

MD-P1 and MD-P1D Power Meters

Description

Siemens Industry's MD-P1 and MD-P1D 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 55 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-P1 and MD-P1D 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-P1D), features an integrated 2 x 16-character backlit display which cycles through key configuration data along with voltage, current, power, and power factor, by phases.



MD-P1 Power Meter



MD-P1D Power Meter with
 2 x 16-Character Backlit Display

Features

- Compatible with all Siemens APOGEE® Building Automation Systems (BAS), using P1 FLN protocol.
- Measures over 55 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.
- Optional model supports backlit LCD display.
- One digital pulse output port for energy monitoring.
- UL, cUL and CE Mark. Five-year warranty.
- New, high accuracy Revenue Grade models.

Features (Continued)

Siemens MD-P1 and MD-P1D 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 Siemens P1 FLN protocol. Advanced configuration can be completed by using ViewPoint™ software (See the *MD-P1 and MD-P1D Model Power Meters User Guide* 125-201 for access information).

Siemens MD-P1 and MD-P1D Power Meters use the P1 FLN protocol for sending commands and retrieving data with an APOGEE BAS. Up to 20 meters can be connected to a single P1 trunk for monitoring and recording power usage at multiple locations within a single site.

Applications

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

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-P1D only)	Optional 2 × 16-character display, which auto-cycles between data screens every 2 to 3 seconds, with real-time values updated every second.
Communications	Data format Maximum distance Baud rate Data bits Parity Stop bit	P1 FLN over RS-485 Network 1200 meters with Data Range of 100K bits/second or less 4800 baud 8 None, Even, Odd 1, 2
Mechanical	Operating temperature Humidity Enclosure Weight Dimensions Color Ingress Protection (IP Rating) DIN rail compatibility	20°F to 140°F (-7°C to 60°C) 5% to 95% non-condensing ABS Plastic, 94-V0 flammability rating 12 ounces (340 g) exclusive of CTs 9.5" × 3.3" × 1.6" (24.2 cm × 8.5 cm × 4.0 cm) Dark blue, PMS289 IP20 Compatible with TS35/7 DIN Rail Channel
ViewPoint Software	Operating system NOTE: - See the <i>MD-P1 and MD-P1D Model Power Meters User Guide</i> 125-201 for access information.	Windows® 10, Windows® 8, Windows® 7 (32/64-bit), Windows® Vista (32/64-bit) or Windows® XP One USB port with one type AB cable 50 MB minimum available Pentium Class 1 GHz or better recommended.
Safety	Certifications CE Conformity	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 CE Low Voltage and EMC Directives
Country of Origin		USA

Ordering Information

Part Number	Description
STANDARD GRADE POWER METERING KITS	
P1 Power Meter Bundled Kits	
MD-P1-3-CTSC-100A	P1 Meter with three 100A, split-core current transformers with 1" windows
MD-P1-3-CTSC-200A	P1 Meter with three 200A, split-core current transformers with 1" windows
MD-P1-3-CTSC-400A	P1 Meter with three 400A, split-core current transformers with 1.25" windows
MD-P1-3-CTSC-600A	P1 Meter with three 600A, split-core current transformers with 2" windows
MD-P1-3-RC-16	P1 Meter with three 4000A, 16" Rogowski Coil CTs, with 5" diameter windows
MD-P1-3-RC-36	P1 Meter with three 4000A, 36" Rogowski Coil CTs with 10" diameter windows
P1D Power Meter, with Display, Bundled Kits	
MD-P1D-3-CTSC-100A	P1D Meter with display, and three 100A, split-core current transformers with 1" windows
MD-P1D-3-CTSC-200A	P1D Meter with display, and three 200A, split-core current transformers with 1" windows
MD-P1D-3-CTSC-400A	P1D Meter with display, and three 400A, split-core current transformers with 1.25" windows
MD-P1D-3-CTSC-600A	P1D Meter with display, and three 600A, split-core current transformers with 2" windows
MD-P1D-3-RC-16	P1D Meter with display, and three 4000A, 16" Rogowski Coil CTs with 5" diameter windows
MD-P1D-3-RC-36	P1D Meter with display, and three 4000A, 36" Rogowski Coil CTs with 10" diameter windows
REVENUE GRADE POWER METERING KITS	
P1 Revenue Grade Power Meter Bundled Kits	
MD-P1-3-RGCT-50A	P1 Meter with three Revenue Grade 50A, hinged split-core CTs with 0.4" windows
MD-P1-3-RGCT-100A	P1 Meter with three Revenue Grade 100A, hinged split-core CTs with 1.25" windows
MD-P1-3-RGCT-200A	P1 Meter with three Revenue Grade 200A, hinged split-core CTs with 1.25" windows
MD-P1-3-RGCT-400A	P1 Meter with three Revenue Grade 400A, hinged split-core CTs with 1.25" windows
P1D Revenue Grade Power Meter, with Display, Bundled Kits	
MD-P1D-3-RGCT-50A	P1D Meter, display and three Revenue Grade 50A, hinged split-core CTs, 0.4" windows
MD-P1D-3-RGCT-100A	P1D Meter, display and three Revenue Grade 100A, hinged split-core CTs, 1.25" windows
MD-P1D-3-RGCT-200A	P1D Meter, display and three Revenue Grade 200A, hinged split-core CTs, 1.25" windows
MD-P1D-3-RGCT-400A	P1D Meter, display and three Revenue Grade 400A, hinged split-core CTs, 1.25" windows

Dimensions

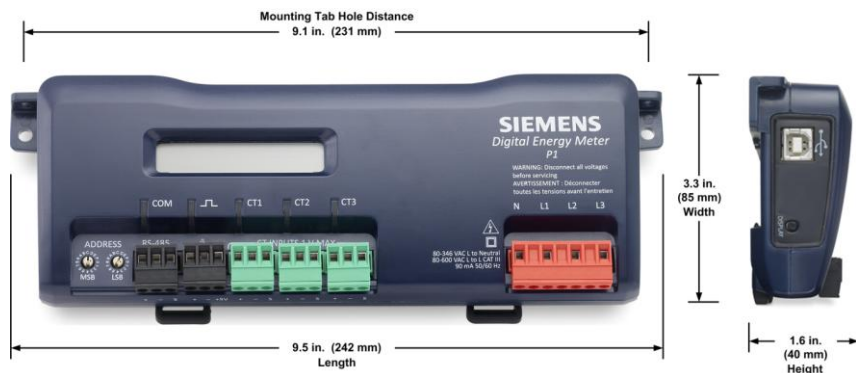


Figure 1. MD-P1D Dimensions in Inches (Millimeters).

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