SIEMENS

Technical Specification Sheet
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MD-BMS and MD-BMED Model Power Meters

Description

Siemens Industry's MD-BMS and MD-BMED Model Power Meters are submetering devices designed to provide real time, accurate electricity metering to enable proper control over energy costs. The meter can capture kWh/kW energy and demand data, as well as virtually all relevant energy parameters for diagnostics and monitoring on three-phase or single-phase circuit installations. The meters' flexibility, size, and ease-of-use make them ideal tools for gathering detailed consumption information in commercial, industrial, governmental, and retail environments.

The meters use direct connections to each phase of the voltage and various interchangeable current transformer (CT) options such as split-core CTs or flexible Rogowski Coils (for large loads or large cables and bussbars) to monitor current on each phase. All of Siemens' current transformers are internally shunted for intrinsically safe operation on energized conductors.

The power meters make over 75 total electrical measurements which are derived from the voltage and current inputs. Electrical load diagnostic parameters such as power factor and line frequency are captured in addition to energy and demand values.

The Siemens MD-BMS and MD-BMED Power Meters require no external power and the power supplies can accommodate service voltages ranging from 80 to 600V (phase-to-phase). The simple installation is accomplished by connecting the color-coded voltage leads and clearly labeled CTs. A three-LED indicator display confirms proper CT-to-phase installation. The meters automatically adjust for CT orientation—greatly reducing set-up time and all but eliminating installation errors.

The display model (MD-BMED), features an integrated 2 × 16-character backlit display which cycles through key configuration data along with voltage, current, power, and power factor, by phases.

MD-BMS Power Metering Kit

MD-BMED Power Metering Kit with Ethernet and 2 × 16-Character Backlit Display

Features

- Communication flexibility to integrate with most control systems, using RS485 BACnet MS/TP or Modbus RTU. MD-BMED model adds Ethernet BACnet IP or Modbus TCP capability.
- Measures over 75 electrical parameters on single- and three-phase electrical systems.
- Bundled meter and three CTs with ranges from 100 Amps to 4000 Amp Rogowski Coils.
- ANSI C12.20-2010 Class 0.2 accuracy supports submetering and cost allocation applications.
- Direct connection up to 600V line-to-line eliminates need for separate power transformers.
- New USB port allows for meter data monitoring to support startup or servicing.
- MD-BMED model supports backlit LCD display.
- One digital pulse output port for energy monitoring.
- UL, cUL and CE Mark
- Five-year warranty.

Features (Continued)

Siemens MD-BMS and MD-BMED Model Power Meters use interchangeable CT options such as split-core or flexible Rogowski-style CTs. The meters have embedded Rogowski Coil CT amplifier/integrator circuitry, so there is no need to provide external power to the CTs.

Communications interface to the meters is through an RS-485 serial connection using BACnet MS/TP (default) or Modbus RTU protocol. Advanced configuration can be completed by using ViewPoint™ software.

The MD-BMED has an integrated Ethernet port which supports BACnet IP or Modbus TCP in addition to the RS-485 communication options noted above. This model also provides a new backlit display.

Up to 20 meters can be connected to a single RS-485 network for monitoring and recording power usage at multiple locations within a single site.

Applications

- Tenant submetering
- Data Center monitoring
- Commercial
- Retail
- Industrial Power Reporting

Specifications

Technical	Service types	Single Phase, Three Phase-Four Wire (WYE), Three Phase-Three Wire (Delta).
	Meter Power	From L1 Phase to L2 Phase, 80 to 600 Vac CAT III 50/60 Hz, 90 mA maximum. Non-user replaceable 0.5A internal fuse protection.
	3 Voltage channels	80 to 346V AC Line-to-Neutral, 600V Line-to-Line, CAT III.
	Current channels	3 channels, 0.525 VAC max, 333 mV CTs, 0 to 4,000+ Amps, depending on current transducer.
	Maximum current input	158% of current transducer rating (mv CTs) to maintain accuracy. Measure up to 4000 Amps RoCoil CTs.
	Measurement rating	True RMS using high-speed digital signal processing (DSP).
	Line frequency	50/60 Hz
	Waveform sampling	12 kHz for voltage or current
	Parameter update rate	0.5 seconds
	Measurements	Volts, Amps, kW, kWh, kVAR, kVARh, kVA, kVAh, and Power Factor (PF). Many parameters for each phase and for system total.
	Accuracy	Rated to ANSI, C12-20-2010 Class 0.2. Better than 0.2% (<0.1% typical) for V, A, kW, kVAR, kVA, and PF, excluding sensor.
	Resolution	0.01 Amp, 0.1 Volt, 0.01 watt, 0.01 VAR, 0.01 VA, 0.01 Power Factor depending on scalar setting.
	LED indicators	Bi-color LEDs (red and green): 1 LED to indicate communication, 3 LEDs for correct phasing (PhaseChek: Green when voltage and current are on the same phase; Red when incorrectly wired.) Pulse output LED.
	Pulse output	Open Collector, 5 mA maximum current, 30V maximum open voltage. Optically isolated.

Technical, Continued	Digital Display (MD-BMED only)	Optional 2 × 16-character display, which auto-cycles between data screens every 2 to 3 sec, with real-time values updated every second.
Communications	RS-485 data format (all models)	BACnet MS/TP (default) or Modbus RTU protocol over a RS-485 Network. BACnet Testing Labs certified smart sensor (B-SS).
	Ethernet data format (MD-BMED only)	BACnet IP (default) or Modbus TCP, IP settings set with ViewPoint software (MD-BMED only).
	Ethernet cable length	<30 meters (indoor wiring only)
	Baud rates	BACnet: 9600, 19200, 38400, 76800. Default - 76800 Modbus: 9600, 19200, 38400, 57600, 76800, 115200. Default - 9600
	Data bits	8
	Parity	None, Even, Odd
	Stop bit	1, 2
Mechanical	Operating temperature	20°F to 140°F (-7°C to 60°C)
	Humidity	5% to 95% non-condensing
	Enclosure	ABS Plastic, 94-V0 flammability rating
	Weight	12 ounces (340 g) exclusive of CTs
	Dimensions	9.5" × 3.3" × 1.6" (24.2 cm × 8.5 cm × 4.0 cm)
	Color	Dark blue, PMS289
	Ingress Protection (IP Rating)	IP20
	DIN rail compatibility	Compatible with TS35/7 DIN Rail Channel.
ViewPoint Software	Operating system	Windows® 8, Windows® 7 (32/64-bit), Windows® Vista (32/64-bit) or Windows® XP
	Communications port	One USB port and type AB cable required.
	Hard drive	50 MB minimum available.
	Processor	Pentium Class 1 GHz or better recommended.
Safety	Certifications	UL Listed to UL Standard 61010-1 IEC 61010-2-030 cUL certified to CAN/CSA Standard C22.2 No. 61010-1 Certified to CSA Std. C22.2, No. 61010-1 FCC Part 15, Class B RCM (formerly C-Tick) RoHS Compliant WEEE Compliant BACnet Testing Labs certified smart sensor (B-SS) device
	CE Conformity	CE Low Voltage and EMC Directives
Country of Origin		USA

NOTE: Contact your Siemens Representative to download the free ViewPoint Service software.

Ordering Information

Part Number	Power Meter Kit Description
	MD-BMS Power Meter Bundled Kits
MD-BMS-3-CTSC-100A	Meter with three 100A, split-core current transformers with 1" windows
MD-BMS-3-CTSC-200A	Meter with three 200A, split-core current transformers with 1" windows
MD-BMS-3-CTSC-400A	Meter with three 400A, split-core current transformers with 1.25" windows
MD-BMS-3-CTSC-600A	Meter with three 600A, split-core current transformers with 2" windows
MD-BMS-3-RC-16	Meter with three 4000A, 16” Rogowski Coil CTs, with 5" diameter windows
MD-BMS-3-RC-36	Meter with three 4000A, 36” Rogowski Coil CTs with 10” diameter windows

	MD-BMED Power Meter, with Ethernet and Display, Bundled Kits
MD-BMED-3-CTSC-100	Meter with display, and three 100A, split-core current transformers with 1" windows
MD-BMED-3-CTSC-200	Meter with display, and three 200A, split-core current transformers with 1" windows
MD-BMED-3-CTSC-400	Meter with display, and three 400A, split-core current transformers with 1.25" windows
MD-BMED-3-CTSC-600	Meter with display, and three 600A, split-core current transformers with 2" windows
MD-BMED-3-RC-16	Meter with display, and three 4000A, 16” Rogowski Coil CTs with 5” diameter windows
MD-BMED-3-RC-36	Meter with display, and three 4000A, 36” Rogowski Coil CTs with 10” diameter windows

Dimensions

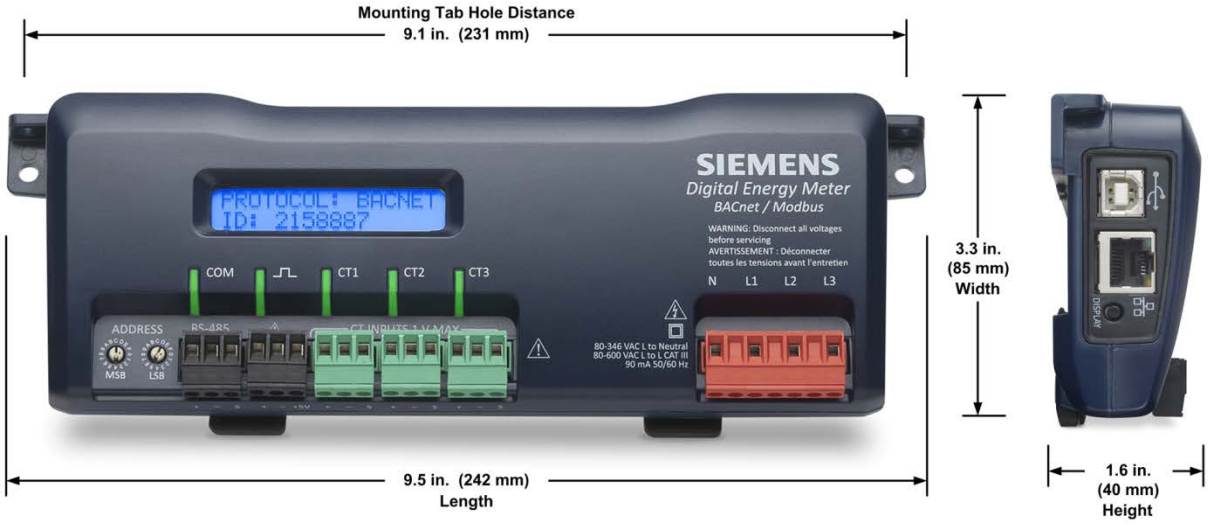

Figure 1. MD-BMED Dimensions in Inches (Millimeters).

BACnet Protocol Implementation Conformance Statement

Products

Product	Model Numbers		Protocol Revision
Siemens MD-BMS and MD-BMED Model Power Metering Kits	MD-BMS-3-CTSC-100A MD-BMS-3-CTSC-200A MD-BMS-3-CTSC-400A MD-BMS-3-CTSC-600A MD-BMS-3-RC-16 MD-BMS-3-RC-36 MD-BMS	MD-BMED-3-CTSC-100 MD-BMED-3-CTSC-200 MD-BMED-3-CTSC-400 MD-BMED-3-CTSC-600 MD-BMED-3-RC-16 MD-BMED-3-RC-36 MD-BMED	Revision 12

Vendor Information

Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089
www.buildingtechnologies.siemens.com/bt/us

Product Description

Single-phase, three-phase ANSI C12.20-2010 Class 0.2 revenue grade power metering kits.
Supports BACnet MS/TP and Modbus RTU Communication protocol (MD-BMS models)
Supports BACnet MS/TP, Modbus RTU, BACnet IP and Modbus TCP protocols (MD-BMED models)

BACnet Standardized Device Profile

Product	Device Profile
BACnet Energy Meter Kits with CTs	BACnet Smart Sensor (B-SS)

Supported BACnet Interoperability Building Block (BIBBs)

Product	BIBB	Name
Required for B-ASC Profile		
BACnet Energy Meter Kits with CTs	DS-RP-B	Data Sharing-ReadProperty-B
	DS-RPM-B	Data Sharing-ReadPropertyMultiple-B
	DS-WP-B	Data Sharing-WritePropteryMultiple-B
	DM-DOB-B	Device Management-Dynamic Object Binding-B (Who-Has)
	DM-DOB-B	Device Management-Dynamic Object Binding-B (I-Have)
	DM-DDB-B	Device Management-Dynamic Device Binding-B (Who-Is)
	DM-DDB-B	Device Management-Dynamic Device Binding-B (I-Am)

Standard Object Types Supported

Product	Object Type	Creatable	Deletable
BACnet Energy Meter Kits with CTs	Analog Value	No	No
	Device	No	No

Data Link Layer Options

Product	Data Link and Options
BACnet Energy Meter Kits with CTs	BACnet IP, (Annex J), Foreign Device (MD-BMED only)
	MS/TP master (Clause 9), baud rate(s): 9600 bps, 19200 bps, 38400 bps, 76800 bps

Segmentation Capability

Product	Segmentation Type	Supported	Window Size
BACnet Energy Meter Kits with CTs	Can transmit segmented messages	No	N/A
	Can receive segmented messages	No	N/A

Device Address Binding

Product	Static Device Binding Supported
BACnet Energy Meter Kits with CTs	No

Networking Options

Product	Network Options Supported	Supported
BACnet Energy Meter Kits with CTs	Router, Clause 6	No
	Annex H, BACnet Tunneling Router over IP	No
	BACnet/IP Broadcast Management Device (BBMD) Does the BMD support registrations by Foreign Devices?	No

Network Security Options

Product	Security Options Supported
BACnet Energy Meter Kits with CTs	Non-secure Device – is capable of operating without BACnet Network Security.

Character Sets

Product	Charcter Sets Supported
BACnet Energy Meter Kits with CTs	ISO 10646 (UTF-8)

Supported Services

Product	Application Service	Initiates Requests	Executes Requests
BACnet Energy Meter Kits with CTs	ReadProperty Service	No	Yes
	ReadPropertyMultiple Service	No	Yes
	WriteProperty Service	No	Yes
	Who-Is	No	Yes
	Who-Has	No	Yes
	I-Am	Yes	No
	I-Have	Yes	No