

ReliaGear™ panelboard with branch circuit monitoring



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Left: BCM solid core
Right: BCM split core

Overview

With exceptional performance, the BCM unit monitors key electrical parameters of the main circuit and various branch circuits coming into the panelboard. This information can be transmitted via the RS-485 communication system in order to analyze usage, identify potential cost-saving measures and improve load management. Offering IEC Class 1 revenue-grade metering accuracy, the revenue-grade BCM meter can be used for tenant billing and cost allocation.

The ReliaGear panelboard comes with the BCM unit completely integrated, including current transformers, eliminating the need for any field installation or modifications. This integrated solution can help you meet the measurement and verification points required by the LEED and green building design, and ASHRAE 90.1.

The branch circuit monitoring (BCM) unit provides a cost-effective integrated solution for ReliaGear panelboard power monitoring and submetering applications.

A split-core branch circuit monitor is now available as another option to the standard solid-core monitoring feature. The split-core current transformers allow the operator to monitor only the circuits needed. The BCM unit can be factory integrated in any of the following ReliaGear panelboards up to 800 amperes: RQ, RE or RS.

Benefits

- Analysis of potential cost-saving actions
- Verify energy bills
- Identify wasteful practices and decrease unnecessary usage
- Fairly and accurately allocate energy costs to users
- User-configurable alarm registers assist with load management
- Secure the optimum utility rate structure
- Load balancing for peak/off-peak maximization
- Accurately distinguish between load types where required by regulation

Features

- Solutions up to 800 A
- IEC Class 1 revenue-grade metering accuracy
- Offers solid-core or split-core BCM selection process
- Monitor up to 126 panelboards on a single RS-485 drop
- Reports volts, amps, power and energy for each circuit
- Solid core monitors 42 or 84 circuits (and optional mains)
- Split core monitors up to 66 circuits in a main breaker panel and up to 84 circuits in a main lug panel
- 4 configurable alarm thresholds improve load management
- Ability to set the orientation and numbering of the circuits
- ¼ to 125¹ amp monitoring — the widest range available
- 1-, 2- and 3-pole breaker support
- 5-year warranty
- Modbus RTU via RS-485 communications
- New depopulated BCM panel comes with provisioning for meter to be installed later in the field

Applications

- California Title 24 Building Code compliant
- ASHRAE 90.1 compliant²
- Energy monitoring in building automation systems
- Renewable energy
- Energy management
- Commercial submetering
- Industrial monitoring
- Cost allocation

¹ Must use split-core BCM for 110 A and 125 A monitoring. Solid core available for 42 or 84 circuits only, 100 A max. Solid-core CTs have an inner diameter of 0.4". Check wire diameter for compatibility. Split core available up to 84 circuits max. and up to 125 A max.

² Recording and data retention requirements satisfied by connection to an energy monitoring system.

BCM technical specifications

Inputs

Input power	50/60 Hz, 90–277 V AC
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Accuracy

Power/energy	IEC 62053-21 Class 1, ANSI C12.1-2008
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Voltage	±0.5% of reading 90–277 V line-to-neutral
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Current	±5% of reading
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Outputs

Type	Modbus RTU
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Connection DIP	Switch-selectable 2-wire or 4-wire, RS-485
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Address DIP	Switch-selectable address 1 to 247 (in pairs of 2)
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Baud rate DIP	Switch-selectable 9600, 19200, 38400
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Parity DIP	Switch-selectable none, odd, even
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Communication format	8 data bits, 1 start bit, 1 stop bit
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Termination	5-position depluggable connector (TX+ TX- SHIELD TX+/RX+ TX-/RX-)
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Mechanical

Ribbon cable support	18" round ribbon cable standard; up to 20 ft. (6 m) available
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Environmental

Operating temperature range	0° to 60 °C (32° to 140 °F) (<95% RH noncondensing)
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Storage temperature range	-40 °C to 70 °C (-40 °F to 158 °F)
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Agency approvals	UL 508, EN61010
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Selection guide for ASP meter split and solid core

Monitoring at mains	Advanced	Basic
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 ³	•	
Power factor per phase	•	
Voltage — line to line and average	•	
Voltage — line to neutral and average	•	
Frequency (phase A)	•	

Monitoring at branch circuit	42 or 84 circuit solid core 66/84 circuit split core max.	42 or 84 circuit solid core 66/84 circuit split core max.
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	•	
Apparent power (kVA)	•	
Power factor	•	

³ Based on a 3-phase breaker rotation

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References

Solid core installation guide	1TQC173000E0050
Commissioning guide	1TQC173000E0010
Split core installation guide	1TQC173000E0012

Standards and approvals

- UL 67
- UL 50
- NEMA PB-1
- NFPA 70

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