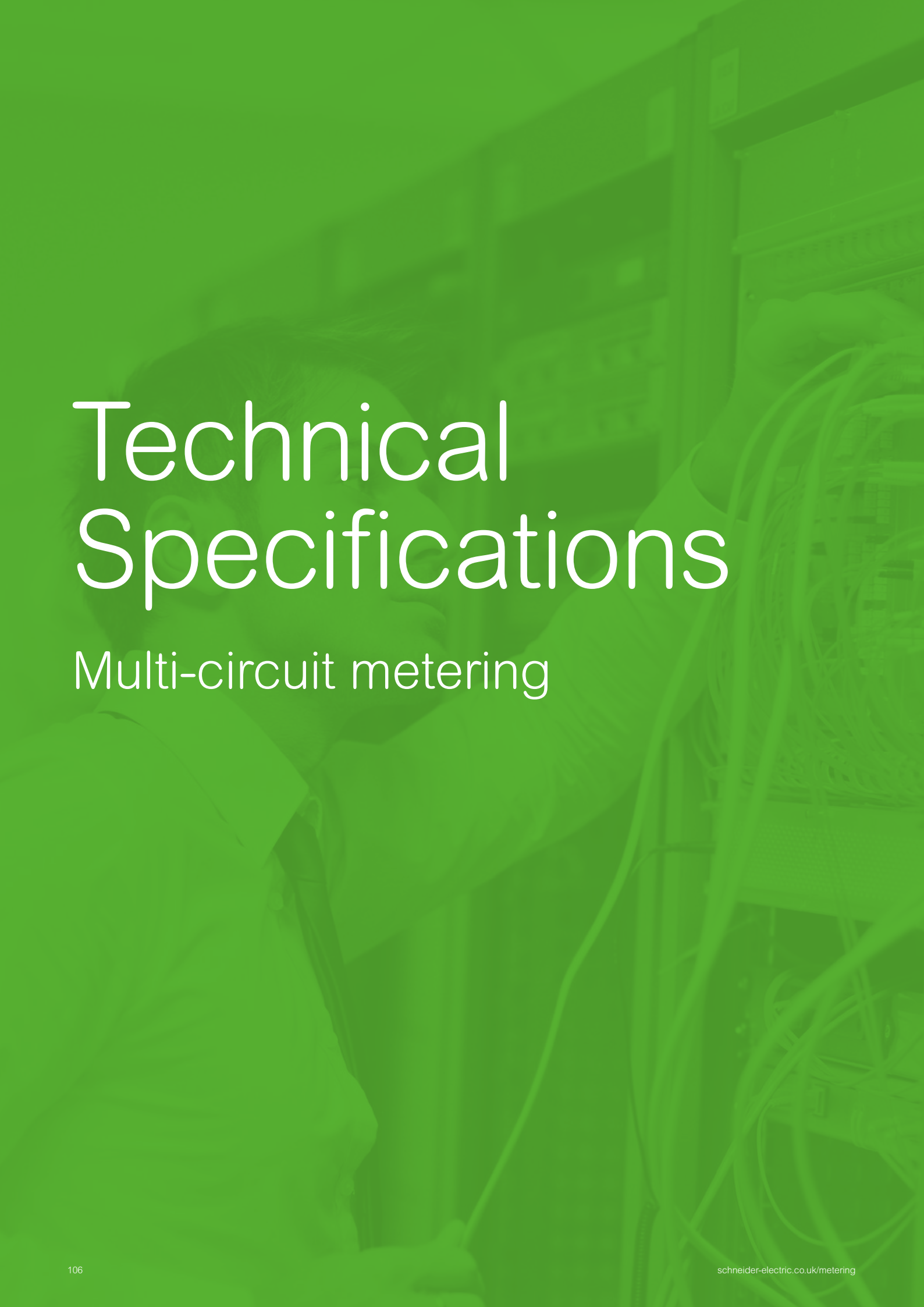
BCPM split core branch CTs and adapter boards	
BCPMSCADPBS	BCPM adapter boards, quantity 2, for split core BCPM
BCPMSCCT0	BCPM 50A split core CTs, Quantity 6, 1.8 m lead lengths
BCPMSCCT0R20	BCPM 50A split core CTs, quantity 6, 6 m lead lengths
BCPMSCCT1	BCPM 100A split core CTs, Quantity 6, 1.8 m lead lengths
BCPMSCCT1R20	BCPM 100A split core CTs, Quantity 6, 6 m lead lengths
BCPMSCCT3	BCPM 200A split core CTs, Quantity 1, 1.8 m lead lengths
BCPMSCCT3R20	BCPM 200A split core CTs, Quantity 1, 6 m lead lengths
Additional accessories for use with BCPM products	
BCPMCOVERS	BCPM circuit board cover
BCPMREPAIR	CT repair kit for solid core BCPM (includes one CT)
H6803R-0100	Additional 100A split core CT for use with solid core repair kit
E8951	Modbus to BACnet protocol converter
CBL016	Flat Ribbon cable (quantity 1) for BCPM, length = 1.2 m
CBL017	Flat Ribbon cable (quantity 1) for BCPM, length = 1.5 m
CBL018	Flat Ribbon cable (quantity 1) for BCPM, length = 1.8 m
CBL020	Flat Ribbon cable (quantity 1) for BCPM, length = 3.0 m
CBL021	Flat Ribbon cable (quantity 1) for BCPM, length = 6.1 m
CBL022	Round Ribbon cable (quantity 1) for BCPM, length = 1.2 m
CBL024	Round Ribbon cable (quantity 1) for BCPM, length = 6.1 m

1/3 V low-voltage Split-Core CTs for Aux inputs (Mains)

Part number	Amperage rating	Inside dimensions
LVCT00050S	50A	10 mm x 11 mm
LVCT00101S	200A	16 mm x 20 mm
LVCT00202S	200A	32 mm x 32 mm
LVCT00102S	100A	30 mm x 31 mm
LVCT00202S	200A	30 mm x 31 mm
LVCT00302S	300A	30 mm x 31 mm
LVCT00403S	400A	62 mm x 73 mm
LVCT00603S	600A	62 mm x 73 mm
LVCT00803S	800A	62 mm x 73 mm
LVCT00804S	800A	62 mm x 139 mm
LVCT01004S	1000A	62 mm x 139 mm
LVCT01204S	1200A	62 mm x 139 mm
LVCT01604S	1600A	62 mm x 139 mm
LVCT02004S	2000A	62 mm x 139 mm
LVCT02404S	2400A	62 mm x 139 mm

1/3 V low-voltage Solid core CTs for Aux inputs (Mains)

Part number	Amperage rating	Inside dimensions
LVCT20050S	50A	10 mm
LVCT20100S	100A	10 mm
LVCT20202S	200A	25 mm
LVCT20403S	400A	31 mm



Technical Specifications

Multi-circuit metering

BCPM

Technical specifications

Electrical characteristics		
Type of measurement		
Accuracy	Power/energy	1% system accuracy (including 50A or 100A branch CTs)
	Voltage	±0.5% of reading
	Current	±0.5% of reading
Minimum "ON" current		50mA
Sampling rate Points per cycle		2560 Hz
Data update rate		1.8 seconds (Modbus), 14 seconds (BACnet) 20 sec (SNMP)
Input-voltage characteristics	Measured voltage	150 – 480 V ac L-L (1) 90 – 277 V ac L-N (1)
	Measurement range	150 – 480 V ac L-L (1) 90 – 277 V ac L-N (1)
Power supply	AC	100 – 277 V ac (50/60 Hz)
Auxiliary CT Current Input Range		0-0.333V; CTs must be rated for use with Class 1 voltage inputs
Mechanical characteristics		
Weight		1.5 kg
Dimensions	A/B/C model Circuit board	288 x 146 mm
E model housing (w/brackets on long sides)		253 mm W x 307 mm H x 71 mm D
E model housing (w/brackets on short ends)		210 mm W x 353 mm H x 71 mm D

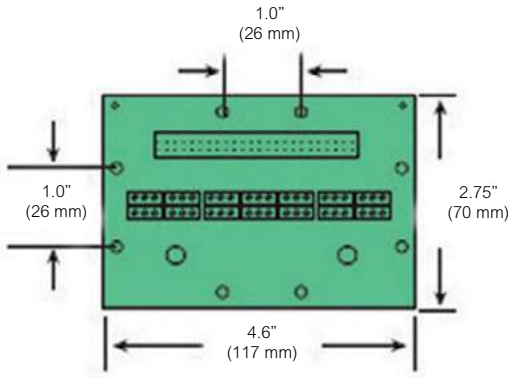
Environmental conditions	
Operating temperature	0 to 60ºC
Storage temperature	-40ºC to 70ºC
Installation category	CAT III, pollution degree 2
Safety	
Europe	IEC 61010
U.S. and Canada	UL 508 Open type device
Communication	
RS 485 (A/B/C models)	Baud rate: DIP-switch selectable 9600, 19200, 38400 DIP-switch selectable 2-wire or 4-wire RS-485. Parity selectable: Even, Odd or None.
RS 485 (A models)	Baud rate: configured via Web-server. Baud selectable: 9600, 19200, 38400. Parity selectable: Even, Odd or None. 2-wire RS-485.
Ethernet (E models)	10/100 Mbit Ethernet. RJ-45 connection. Static IP or DHCP.
Protocols	Modbus RTU on all models, BCPME models also support Modbus TCP, SNMP, BACnet IP & BACnet MS/TP
Firmware characteristics	
Detection of over-voltage/under-voltage	User-defined alarm thresholds for over-voltage and under-voltage detection
Alarms	Four alarm levels: high-high, high, low and low-low (users define the setpoints for each). Each alarm has a latching status to alert the operator that an alarm has previously occurred. High and Low alarms have instantaneous status to let the operator know if the alarm state is still occurring.
Firmware update	Update via Modbus

BCPM cont'd

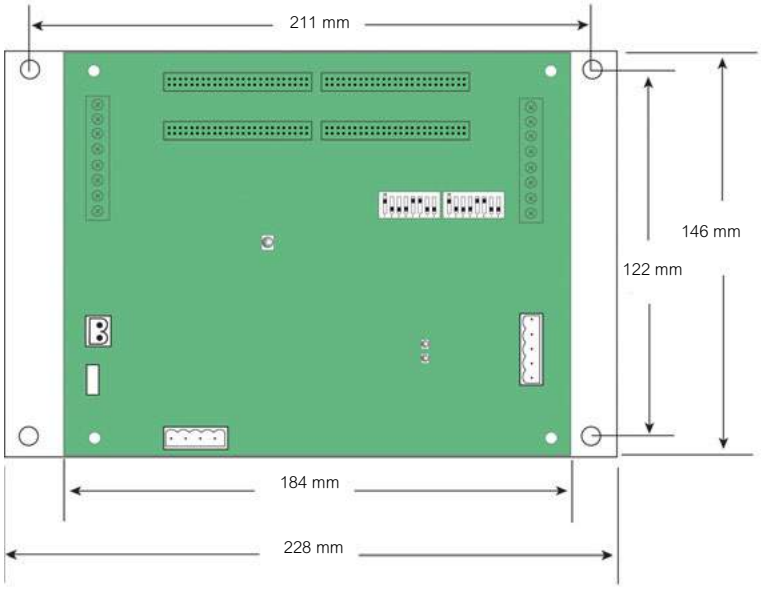
1/3 V low-voltage CT (LVCT) for Mains - Technical specifications

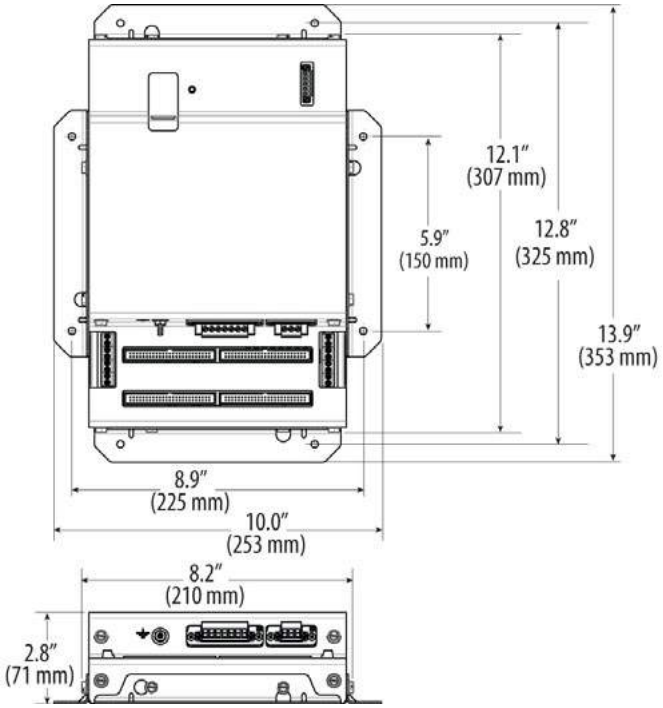
Electrical characteristics	
Accuracy	1% from 10% to 100% of rated current(LVCT0xxxx0S/1S/2S/3S/4S [split-core]) 0.5% from 5% to 100% of rated current (LVCT2xxxx0S/2S/3S [solid-core])
Frequency range	50/60 Hz
Leads	18 AWG, 600 V ac, 1.8m standard length
Max. voltage L-N sensed conductor	300 V ac (LVCT0xxxx0S) 600 V ac (LVCT0xxxx1S/2S/3S/4S, LVCT2xxxxS)
Environmental conditions	
Operating temperature	0ºC to 70ºC (LVCT0xxxx0S/1S) -15ºC to 60ºC (LVCT0xxxx2S/3S/4S less than 2400A) -15ºC to 60ºC (LVCT02404S [2400A]) -40ºC to 85ºC (LVCT2xxxx0S/2S/3S [solid-core])
Storage temperature	-40ºC to 105ºC (LVCT0xxxx0S/1S) -40ºC to 70ºC (LVCT0xxxx2S/3S/4S) -50ºC to 105ºC (LVCT2xxxx0S/2S/3S [solid-core])
Humidity range	0 to 95% non-condensing

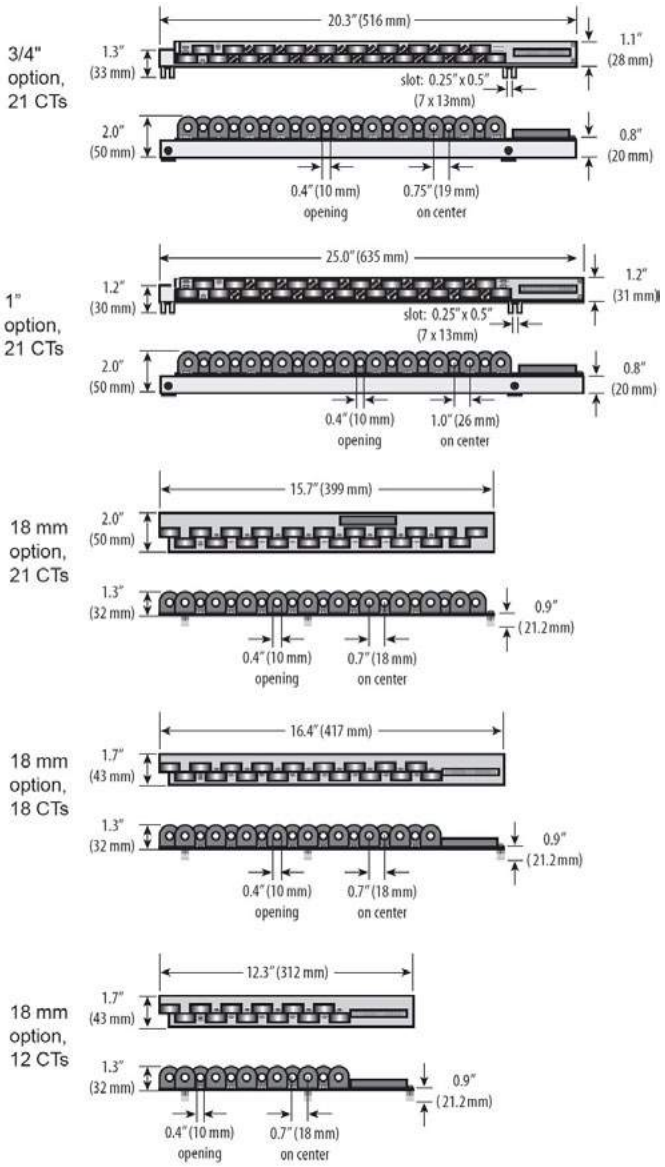
PowerLogic BCPM dimensions



PowerLogic BCPM adapter board (one board per 21 split core branch CTs)

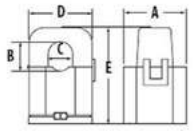




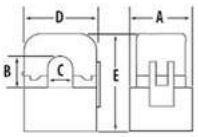


50A-200A Split-Core CT dimensions

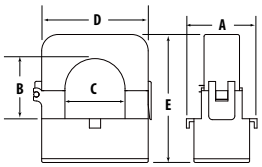
Split-Core CTs



50 Amp
A = 1.0″ (26 mm)
B = 0.5″ (11 mm)
C = 0.4″ (10 mm)
D = 0.9″ (23 mm)
E = 1.6″ (40 mm)



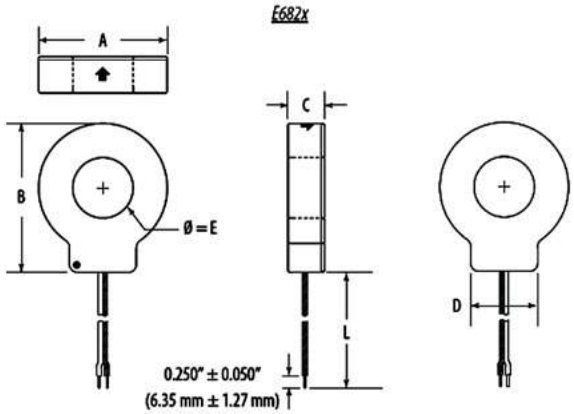
100 Amp
A = 1.2″ (29 mm)
B = 0.8″ (20 mm)
C = 0.7″ (16 mm)
D = 1.6″ (40 mm)
E = 2.1″ (53 mm)



A = 1.5″ (39 mm)
B = 1.25″ (32 mm)
C = 1.25″ (32 mm)
D = 2.5″ (64 mm)
E = 2.8″ (71 mm)

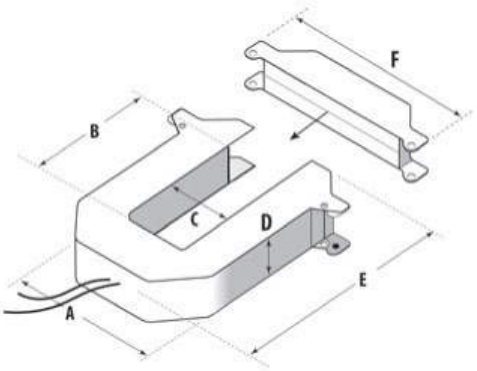
These dimensions apply to both BCPMSCCTxx (branch CTs) and LVCT0xxxx0S/1S (for Mains) 50A-200A CT families.

Solid core CT dimensions



Model	L	A	B	C	D	E
LVCT20050S LVCT20100S	6′(1.8 m)	1.3″ (33 mm)	1.5″ (38 mm)	0.7″ (18 mm)	0.8″ (21 mm)	0.4″ (10 mm)
LVCT20202S	6′(1.8 m)	2.3″ (59 mm)	2.6″ (66 mm)	0.7″ (18 mm)	1.2″ (31 mm)	1.0″ (25 mm)
LVCT20403S	6′(1.8 m)	2.8″ (70 mm)	3.2″ (82 mm)	1.0″ (25 mm)	1.4″ (36 mm)	1.25″ (31 mm)

1/3 V low-voltage CT form factor

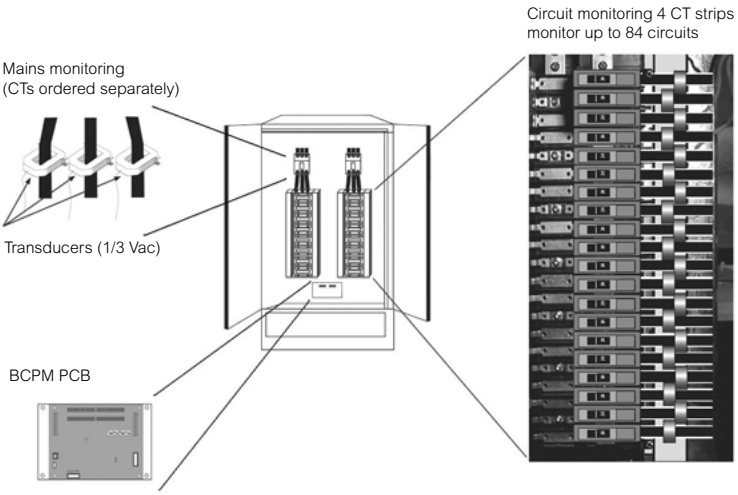


Small form factor
100/200/300 Amp
A = 96 mm
B = 30 mm
C = 31 mm
D = 30 mm
E = 100 mm
F = 121 mm

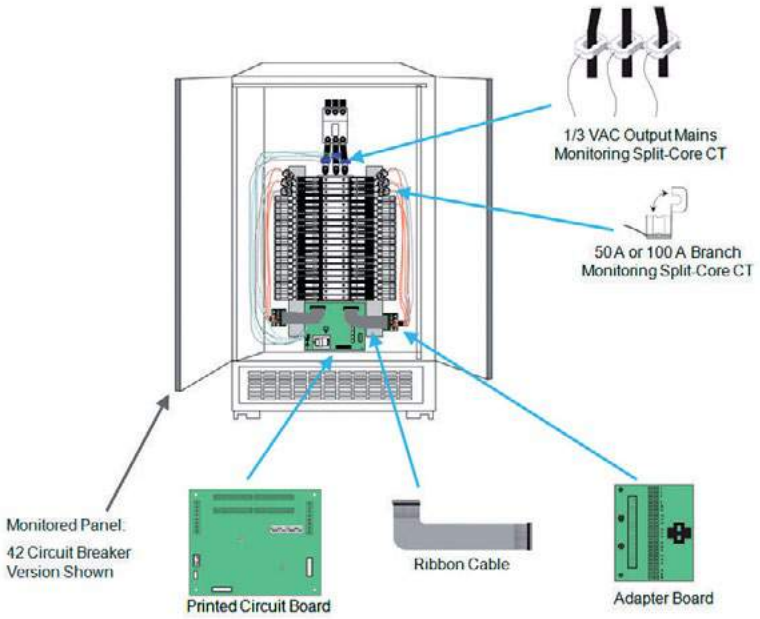
Medium form factor
400/600/800 Amp
A = 125 mm
B = 73 mm
C = 62 mm
D = 30 mm
E = 132 mm
F = 151 mm

Large form factor
800/1000/1200/
1600/2000/2400 Amp
A = 125 mm
B = 139 mm
C = 62 mm
D = 30 mm
E = 201 mm
F = 151 mm

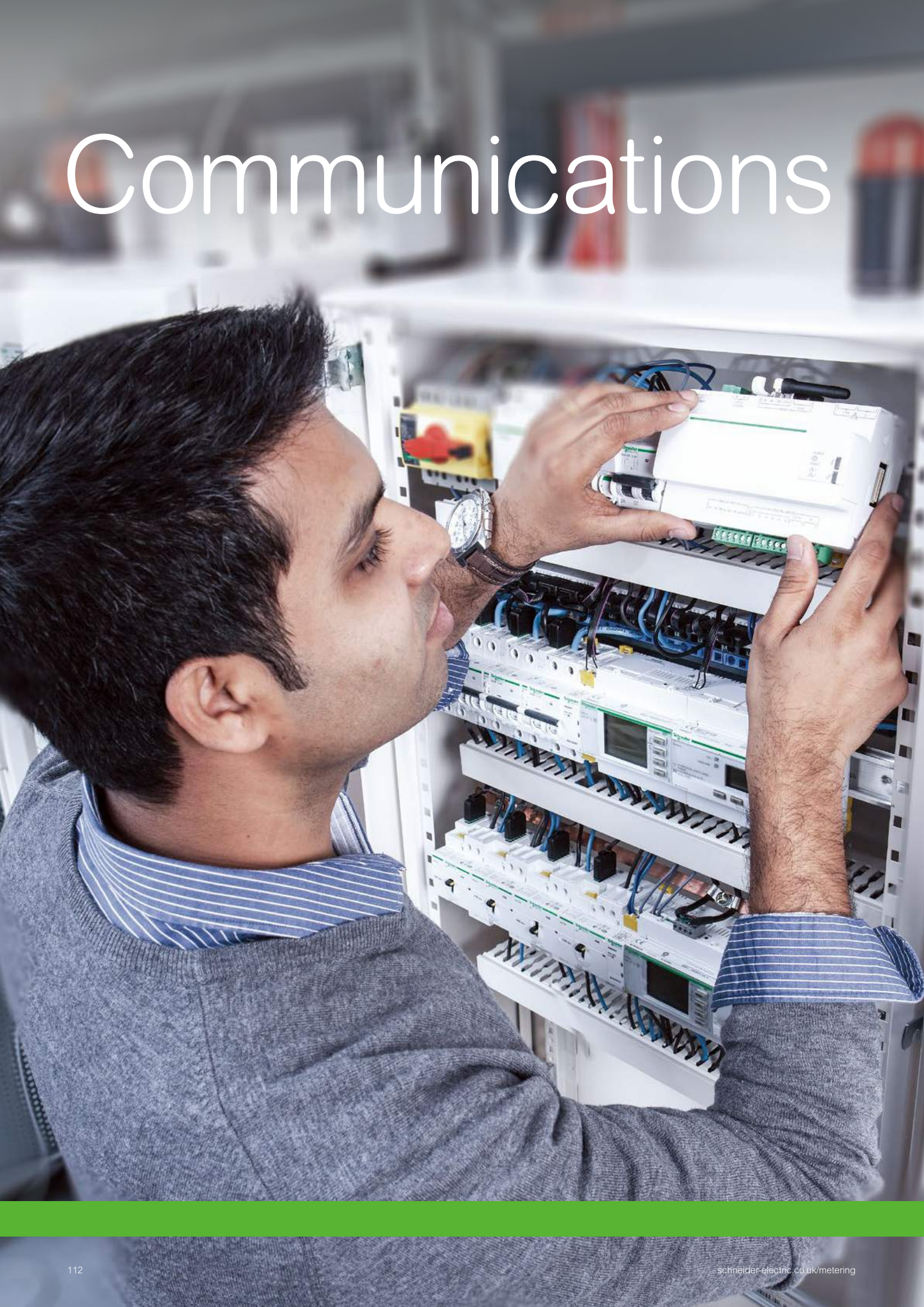
PowerLogic BCPM with solid core CT strips installation details



PowerLogic BCPM with split core CTs installation details



Communications



Applications

This is a part of your metering solution which provides an interface between energy monitoring software and your metering points via GPRS, wired connection and wifi. We also offer the option of an integrated gateway-server which provides all-in-one energy management solution. They are fully capable of supporting StruxureWare Power Monitoring software.

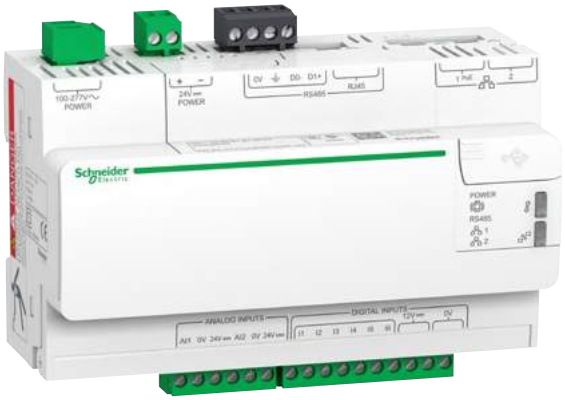
Product overview

Communications

Data loggers, gateways and remote terminal units help measured data reach the power monitoring software for analyses.

They are fundamental components in most power and energy management system architectures.

- New Gateway Link150
- Data logger Com'X 200
- NEW Data logger Com'X 510
- ION7550 RTU



* Gateway EGX100 was replaced by new Link150 in October 2015 and gateway-sever EGX300 was replaced by new Com'X 510 in June 2015.

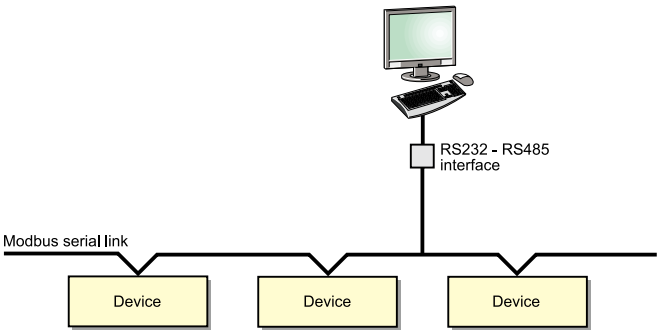
Serial link

With communication technology, it is no longer necessary to be physically present at the site to access information. Data is transmitted by networks.

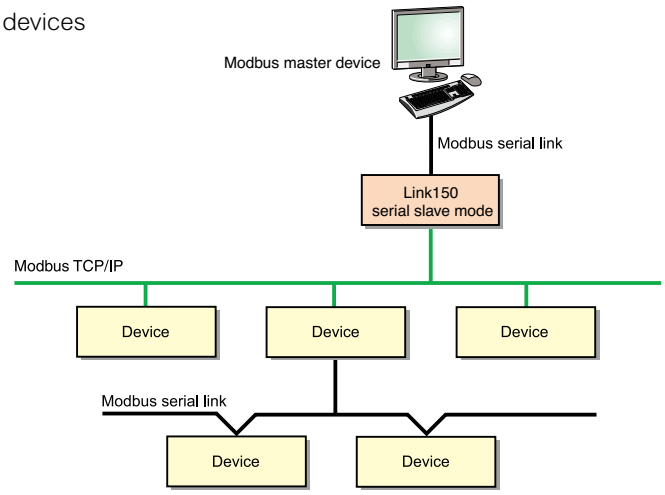
In all architectures, the communication interface serves as the link between the installation devices and the PC running the operating software. It provides the physical link and protocol adaptation. Adaptation is required because the communication systems used by the PC (Modbus via RS232 and/or Ethernet) are generally not those used by the installation devices (e.g. the Modbus protocol via RS485).

Dedicated application software prepares the information for analysis under the best possible conditions.

In addition, an Modbus-Ethernet gateway in serial port slave mode allows a serial Modbus master device to access information from other devices across a Modbus TCP/IP network.



Modbus communication architecture.



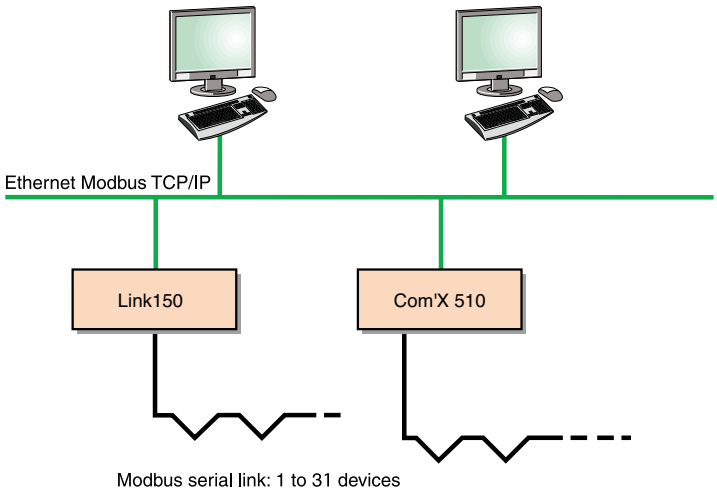
Modbus communication across Ethernet network

Switchboard-data acquisition and monitoring make it possible to anticipate events. In this way, they reduce customer costs in terms of operation, maintenance and investment.

Ethernet link

Using modern Web technologies, the operator can access information from monitoring and protection devices using any PC connected to the network, with all the required security.

The Ethernet Modbus-Ethernet gateway* or the integrated gateway-servers* provide connectivity between Modbus RS485 and Ethernet Modbus TCP/IP.



Ethernet communication architecture.

The services available with these technologies considerably simplify the creation, maintenance and operation of these supervision systems.

The application software is now standardised: the web interface into the system does not require custom web pages to be created. It is personalised by simply identifying the components in your installation and can be used as easily as any internet application.

The first step in this approach is the integrated gateway-server with HTTP pages. Power management software (StuxureWare Power Monitoring Expert and StruxureWare PowerSCADA Expert), running on a PC, provide broader coverage for more specific needs.

Link150 Ethernet gateway

The Link150 gateway provides fast, reliable Ethernet connectivity in the most demanding applications, from a single building to a multi-site enterprise. This gateway supports meters, monitors, protective relays, trip units, motor controls and other devices that need to communicate data quickly and efficiently. It is your simple, cost-effective serial line to full Ethernet connectivity.

Applications

- Energy management
- Power distribution
- Building automation
- Factory automation

The solution for

All markets that can benefit from a solution that includes the Link150 gateway:

- Buildings
- Data Centre
- Healthcare
- Industry
- Infrastructure
- Utility

Benefits

- Easy to install and setup
- Easy to maintain
- Advanced security feature
- Compatible with Schneider Electric software offerings
- Reliable Modbus to Ethernet protocol conversion

Energy and power management software

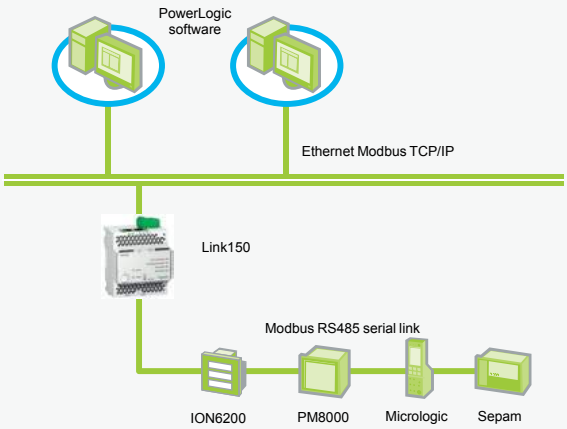
Powerlogic software is recommended as a user interface which provides access to all status and measurement information. It also prepares summary reports for energy and power management. Please see Page 114. The Link150 is compatible with

- StruxureWare Power Monitoring Expert software
- StruxureWare PowerSCADA Expert

Conformity of standards

- EN55022/EN55011/ FCC Class A
- EN 61000-6-2
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5
- EN 61000-4-6
- EN 61000-4-8
- EN 60950

Architecture



Security

- Secure user interface including user's name and password for login
- Advanced security features to allow users to specify which Modbus TCP/IP master devices may access attached serial slave devices
- Modbus TCP/IP filtering feature
- Allows user to specify the level of access for each master device as Read-only or Full access
- Web pages provide easy configuration and setup

Ordering reference	Product description
EGX150	Link150 Ethernet Gateway

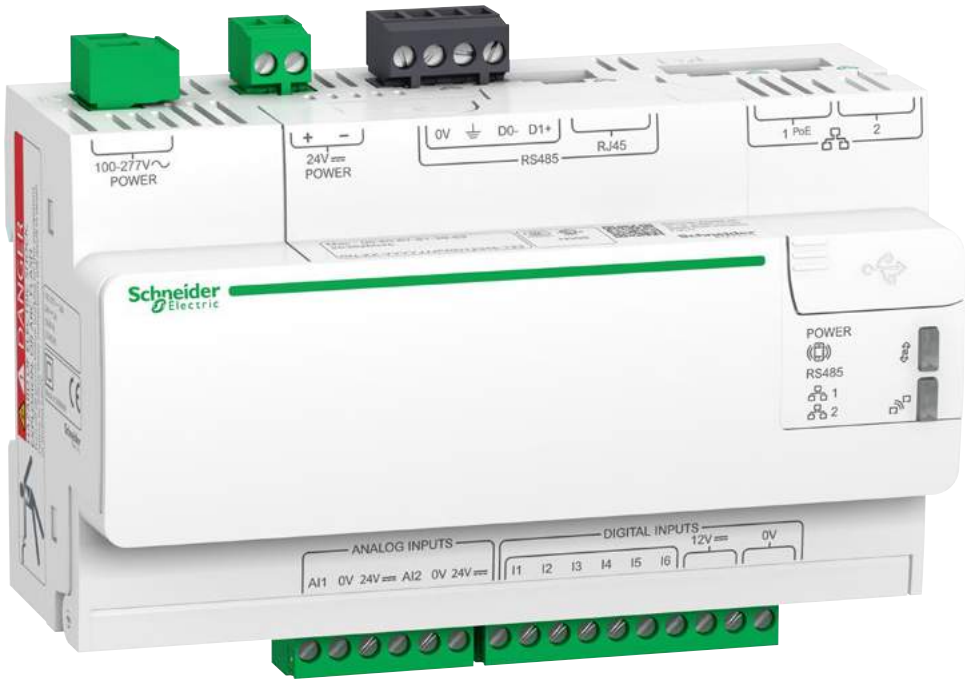
Com'X 200

A highly flexible plug-and-play Energy Server Com'X 200 collects and stores WAGES consumptions and environmental parameters such as temperatures, humidity and CO_2 levels in a building. Data is periodically transmitted as a report to an internet database server for further processing. The Energy Server Com'X 200 not only reduces your technical complexity, but help to manage your energy.

Applications

The quickest path to multi-site energy management and on-line services

- Delivers batches of data ready to process by StruXureware solutions and services
- Publishes logged data to the Schneider Electric cloud or another hosted platform



The solution for

All markets that can benefit from a solution that includes data logger Com'X 200:

- Buildings
- Industry

Benefits

- Data collection from up to 64 field devices
- Data publishing leveraging existing infrastructures, Ethernet or Wifi, GPRS-ready
- Quick fitting into electrical switchboards thanks to DIN rail clipping and profile
- Quick setup and configuration thanks to intuitive HMI

Energy management solutions

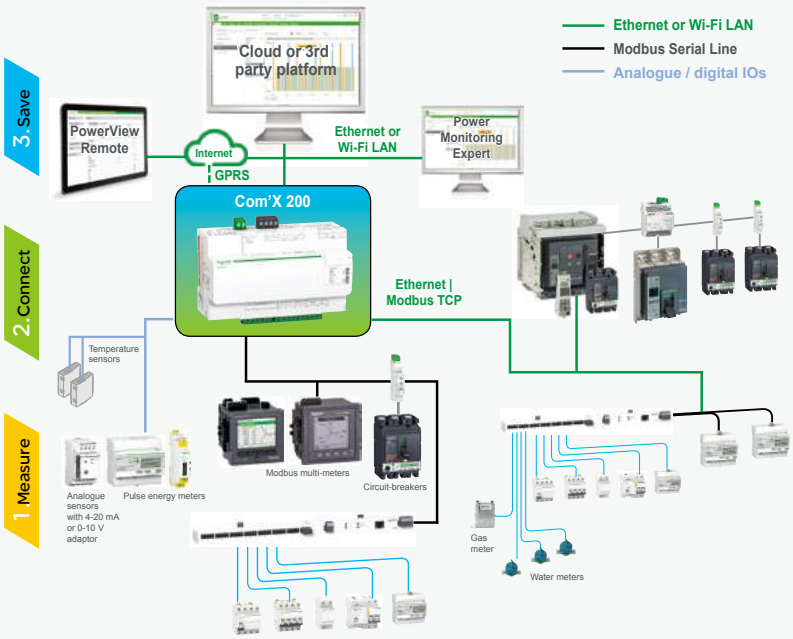
The data collected and stored by Com'X 200 can be processed and displayed as webpages through web services provided by Schneider Electric, such as StruxureWare Energy Operation or by any private energy platform,

The Com'X 200 also provides a transparent interface between Ethernet-based networks and field devices. This gateway function supports the use of monitoring software, such as Power Monitoring Expert (PME) for data collection, trending, event management, analysis and further processing.

Conformity of standards

- EN60950

Architecture



Data collector

Collects and stores energy data from up to 64 field devices, connected to either:

- Ethernet TCP/IP field network.
- Modbus Serial line network (up to 32 devices).
- Embedded digital and analogue inputs.

“Field devices” consist of :

- PowerLogic devices for power and energy monitoring.
- Masterpact or Compact circuit-breakers for protection and monitoring.
- Acti 9 protection devices, meters, remote controlled switches, etc.
- Water, Air, Gas, Electricity, and Steam consumption meters, from specialised manufacturers, delivering pulses as per standard (see table next page).
- Environmental sensors such as temperatures, humidity, and CO2 levels in a building, providing analogue information.

Data logging and storage capabilities include:

- Configurable logging interval, from every minute to once a week.
- Data storage duration of several weeks, depending on quantity of collected data.

Data publisher

Batches of collected data periodically transmitted to an Internet server, as:

- XML files, for processing by StruxureWare™ web services, such as Energy Operation.
- CSV files for viewing in Excel or transformed for upload into programs such as StruxureWare™ Power Monitoring Expert or any compatible software.

Data publishing function supports 4 transfer protocols over Ethernet or Wi-Fi:

- HTTP.
- HTTPS.
- FTP.
- SMTP.

Additional functions

Gateway

If selected by the user, the Com’X 200 can also make all data from connected devices available in real-time:

- In Modbus TCP/IP format over Ethernet or Wi-Fi.
- For requests by an energy management software.

Modbus packets can be sent from managing software to field devices through Modbus serial line or Modbus TCP/IP over Ethernet.

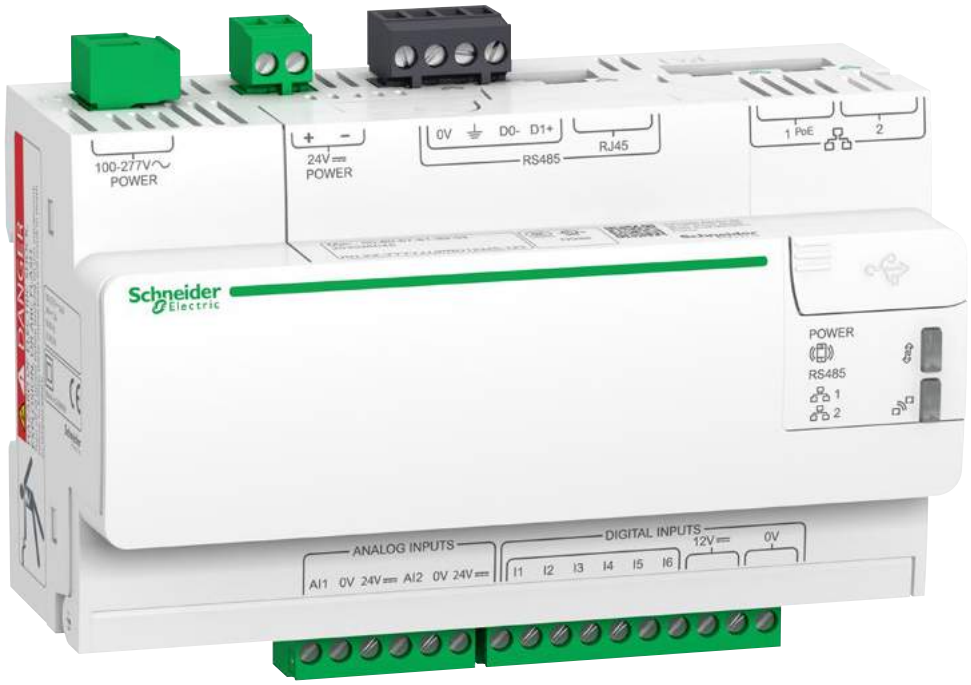
Ordering reference	Product description
Com’X 200 data logger 24 V DC or 230 V AC power supplied	EBX200
Com’x Wi-Fi USB interface	EBXA-USB-WiFi
Com’X GPRS interface	EBXA-GPRS
Com’x External GPRS antenna	EBXA-ANT-5M

Com'X 510

A highly flexible plug-and-play Energy Server Com'X 510 collects and stores WAGES consumptions and environmental parameters such as temperatures, humidity and CO2 levels in a building. The Com'X 510 has up to 2 year data storage and embedded webpages which means all your energy data can be viewed and managed on-site.

Applications

- All-in-one-box energy management solution especially suitable for buildings up to 10,000 sq. meters



The solution for

All markets that can benefit from a solution that includes data logger Com'X 510:

- Buildings
- Industry

Benefits

- Data collection from up to 64 field devices
- Data publishing leveraging existing infrastructures : Ethernet or Wifi, GPRS-ready
- Quick fitting into electrical switchboards thanks to DIN rail clipping and profile.
- Quick setup and configuration thanks to intuitive HMI

Competitive advantages

- Fit any PDU or RPP design for both new and retrofit projects
- Class 1.0 system accuracy
- Ethernet communication

Energy management solution

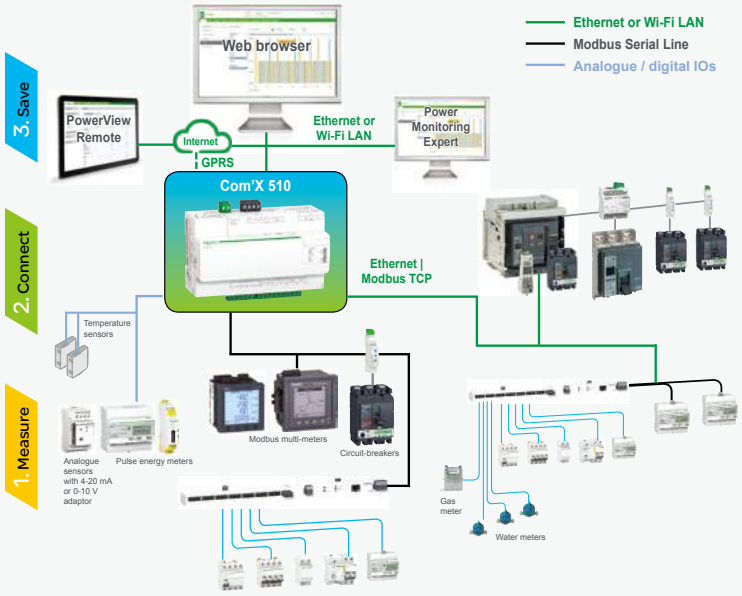
The data collected and stored by Com'X 510 can be processed and displayed through its own onboard webpage.

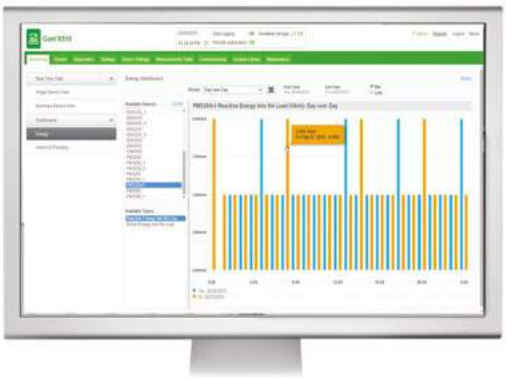
The Com'X 510 also provides a transparent interface between Ethernet-based networks and field devices. This gateway function supports the use of monitoring software, such as Power Monitoring Expert (PME) for data collection, trending, event management, analysis and further processing.

Conformity of standards

- EN 60950

Architecture





Energy dashboard comparing accumulated over time energy values (partial screen)

Data collector

As soon as they are connected to the LAN, it can be detected and assigned an IP address by DHCP. Your operating system's DPWS feature allows your computer to automatically recognise the device as Com'X. Embedded web pages are then immediately accessible by clicking each Com'X device icon or by typing the assigned IP address into your web browser.

Collects and stores energy data from up to 64 field devices, connected to either:

- Ethernet TCP/IP field network.
- Modbus Serial line network (up to 32 devices).
- Embedded digital and analogue inputs.

"Field devices" consist of :

- PowerLogic meters for power and energy monitoring.
- Masterpact, Powerpact, or Compact circuit-breakers for protection and monitoring.
- Acti 9 protection devices, meters, remote controlled switches, etc.
- Water, Air, Gas, Electricity, and Steam consumption meters, from specialised manufacturers, delivering pulses as per standard (see table at end of this document).
- Environmental sensors such as temperatures, humidity, and CO2 levels in a building, providing analogue information.

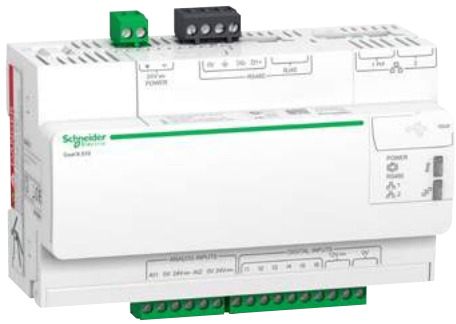
Data logging and storage capabilities include:

- Data logging period: configurable from every minute to once a week.
- Data storage duration: up to 2 years, depending on quanitity of collected data.
- Able to set time and send reset instructions to field devices.

Embedded energy management software

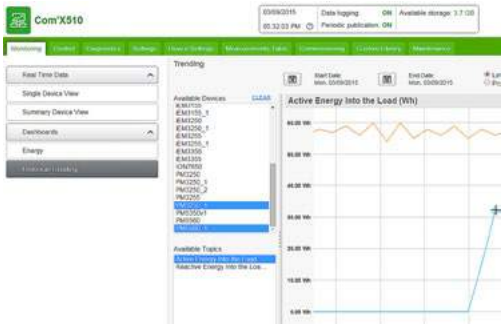
The Com'X provides the end-user with immediate visibility into energy consumption throughout the site. As soon as the Com'X is connected to the Local Area Network (LAN), several web pages are accessible via any standard web browser, (without plug-in or additional components).

These web pages display real-time data as it is collected, in easy to understand tabular and summary formats. In addition, users can get simple analysis of historical data in bar graph or trending formats.



Energy Server Com'X 510 data logger

Raw data and measurements from one field device (partial screen)



Historical trending comparing multiple devices or multiple topics (partial screen)

Additional functions

Data publisher

Batches of collected data can also be periodically transmitted to an Internet server, as:

- XML files, for processing by StruxureWare™ web services, such as Energy Operation
- CSV files for viewing in Excel or transformed or uploading to programs such as StruxureWare™ Power Monitoring Expert or any compatible software

Data publishing function supports 4 transfer protocols over Ethernet or Wi-Fi:

- HTTP
- HTTPS
- FTP
- SMTP

Gateway

- If selected by the user, the Com'X 510 can make data from connected devices available in real time
- In Modbus TCP/IP format over Ethernet or Wi-Fi
- For requests by energy management software

Modbus packets can be sent from managing software to field devices through Modbus serial line or Modbus TCP/IP over Ethernet.

Com'X 510 Commercial reference numbers	
Com'X 510 energy server 24 V DC power supplied UL rated	EBX510
Com'x Wi-Fi USB interface	EBXA-USB-WiFi
Com'X GPRS interface	EBXA-GPRS
Com'x External GPRS antenna	EBXA-ANT-5M

ION7550 RTU

The PowerLogic ION7550 RTU (remote terminal unit) is an intelligent web-enabled device ideal for combined utilities metering of water, air, gas, electricity and steam (WAGES). When combined with Power management software, the ION7550 RTU offers a seamless, end-to-end WAGES metering solution.

Featuring a large, high-visibility display and overall versatility of the PowerLogic system, the ION7550 RTU provides extensive analogue and digital I/O choices and is a cost-effective dedicated WAGES solution when compared to a traditional meter. The device automatically collects, scales and logs readings from a large number of connected meters or transducers and delivers information to one or more head-end systems through a unique combination of integrated Ethernet, modem or serial gateways.

Applications

- WAGES (water, air, gas, electricity, steam) metering
- Integrated utility metering with advanced programmable math functions
- Data concentration through multi-port, multi-protocol communications
- Equipment status monitoring and control
- Programmable set points for out-of-limit triggers or alarm conditions

The solution for

All markets that can benefit from a solution that includes PowerLogic ION7550RTU series meters:

- Buildings
- Industry
- Healthcare
- Education
- Etc.

Benefits

- Help reduce waste and optimise equipment operation to increase energy efficiency
- A large, intuitive display
- Extensive digital and analogue I/O
- Dedicated WAGES solution when compared to a traditional meter

Competitive advantages

- Data concentration through multi-port, multi-protocol communications
- Integrated utility metering with advanced programmable function

Power management solutions

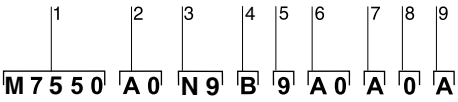
As part of a complete enterprise energy management solution, the ION7550 RTU can be integrated with Power Monitoring Expert, or other SCADA, information and automation systems. See Page 114

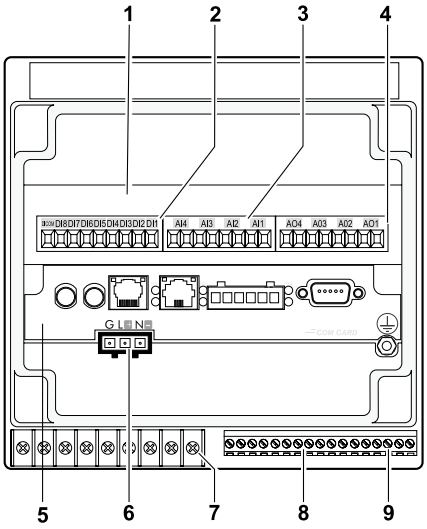
Conformity of standards

- EN 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- CISPR 22

Main characteristics

- Increase efficiency
  - Reduce waste and optimise equipment operation to increase efficiency.
- Easy to operate
  - Screen-based menu system to configure meter settings. Bright LCD display with adjustable contrast.
- Integrate with software
  - Easily integrated with PowerLogic or other energy management enterprises, including SCADA systems.
- Transducer and equipment condition monitoring
  - Versatile communications, extensive I/O points, clock synchronisation, event logging and sequence of events recording capabilities for transducer and equipment condition and status monitoring at utility substations.
- Set automatic alarms
  - Alarm setpoint learning feature for optimum threshold settings.
- Up to 10 Mbytes of memory
  - For archiving of data and waveforms.
- Notify alarms via email
  - High-priority alarms sent directly to the user's PC. Instant notification of power quality events by email.
- Modbus Master functionality
  - Aggregate and store data from downstream Modbus devices using serial or Ethernet connections





PowerLogic® ION7550 RTU.

1 *I/O expansion card.*
2 *Digital inputs.*
3 *Analogue inputs.*
4 *Analogue outputs.*
5 *Communications card.*
6 *Power supply.*
7 *Form C digital outputs.*
8 *Digital inputs.*
9 *Form A digital outputs.*

Part numbers

Item		Code	Description
1	Model	7550	ION7550 device
2	Form Factor	A0	Integrated display with front optical port, 5 MB logging memory, and 512 samples/cycle resolution.
		B0	Integrated display with front optical port, 10 MB logging memory, and 512 samples/cycle resolution.
		T0	Transducer (no display) version, with 5 MB logging memory.
		U0	Transducer (no display) version, with 10 MB logging memory.
3	RTU option	N9	RTU option
4	Power Supply	B	Standard power supply (85-240 VAC, ±10%/47-63 Hz / 110-330 VDC, ±10%)
		C	Low voltage DC power supply (20-60 VDC)
5	Internal use	9	This field for internal use only
6	Communications	A0	Standard communications (1 RS-232/RS-485 port, 1 RS-485 port). Integrated display models also include 1 ANSI Type 2 optical communications port.
		C1	Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45), 56k universal internal modem (RJ-11). Ethernet, modem gateway functions each use a serial port.
		D7	Standard comms plus 10BASE-T/100BASE-TX Ethernet (RJ-45) and 100BASE-FX Ethernet Fiber, 56k universal internal modem (RJ-11). Ethernet and modem gateway functions each use a serial communications port.
		E0	Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45). Ethernet gateway function uses serial port.
		F1	Standard communications plus 10BASE-T/100BASE-TX Ethernet (RJ-45) and 100BASE-FX (SC fiber optic connection). Ethernet gateway uses a serial port.
		M1	Standard communications plus 56k universal internal modem (RJ-11). Modem gateway uses serial communications port.
7	I/O	A	Standard I/O (8 digital inputs, 3 Form C relays, 4 Form A solid-state outputs)
		E	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 20 mA analogue inputs)
		K	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 20 mA analogue outputs)
		N	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 20 mA analogue inputs and four 0 to 20 mA outputs)
		P	Standard I/O plus Expansion I/O card (8 additional digital inputs & four 0 to 1 analogue inputs and four -1 to 1 mA analogue outputs)
8	Security	0	Password protected, no hardware lock
9	Special Order	A	None
		C	Tropicalisation treatment applied

ION7550 RTU

Communication Card for ION7550RTU	Ordering reference
Standard Comms: 1 RS232/RS485 port (COM1), 1 RS485 port (COM2), Front optical port (COM3)	P765CA0A
Standard Comms: 1 RS232/RS485 port (COM1), 1 RS485 port (COM2), Front optical port (COM3), tropicalisation treatment applied	P765CA0C
Standard plus Ethernet (10/100BASE-T), 56k universal internal modem (RJ11; shares COM3)	P765CC1A
Standard plus Ethernet (10/100BASE-T), 56k universal internal modem (RJ11; shares COM3), tropicalisation treatment applied	P765CC1C
Standard plus Ethernet (10/100BASE-T, 100BASE-FX), 56k internal modem (RJ11)	P765CD7A
Standard plus Ethernet (10/100BASE-T, 100BASE-FX), 56k internal modem (RJ11), tropicalisation treatment applied	P765CD7C
Standard plus Ethernet (10/100BASE-T)	P765CE0A
Standard plus Ethernet (10/100BASE-T), tropicalisation treatment applied	P765CE0C
Standard plus Ethernet (10/100BASE-T, 100BASE-FX)	P765CF1A
Standard plus Ethernet (10/100BASE-T, 100BASE-FX), tropicalisation treatment applied	P765CF1C
Standard plus 56k universal internal modem (RJ11; shares COM3)	P765CM1A
Standard plus 56k universal internal modem (RJ11; shares COM3),tropicalisation treatment applied	P765CM1C
Analogue I/O cards	**Ordering reference**
four 0 to 20 mA analogue inputs & 8 digital inputs	P760AEA
four 0 to 20 mA analogue inputs & 8 digital inputs,tropicalisation treatment applied	P760AEC
four 0 to 20 mA analogue outputs & 8 digital inputs	P760AKA
four 0 to 20 mA analogue outputs & 8 digital inputs,tropicalisation treatment applied	P760AKC
four 0 to 20 mA analogue inputs, four 0 to 20 mA analogue outputs & 8 digital inputs	P760ANA
four 0 to 20 mA analogue inputs, four 0 to 20 mA analogue outputs & 8 digital inputs,tropicalisation treatment applied	P760ANC
four 0 to 1 analogue inputs, four -1 to 1 mA analogue outputs & 8 digital inputs.	P760APA
four 0 to 1 analogue inputs, four -1 to 1 mA analogue outputs & 8 digital inputs,tropicalisation treatment applied	P760APC

OpenDAC rack, controllers, power supply	Ordering reference
OpenDAC rack. Holds up to 8 OpenLine modules to provide up to 16 I/O points. Requires communications controller	70LRCK16-48
OpenDAC OpenDAC RS-485 serial module. Communications controller for use in a Modbus RTU network. Supports up to 2 70LRCK16-48 OpenDAC racks	72-MOD-4000
OpenDAC Ethernet network module for use on an Modbus/TCP Ethernet network. Supports up to 2 OpenDAC racks	72-ETH-T000
85-264VAC/110-370VDC 15 Watt power supply. Required for applying power to the racks and controllers	PS-240-15W
OpenLine digital I/O modules	**Ordering reference**
digital input, 120VAC	70L-IAC
digital input, 220VAC	70L-IACA
digital input, 3-32VDC	70L-IDC
digital input, fast switching	70L-IDCB
digital input, 15-32VAC/10-32VDC	70L-IDCNP
dry contact closure-sensing DC input	70L-IDC5S
input test module	70L-ISW
digital output, 120VAC	70L-OAC
digital output, 120VAC inductive loads	70L-OACL
digital output, 220VAC	70L-OACA
digital output, 220VAC inductive loads	70L-OACAL
digital output, 3-60VDC fast	70L-ODC
digital output, 4-200 VDC	70L-ODCA
digital output, fast switching	70L-ODCB
digital output, dry contact	70L-ODC5R
OpenLine analogue I/O modules	**Ordering reference**
analogue input, current, 0-20mA	73L-II020
analogue input, current, 4-20mA	73L-II420
analogue input, temperature, J-type TC	73L-ITCJ
analogue input, temperature, K-type TC	73L-ITCK
analogue input, temperature, T-type TC	73L-ITCT
analogue input, temperature, RTD	73L-ITR100
analogue input, temperature, 3wire RTD	73L-ITR3100
analogue input, temperature, 4wire RTD	73L-ITR4100
analogue input, voltage, 0-1VDC	73L-IV1
analogue input, voltage, 0-10VDC	73L-IV10
analogue input, voltage, -10 to 10VDC	73L-IV10B
analogue input, voltage, 0-100VDC	73L-IV100M
analogue input, voltage, 0-5VDC	73L-IV5
analogue input, voltage, -5 to 5VDC	73L-IV5B
analogue input, voltage, 0-50mV	73L-IV50M
analogue output, current, 0-20mA	73L-OI020
analogue output, current, 4-20mA	73L-OI420
analogue output, voltage, 0-10VDC	73L-OV10
analogue output, voltage, -10 to 10VDC	73L-OV10B
analogue output, voltage, 0-5VDC	73L-OV5
analogue output, voltage, -5 to 5VDC	73L-OV5B

Technical Specifications

Communications

Link150 Ethernet gateway

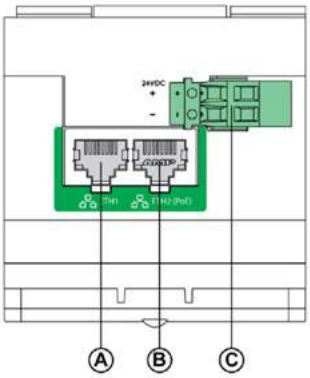
Technical specifications

		Link150
Weight		175 g (6.17 oz) without packing
Dimensions (HxWxD)		72 x 105 x 71 mm (2.83 x 4.13 x 2.79 in)
Mounting		DIN rail
Power-over-Ethernet (PoE)		Class 3
Power supply		24 V DC (-20/+10%) or Power over Ethernet (PoE Class 3 IEEE 802.3 af) at 15 W
Consumption (typical)		24 V DC, 130 mA at 20 °C PoE 48 V DC, 65 mA at 20 °C
Ambient operating temperature		-25 to +70 °C (-13 to +158 °F)
Ambient storage temperature		-40 to +85 °C (-40 to +185 °F)
Humidity rating		5 to 95 % relative humidity (without condensation) at +55ºC
Pollution Degree		Level 2
IP Ratings		On the front panel (wall-mounted enclosure): IP4x Connectors: IP20 Other parts: IP30
Regulatory/standards compliance for electromagenetic interference		
Emissions (radiated and conducted)		EN55022/EN55011/FCC class A
Immunity for industrial environments:		
	electrostatic discharge	EN 61000-6-2
	radiated RF	EN 61000-4-2
	electrical fast transients	EN 61000-4-3
	surge	EN 61000-4-4
	conducted RF	EN 61000-4-5
	power frequency	EN 61000-4-6
	magnetic field	EN 61000-4-8
Regulatory/standards compliance for safety		
Safety - IEC		IEC60950
Safety - UL*		UL 60950 UL 61010-2-201
EMC		IEC6100-6-2
Australia		C-tick - RCM
Sustainability		Green Premium
Serial ports		
Number of ports		2 (1 available at a time)
Types of ports		RS232 or RS485 (2-wire or 4-wire), depending on settings
Protocol		Modbus, Serial
Baud rates		19200 bps (factory setting), 2400 bps, 4800 bps, 9600 bps, 38400 bps, 56000 bps**, 57600 bps**
Maximum number of connected devices		32 (directly) 247 (indirectly)
Ethernet ports (used as a switch)		
Number of ports		2
Type of port		10/100 Base TX (802.3af) port
Protocol		HTTP, Modbus TCP/IP, FTP, SNMP (MIB II)

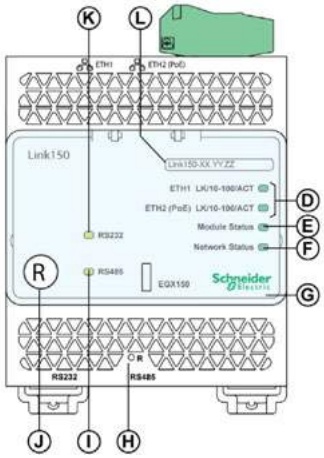
* Dual listed for US and Canada
** Only available when Physical Interface is set to RS232 and Transmission Mode is set to Modbus ASCII

Link150 Ethernet gateway

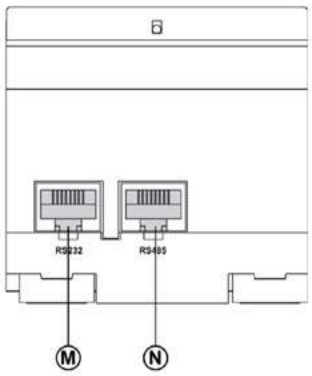
Parts



Ⓐ Ethernet 1 communication port
Ⓑ Ethernet 2 (PoE) communication port
Ⓒ Midspan PoE injector

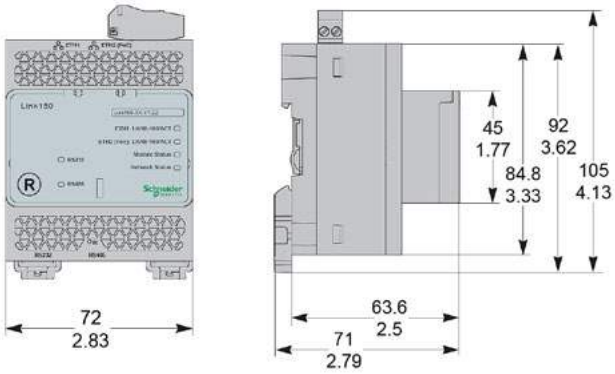


Ⓓ Ethernet communication LEDs
Ⓔ Module status LED
Ⓕ Network status LED
Ⓖ Sealable transparent cover
Ⓗ IP reset pin
Ⓘ RS485 traffic status LED
Ⓙ Device soft restart button (Accesible through closed cover)
Ⓚ RS232 traffic status LED
Ⓛ Device name label

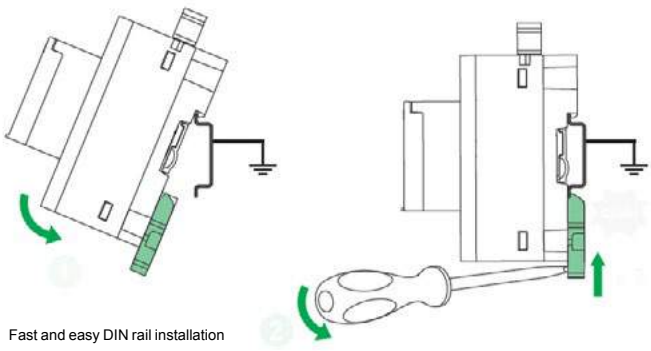


Ⓜ RS232 port
Ⓝ RS485 port

Dimensions



DIN rail mounting



Fast and easy DIN rail installation

Com'X 200/510 Data Logger

Connection points

1 Terminal block
2 RJ45 cable
3 Ethernet port #1
4 Ethernet port #2

Power supply to analogue and digital inputs

Wi-Fi USB stick

GPRS modem

GPRS antenna

Connectivity

- Modbus SL /RS485 connections to field devices
  - By cable with RJ45 connector.
- 2 Ethernet ports
  - Used to either separate upstream connection from field devices network or to daisy chain Ethernet devices.
  - RJ45 10/100 Base connectors.
  - Static IP address.
- Ethernet port #1
  - Connection to Local Area Network (LAN).
  - PoE Class 3 (802.3af) can act as main/backup power supply for the Com'X.
  - DHCP client.
- Ethernet port # 2
  - Connection to field devices.
  - DHCP cleint or server.
- Power supply to analogue and digital outputs
  - Outputs to supply sensors and inputs when Com'X is supplied through 24 V DC input on top:
  - 12 V DC– 60 mA for digital inputs.
  - 24 V DC for analogue inputs.
  - Compliant with electrical switchboard environment (temperature, electromagnetic compatibilty).
- 2 inputs for analogue sensors
  - PT100 or PT1000 temperature probes.
  - Various sensors (humidity, CO2, etc.) with 0-10 V output.
  - Various sensors with 4-20 mA output
- 6 inputs for dry contact sensors or pulse counters
  - Max 25 pulses per second (min duration 20 ms)
  - IEC 62053-31 Class A
- Wi-Fi USB stick
  - As an alternative to publication over Ethernet, connects Com'X to the site Wi-Fi router for regular data transmission.
  - Can also be used for Com'X 510 configuration through one-to-one connection with laptop or tablet.
  - Simply plugs into USB port 2 under front cover.
- GPRS modem
  - For connection to the data processing server through cellular or user's APN network.
  - Also connect to Schneider Electric's Digital Service Platform.
  - Especially suitable for sites with no internet access.
  - Simply plugs into dedicated port under the front cover.
- GPRS antenna
  - Improves GPRS signal strength in case of poor transmission conditions.

Com'X 200/510 setup and configuration

Setup and configuration

Connection to LAN

As soon as they are connected to the LAN, it can be detected and assigned an IP address by DHCP. Your operating system's DPWS feature allows your computer to automatically recognise the device as Com'X. Embedded web pages are then immediately accessible by clicking each Com'X device icon or by typing the assigned IP address into your web browser.

Field device auto-discovery

The user-activated device discovery function automatically identifies all field devices connected to Modbus SL, Ethernet port.

- Schneider Electric devices display with the product image.
- Other devices appear as "unknown," allowing the user to manually assign a device type.
- User can assign their own device types.
- Users can complete additional device identification fields, such as circuit ID or building zone.

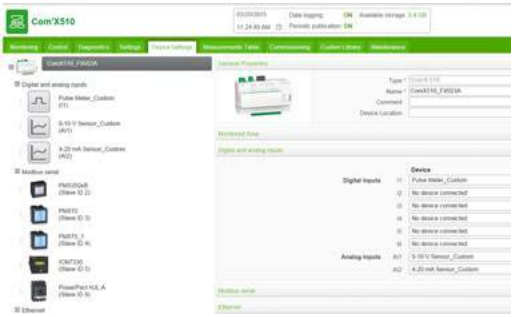
Data selection for logging and publication

Web page configuration tabs allow you to configure, in just a few clicks, which connected field devices collect and publish data.

- Advanced diagnostics and troubleshooting features
- Modbus serial and TCP/IP device statistics.
- Ethernet network statistics.
- Communications check wizard.
- Direct reading of register values from local and remote devices.

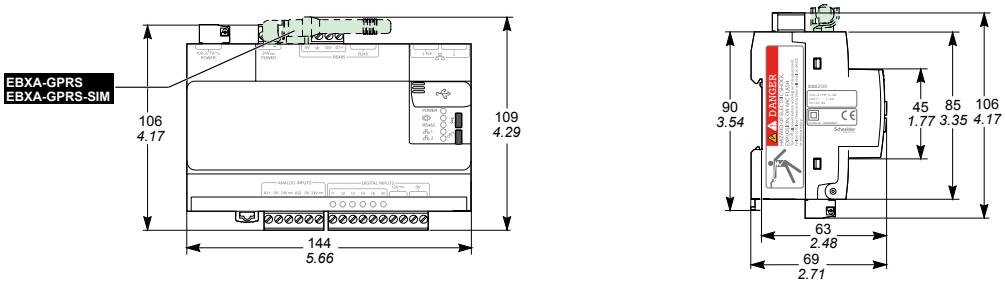
Additional features and benefits

- Cybersecurity - works well with your cyber security architecture.
- 2 Ethernet ports to separate upstream cloud connection, or to daisy chain with other Ethernet devices, from field device network.
- Data storage in case of communications failure.
- Local backup of configuration parameters - back up your system to a USB storage device and have it available for system restore or to duplicate the configuration on another box.



Device settings page (partial), as displayed after auto-discovery, enabling user to assign circuit identifications and select data for logging and publication.

Com'X 200/510 installation



DIN rail fitting (Front face IP40, terminals IP20).

Technical specifications

Com'X 200/510 Environment	
Operating temperature	-25º to +60°C (-13º to 140°F) Com'X 200 -25º to +70°C (-13º to 158°F) Com'X 510
Storage temperature	-40º to +85°C (-40º to +185°F)
GPRS dongle Operating temperature	-20º to +60°C (-4º to +140°F)
GPRS dongle Storage temperature	-40º to +85°C (-40º to +185°F)
Wif-Fi dongle Operating temperature	0º to +50°C (32º to +122°F)
Wi-Fi dongle Storage temperature	-20º to +80°C (-4º to +176°F)
Humidity	5 to 95% relative humidity (without condensation) at +55ºC
Pollution	Class III
Safety standards / regulation	
International (CB scheme)	IEC 60950
USA	UL 508
USA	UL 60950 (Com'X 510 only)
Canada	cUL 60950 (Com'X 510 only)
Canada	cULus 508
Europe	EN 60950
Quality Brands	
	CE, UL

Power Supply		Com'X 200	Com'X 510
AC	100-230 V (+/- 15%)(50-60Hz)	■	
DC	24 V (+/- 10%)	■	■
Power over Ethernet	15.4 W DC	■	■
Max power	26 W max	■	■

Mechanical		Com'X 200	Com'X 510
IP	Front face IP40, terminals IP20	■	■
Dimensions (HxWxD)	91 x 144 x 65.8 mm	■	■
Weight	450 g	■	■

ION7550 RTU

Features

	ION7550 RTU
Data recording	
Min/max of instantaneous values	■
Data logs	■
Event logs	■
Trending	■
SER (Sequence of event recording)	■
Time stamping	■
GPS synchronisation (1 ms)	■
Memory (in Mbytes)	10
Display and I/O	
Front panel display	■
Pulse output	1
Digital or analogue inputs(max)	24
Digital or analogue outputs (max, including pulse output)	30
Communication	
RS 485 port	1
RS 485 / RS 232 port	1
Optical port	1
Modbus TCP Master / Slave (Ethernet port)	■ / ■
Modbus RTU Master / Slave (Serial port)	■ / ■
Ethernet port (Modbus/TCP/IP protocol)	1
Ethernet gateway (EtherGate)	1
Alarms (optional automatic alarm setting	■
Alarm notification via email (Meterm@il)	■
HTML web page server (WebMeter)	■
Internal modem	1
Modem gateway (ModemGate)	■
DNP 3.0 through serial, modem, and I/R ports	■

Electrical characteristics		
Data update rate		1/2 cycle or 1 second
Power supply	AC	85-240 V AC ±10% (47-63 Hz)
	DC	110-300 V DC ±10%
	DC low voltage (optional)	20-60 V DC ±10%
	Ride-through time	100 ms (6 cycles at 60 Hz) min. at 120 V DC
	Burden	Standard: typical 15 VA, max 35 VA Low voltage DC: typical 12 VA, max 18 VA
Input/outputs(1)	Standard	8 digital inputs (120 V DC) 3 relay outputs (250 V AC / 30 V DC) 4 digital outputs (solid state)
	Optional	8 additional digital inputs 4 analogue outputs, and/or 4 analogue inputs
Mechanical characteristics		
Weight		1.9 kg
IP degree of protection (IEC 60529)		IP52
Dimensions	Standard model	192 x 192 x 159 mm
	TRAN model	235.5 x 216.3 x 133.1 mm
Environmental conditions		
Operating temperature	Standard power supply	-20 to +70ºC
	Low voltage DC supply	-20 to +50ºC
	Display operating range	-20 to +70ºC
Storage temperature	Display, TRAN	-40 to +85ºC
Humidity rating		5 to 95% non-condensing
Installation category		III (2000m above sea level)
Dielectric withstand		As per EN 61010-1, IEC 62051-22A(2)
Electromagnetic compatibility		
Electrostatic discharge		IEC 61000-4-2
Immunity to radiated fields		IEC 61000-4-3
Immunity to fast transients		IEC 61000-4-4
Immunity to surges		IEC 61000-4-5
Conducted and radiated emissions		CISPR 22
Safety		
Europe		IEC 61010-1

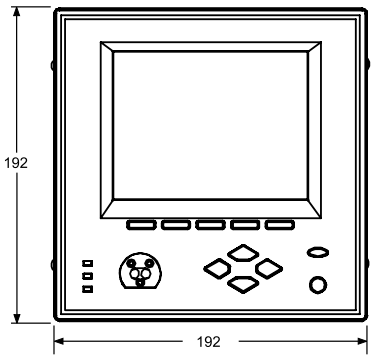
(1) Consult the ION7550 / ION7650 installation guide for complete specifications.

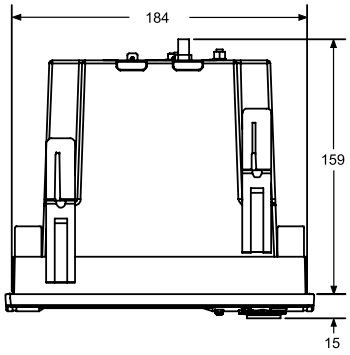
(2) IEC 62051-22B with serial ports only.

ION7550 RTU

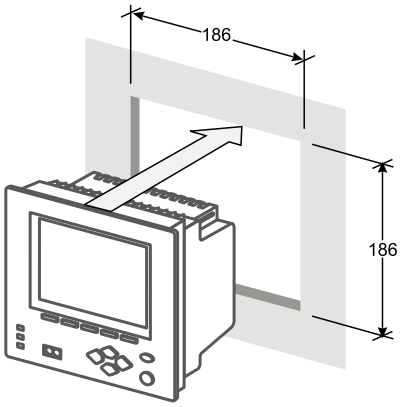
Communication	
RS 232/485 port (1)	Up to 115,200 bauds (57,600 bauds for RS 485), ION, DNP 3.0, Modbus, GPS, EtherGate, ModemGate, Modbus Master
RS 485 port (1)	Up to 115,200 bauds, ION, DNP 3.0, Modbus, GPS, EtherGate, ModemGate, Modbus Master
Infrared port(1)	ANSI type 2, up to 19,200 bauds, ION, Modbus, DNP 3.0
Ethernet port	10BaseT, 100BaseTX. RJ45 connector, 10/100 m link
Fibre-optic Ethernet link	100Base FX, SC duplex connector, 1300 nm, FO multimode with gradient index 62.5/125 µm or 50/125 µm, 2000 m link
Protocol	ION, Modbus, Modbus Master, TCP/IP, DNP 3.0, Telnet
EtherGate	Communicates directly with up to 62 slave devices via available serial ports
ModemGate	Communicates directly with up to 31 slave devices
WebMeter	5 customisable pages, new page creation capabilities, HTML/XML compatible
Firmware characteristics	
High-speed data recording	Down to 5ms interval burst recording, stores detailed characteristics of disturbances or outages. Trigger recording by a user-defined setpoint, or from external equipment.
Load profiling	Channel assignments (800 channels via 50 data recorders) are configurable for any measurable parameter. Trigger recorders based on time interval, calendar schedule, alarm/event condition, or manually.
Trend curves	Access historical data at the front panel. Display, trend and continuously update historical data with date and timestamps for up to four parameters simultaneously.
Alarms	Threshold alarms: adjustable pickup and dropout setpoints and time delays, numerous activation levels possible for a given type of alarm user-defined priority levels boolean combination of alarms is possible using the operators NAND, OR, NOR and XOR
Advanced security	Up to 16 users with unique access rights. Perform resets, time syncs, or meter configurations based on user privileges
Memory	5 to 10 Mbytes (specified at time of order)
Firmware update	Update via the communication ports
Display characteristics	
Integrated display	Back lit LCD, configurable screens
Languages	English

ION7550 RTU dimensions

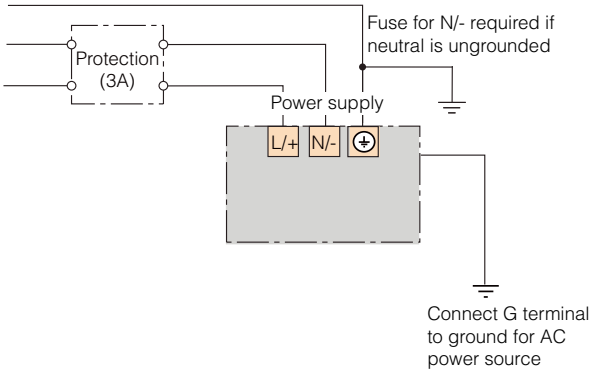




Front-panel mounting



Power supply



Note: the current and voltage terminal strip (I52, I51, I42, I41, I32, I31, I22, I21, I12, I11, V4, V3, V2, V1, Vref) is not present on the RTU.

Monitoring software

A choice of powerful, effective solutions

StruxureWare™ power management software provides a complete power management supervisory interface that gives you access from anywhere to your entire electrical network. The software converts energy-related data into timely, accurate information for you to act on.

Track real-time power conditions, analyse power quality and reliability and respond quickly to alarms to avoid critical situations. Our power management software provides extensive analysis and reporting tools, intuitive visualisation and control interfaces, and flexible, scalable architectures that can meet your unique needs today and continue to do so well into the future. The depth of different offerings makes it easy to match a product to your goals, your business and your budget.

Extensive reach and flexibility

Software forms an important part of your overall energy efficiency and reliability solutions from Schneider Electric. Power management software can grow with your business, giving you the level of energy intelligence and control your need to reduce energy consumption and costs, minimise environmental impacts, prolong equipment life, and assure power availability, uptime and safety.

Each product collects energy-related data from a variety of sources, including PowerLogic or third-party meters and sensors. Some products offer integration with other Schneider Electric or third-party automation systems, and other energy relevant information feeds.

System requirements

Whether you're building a new system or enhancing an existing operation, a Schneider Electric representative will advise you on complete system requirements and commissioning information for StruxureWare power management software.

Power management software

StruxureWare Power Monitoring Expert is an operations-level supervisory software that provides a complete power management solution for industry, large commercial and institutional buildings, data centres, healthcare facilities and utilities.

Engineering and management personnel can cut energy-related costs, avoid downtime and optimise equipment operations by using the information provided by StruxureWare Power Monitoring software.

StruxureWare Power Monitoring Expert also enables tracking of real-time power conditions, analysis of power quality and reliability and quick response to alarms to avoid critical situations. The software forms a layer of energy intelligence across your facility, campus or service area, acting as a unified interface to all electrical and piped utilities.

Category	Application
Energy efficiency & cost	Energy usage analysis
	Cost allocation
	Procurement optimisation
	Peak demand reduction
	Demand response and curtailment
	Power factor correction
Power availability & reliability	Electrical distribution (ED)
	Power quality analysis and compliance
	ED commissioning, monitoring, and troubleshooting
	ED alarming and events
Asset management	Capacity planning
	Generator monitoring
	Breaker aging management
	UPS battery monitoring

StruxureWare PowerSCADA Expert is a reliable, flexible and high performance monitoring and control solution designed to reduce outages and increase power efficiency.

It is built to handle user requirements from the smallest to the most demanding enterprises, while still providing high time performance and reliability. Easy-to-use configuration tools and powerful features enable faster development and deployment of any size of application.

Object-based, standard graphics and symbols provide operators with an interactive and user-friendly interface. Intuitive commands and controls increase efficiency of operators to interact with the system interface. StruxureWare PowerSCADA Expert controls your system with high reliability, performance and data integrity through the use of advanced architectures, such as hot/warm redundant I/O device configurations, self-healing ring communications, and primary and standby server configurations. Comprehensive user-based security is integrated into all interface elements, ensuring a secure control system.

The solution for

All the markets which can benefit from a solution that includes Power management software:

- Buildings
- Data Centre
- Healthcare
- Industry
- Infrastructure
- Utility

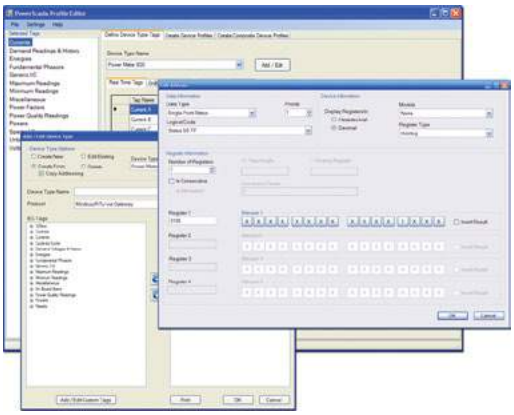
Typical applications

StruxureWare power management software has many applications:

- Monitor the facility electrical network and verify reliable operation.
- Improve response to power-related events and restore operations quickly.
- Analyse and isolate the source of power quality problems.
- Analyse energy use to identify waste and reduce cost.
- Estimate utility bills to verify accuracy and identify errors.
- Allocate energy costs to departments to drive accountability and awareness.
- Reduce peak demand surcharges and power factor penalties.
- Idenfity excess capacity in existing infrastructure and avoid over-building.
- Support proactive maintenance to prolong asset life.
- Network protection and control.
- Operate distribution network safely and reliably.
- Improve continuity of electrical service.
- Equipment monitoring and control.
- Energy availability and reliability.
- Verify the reliable operation of equipment.
- Support proactive maintenance to prolong asset life.

For electric utilities:

- Improve T&D network reliability.
- Enhance substation automation.
- Maximise the use of existing infrastructure.
- Verify compliance with new power quality standards.
- Analyse and isolate the source of power quality problems.
- Help customers manage reliability using operational and power quality data.



Scalable, flexible architecture

Functional components

Provides operators with a rich environment to view and navigate real-time displays of measurements and status indicators; perform power quality and reliability analysis; historical trending; alarms; and manual control. This software offers secure, operator-dedicated, multi-user data and control access through a local server interface, full control client and also via web clients.

Web Clients

Access power monitoring system from anywhere on your network using a web browser. Day-to-day functionality including system status, alarm response, or viewing dashboards. Web client provides authenticated access to common functions:

- Diagrams – navigate network displays to check system status and analyse trends.
- Tables – quickly compare multiple devices in your network in real-time.
- Reports – generate or edit historical reports for energy cost, consumption, and power quality.
- Alarms – quickly identify alarm states in your system and investigate root causes.
- Dashboards – share information from your power monitoring system with any occupant.

Engineering Workstations

Client software gives engineers and power users access to administrative and configuration functions of the software, and real-time display, control, and historical analysis functions.

Build and edit custom graphical displays to represent your facility. One-line diagrams, campus maps, equipment plan views and mimic diagrams are easily created using Vista graphical objects and imported graphic files.

Use the designer interface to program ION devices and create system applications with ION Technology and Virtual ION ProcessorsReporter - generate or edit historical reporst for energy cost, consumption, and power quality.

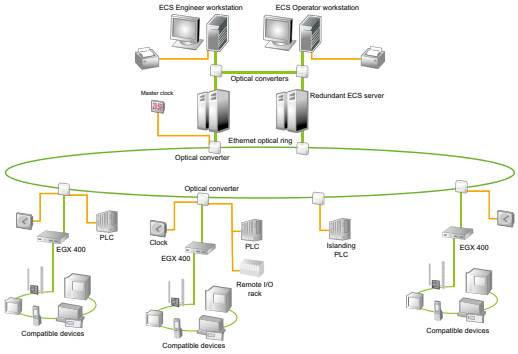
Data acquisition and management

- Communicate with over 300 different powerlog and third-party meters.
- Scale from 1 to 1000s of devices.
- Perform advanced logic and arithmetic operations on real-time and historical data.
- Use web services to interoperate and integrate with other software platforms.

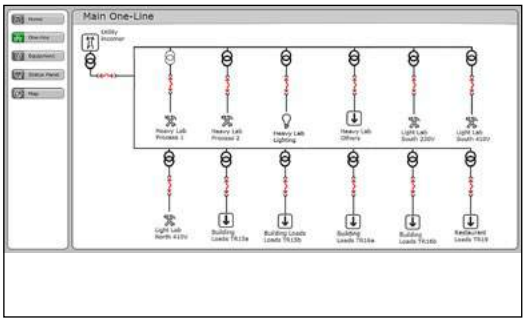
Functions

StruxureWare power management software offers a wide range of functions:

- Data acquisition and integration.
- Real-time monitoring.
- Trend analysis.
- Power quality analysis.
- Alarms and events.
- Reporting.
- Dashboards.
- Manual and automated control.



Consumption details by area and load type



Equipment Status example

Data acquisition and integration

Integrate WAGES (Water, Air, Gas, Electricity, Steam) metering. Native, out-of-the-box support for dozens of devices (See Supported Devices section for details).

- Enables access to real-time and timestamped historical meter data, control of on-board relays and digital outputs, and server time synchronisation. Communicate over Internet, Ethernet, wireless.
- Interface with third-party meters, transducers, PLCs, RTUs and power distribution or mitigation equipment through Modbus or OPC.
- Add and configure direct communications with remote devices over Modbus RTU or Modbus TCP protocols using easy-to-use device templates.

The scalable platform enables remote device and user client addition as needs grow while maintaining original investment. Integrate other energy management or automation systems (e.g. SCADA, BAC, DCS, ERP) through ODBC, XML, OPC, email, FTP, CSV and PQDIF compliance; integrate with web services through XML.

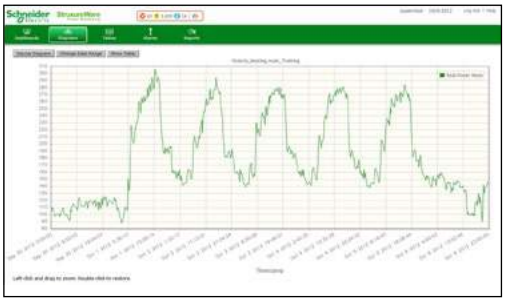
Real-time monitoring

View the status of your electrical network from any workstation:

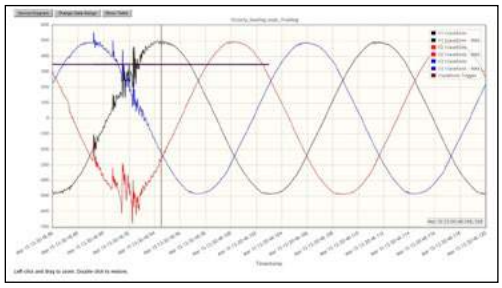
- See numeric values, status indicators, gauges, and trends, all with intuitive graphical navigation.
- Extend comprehensive out-of-the-box displays and create custom graphical diagrams to represent your facility; one-line diagrams, campus maps, equipment plan views and mimic diagrams can be created using embedded graphical objects and imported graphic files.
- Quickly compare multiple devices in your network in real-time in a tabular display.
- Choose from a library of pre-built tables, or create your own. Save your favourites for quick access later.

Trend analysis

- Trend parameters to reveal demand peaks and track system-wide energy costs.
- Graph any combination of measured parameters.
- Plot time-series or scatter charts.
- Perform calculations, obtain statistics, and display historical data.
- Identify dangerous trends and redistribute loads.
- Optimise network capacity and avoid over-building.
- View operating parameters and determine when maintenance is required.
- Avoid peak demand surcharges and power factor penalties.



Applications allow users to easily create trend plots and analyse historical data.



Users can view and analyse waveforms captured by devices.

Load profile dashboard (sample)

Scalable, flexible architecture

Power quality analysis

StruxureWare power management software allows continuous, wide-area monitoring and data capture for power quality and reliability conditions.

- Power quality events automatically detected by PQ-capable metering devices are uploded to the system automatically. Analyse waveforms to determine source and cause of issue.
- Determine if power quality events are upstream or downstream (using PowerLogic meters with Disturbance Direction Detection feature).
- IEC 61000-4-30 and EN50160 compliance reporting verifies power quality performance to international standards and allows you to quickly review power quality indices as numeric charts or graphic profiles (using PowerLogic meters to support compliance monitoring).
- Display harmonic histograms, odd/even harmonics, THD, K-factor, crest factor, phasor diagrams, and symmetrical components.
- Plot waveforms of up to many seconds in duration, with overlays that correlate phase-to-phase relationships between voltages, currents, and cascading failures.
- Plot sags, swells, short duration transients and other disturbance events on industry-standard voltage tolerance curves, including ITIC (CBEMA) and SEMI.
- Display for any event a list of associated time-stamped incidents, then click on any incident to see more detailed information.

Alarms and events

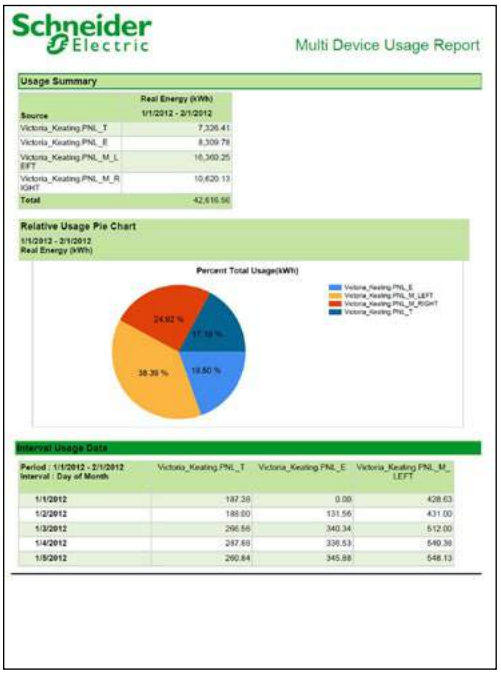
Receive alerts to outages or impending problems that could lead to equipment stress, failures, or downtime.

- Quickly filter on active or unacknowledged alarms.
- Acknowledge alarms from anywhere in your facility.
- Trigger on complex conditions.
- Log all relevant data sequence of events for diagnosis.
- Flag and avert potential problems.
- Alert key personnel 24/7.
- Optimise maintenance scheduling.
- Easily discriminate between alarm criticality levels.
- High speed alarm response.
- Organise, filter and print by any alarm property. Configure specific alarm occurrences to change symbol colour or flash an icon on a page.
- View the five most recent alarms from every page, providing detailed information in easy-to-understand formats.
- Event log for all PC-based and on-board field events, alarms.
- Easily configure to annunciate based on alarm type.

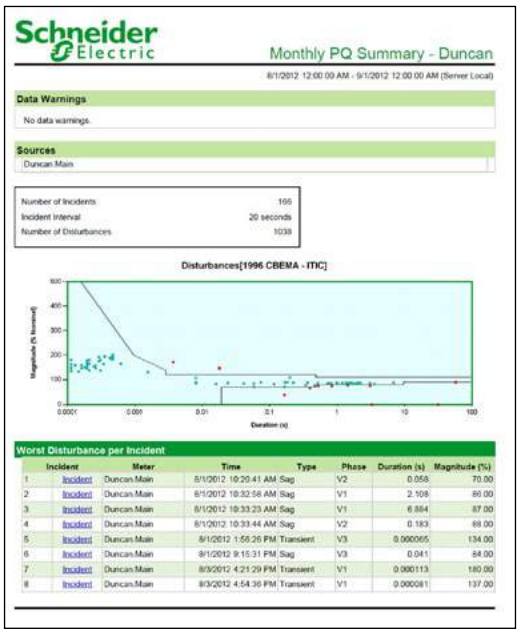
Dashboards

Create engaging dashboard displays of your power monitoring system information and easily share information with anyone in your facility.

- Make power monitoring information visible and engaging.
- Promote education and drive behaviour.
- Display as an interactive kiosk on corporate intranet or on wall-mounted display.
- Replace hard to maintain home-grown portals and dashboards.
- Chart or trend any quantity in your power monitoring database.
- Simply convert into other units (e.g. dollars, emissions, normalisations, etc.).
- Compare multiple time-ranges.
- Show impact of temperature, occupancy, or production values on energy usage.
- Create eye-catching backgrounds to enhance presentation value.
- User authentication for configuration, and both authenticated and unauthenticated modes available for display.



StruxureWare provides many different report templates to allow users to easily display and deliver the information they need .



Scalable, flexible architecture

Reporting

Reports - generate or edit historical reports for energy cost, consumption, and power quality (requires Microsoft SQL Server Standard Edition).

- Powerful, intuitive reporting options let users see critical information exactly how, where, and when they need it.
- Reports can be generated manually and saved as Excel, HTML and other formats or scheduled to automatically distribute to a printer or via email.

Configuration tools

Our power management software is supplied with a package of configuration tools designed to make set up uniquely easy and quick.

- Designed to help make project set up and network configuration fast and easy.
- Provides standard device types and their associated profiles and allows engineers to easily customise the profiles of the devices specific to the project.
- Standardised tags per device profile (configurable), XML file.
- Standard interface for quick database generation:
- Instantiation of devices, on a per object basis.
- Creates tags, trends, alarms and events when devices are added to system.
- Batch editing supported by automation interface.

Manual and automated control

- Perform fast, manual control operations by clicking on-screen trigger buttons, and operate remote breakers, relays, and other power distribution and mitigation equipment.
- Perform manual or setpoint-triggered functions.
- Coordinate control of multiple loads, generators, relays, etc.
- Support energy-saving applications.
- Manage distributed energy assets.
- Automate substations & reduce service time.

Interoperability

- Integrate all energy management and automation systems (SCADA, BAC, DCS, ERP, etc.)
- Share data with third-party SCADA, automation, and accounting systems.
- Comply with ODBC, OPC, and PQDIF standards.

Patented ION technology

StruxureWare power management software and a variety of PowerLogic ION metering products feature the unique ION architecture. This modular, flexible architecture offers extensive customisation of functionality using a simple building block approach. The technology uniquely addresses advanced monitoring and control applications and adapts to changing needs, avoiding obsolescence.

Global solutions

Software is available in many languages - English, French, Spanish, German, and Chinese. Software needs to be installed by Schneider Electric's Power Solution Application team or by a certified partner of Schneider Electric. Contact your Schneider Electric representative.

Other PowerLogic offers

NEW Retrofit metering kits

Schneider Electric's NEW retrofit metering kits are designed for easily measuring power and energy in existing installations without requiring complete disconnection of cabling.

Our flexible range of metering allows data collection using pulsed output, Modbus RS485 and Modbus TCP (Ethernet) communications. This enables the "measure" phase of Schneider Electric's 4 steps to energy efficiency;

Applications

- Energy management
- Network management

The solution for

All retrofit markets that can benefit from a solution that includes NEW retrofit metering kits:

- Building
- Industry
- Infrastructure
- Data centre and networks

Benefits

- Easy to install without requiring complete disconnection of cabling
- A variety of metering choices to meet your requirements
- Short lead time for standard offers including most popular meters and gateway
- Split core CT options that ratio is up to 2400:5A

Competitive advantages

- Standard offers, including meter and integrated energy server, are designed for your metering solution
- Provide modified service and solution

Energy management solution

To get the most effective use from your Schneider Electric measurement and metering devices, we offer a range of dedicated data logger and gateway for your building energy management. See Page 114

The range of retrofit metering kits includes meters complying with BSEN62053 and includes MID approved meters as a standard offer.

- Their configuration allows them to be installed where there is limited space, they can be “stacked” to allow for multiple meters and an integrated gateway server to be assembled together.
- Split core Current Transformers 200:5A up to 2400:5A ratios are available preventing cable re-routing or cable breaks for simple retrofit installation.
- Supplied pre wired with top entry gland plate, connections are simple using a common connection interface for current inputs, voltage reference, pulsed output and Modbus communications connections.

The range of Schneider Electric retrofit metering kits are designed to measure the energy consumed by a complete installation or part of it. (Ex: main incoming supply, warehouse or office floor).

- Measurements include voltage, current, frequency, active and reactive power, power factor and harmonic distortion. Using this Information is the key to understanding energy use and can be used to target waste and identify energy saving opportunities.
- Standard retrofit metering kits incorporating MID approved meters may be utilised for energy billing purposes.

Description	Ordering reference
Retrofit metering kit (Including MID METSEPM5111 meter with pulsed output and Modbus RS485 communications)	RETMKITMIDM
Retrofit metering kit (Including MID METSEPM5341 meter with Modbus TCP communications)	RETMKITMIDE
Retrofit metering kit (Including integrated gateway server Com’X 510)	RETMKITEBX510
Retrofit metering kit (Including integrated Ethernet gateway Link150)	RETMKITEGX150
Retrofit metering kit (Including OFGEM approved meter) consult us	RETMKOFGEM
200:5A split core current transformer	H68102005A
300:5A split core current transformer	H68103005A
400:5A split core current transformer	H68114005A
600:5A split core current transformer	H68116005A
800:5A split core current transformer	H68118005A
1000:5A split core current transformer	H681210005A
1200:5A split core current transformer	H681212005A
1600:5A split core current transformer	H681216005A
2000:5A split core current transformer	H681220005A
2400:5A split core current transformer	H681224005A
Metering terminal block	METBLK
STI fuses (pack of 10)	A9N15658

Characteristic	Description
IP Rating	External IP40, Internal IP2X
Colour	RAL 9001
Terminals	Tunnel type, 6 mm2
METSEPM5111 Measurements	A, V, F, kW, kVA, kWh, kVArh, MD, THd plus pulsed output and Modbus RS485 communication
METSEPM5341 Measurements	A, V, F, kW, kVA, kWh, kVArh, MD, THd plus Modbus TCP communications
PM Power meter standard	BS EN 62053-22 Class 0.5S
OFGEM Measurements	Defined by application at time of order
Current transformers	200:5A up to 2400:5A split core current transformers BSEN 60044
Voltage reference connections	Fused 2A
Retrofit kit enclosure dimensions	200mm H x 230mm W x 145 mm D
Retrofit kit enclosure fixings	3 x 6 mm clearance dished hole fixings
Gland plate	Top entry removable 230mm x 145 mm

*Split core CTs need to be ordered separately according to your network

**Please consult us for modified solutions.

PowerLogic current transformers

When current in a circuit is too high to apply directly to measuring instruments, a current transformer produces a reduced current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments.

This allows them to be used in combination with measurement equipment:

- Ammeters
- Kilowatt-hour meters
- Measurement units
- Control relays
- Etc.

Applications

The transformers from Schneider Electric are suitable for use in the field from 40A up to 6000A and deliver at the secondary a current 0 to 5A proportional to the current measured at the primary.

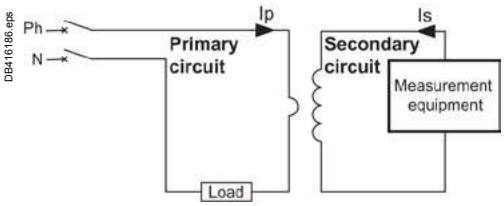
Benefits

The PowerLogic range of CTs is a comprehensive range suited to:

- All current measurements from 40A to 6000A.
- DIN rail, flush-mounted and busbar installation

Conformity of standards

- IEC61869 -2
- VDE 0414



Application diagram of a CT.

The Ip/5A ratio current transformer delivers at the secondary a current (Is) of 0 to 5 A that is proportional to the current measured at the primary (Ip).

This allows them to be used in combination with measurement equipment:.

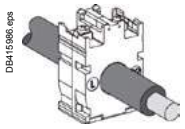
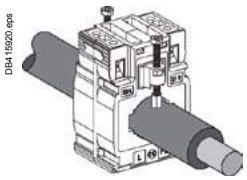
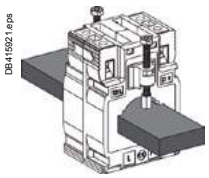
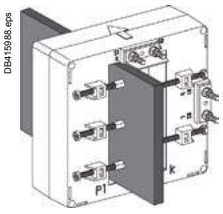
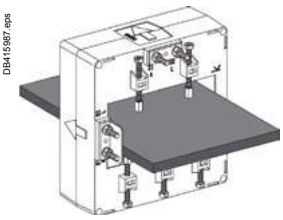
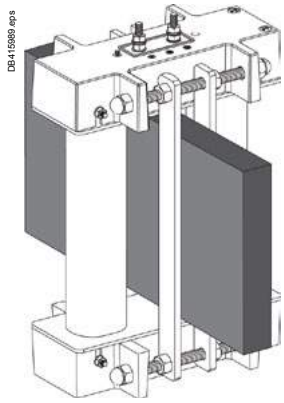
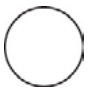
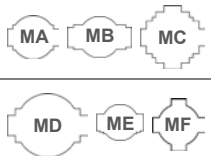
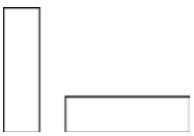
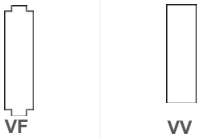
- Ammeters.
- Kilowatt-hour meters.
- Measurement units.
- Control relays.
- etc.

When the primary is energised, the measurement equipment nearly acts as a short circuit which keeps the secondary voltage very low. This voltage will increases significantly if the short circuit is removed.

CT selection - conductor rating aspects

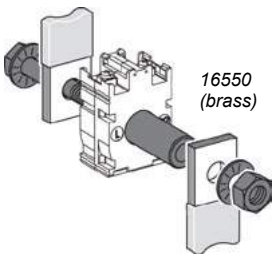
The choice depends on the conductor profile and the maximum intensity of the primary circuit.

CT with let-through primary

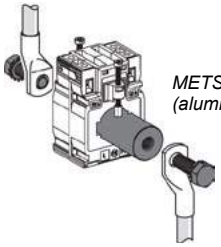
Conductor type	Cable	Mixed, bars or cables	Vertical or horizontal bars	Vertical bars	
Suggested Current Transformer and mounting		 	 		
Ratings (A)	40 to 250	150 to 800	200 to 4000	500 to 600	5000 to 6000
CT internal profile	Type C	Type M	Type D (1)	Type V	
					

(1) Two secondary connectors (parallel internal wiring - only one secondary winding) for easier cable access. 1 lateral + 1 on one extremity. Warning: only one must be used at a time. Specific mounting: use of cylinder
A cylindrical metallic spacer ensures a proper CT positioning when the conductor or the CT cannot be positioned perpendicular. Secured by bolt + nut.

CT with primary connection by screw and nut
(example: use of cylinder with bar or cable)



16550 (brass)



METSECT5CYL1 (aluminium)

CT selection - Electrical aspect Ip/5 A

- We recommend that you choose the ratio immediately higher than the maximum measured current (In).

Example:
In = 1103 A; ratio chosen = 1250/5.

- For small ratings:

from 40/5 to 75/5 and for an application with digital devices, we recommend that you choose a higher rating, for example 100/5.

This is because small ratings are less accurate and the 40 A measurement, for example, will be more accurate with a 100/5 CT than with a 40/5 CT.

- Specific case of the motor starter:

to measure motor starter current, you must choose a CT with primary current Ip = Id/2 (Id = motor starting current).

Validation of measurement solution according accuracy class

It consists in controlling the right adaptation of the CT on the assucary class aspect. The accuracy class is specified in the project. The total dissipated power of the measurement circuit (meter + cables) should not be superior to the specified limit of the CT. This limit is for different standard classes. If necessary, the choice of the cable section, the CT or meter should be modify to fit the requirement.

Copper cable cross-section (mm^2)	Power per doubled meter at 20 °C (VA)
1	1
1.5	0.685
2.5	0.41
4	0.254
6	0.169
10	0.0975
16	0.062
For each temperature variation per 10 °C bracket, the power drawn up by the cables increases by 4 %.	

Schneider Electric device	Consumption of the current input (VA)
Ammeter 72 x 72 / 96 x 96	1.1
Analogueue ammeter	1.1
Digital ammeter	0.3
PM700, PM800	0.15
PM3000	0.3

Application example

Project specification: 200 A, in Ø27 mm cable, accuracy class 1.

Our choice is METSECT5MA020.

For this CT selected on the chart (next page), the max acceptable power is 7 VA (for "Accuracy class 1" which is specified in the project).

Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.	Accuracy class		
					0.5	1	3
					Max. power (VA)		
MA							
	Ø27	10 x 32 15 x 25	150		**3**	4	-
			200		4	7	-
			250		**6**	8	-
			300		**8**	10	-
			400		10	12	-

Control of the conformity of the measurement chain:

- PM3000 multi-meter: 0.3 VA.
- 4 meters of 2.5 mm^2, doubled wires: 0.41 x 4 = 1.64 VA.

Total: 0.3 + 1.64 = 1.94 VA (< 7 VA)

Conclusion: this CT is well adapted as the accuracy class will be even better than 1.

Presentation of catalogue numbers

MET SE CT R FF XXX

- R: First digit = secondary rating, R = 5 Amps
- FF: 2 letters = Form Factor
- XXX: Last 3 digits = primary rating/10

Examples:

- METSECT5CC008 = 5 A secondary, Cables only, 75 A primary
- METSECT5MC080 = 5 A secondary, Mixed for cables and bars, 800 A primary.

PB112446.eps

METSECT5CC●●●

PB112464.eps

METSECT5ME●●●

PB112461.eps

METSECT5MB●●●

PB112460.eps

METSECT5MA●●●

PB112462.eps

METSECT5MC●●●

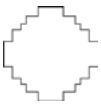
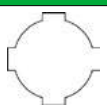
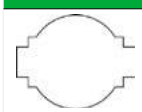
PB112465.eps

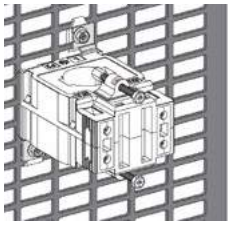
PB112463.eps

Type C - current transformer (cable profile)

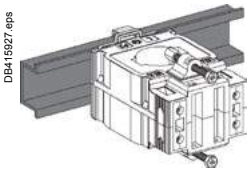
Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.
			CC	
	Ø21	-	40	METSECT5CC004
			50	METSECT5CC005
			60	METSECT5CC006
			75	METSECT5CC008
			100	METSECT5CC010
			125	METSECT5CC013
			150	METSECT5CC015
			200	METSECT5CC020
			250	METSECT5CC025

Type M - current transformers (mixed: cable/bar profile)

	Ø22	10 x 30 11 x 25 12 x 20	150	METSECT5ME015
			200	METSECT5ME020
			250	METSECT5ME025
			300	METSECT5ME030
			400	METSECT5ME040
			500	METSECT5ME050
			600	METSECT5ME060
	Ø26	12 x 40 15 x 32	250	METSECT5MB025
			300	METSECT5MB030
			400	METSECT5MB040
	Ø27	10 x 32 15 x 25	**150**	METSECT5MA015
			200	METSECT5MA020
			250	METSECT5MA025
			300	METSECT5MA030
			400	METSECT5MA040
	Ø32	10 x 40 20 x 32 25 x 25	250	METSECT5MC025
			300	METSECT5MC030
			400	METSECT5MC040
			500	METSECT5MC050
			600	METSECT5MC060
			800	METSECT5MC080
	Ø35	10 x 40	250	METSECT5MF025
			300	METSECT5MF030
			400	METSECT5MF040
			500	METSECT5MF050
	Ø40	12 x 50 20 x 40	500	METSECT5MD050
			600	METSECT5MD060
			800	METSECT5MD080



Mounting plate installation.



DIN rail mounting.

Common characteristics	
Secondary current Is (A)	5
Maximum voltage rating Ue (V)	720
Frequency (Hz)	50/60
Safety factor (sf)	40 to 4000 A: sf ≤ 5 5000 to 6000 A: sf ≤ 10
Degree of protection	IP20
Operating temperature	tropicalised range -25 °C to +60 °C (1) relative humidity > 95 %
Compliance with standards	IEC 61869-2 VDE 0414
Secondary connection (as per model)	by terminals for lug by tunnel terminals by screws
(1) Warning: some products are limited to +50 °C.	

Accuracy class			Overall dimensions (refer to drawing pages for details) W x H x D (mm)	Fastening mode	Accessories	
0.5	1	3			Cylinder 	Sealable cover 
Max. power (VA)						
-	-	1	44 x 66 x 37	Adapter for DIN rails. Mounting plate.	16550 METSECT5CYL1	Included
-	1.25	1.5				
-	1.25	2				
-	1.5	2.5				
2	2.5	3.5				
2.5	3.5	4				
3	4	5				
4	5.5	6				
5	6	7				
ME						
1.5	5.5	6.5	56 x 84 x 60	Adapter for DIN rails. Mounting plate. Insulated locking screw.	16551	16552
4	7	8.5				
6	9	11				
7.5	11	14				
10.5	15	18				
12	18	22				
14.5	21.5	26				
MB						
3	4	-	60 x 85 x 63	Adapter for DIN rails. Mounting plate.	-	METSECT5COVER
4	6	-				
6	8	-				
MA						
3	4	-	56 x 80 x 63	Adapter for DIN rails. Mounting plate.	METSECT5CYL2	METSECT5COVER
4	7	-				
6	8	-				
8	10	-				
10	12	-				
MC						
3	**5**	-	70 x 95 x 65	Adapter for DIN rails. Mounting plate.	-	METSECT5COVER
5	**8**	-				
8	**10**	-				
10	12	-				
12	15	-				
10	12	-				
MF						
2.5	5	8	77 x 107 x 64	Adapter for DIN rails. Mounting plate. Insulated locking screw.	-	16553
4	8	12				
8	12	15				
10	12	15				
MD						
4	6	-	70 x 95 x 65	Adapter for DIN rails. Mounting plate.	-	METSECT5COVER
6	8	-				
8	12	-				

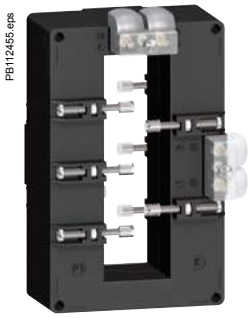
METSECT5VF●●●

METSECT5VV●●●

Type V current transformers (vertical bar profile)

Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.
	-	11 x 64 31 x 51	500	METSECT5VF050
			600	METSECT5VF060
	-	55 x 165	5000	METSECT5VV500 ★
			6000	METSECT5VV600 ★

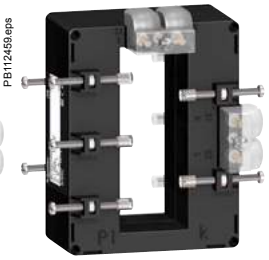
METSECT5DA●●●



METSECT5DB●●●

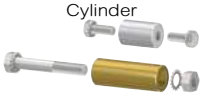
METSECT5DC●●●

METSECT5DD●●●



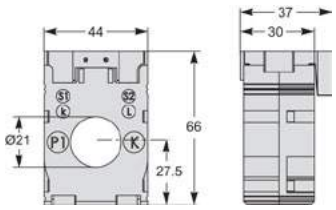
Type D - current transformers (vertical or horizontal bar - dual secondary terminals)

	-	32 x 65	200	METSECT5DA020
			250	METSECT5DA025
			300	METSECT5DA030
			400	METSECT5DA040
			500	METSECT5DA050
			600	METSECT5DA060
			800	METSECT5DA080
			1000	METSECT5DA100
			1250	METSECT5DA125 ★
			1500	METSECT5DA150 ★
	-	38 x 127	1000	METSECT5DB100
			1250	METSECT5DB125 ★
			1500	METSECT5DB150 ★
			2000	METSECT5DB200 ★
			2500	METSECT5DB250 ★
			3000	METSECT5DB300 ★
	-	52 x 127	2000	METSECT5DC200 ★
			2500	METSECT5DC250 ★
			3000	METSECT5DC300 ★
			4000	METSECT5DC400 ★
	-	34 x 84	1000	METSECT5DD100
			1250	METSECT5DD125 ★
			1500	METSECT5DD150 ★
	-	54 x 102	1000	METSECT5DE100
			1250	METSECT5DE125 ★
			1500	METSECT5DE150 ★
			2000	METSECT5DE200 ★

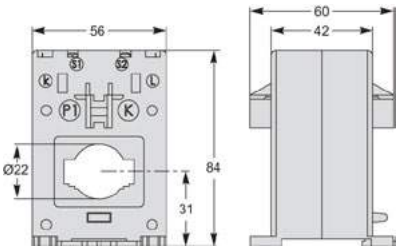
Accuracy class			Overall dimensions (refer to drawing pages for details) W x H x D (mm)	Fastening mode	Accessories	
0.5	1	3			Cylinder 	Sealable cover 
Max. power (VA)						
VF						
2	4	-	90 x 130 x 66	Mounting plate. Insulated locking screw.	-	Included
4	6	-				
VV						
60	-	-	175 x 273.5 x 110	Insulated locking screw.	-	Included
70	-	-				
DA						
-	2	5	90 x 94 x 90	Insulated locking screw.	-	Included
1	4	-				
1.5	6	-				
4	8	-				
8	10	-				
8	12	-				
12	15	-				
15	20	-				
15	20	-				
20	25	-				
DB						
6	10	-	99 x 160 x 87	Insulated locking screw.	-	Included
8	12	-				
10	15	-				
15	20	-				
20	25	-				
25	30	-				
DC						
25	30	-	125 x 160 x 87	Insulated locking screw.	-	Included
30	50	-				
30	50	-				
30	50	-				
DD						
10	15	-	96 x 116 x 87	Insulated locking screw.	-	Included
12	15	-				
15	20	-				
DE						
12	15	-	135 x 129 x 85	Insulated locking screw.	-	Included
15	20	-				
20	25	-				
20	25	-				

CT current transformers

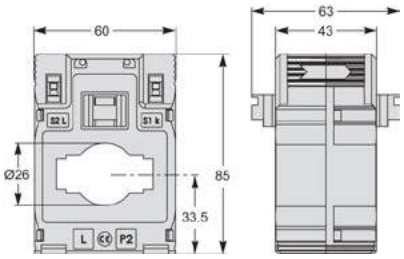
CC internal profile type



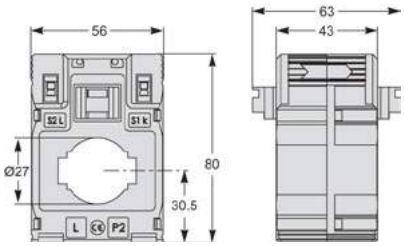
ME internal profile type



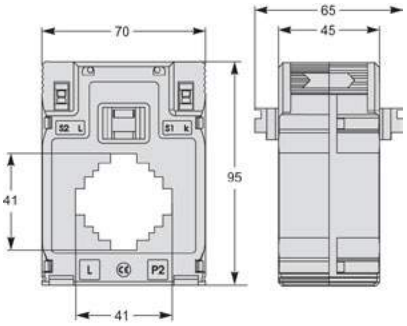
MB internal profile type



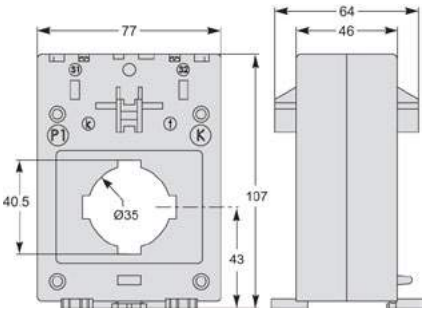
MA internal profile type



MC internal profile type



MF internal profile type



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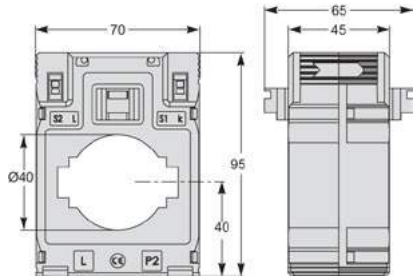

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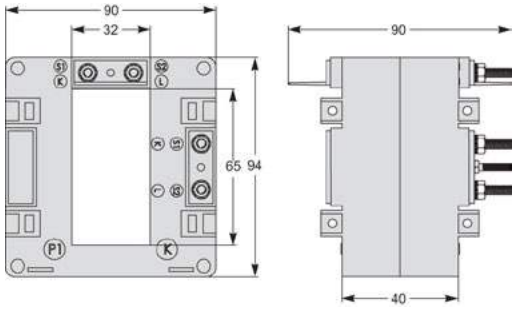

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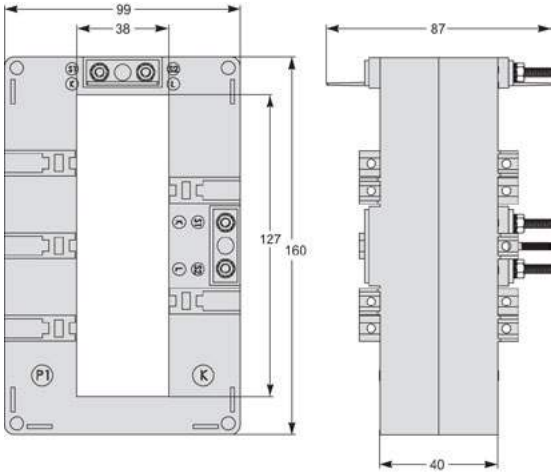

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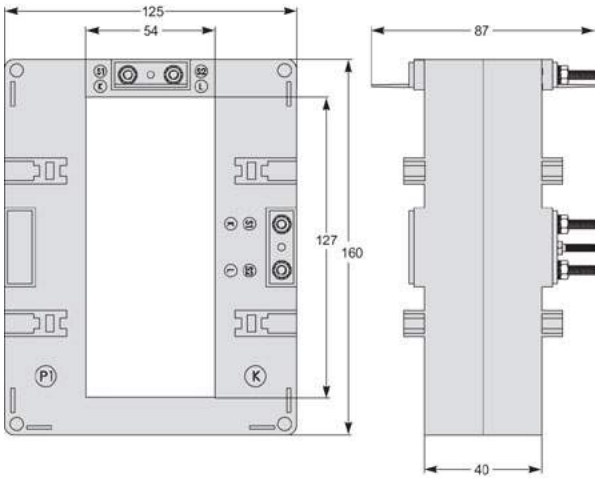

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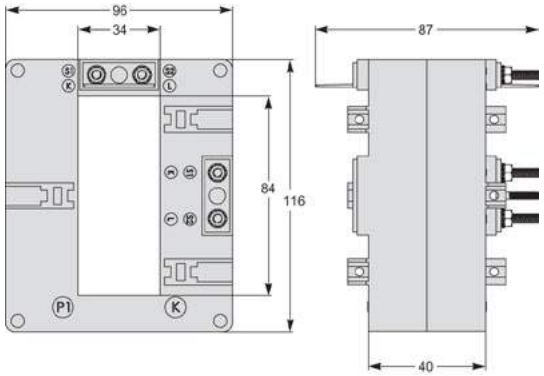

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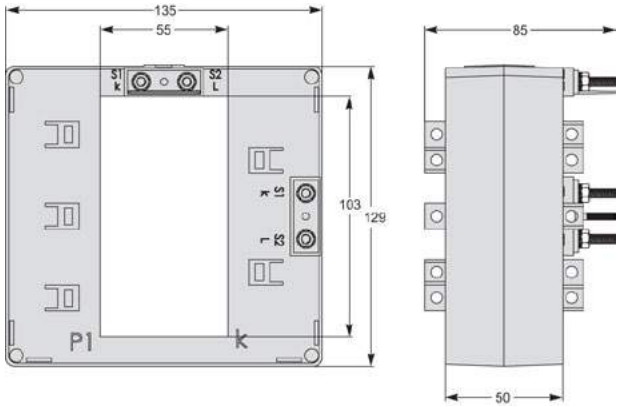

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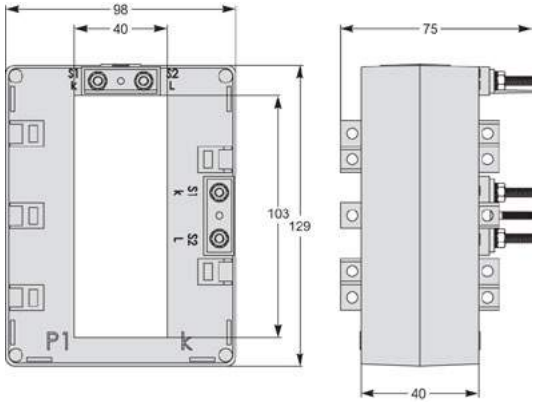

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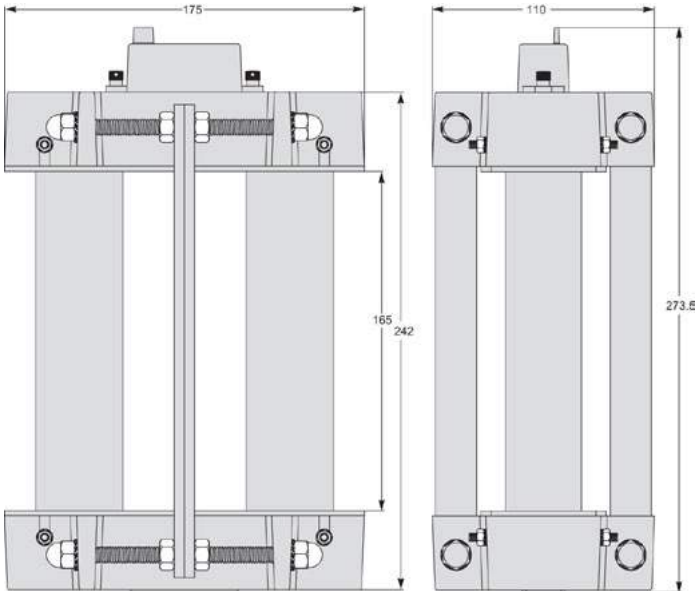

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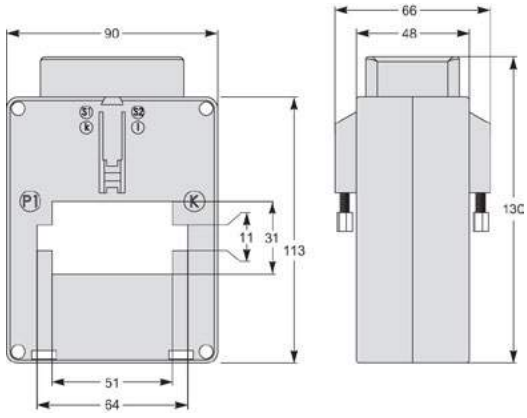

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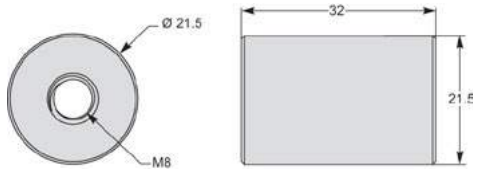

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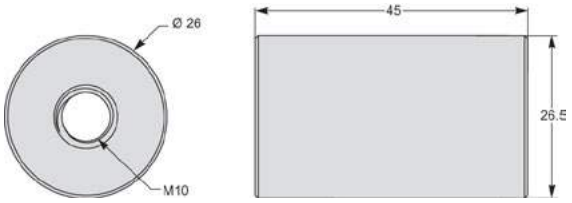

Aluminium

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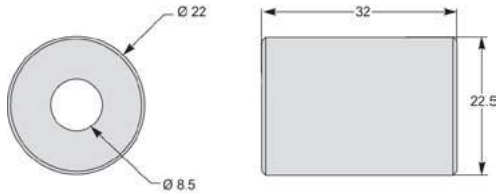

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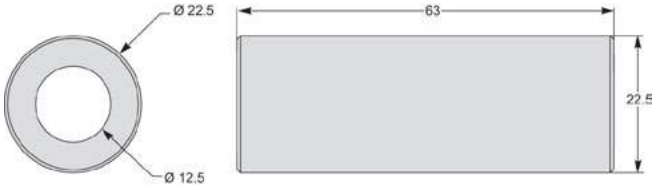

Brass

Covers

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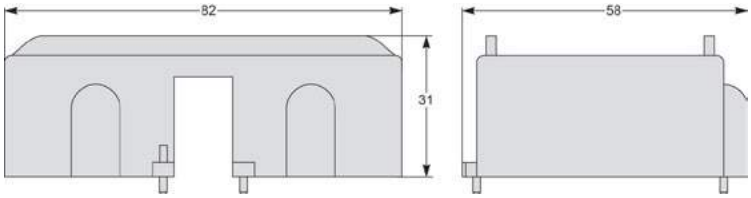

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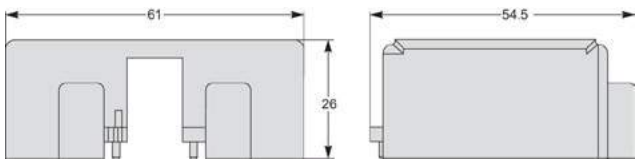

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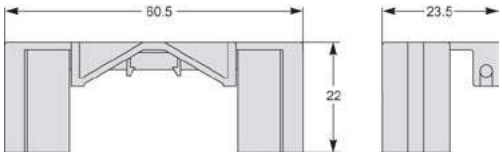

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