To: State of New York Public Service Commission

Subject: Manufacturers' application for approval of Electricity Meters for use in submetering applications in the state of New York.

Applicant:

Gary Richmond
Product Manager
Veris Industries
12345 Leveton Drive
Tualatin, OR 97026

Manufacturer:

Veris Industries (a wholly-owned subsidiary of Schneider Electric)
12345 Leveton Drive
Tualatin, OR 97026

Manufacturers type designation:

E30A, E30E, E31A, E31E, BCPMA, BCPME, BCPMSCA and BCPMSCE Series' of Branch Circuit Power Monitors. These four series, with various option suffixes, represent the range of models produced by the Manufacturer to monitor the Energy consumption of every load in a power distribution panelboard (aka circuit breaker panel). The series and model variations represent a range of current transformer (sensor) and customer panel physical configurations, communication options and product brands, but all share the same electronic and software design, the same manufacturing and test process and all provide the same measurements and conform to the same measurement specifications and agency certifications.

Statement of intent of sponsoring entity to use, if approved:

The manufacturer requests approval of these devices so that sponsoring entities who purchase them may act on behalf of property owners to install and use these devices as part of a system to provide submetering services to enable those owners who purchase electricity for their properties to re-distribute electricity to their tenants and provide billing based on the energy consumption of those individual tenants, subject to full compliance with 16 NYCRR Part 96.

Statement by the manufacturer certifying that the device(s) under consideration have been tested to and meet all the requirements of NYCRR Part 93:

The accuracy of the power and energy measurements of these devices (used with their current transducers) fully conforms to the applicable requirements specified in Standards and Standardizing Equipment of ANSIC12.1 2008.

The accuracy of each unit produced is calibrated and verified by the manufacturer with equipment whose accuracy is has been established by comparison with standards whose accuracy is traceable to the National Institute of Standards and Technology.

The accuracy of the product, as delivered has also been confirmed by a recognized independent testing laboratory (summary statement attached below).

All tests by both the manufacturer and the independent test laboratory have been conducted by personnel who have thorough practical and theoretical knowledge of the meters and adequate training in making precision measurements.

Electronic signature:

I, Gary Richmond, do hereby affirm that the

contents of this document are true to the best of my knowledge.

Signed: Gary Richmond (E-signature)

Date: August 22, 2014

Attachments (below, in this document):

- Statement of compliance from Met Labs for BCPM and E3x series meters
- BCPM and E3x series technical data sheets

MET Laboratories, Inc.
914 W. Patapsco Ave. Baltimore, MD 21230
410-354-3300, Fax: 410-354-3313, 800-638-6057 www.metlabs.com

April 21, 2014

Veris Industries
16640 SW 72nd avenue
Portland, OR 97224

Dear Martin Cook.

It is our pleasure to inform Veris Industries that the Schneider BCPM Meter is found to be compliant by similarity to the Veris Industries E3x Product Family as defined in MET Laboratories Test Report TEL39768-ANSI.

Based on information provided to MET Laboratories by Veris Industries, the Schneider BCPM Meter is identical to the models tested with the exception of the brand name and model name.

The E3x Product Family has completed the following Telecom tests performed at MET Laboratories, Inc. and found to be compliant.

ANSI C12.1 - 2008 (Accuracy Only):

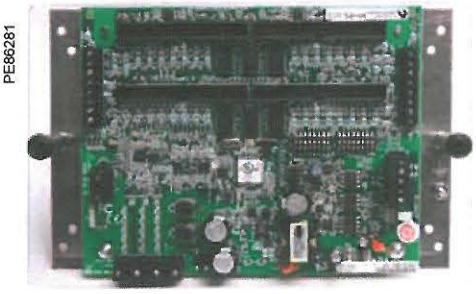
- 4.7.3 - Performance Verification - As Received - As Received:
- 4.7.2.1 - No Load - Test #1:
- 4.7.2.2 - Starting Load - Test #2:
- 4.7.2.3 - Load Performance - Test #3:
- 4. 4.7.2.4 - Variation of Power Factor - Test #4:
- 4.7.2.5 - Variation of Voltage - Test #5:
- 4.7.2.6 - Variation of Frequency - Test #6:
- 4.7.2.7 - Equality of Current Circuits - Test #7:
- 4.7.2.14 - Independence of Elements - Test #14:

For specific details regarding the extent of the testing and the configuration of the product tested, please consult the MET Laboratories' Detailed Test Report. Please contact me with any questions or comments.

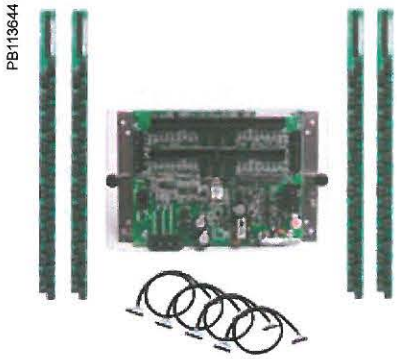
Sincerely,

Jim Reed
Manager, Meter Accuracy Laboratory

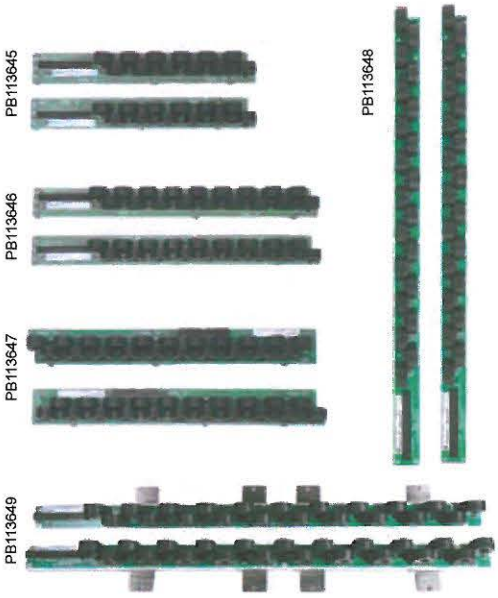
PowerLogic BCPM
Functions and characteristics



PowerLogic™ BCPM A/B/C main board



PowerLogic™ BCPME Measurement Unit



PowerLogic™ BCPM split core 12mm, 18mm, 21mm, .75 in and 1 in CTs strips

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.

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 with a single device and also monitors the incoming power mains to provide information on a complete PDU. It also offers multi-phase measurement totals with flexible support for any configuration of multi-phase breakers. Full alarming capabilities ensure that potential issues are dealt with before they become problems.

Unlike products designed for specific hardware, the flexible BCPM will fit 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.

Applications
Revenue Grade sub-billing.
Data Centre load monitoring and alarming
Comprehensive monitoring of lighting control panels
Maximise uptime and avoid outages.
Optimise existing infrastructure.
Effectively plan future infrastructure needs.
Improve power distribution efficiency.
Track usage and allocate energy costs.

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).

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.

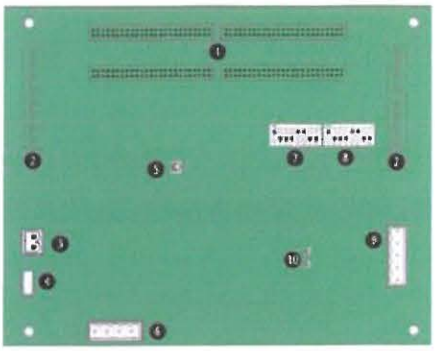
New models with integrated Ethernet offer broad protocol support
All models integrate easily into existing networks using Modbus RTU communications over an RS-485 serial link. BCPME and BCPMSCE models offer integrated Ethernet and add support for Modbus TCP, BACnet IP, BACnet MS/TP and SNMP. An optional 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
Functions and characteristics (cont.)

PE86167



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.*

Selection guide		BCPMA	BCPMB	BCPMC	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	■	■ (mains only)	-	■
Power factor	Total and per phase	■	■ (mains only)	-	■
Energy values					
Active energy		■	■ (mains only)	-	■
Demand values					
Total active power	Present and max. values	■	■ (mains only)	-	■
Power quality measurements					
Detection of over-voltage/under-voltage		■	■	-	■
Alarming					
Alarms		■	■	■	■
Power supply					
AC version		90-277 V ac	90-277 V ac	90-277 V ac	100-277 V ac
Communication					
RS 485 port		■	■	■	■
Modbus protocol		■	■	■	■
Ethernet Port		1*	1*	1*	■
Modbus RTU protocol		1*	1*	1*	■
BACnet IP protocol		1*	1*	1*	■
BACnet MS/TP protocol		1*	1*	1*	■
SNMP protocol		1*	1*	1*	■

PowerLogic BCPM 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

*1 Add E8951 Gateway

PowerLogic BCPM
Functions and characteristics (cont.)

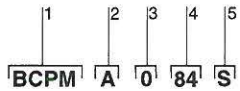
PowerLogic BCPM specifications (cont'd)	
Environmental conditions	
Operating temperature	0 to 60°C
Storage temperature	-40°C to 70°C
Installation category	CAT III, pollution degree 2
Safety	
Europe	IEC 61010
U.S. and Canada	UL 508 Open type device
Communication	
RS 485 (A/B/C models)	Baud rate: DIP-switch selectable 9600, 19200, 38400 DIP-switch selectable 2-wire or 4-wire RS-485. Parity selectable: Even, Odd or None.
RS 485 (E 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

(1) Feature sets 'A', 'B' and 'E only.

1/3 V low-voltage CT (LVCT) for Mains - 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	0°C to 70°C (LVCT0xxxx0S/1S) -15°C to 60°C (LVCT0xxxx2S/3S/4S less than 2400A) -15°C to 60°C (LVCT02404S [2400A]) -40°C to 85°C (LVCT2xxxx0S/2S/3S [solid-core])
Storage temperature	-40°C to 105°C (LVCT0xxxx0S/1S) -40°C to 70°C (LVCT0xxxx2S/3S/4S) -50°C to 105°C (LVCT2xxxx0S/2S/3S [solid-core])
Humidity range	0 to 95% non-condensing

PowerLogic BCPM
Functions and characteristics (cont.)

PE86168

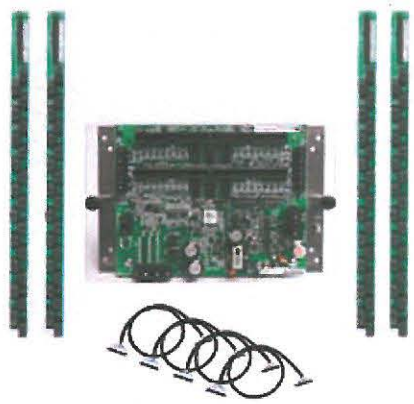


Example BCPM with solid core CTs part number.

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.

PB113664



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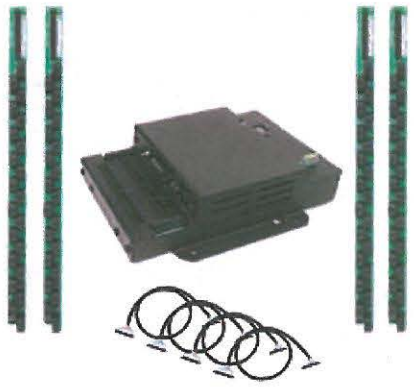


* Quantity and style of CT strips and cables included varies by model

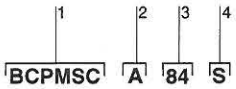
BCPM part numbers

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
		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 & 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

PowerLogic BCPM
Functions and characteristics (cont.)

PB113735



Example BCPMSC with split core CTs part number.

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

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.

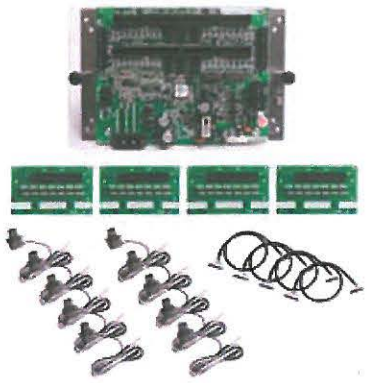
Models with more than 2 as the number of circuits include 50A branch CTs with 2 meter leads and 1.8M round ribbon cables.

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

	BCPM with split core CTs		
	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
4	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)
		Y63	42 circuits – main and adapter boards on single mounting plate (no branch CTs or ribbon, 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)
5	Brand	S	Schneider Electric

PB113666

PB113730



* Quantity of CT and cables included varies by model

PowerLogic BCPM
Functions and characteristics (cont.)

PE86284

Flat ribbon cable

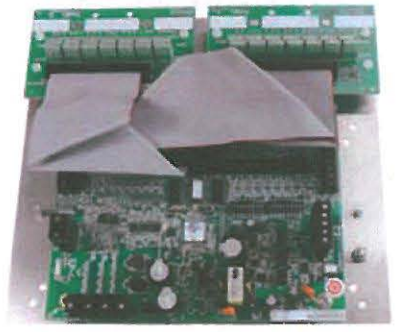
PB113650

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.

PB113651



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.

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
BCPMB042S	42-circuit solid-core branch current, mains power meter, 100A CTs (2 strips), ¾" spacing
BCPMB084S	84-circuit solid-core branch current, mains power meter, 100A CTs (4 strips), ¾" spacing
BCPMB142S	42-circuit solid-core branch current, mains power meter, 100A CTs (2 strips), 1" spacing
BCPMB184S	84-circuit solid-core branch current, mains power meter, 100A CTs (4 strips), 1" spacing
BCPMB224S	24-circuit solid-core branch current, mains power meter, 100A CTs (2 strips), 18mm spacing
BCPMB236S	36-circuit solid-core branch current, mains power meter, 100A CTs (2 strips), 18mm spacing
BCPMB242S	42-circuit solid-core branch current, mains power meter, 100A CTs (2 strips), 18mm spacing
BCPMB248S	48-circuit solid-core branch current, mains power meter, 100A CTs (4 strips), 18mm spacing
BCPMB272S	72-circuit solid-core branch current, mains power meter, 100A CTs (4 strips), 18mm spacing
BCPMB284S	84-circuit solid-core branch current, mains power meter, 100A CTs (4 strips), 18mm spacing
BCPMC042S	42-circuit solid-core branch current meter, 100A CTs (2 strips), ¾" spacing
BCPMC084S	84-circuit solid-core branch current meter, 100A CTs (4 strips), ¾" spacing
BCPMC142S	42-circuit solid-core branch current meter, 100A CTs (2 strips), 1" spacing
BCPMC184S	84-circuit solid-core branch current meter, 100A CTs (4 strips), 1" spacing
BCPMC224S	24-circuit solid-core branch current meter, 100A CTs (2 strips), 18mm spacing
BCPMC236S	36-circuit solid-core branch current meter, 100A CTs (2 strips), 18mm spacing
BCPMC242S	42-circuit solid-core branch current meter, 100A CTs (2 strips), 18mm spacing
BCPMC248S	48-circuit solid-core branch current meter, 100A CTs (4 strips), 18mm spacing
BCPMC272S	72-circuit solid-core branch current meter, 100A CTs (4 strips), 18mm spacing
BCPMC284S	84-circuit solid-core branch current 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

PowerLogic BCPM
Functions and characteristics (cont.)

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)

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

BCPM with split core CTs (cont'd)	
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
BCPMSCB1S	42-circuit split-core branch current, mains power meter, CTs and cables sold separately
BCPMSCB2S	84-circuit split-core branch current, mains power meter, CTs and cables sold separately
BCPMSCB30S	30-circuit split-core branch current, mains power meter, (30) 50A CTs & (2) 4' cables
BCPMSCB42S	42-circuit split-core branch current, mains power meter, (42) 50A CTs & (2) 4' cables
BCPMSCB60S	60-circuit split-core branch current, mains power meter, (60) 50A CTs & (4) 4' cables
BCPMSCBY63S	42-circuit split-core branch current, mains, all boards on backplate, CTs and cables sold separately
BCPMSCB84S	84-circuit split-core branch current, mains power meter, (84) 50A CTs & (4) 4' cables
BCPMSCC1S	42-circuit split-core current meter, CTs and cables sold separately
BCPMSCC2S	84-circuit split-core current meter, CTs and cables sold separately
BCPMSCC30S	30-circuit split-core current meter, (30) 50A CTs & (2) 4' cables
BCPMSCC42S	42 circuit split-core current meter, (42) 50A CTs & (2) 4' cables
BCPMSCC60S	60-circuit split-core current meter, (60) 50A CTs & (4) 4' cables
BCPMSCCY63S	42-circuit split-core current meter, all boards on backplate, CTs and cables sold separately
BCPMSCC84S	84-circuit split-core current meter, (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

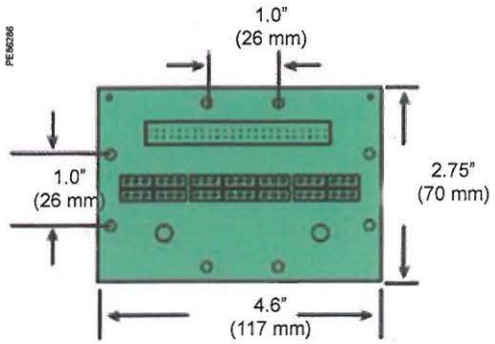
PowerLogic BCPM
Functions and characteristics (cont.)

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
CBL008	Flat Ribbon cable (quantity 1) for BCPM, length = 0.45 m
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
CBL019	Flat Ribbon cable (quantity 1) for BCPM, length = 2.4 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
CBL023	Round Ribbon cable (quantity 1) for BCPM, length = 3 m
CBL024	Round Ribbon cable (quantity 1) for BCPM, length = 6.1 m
CBL031	Round Ribbon cable (quantity 1) for BCPM, length = 0.5 m
CBL033	Round Ribbon cable (quantity 1) for BCPM, length = 0.8 m

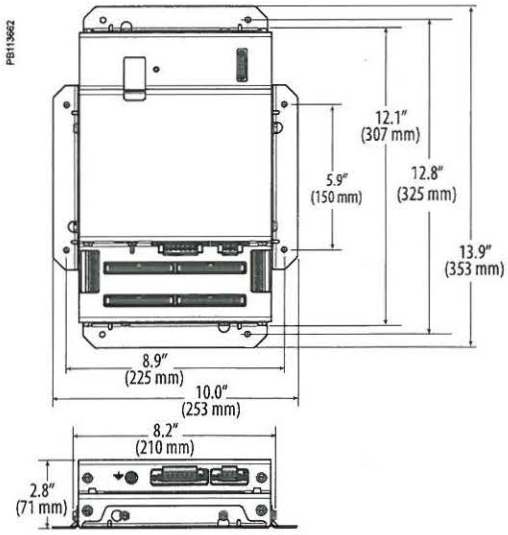
1/3 V low-voltage Split-Core CTs for Aux inputs (Mains)		
Part number	**Amperage rating**	**Inside dimensions**
LVCT00050S	50A	10 mm x 11 mm
LVCT00101S	200A	16 mm x 20 mm
LVCT00202S	200A	32 mm x 32 mm
LVCT00102S	100A	30 mm x 31 mm
LVCT00202S	200A	30 mm x 31 mm
LVCT00302S	300A	30 mm x 31 mm
LVCT00403S	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

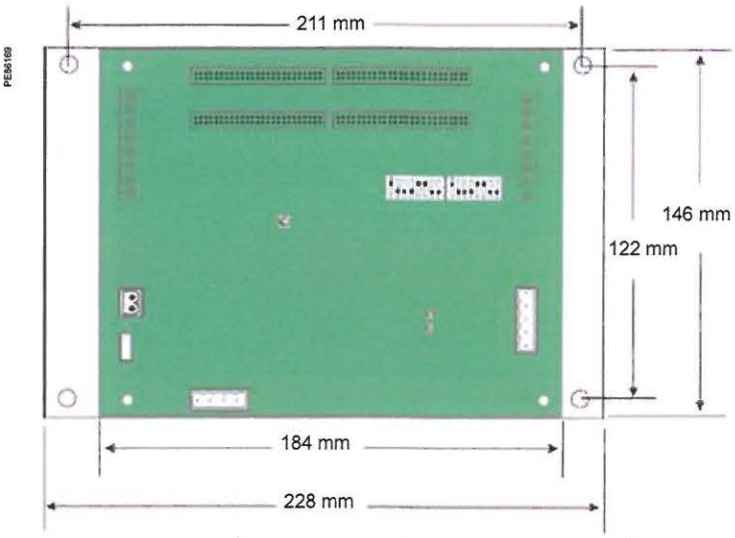
PowerLogic BCPM
Dimensions and connection

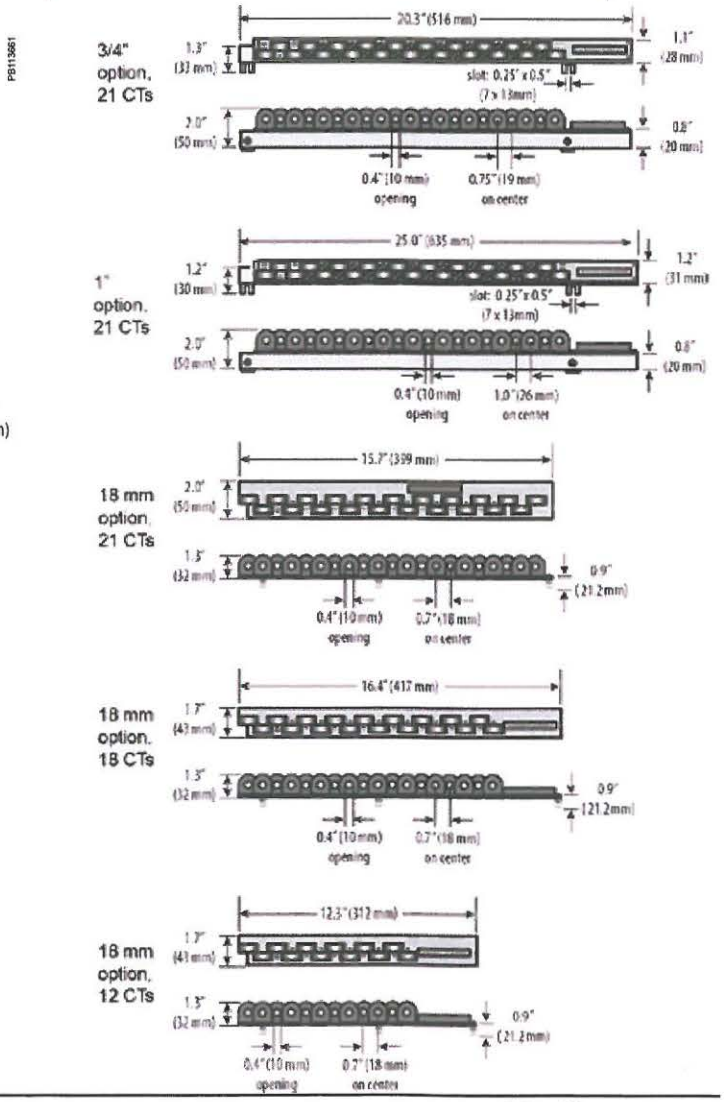


PowerLogic BCPM adapter board (one board per 21 split core branch CTs)



PowerLogic BCPM dimensions





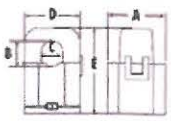
PowerLogic BCPM
Dimensions and connection

50A-200A Split-Core CT dimensions

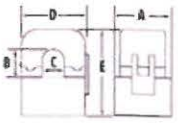
PB113659

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

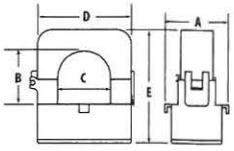
Split-Core CTs



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)



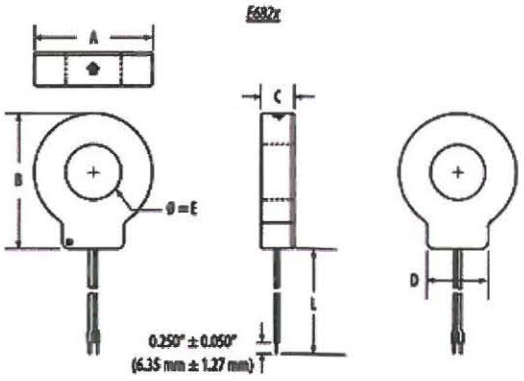
100 Amp
A = 1.2" (29 mm)
B = 0.8" (20 mm)
C = 0.7" (16 mm)
D = 1.6" (40 mm)
E = 2.1" (53 mm)



200 Amp
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)

Solid core CT dimensions

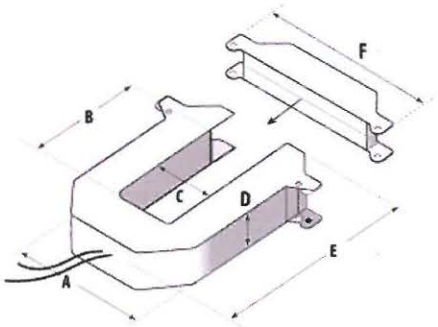
PB113660



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

PB113663



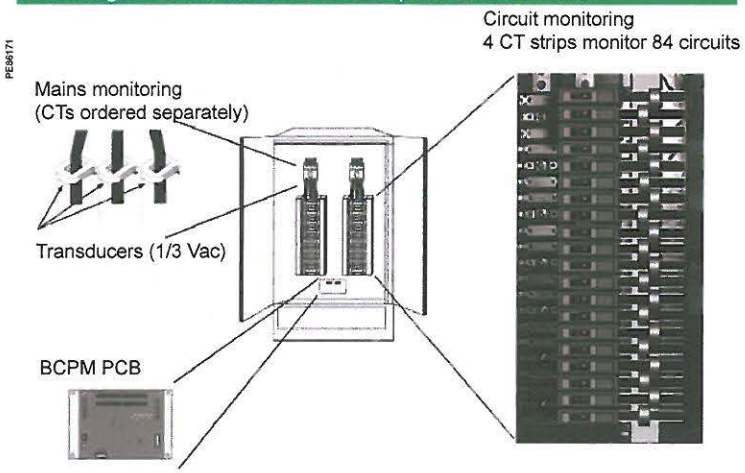
Small form factor
100/200/300 Amp
A = 96 mm
B = 30 mm
C = 31 mm
D = 30 mm
E = 100 mm
F = 121 mm

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

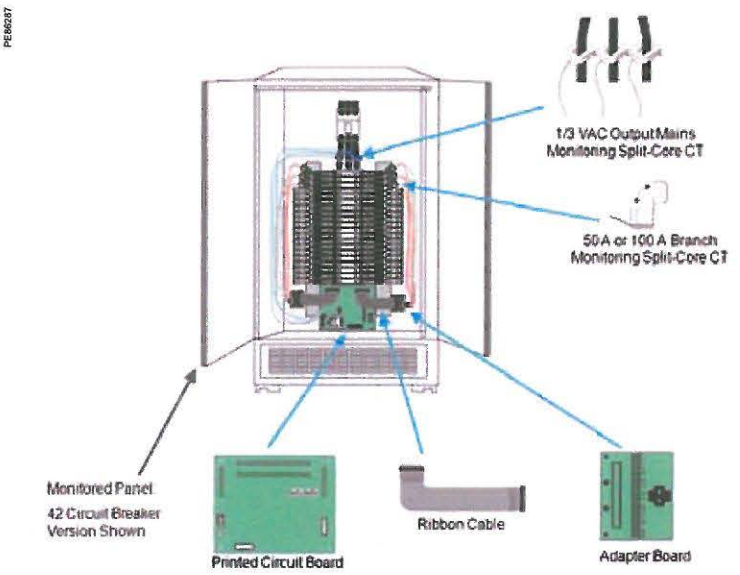
Large form factor
800/1000/1200/
1600/2000/2400 Amp
A = 125 mm
B = 139 mm
C = 62 mm
D = 30 mm
E = 201 mm
F = 151 mm

PowerLogic BCPM
Dimensions and connection

PowerLogic BCPM with solid core CT strips installation details



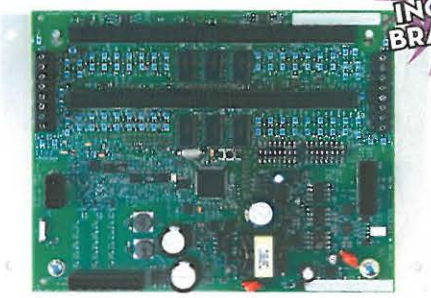
PowerLogic BCPM with split core CTs installation details



Panelboard Monitoring System

E3x Series

1% SYSTEM ACCURACY INCLUDING BRANCH CTS



E3xA/B/C

INTEGRATED ETHERNET W/ SNMP, BACNET, & MODBUS

E3xE

Monitor Current, Voltage, & Energy Consumption with One Device

FEATURES

- *Revenue grade measurements*
- *ANSI & IEC Class 1 metering system accuracy (with branch CTs)*
- *Solid-core branch CT strip models for new construction*
- *Split-core branch CT models for retrofit applications*
- *Reports volts, amps, power, demand, & energy for each circuit... one product covers two complete 42 breaker panelboards*
- *92 circuits with one product (84 branch circuits, 2 3-phase mains, 2 neutrals)...saves space*
- *User configurable meters provide multi-phase totals for loads with any combination of 1, 2, 3 pole breaker positions*
- *3/4", or 1", or 18 mm spaced solid-core branch CT strips... flexible installation*
- *4 user-configurable alarm threshold registers...improved load management*
- *Selectable orientation and numbering of the circuits*
- *50mA to 100A monitoring...widest dynamic range in the industry*
- *Modbus RTU standard on all models*
- *Modbus TCP over ethernet is standard on E3xExxx models and available on others with addition of U013-0012*
- *BACnet IP (with BBMD support) or MS/TP is standard on E3xExxx models and available on others with addition of E8951*
- *SNMP support is standard on E3xExxx models and available on others with addition of E8951*

SPECIFICATIONS

5 Year Warranty

INPUTS	
Input Power	100-277VAC, 50/60 Hz, 15VA max.
ACCURACY	
Power/Energy	IEC 62053-21 Class 1, ANSI C12.1-2008. 1% system accuracy (includes main board and branch CTs)
Voltage	±0.5% of reading 90-277VAC line-to-neutral
Current	±0.5% of reading
Minimum ON Current	50mA
OPERATION	
Sampling Frequency	2560 Hz
OUTPUTS	
Serial Protocols	All: Modbus RTU E3xE models: BACnet MSTP
Serial Connection	All: 2-wire, RS-485 E3xA/B/C models: 4-wire RS-485
Address	E3xA/B/C models: Selectable address 1 to 247 (uses 2 addresses for Modbus RTU) E3xE models: Fixed at address 1 and 2 for Modbus RTU; 0-127 for BACnet MS/TP
Baud Rate	All: 9600, 19200, 38400 (selectable on A/B/C models)
Parity	All: Modbus RTU: NONE, ODD, EVEN (selectable on A/B/C models) E3xE models: BACnet MS/TP: NONE (fixed)
Terminal Block Torque	4.4 to 5.3 in-lb (0.5 to 0.6 N-m)
Ethernet Protocols	All: Modbus TCP E3xE models: BACnet IP, SNMP V2c
Ethernet Connection	E3xE models only: RJ-45 10/100 Mbit
ENVIRONMENTAL	
Operating Temp Range	0° to 60°C (32° to 140°F) (<95% RH noncondensing)
Storage Temp Range	-40° to 70°C (-40° to 158°F)
Altitude of Operation	3000 m
Agency Approvals	UL508, EN61010-1, Cat. III, pollution degree 2

DESCRIPTION

The **E3x Series Panelboard Monitoring System** provides a cost effective solution for electrical load management, making it ideally suited for applications where loads are dynamic, such as the data storage industry, lighting panels, etc.

The E3x series monitors the current, voltage, instantaneous power, demand, and energy consumption of each circuit in a panelboard including the main feed. As a circuit approaches the user-configured thresholds, alarm indicators are triggered, preventing costly down-time from overloaded circuits or failed loads. (See graph, facing page)

APPLICATIONS

- *Load based cost allocation*
- *Overload protection*
- *Data center PDUs*
- *Subtenant billing*
- *Lighting control panels*
- *Load management*
- *Load balancing*
- *Energy management*

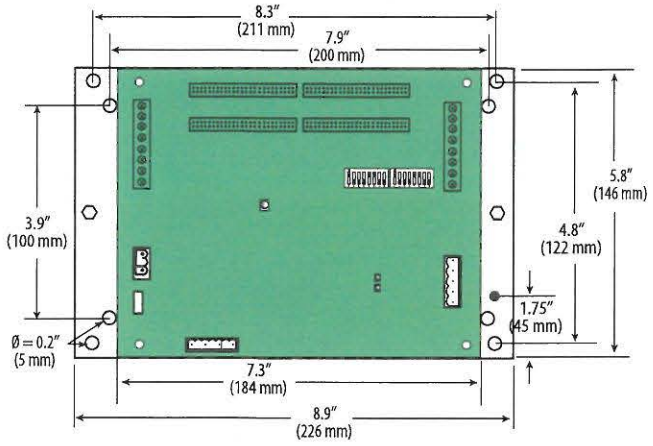
PRODUCT CAPABILITIES

	E3xA	E3xB	E3xC	E3xE
Monitoring at Mains				
Current per phase	●	●	●	●
Max. current per phase	●	●	●	●
Current demand per phase	●	●	●	●
Max. current demand per phase	●	●	●	●
Current phase angle	●	●		●
Energy (kWh) per phase	●	●		●
Real Power (kW) per phase	●	●		●
Apparent Power (kVA)	●	●		●
Power factor total*	●	●		●
Power factor per phase	●	●		●
Voltage, L-L and average	●	●		●
Voltage, L-N and average	●	●		●
Voltage, L-N and per phase	●	●		●
Frequency (phase A)	●	●		●
Monitoring at Branch Circuit				
Current	●	●	●	●
Max. current	●	●	●	●
Current demand	●	●	●	●
Max. current demand	●	●	●	●
Current phase angle	●			●
Real power (kW)	●			●
Real power (kW) demand	●			●
Real power (kW) demand max.	●			●
Energy (kWh) per circuit	●			●
Power factor	●			●
Apparent Power (kVA)	●			●
Modbus Alarms				
Voltage over/under	●	●		●
Current over/under	●	●	●	●
Protocols Supported				
Modbus RTU	●	●	●	●
Modbus TCP	**	**	**	●
BACnet MS/TP	†	†	†	●
BACnet IP with BBMD support	†	†	†	●
SNMP V2	‡	‡	‡	●

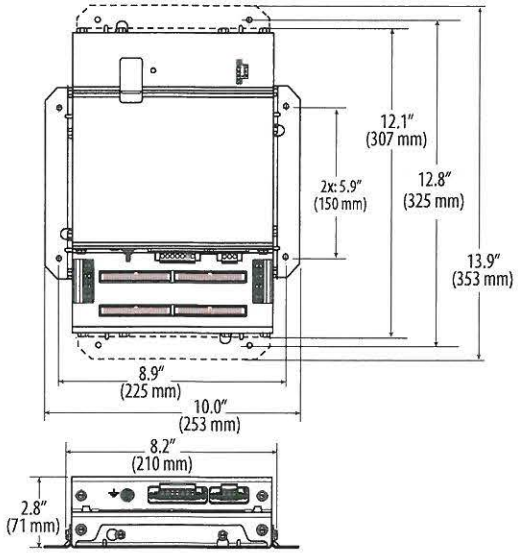
** Based on a 3-phase breaker rotation. ** with UO13-0012 or E8951 added*
† with E8951 added ‡ with E8951 added; requires one E8951 for each meter

DIMENSIONAL DRAWINGS

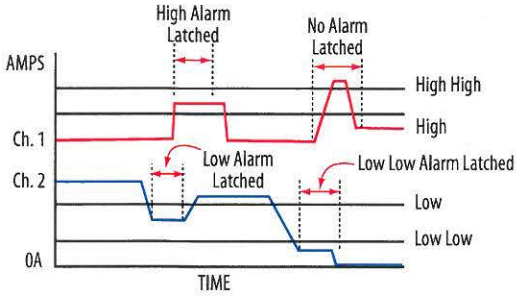
E3xA/B/C Main Board



E3xE



OPERATION EXAMPLE



ACCESSORIES

Ribbon Cables, round or flat (CBLxxx)
E3x cover (AE001)
Modbus TCP Gateway (U013-0012)
Modbus-to-BACnet Converter (E8951)
Network Display (H8932, H8936)
Branch CTs (E31CT0, E31CT1, E31CT3)
Split-core CTs for auxiliary inputs (H681x, E681x)
Solid-core CTs for auxilliary inputs (E682x)
Repair kit for E30 (AE006)


CBL022


AE001


U013-0012


E8951


H8932/H8936


E31CT0
E681A500V3


E31CT1
E681B101V3


E31CT3
E681C201V3

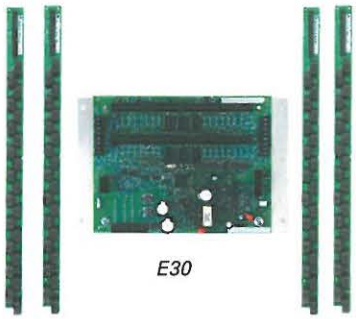

H681x


E682x


AE006

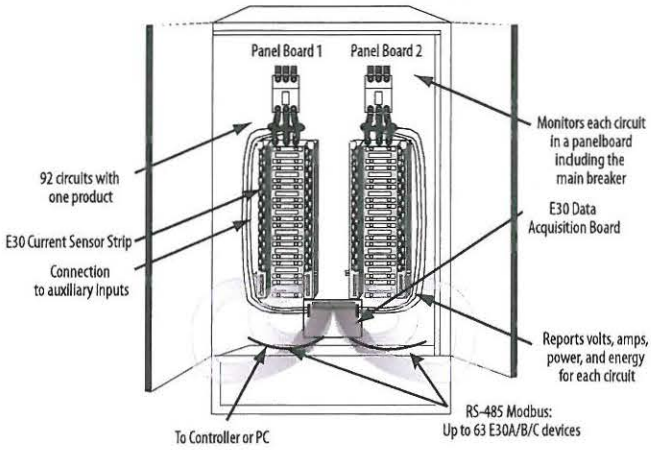
VERIS INDUSTRIES

Panelboard Monitoring System – Solid-Core



E30

WIRING DIAGRAM

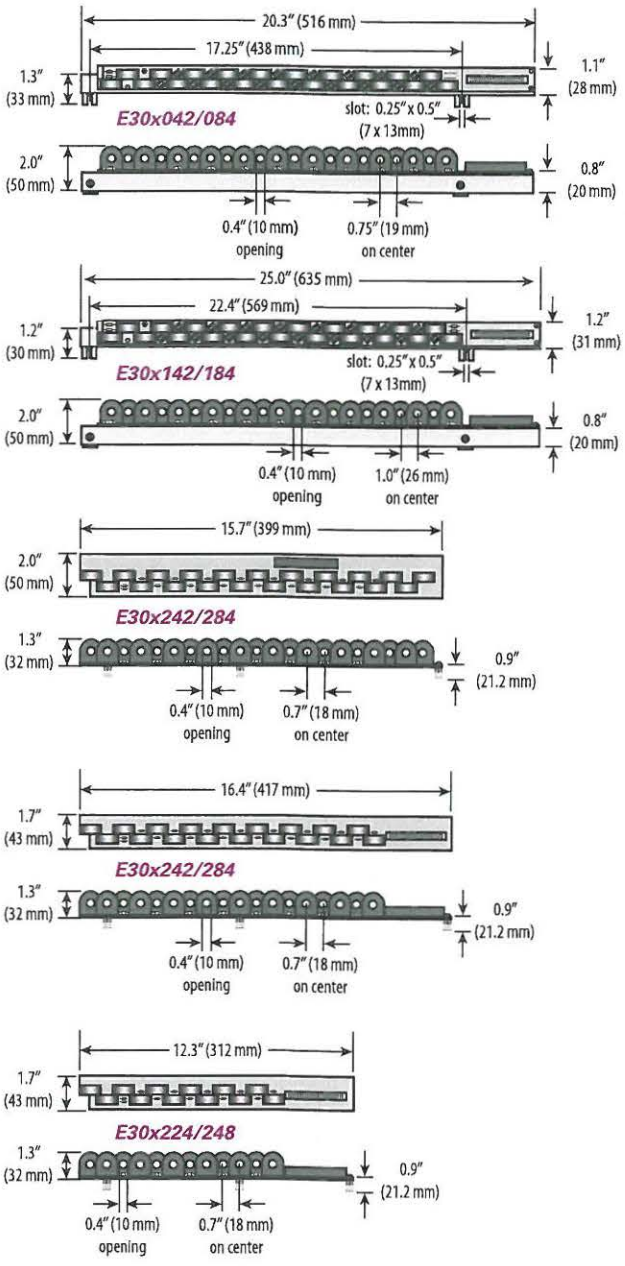


SOLID CORE BRANCH CTs

	100A Solid-Core Branch CT
Voltage Rating	300 VAC
Temperature	0° to 60°C
Agency	EN61010-1

DIMENSIONAL DRAWINGS

Branch CT Strips



ORDERING INFORMATION

CE c UL us LISTED

Description	Branch CT Spacing	# of Branch CTs & Ribbon Cables
E30 ☐	☐	☐
A = Advanced	**0** = 100A, ¾" spacing	**24** = 2 strips of 12 branch CTs (18 mm only) and two 4-ft. round ribbon cables
B = Intermediate	**1** = 100A, 1" spacing	**36** = 2 strips of 18 branch CTs (18 mm only) and two 4-ft. round ribbon cables
C = Basic	**2** = 100A, 18 mm spacing	**42** = 2 strips of 21 branch CTs (¾", 1", or 18 mm) and two 4-ft. round ribbon cables
E = Advanced w/ethernet		**48** = 4 strips of 12 branch CTs (18 mm only) and four 4-ft. round ribbon cables
		72 = 4 strips of 18 branch CTs (18 mm only) and four 4-ft. round ribbon cables
		84 = 4 strips of 21 branch CTs (¾", 1", or 18 mm) and four 4-ft. round ribbon cables

Example:

E30 [A] [0] [42]

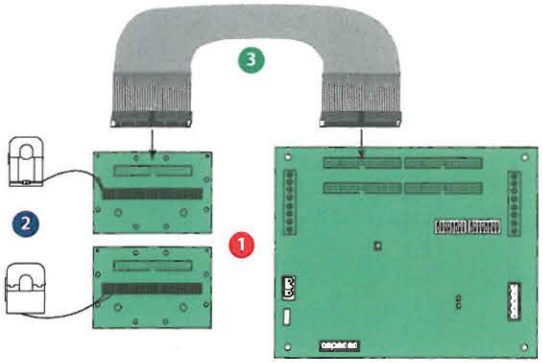
Free Configuration tool available from www.veris.com.
Consult factory for additional mounting options.

Panelboard Monitoring System – Split-Core

E31

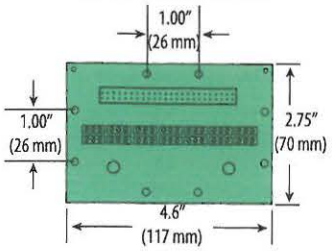
E31xY63

WIRING DIAGRAM

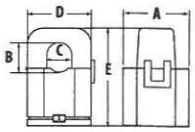


DIMENSIONAL DRAWINGS

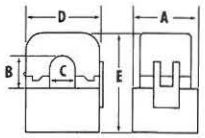
E31 Adapter Board



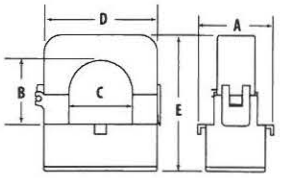
Branch CTs



E31CT0 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)

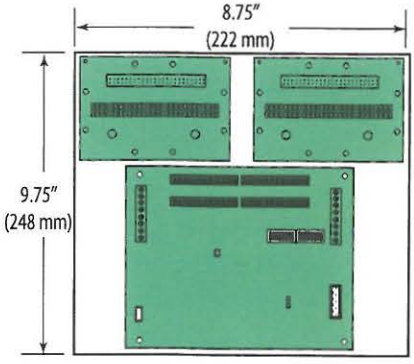


E31CT1 100 Amp
A = 1.5" (39 mm)
B = 0.8" (20 mm)
C = 0.7" (16 mm)
D = 1.6" (40 mm)
E = 2.1" (53 mm)



E31CT3 200 Amp
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)

E31xY63 Boards with Bracket



ORDERING INFORMATION

CE cULus LISTED

1 Boards

	Description	*# of CTs*
E31	☐	☐

A = Advanced board
B = Intermediate board
C = Basic board
E = Advanced w/ ethernet

002 = 2 adapter boards, no CTs, no cables
004 = 4 adapter boards, no CTs, no cables
42 = 2 adapter boards, 42 50A CTs, 2 4 ft. round ribbon cables
84 = 4 adapter boards, 84 50A CTs, 4 4 ft. round ribbon cables
Y63 = 2 adapter boards, flat ribbon cables, pre-assembled on one bracket, CTs not included (not available with E31E models)

2 Branch CTs *(up to 21 CTs per adapter board)*

E31CT0	Six-pack, 50A Branch CT, 6 ft. (1.8 m) lead
E31CT0R20	Six-pack, 50A Branch CT, 20 ft. (6 m) lead
E31CT1	Six-pack, 100A Branch CT, 6 ft. (1.8 m) lead
E31CT1R20	Six-pack, 100A Branch CT, 20 ft. (6 m) lead
E31CT3	Single CT, 200A Branch CT, 6 ft. (1.8 m) lead
E31CT3R20	Single CT, 200A Branch CT, 20 ft. (6 m) lead

3 Ribbon Cable *(order 1 cable per adapter board)*

CBL031	Round Ribbon Cable, 18 in. (0.5 m)	**CBL008**	Flat Ribbon Cable, 18 in. (0.5 m)
CBL032	Round Ribbon Cable, 30 in. (0.8 m)	**CBL016**	Flat Ribbon Cable, 4 ft. (1.2 m)
CBL022	Round Ribbon Cable, 4 ft. (1.2 m)	**CBL017**	Flat Ribbon Cable, 5 ft. (1.5 m)
CBL033	Round Ribbon Cable, 8 ft. (2.4 m)	**CBL018**	Flat Ribbon Cable, 6 ft. (1.8 m)
CBL023	Round Ribbon Cable, 10 ft. (3 m)	**CBL019**	Flat Ribbon Cable, 8 ft. (2.4 m)
CBL024	Round Ribbon Cable, 20 ft. (6 m)	**CBL020**	Flat Ribbon Cable, 10 ft. (3 m)
		CBL021	Flat Ribbon Cable, 20 ft. (6 m)

Ordering Examples:

Option A: For monitoring 42 or 84 circuits, order a pre-made kit from Group 1 only (see Application/Wiring Diagram above).
Example: E31x42 or E31x84

Option B: For monitoring other configurations, build your own kit by selecting from Groups 1, 2, and 3.
Example kit for an 18-circuit panel retrofit:
1. *E31A002 - Advanced board, 2 adapter boards (1 unit)*
2. *E31CT0 - 50A Branch CT six-pack (3 units)*
3. *CBL023 - 10 ft. round ribbon cable (2 units)*

***NOTE:** CTs for mains (used on E31A & E31B models) must be ordered separately. Use 0-0.333V CTs rated for use with Class 1 voltage inputs.*

SPLIT-CORE BRANCH CTs

	50A Split-Core Branch CT	100A Split-Core Branch CT	200A Split-Core Branch CT
Voltage Rating	300 VAC	300 VAC (CE), 600 VAC (UL)	300 VAC (CE), 600 VAC (UL)
Temperature	0° to 60°C	0° to 60°C	0° to 60°C
Agency	UL 61010-1 Recognized, EN61010-1	UL 61010-1 Recognized, EN61010-1	UL 61010-1 Recognized, EN61010-1