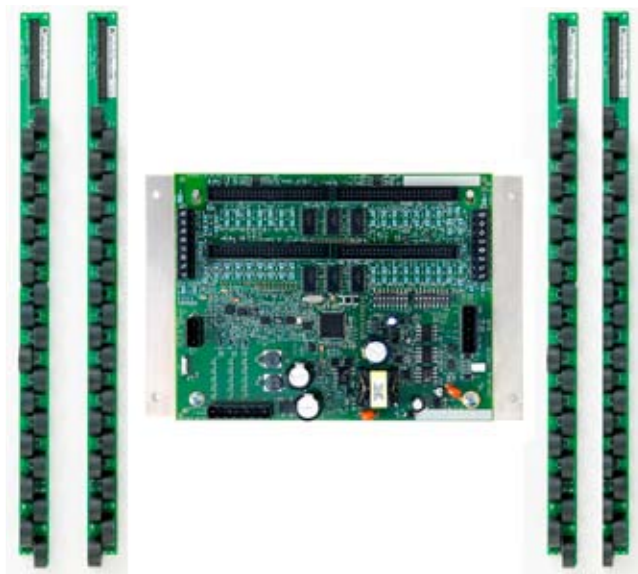


PowerLogic power-monitoring units

Branch Circuit Power Meter (BCPM)

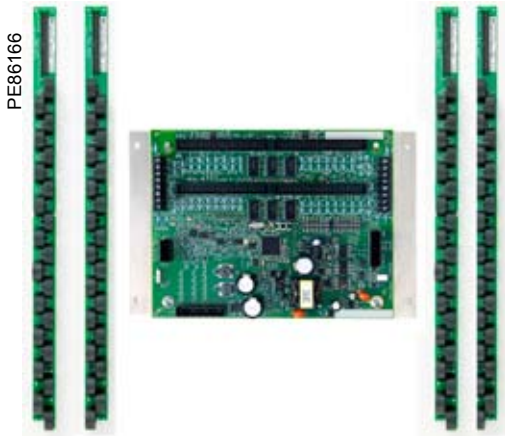
Technical data sheet

2011



PowerLogic BCPM

Functions and characteristics



PowerLogic™ BCPM with solid core CT strips

The ideal solution for data centre 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).

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. 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

- Maximise uptime and avoid outages.
- Optimise existing infrastructure.
- Effectively plan future infrastructure needs.
- Improve power distribution efficiency.
- Track usage and allocate energy costs.
- Enable accurate sub-billing.

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 42 or 84 branch circuits using 2 or 4 CT strips. Solid core CTs are rated to 100 A CTs and are mounted on strips – 21 CTs per strip – to simplify installation.

Retrofit projects: BCPM 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. Two sizes of CT are supported (50 A and 100 A) and both CT sizes can be used on a single BCPM.

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.

Designed to fit any PDU or RPP design

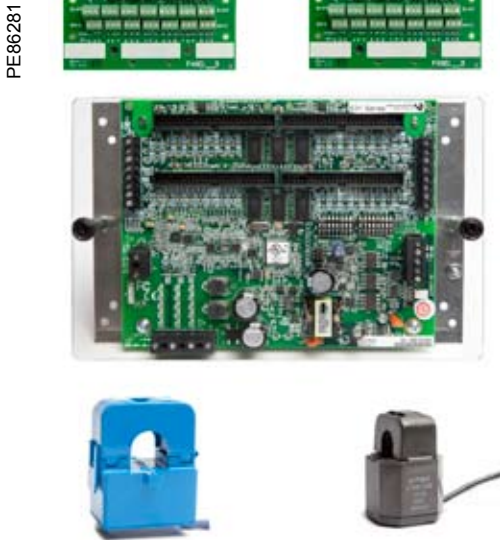
Lowers your total installation costs as well as the cost per meter point by supporting both new and retrofit installations.

Modbus RTU protocol

Integrates easily into existing networks using Modbus communications.

Compatible with PowerLogic power monitoring software

Easily turn the large amount of data collected by the devices into useful decision-making information.

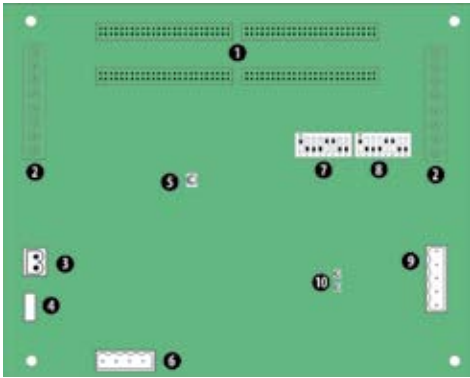


PowerLogic™ BCPM with split core CTs

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
General				
Use on LV systems		■	■	■
Branch circuit accuracy				
Current: Solid core CTs	0.25 A to 2 A	2% reading	2% reading	2% reading
Current: Solid core CTs	2 A to 100 A	1% reading	1% reading	1% reading
Current: Split core CTs	2-100%	2% reading	2% reading	2% reading
Power: Solid core CTs	1-100%**	3% reading	-	-
Power: Split core CTs	2-100%***	3% reading	-	-
Power and energy measurements				
Mains		■	■	-
Branch circuits		■	-	-
Instantaneous rms values				
Current, voltage, frequency		■	■	-
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		■	■	-
Sampling rate Points per cycle		2560 Hz	2560 Hz	2560 Hz
Alarming				
Alarms		■	■	■
Power supply				
AC version		90-277 V ac	90-277 V ac	90-277 V ac
Communication				
RS 485 port		1	1	1
Modbus protocol		■	■	■

* Excludes CTs ** Add 1% for 0.8PF to 0.5PF

BCPM part numbers

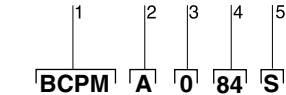
Item	Code	Description
1 Model	BCPM	BCPM with solid core CTs. Highly accurate meter that monitors branch circuits and the incoming power mains and includes full alarming capabilities
2 Feature set	A	Advanced - Monitors power & energy per circuit & mains
	B	Intermediate - Monitors current per circuit, power and energy per mains
	C	Basic - Monitors current only per circuit & mains
3 CT spacing	0	19 mm CT spacing
	1	26 mm CT spacing
4 Number of circuits	84	84 circuits
	42	42 circuits
5 Brand	S	Schneider Electric

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
	B	Intermediate - Monitors current per circuit, power and energy per mains
	C	Basic - Monitors current only per circuit and mains
4 Number of circuits	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

** Add 1% for 0.8 PF to 0.5 PF

*** +0.8 PF



Example BCPM with solid core CTs part number.

- 1 Model.
- 2 Feature set.
- 3 CT spacing.
- 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.

PE86168

PowerLogic BCPM

Functions and characteristics (cont.)

PowerLogic BCPM specifications		
Electrical characteristics		
Type of measurement		
Measurement accuracy (Current and voltage)	Mains current	2% of reading from 1 – 10% of rated current; 1% from 10 – 100% of rated current
	Mains voltage	1% of reading from 90 – 277 V ⁽¹⁾
	Branch current	3% of reading from 0.25 A – 2 A 2% of reading from 2 A – 100 A
	Branch power	3% of reading from 2 A – 100 A ⁽²⁾⁽³⁾
Data update rate	1.8 seconds	
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	90 – 277 V ac (50/60 Hz)
Mechanical characteristics		
Weight	1.5 kg	
Dimensions	Circuit board	288 x 146 mm
Environmental conditions		
Operating temperature	0 to 60°C	
Storage temperature	-40°C to 70°C	
Installation category	CAT III	
Safety		
Europe	IEC 61010	
U.S. and Canada	UL 508 Open type device	
Communication		
RS 485	Baud rate: DIP-switch selectable 9600, 19200, 38400 DIP-switch selectable 2-wire or 4-wire RS-485	
Protocol	Modbus RTU	
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 the RS-485 port	

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

(2) Power accuracy range: +/- 0.8 power factor to 1.0 power factor. (3) Feature set 'A' only.

1/3 V low-voltage CT (LVCT) specifications	
Electrical characteristics	
Accuracy	1% from 10% to 100% of rated current
Frequency range	50/60 Hz
Leads	18 AWG, 600 V ac, UL 1015 twisted pair, 1.8m standard length
Max. voltage L-N sensed conductor	600 V ac
Environmental conditions	
Operating temperature	-15°C to 60°C
Storage temperature	-40°C to 70°C
Humidity range	0 to 95% non-condensing

PE86284



Cabling and connection

Round ribbon cable is recommended for use when the BCPM printed circuit board will be mounted outside of the PDU that is being monitored. Round ribbon cable is the preferred choice when the ribbon cable will be threaded through conduit.

Flat ribbon cable is recommended for projects where the BCPM printed circuit board will be installed inside of the PDU that is being monitored

Flat ribbon cable is more flexible than round ribbon cable and is the preferred choice if the ribbon cable will not be threaded through conduit.

PE86183



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

Part number	Description
BCPMA084S	BCPM Advanced feature set, 84 solid core 100 A CTs, 19 mm CT spacing
BCPMA184S	BCPM Advanced feature set, 84 solid core 100 A CTs, 26 mm CT spacing
BCPMA042S	BCPM Advanced feature set, 42 solid core 100 A CTs, 19 mm CT spacing
BCPMA142S	BCPM Advanced feature set, 42 solid core 100 A CTs, 26 mm CT spacing
BCPMB084S	BCPM Intermediate feature set, 84 solid core 100 A CTs, 19 mm CT spacing
BCPMB184S	BCPM Intermediate feature set, 84 solid core 100 A CTs, 26 mm CT spacing
BCPMB042S	BCPM Intermediate feature set, 42 solid core 100 A CTs, 19 mm CT spacing
BCPMB142S	BCPM Intermediate feature set, 42 solid core 100 A CTs, 26 mm CT spacing
BCPMC084S	BCPM Basic feature set, 84 solid core 100 A CTs, 19 mm CT spacing
BCPMC184S	BCPM Basic feature set, 84 solid core 100 A CTs, 26 mm CT spacing
BCPMC042S	BCPM Basic feature set, 42 solid core 100 A CTs, 19 mm CT spacing
BCPMC142S	BCPM Basic feature set, 42 solid core 100 A CTs, 26 mm CT spacing

BCPM with split core

BCPMSCA30S	BCPM feature set A, 30 circuit split core CT power and energy meter, CTs rated to 50 A
BCPMSCA42S	BCPM feature set A, 42 circuit split core CT power and energy meter, CTs rated to 50 A
BCPMSCA60S	BCPM feature set A, 60 circuit split core CT power and energy meter, CTs rated to 50 A
BCPMSCA84S	BCPM feature set A, 84 circuit split core CT power and energy meter, CTs rated to 50 A
BCPMSCB30S	BCPM feature set B, 30 circuit split core CT branch current, mains power meter, 50 A CTs
BCPMSCB42S	BCPM feature set B, 42 circuit split core CT branch current, mains power meter, 50 A CTs
BCPMSCB60S	BCPM feature set B, 60 circuit split core CT branch current, mains power meter, 50 A CTs
BCPMSCB84S	BCPM feature set B, 84 circuit split core CT branch current, mains power meter, 50 A CTs
BCPMSCC30S	BCPM feature set C, 30 circuit split core CT current meter, CTs rated to 50 A
BCPMSCC42S	BCPM feature set C, 42 circuit split core CT current meter, CTs rated to 50 A
BCPMSCC60S	BCPM feature set C, 60 circuit split core CT current meter, CTs rated to 50 A
BCPMSCC84S	BCPM feature set C, 84 circuit split core CT current meter, CTs rated to 50 A

BCPM split core accessories

BCPMSCADPBS	BCPM adapter boards, quantity 2, for split core BCPM
BCPMSCCT0	BCPM 50 A split core CTs, Quantity 6, 1.8 m lead lengths
BCPMSCCT1	BCPM 100 A split core CTs, Quantity 6, 1.8 m lead lengths
BCPMSCCT2	BCPM 100 A split core CTs, Quantity 6, 1.2 m lead lengths

Additional accessories for use with BCPM products

BCPMCOVERS	BCPM circuit board cover
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

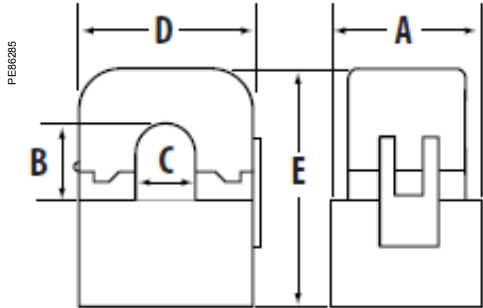
1/3 V low-voltage CT part numbers

Part number	Amperage rating	Inside dimensions
LVCT00102S	100 A	31 mm x 100 mm
LVCT00202S	200 A	31 mm x 100 mm
LVCT00302S	300 A	31 mm x 100 mm
LVCT00403S	400 A	62 mm x 132 mm
LVCT00603S	600 A	62 mm x 132 mm
LVCT00803S	800 A	62 mm x 132 mm
LVCT00804S	800 A	62 mm x 201 mm
LVCT01004S	1000 A	62 mm x 201 mm
LVCT01204S	1200 A	62 mm x 201 mm
LVCT01604S	1600 A	62 mm x 201 mm
LVCT02004S	2000 A	62 mm x 201 mm
LVCT02404S	2400 A	62 mm x 201 mm

PowerLogic BCPM

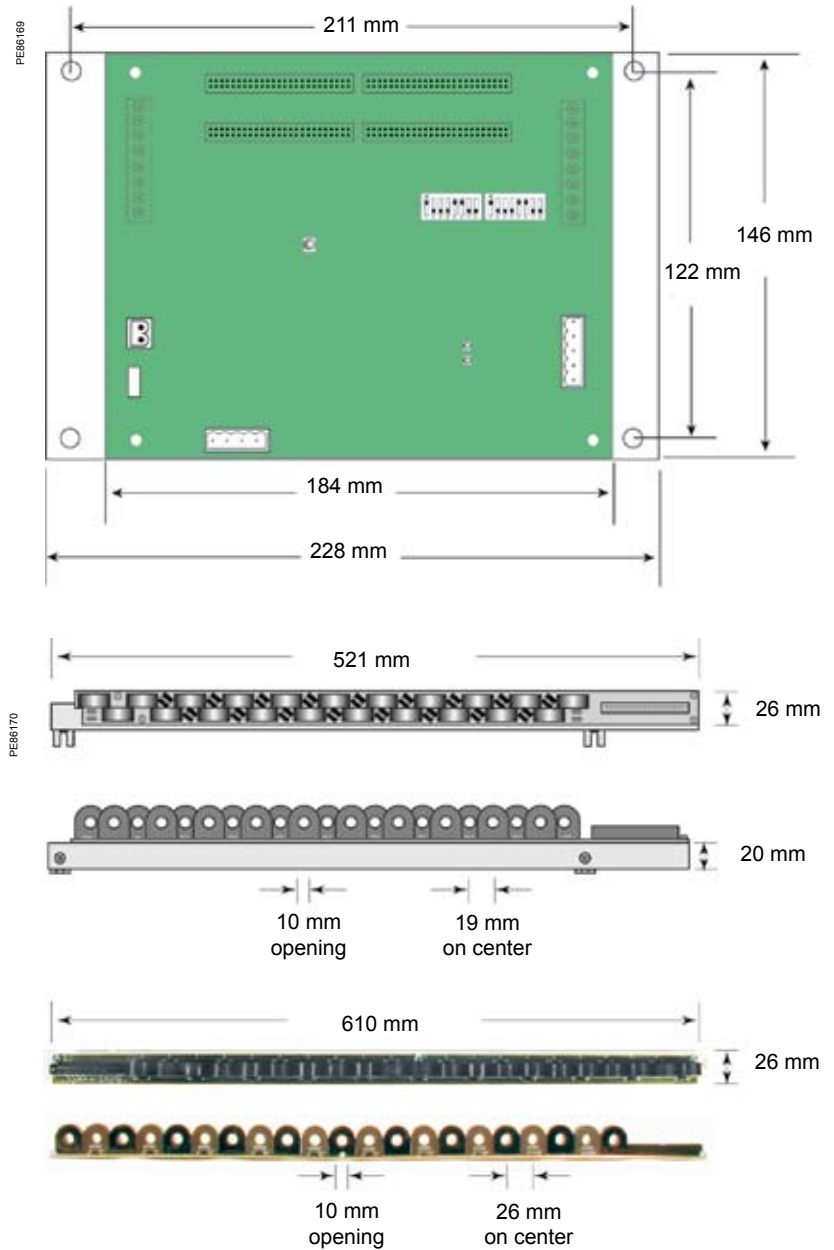
Installation and connection

PowerLogic BCPM dimensions

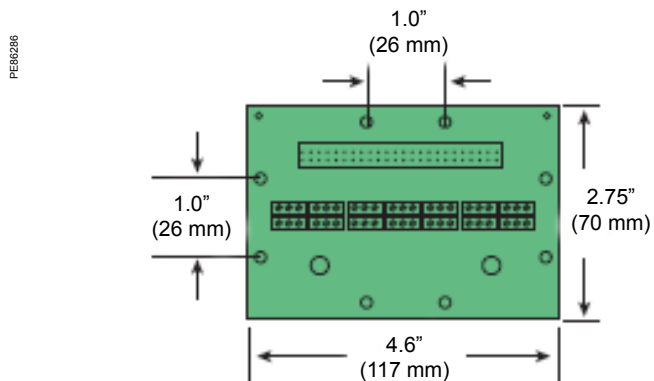


Split core current sensors

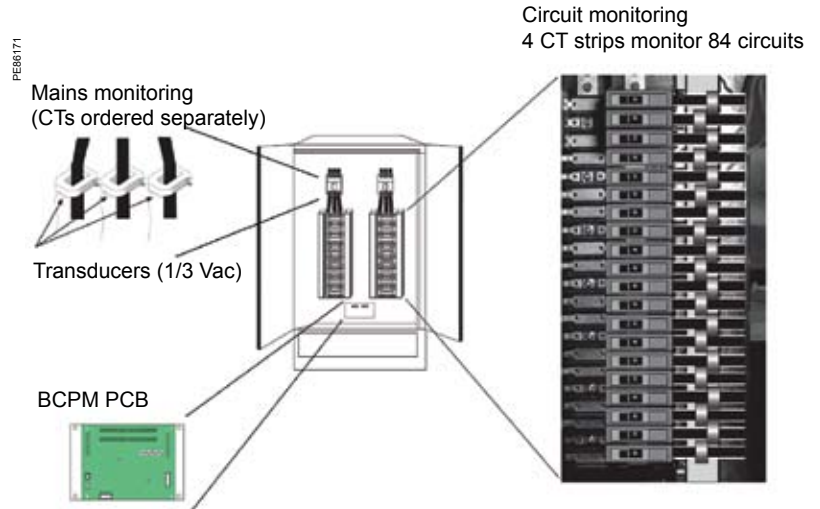
50 Amp	100 Amp
A = 1.0" (26 mm)	A = 1.6" (40 mm)
B = 0.5" (11 mm)	B = 0.7" (16 mm)
C = 0.4" (10 mm)	C = 0.7" (16 mm)
D = 0.9" (23 mm)	D = 1.6" (40 mm)
E = 1.6" (40 mm)	E = 2.0" (52 mm)



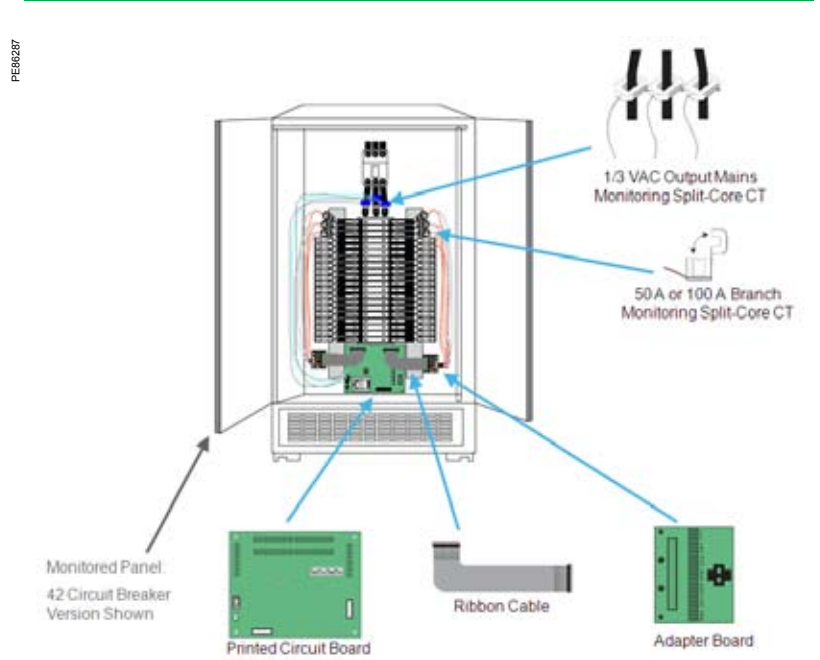
PowerLogic BCPM adapter board (one board per 21 split core branch CTs)



PowerLogic BCPM with solid core CT strips installation details



PowerLogic BCPM with split core CTs installation details



1/3 V low-voltage CT form factor

Small form factor 100/200/300 Amp

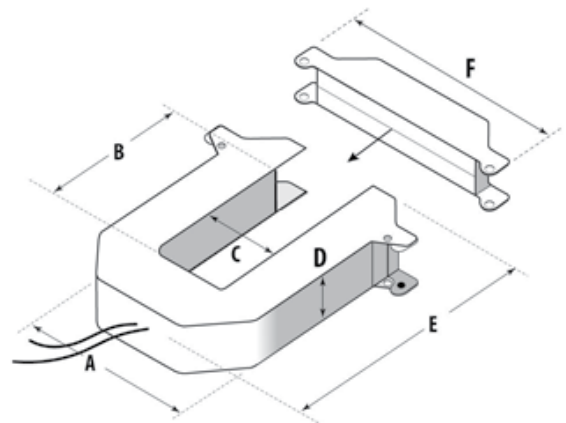
- A = 96 mm
- B = 30 mm
- C = 31 mm
- D = 30 mm
- E = 100 mm
- F = 121 mm

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



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PLSED308011EN

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Printing: Altavia Connexion - Made in France



August 2011