

PowerLogic EM4000 series

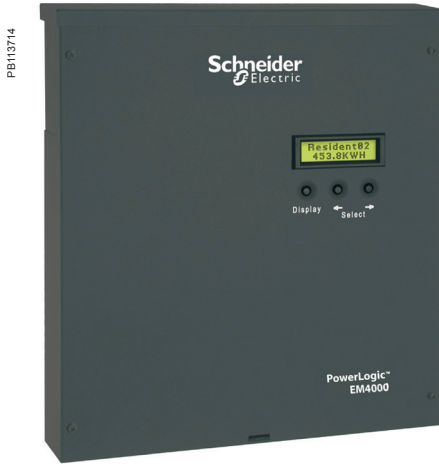
Multi-circuit energy meters

Technical datasheet



EM4000 series

Functions and characteristics



EM4000 series multi-circuit energy meter

The compact PowerLogic EM4000 series multi-circuit energy meter from Schneider Electric enables reliable monitoring building electrical loads with a low installation cost-per-point by combining revenue-accurate electricity sub-metering with advanced communications technology.

The EM4000 is ideal for departmental metering applications and M&V within office towers, condominiums, apartment buildings, shopping centres and other multi-user environments, or small-footprint retail.

The PowerLogic EM4000 series meters monitor up to 24 meter points with a single device. Multiple meters can be combined to support an unlimited number of points.

Two meter models offer a choice of CTs and installation options:

- PowerLogic EM4033: 333 mV, split-core CTs
- PowerLogic EM4080: 80 mA solid -core CTs

Applications

- Energy management.
- Energy cost allocation.
- Utility bill verification.

Main characteristics

Compact, maintenance-free design

Requires no floor space

Hi-density, flexible connection

From single-pole to single- or three-phase metering -- supports up to 24 circuits. Select the connection type using an intuitive configuration tool.

Direct connection

For 100 - 300 V ac L-N electrical distribution systems:
120/240 V, 120/208 V, 277/480 V

Multiple CT types

Support a variety of needs in both new and retrofit installations. 1/3 V output CT option does not require shorting blocks, making it the ideal choice for retrofit installations.

No rewiring required

Use existing wiring to connect to existing panels.

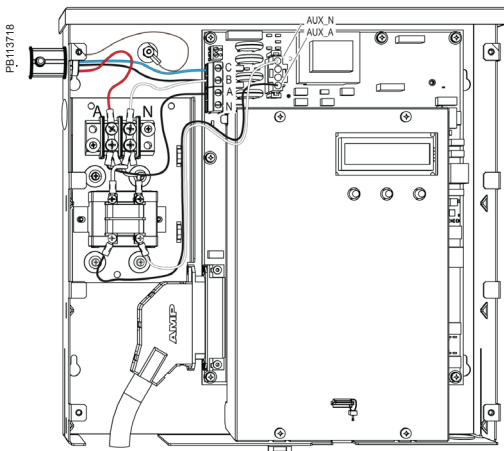
Integrated communications networks.

Onboard Ethernet or RS-485 allows for easy integration into existing communications networks.

Model	Description	Part number
EM4033	24 x 333 mV inputs, 120V control power 60 Hz	METSEEM403316
	24 x 333 mV inputs, 277V control power 60 Hz	METSEEM403336
EM4080	24 x 80 mA inputs, 120V control power 60 Hz	METSEEM408016
	24 x 80 mA inputs, 277V control power 60 Hz	METSEEM408036

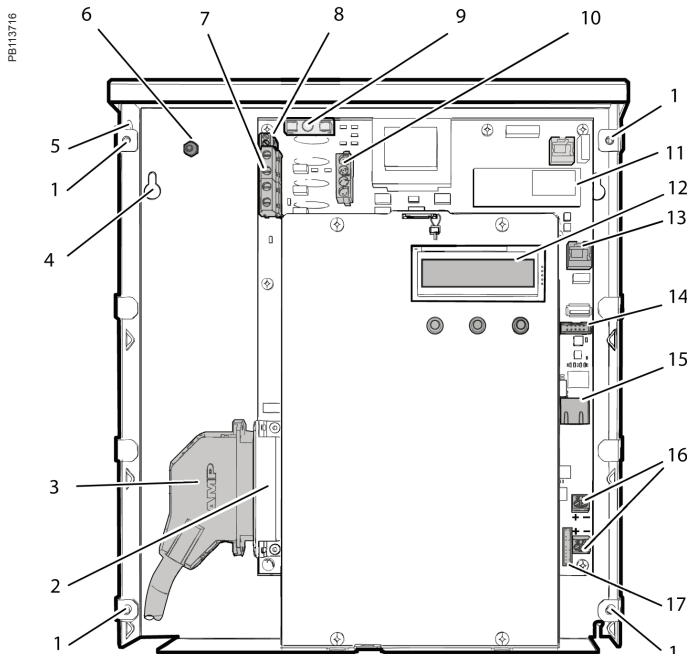
EM4000 series

Functions and characteristics (cont.)



PowerLogic EM4000 meter 480Y/277V three-phase wye service connection

Selection guide		EM4033	EM4080
General			
Use on LV systems		■	■
Accuracy	+/- 0.5%	■	■
Accuracy compliance	ANSI C12.1 and C12.20 Class 0.5; IEC 62053-22, Class 0.5S	■	■
Maximum circuits: single-pole / single phase / three-phase	24 / 12 / 8	■	■
Instantaneous rms values			
Energy	real, kWh received/delivered	■	■
	reactive, kvarh received/delivered	■	■
	apparent, VAh	■	■
Voltage		■	■
Pulse counts		■	■
Voltage and current	V rms, I rms per phase	■	■
Power	real, reactive, apparent	■	■
Power factor		■	■
Measurements available for data logging			
Energy	real, kWh received/delivered	■	■
	reactive, kvarh received/delivered	■	■
	apparent, VAh	■	■
Voltage		■	■
Display			
Backlit LCD display	2 lines of 16 characters	■	■
Optional remote modular display available		■	■
Communication			
Ethernet port		■	■
MODBUS-RTU over RS-485		■	■
Pulse inputs	2	■	■
Protocols: Modbus TCP/IP, HTTP, BACnet/IP, FTP, and SNTP		■	■
Installation options			
0.333 V CTs		■	■
80 mA CTs		■	■
Split core CT		■	■
Solid core CT		■	■



- Legend:
- 1 Cover screw location
 - 2 Meter point input connector
 - 3 Cable connector
 - 4 Mounting keyhole
 - 5 Ingress punch-outs
 - 6 Earth stud
 - 6 Sense voltage terminal block
 - 8 Control voltage terminal block
 - 9 Fuse
 - 10 Control voltage jumper
 - 11 RTU interface
 - 12 Display
 - 13 Remote display connector
 - 14 Serial RS232
 - 15 Ethernet port
 - 16 Pulse in terminal blocks
 - 17 Pulse out connector

PowerLogic EM4033 and PowerLogic EM4080 internal view.

EM4000 series

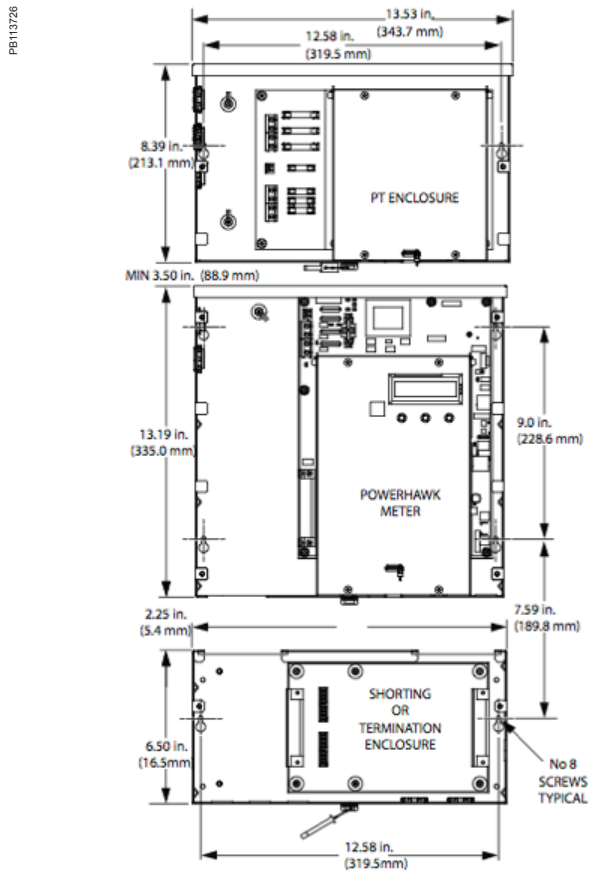
Functions and characteristics (cont.)

Electrical characteristics		
Input-voltage characteristics	Inputs	V1, V2, V3, Vn
	Measured voltage	80 - 480 V AC L-L without PTs Up to 999 kV with external PTs
	Frequency range	60 Hz
Mechanical characteristics		
Weight	EM4033/EM4080	approx. 4.0 kg
Dimensions	EM4033/EM4080	33.5 cm x 30.5 cm x 5.5 cm (13.125 in x 12 in x 2.125 in)
Environmental conditions		
Operating temperature		-40°C to +70°C (-40°F to +158°F)
Storage temperature		-40°C to +70°C (-40°F to +158°F)
Humidity rating		0% to 90 % RH non-condensing
Enclosure		Type 1 (indoor or enclosed outdoor use)
Altitude		3000 m (9843 ft)
Pollution degree		2
Safety and standards		
UL Certified to IEC/EA/CSA 61010-1		
CSA-C22.2 No 61010-1-04		
FCC Part 15 Class B		
ICES-003 EN55022, IEC 6100-4-5		
ANSI/TIA968-A: 2002		
Communication		
Ports		Ethernet
		MODBUS-RTU over RS-485
Pulse inputs		2
Protocols: Modbus TCP/IP, HTTP, BACnet/IP, FTP, and SNTP		
Display characteristics		
Integrated backlit LCD display		2 lines, 16 digits per line display; R / L arrow buttons select metering point; Display button cycles through measurements per point.

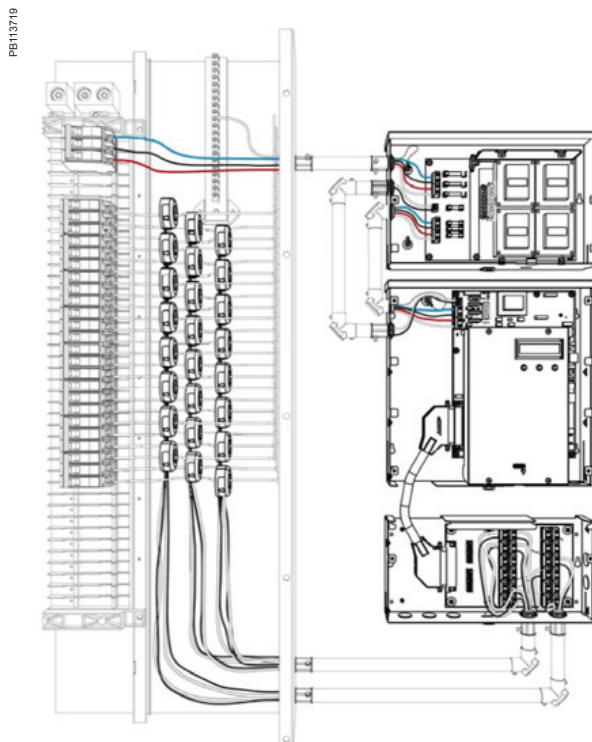
EM4000 series

Dimensions and connection

EM4X00, CT termination, PT module



EM4X00, CT termination, PT module



EM4000 series

Accessories

PE113724



PT Module

The PT module provides step-down voltage connections to Schneider Electric PowerLogic meters for metering single-phase to three-phase voltages of 600V, 347V, or 400V, while meeting all regulatory electrical safety and ANSI 0.5 Accuracy Class standards. The PT module provides both the per-phase input metering voltages and the auxiliary input power required by Schneider Electric PowerLogic energy meters.

There are two variants of the PT module that support the following source voltages and wiring configurations:

347V Wye / 600V Delta variant supports:

- 347V, three-phase, 4-wire wye
- 600V, three-phase, 3-wire delta

480V Delta variant supports:

- 480V, three-phase, 3-wire delta

The 347V/600V PT module variant has three sense voltage potential transformers for metering. The configuration of the transformers (347V wye or 600V delta) is selected by using the jumper provided. The 480V PT module has two sense voltage potential transformers for metering. There is a separate auxiliary power transformer in both variants to operate the meter. All voltage inputs are fused.

PowerHawk PT module specifications

Dimensions	Height	8.39 in. (21.31 cm)	
	Width	13.53 in. (34.37 cm)	
	Depth	2.125 in. (5.4 cm)	
	Weight	112.5 lb (5.67 kg)	
Fuse ratings	High voltage inputs	F1	T315 mA, 1000V
		F2	T315 mA, 1000V
		F3	T315 mA, 1000V
	Voltage inputs	F4	T250 mA, 250V
		F5	T250 mA, 250V
		F6	T250 mA, 250V
		F7	T250 mA, 250V
Transformer specifications	Input voltage	600V	Voltage tolerance: +/-10%
		480V	Voltage tolerance: +/-10%
		347V	Voltage tolerance: +/-10%
	Output voltage	120V	Accuracy: 0.3%
Environmental	Operating temperature	-40 to 158°F (-40 to 70°C)	
	Operating humidity	5% to 90% non-condensing	
	Usage environment	Indoor or enclosed outdoor environment	
	Maximum altitude	9843 ft (3000 m)	
	Pollution degree	2	

Part number	Description
METSEPTMOD480	480 V PT Module for EM4X00 meter
METSEPTMOD347600	347 V/600 V PT Module for EM4X00 meter

PB113725



CT Module

PowerLogic 4080 meters have 2 shorting options that provide a seamless and sealable mechanical package. The CT Shorting Module provides CT connections via the color coded 25 pair cable routed into the breaker panel. All CTs are shorted at the same time for safe removal of the meter for maintenance when the electrical circuits are still live.

The CT Termination Module has the same shorting ability, but provides CT connections via 24 2 position screw down terminal blocks. Individual pairs are then routed from the CT Termination Module to 1 or more breaker panels via conduit knock outs provided on the module. Thus eliminating the need for a splitter box to route CT cables to multiple panels.

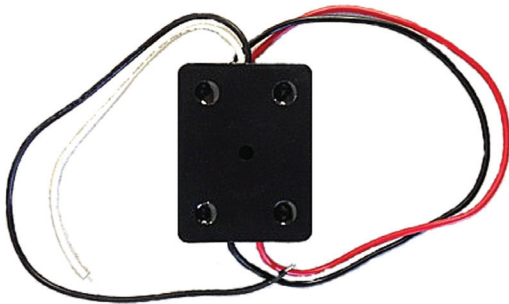
Part number	Description
METSECTTERM	CT Termination Module for EM4X00 meter
METSECTSHORT	CT Shorting Module for EM4X00 meter

Converter

The 5A:80mA converter is useful in applications where there are existing 5A CT's integrated into large motors or switch gear. The 5A:80mA converter matches the 5A secondary of the load to the 80mA input of the meter. In Billing Grade applications, the 5A:80mA converter is also used to connect regulatory grade large aperture, large amperage CT's with 5A secondaries to the 80mA of PowerLogic 4X80 meters.

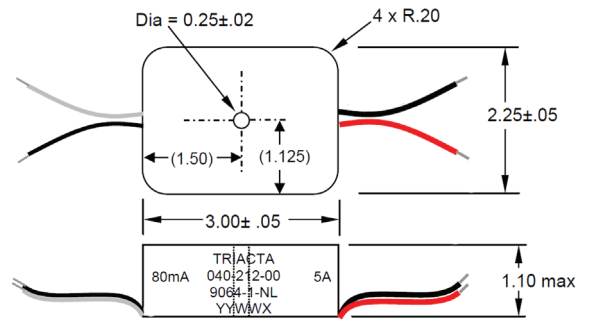
Part number	Description
METSECONV580	5 A : 80 mA converter for EM4X00 meter

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The 5 A : 80 mA converter

PB111056

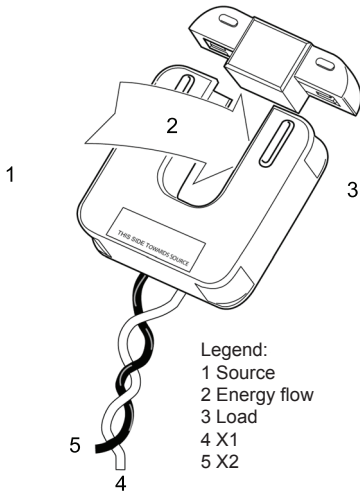


The 5 A to 80 mA converter dimensions

EM4000 series

Accessories and dimensions

PB111081



Legend:
 1 Source
 2 Energy flow
 3 Load
 4 X1
 5 X2

PowerLogic EM4033 split-core 0.333V current transformer

CTs

- Model 8 (80/100 mA Secondary)
- Window Size: 3.25" Diameters
- Application: Metering
- Frequency: 50-400 Hz
- Insulation Level: 600 Volts, 10Kv BIL Full Wave
- Flexible leads available for all case configurations. Flexible leads are UL 1015 105°C, C.S.A approved #16 AWG, 24" long standard length. Non-standard lengths are available upon request.
- Terminals are brass studs No. 8-32 UNC with one flat washer, one lock washer and one nut each. Terminals are only available on the square case configuration.
- Mounting brackets kits for the Model 8SHT are available when required.
- Approximate weight: 3 lbs. (1.36 kg)

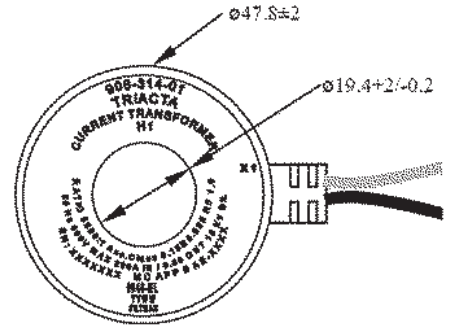
Part number	Description
METSECT80200	CT, solid core, 200 A primary, 80 mA secondary, for use with EM4X80 multi-circuit meter
METSECT80400	CT, solid core, 400 A primary, 80 mA secondary, for use with EM4X80 multi-circuit meter
METSECT80600	CT, solid core, 600 A primary, 80 mA secondary, for use with EM4X80 multi-circuit meter

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200 A CT

PB111060



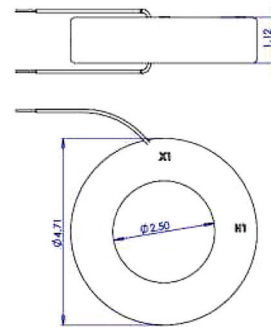
200 A CT dimensions

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400 A CT

PB113972



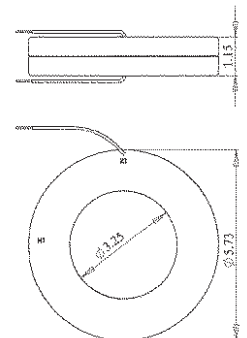
400 A CT dimensions

PB111057



METSECT80600 600 A 80 mA CT

PB111058



600 A 80 mA CT dimensions

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