

EM4200 Series Enercept™

Specifications



IEC model shown.



Product Description

EM4200 Series Enercept power and energy meters provide a unique solution for measuring energy data. Designed with the user in mind, the EM4200 Series offers maximum application flexibility for retrofit applications.

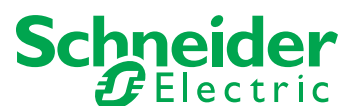
The EM4200 Series is compatible with split-core, solid-core and U018 Series rope-style Rogowski current transducers (CT) from five to 5000 amperes, often allowing installers to utilize existing CTs with the meter. Adding to its versatility, the EM4200 has a wide input range of 90 to 480 Vac, alleviating the need to keep multiple models in stock. The meter's small form factor enables installation in existing panels with limited space, and does not require external mounting or the expense of extra enclosures or conduit runs. Communicating models support auto detection of baud rate, parity, and protocol for Modbus® RTU and BACnet® MS/TP.

Features

- High reliability with ANSI C12.20 0.2% accuracy, IEC 62053-22 Class 0.2S
- Modbus and BACnet protocols along with uni-directional and bi-directional feature sets in one unit...simplifies ordering and stocking options
- Compatible with CTs from 5 to 5000 A...wide range of service types
- 90 to 480 Vac...application versatility with fewer models to stock
- DIN rail or screw mount options (with included mounting bracket)...allows easy installation
- Native Modbus RTU and BACnet MS/TP support (no gateway) with serial rates up to 115.2 kbaud
- Seamless integration with StruxureWare™ Power Monitoring Expert (PME), StruxureWare Building Operation (SBO) and StruxureWare Building Expert (SBE)

Measurement Accuracy	
Real Power & Energy, 1/3 Volt Current Input Mode	IEC 62053-22 Class 0.2S, ANSI C12.20 0.2%
Real Power & Energy, Rogowski Current Input Mode	IEC 62053-22 Class 0.5S, ANSI C12.20 0.5%
Reactive Power & Energy	IEC 62053-23 Class 2, 2%
Input Voltage Characteristics	
Measured AC Voltage	Min. 90 V _{L-N} (156 V _{L-L}) for stated accuracy; UL max.: 480 V _{L-L} (277 V _{L-N}); CE max.: 300 V _{L-N}
Impedance	2.5 MΩ _{L-N} / 5 MΩ _{L-L}
Frequency Range	45...65 Hz
Input Current Characteristics	
Measurement Input Range	0...0.333 Vac (+20% over-range)
Impedance	33 kΩ
Control Power	
AC	4 VA max.; 90 V min. UL max.: 480 V _{L-L} (277 V _{L-N}) CE max.: 300 V _{L-N}
Ride-through Time	50 ms at 120 Vac
Mechanical Characteristics	
Ingress Protection (IEC 60529)	IP20
Plug Wire Size (I/O, Communications, CT)	24-16 AWG (0.2 to 1.5 mm ²)
Optional Bracket: Rail Mounted	T35 (35 mm) DIN rail per EN50022
Optional Bracket: Wall Mounted	Two #10 or M5 screws, 2.953" (75 mm) center-to-center
Environmental Conditions	
Operating Temp. ¹	-30...70 °C (-22 to 158 °F)
Storage Temp.	-40...85 °C (-40 to 185 °F)
Humidity Range	<95% RH (non-condensing)
Altitude of Operation	3 km max.
Pollution Degree	2
Metering Category	
UL	CAT III; for distribution systems up to 277 V _{L-N} / 480 Vac _{L-L}
CE	CAT III; for distribution systems up to 300 V _{L-N}
Dielectric Withstand	Per UL 61010-1, EN 61010-1
Conducted and Radiated Emissions	FCC part 15 Class A, EN 61000-6-4, EN 61326-1 Class A (industrial)
Conducted and Radiated Immunity	EN 61000-6-2, EN 61326-1 (industrial)
Agency Approvals	
U.S. and Canada	UL 61010-1
Europe (CE)	EN 61010-1
Warranty	
Limited Warranty	5 years

1. The EM4200 is limited to an operating temperature of 55 °C (131 °F) when used with a rope-style CT.

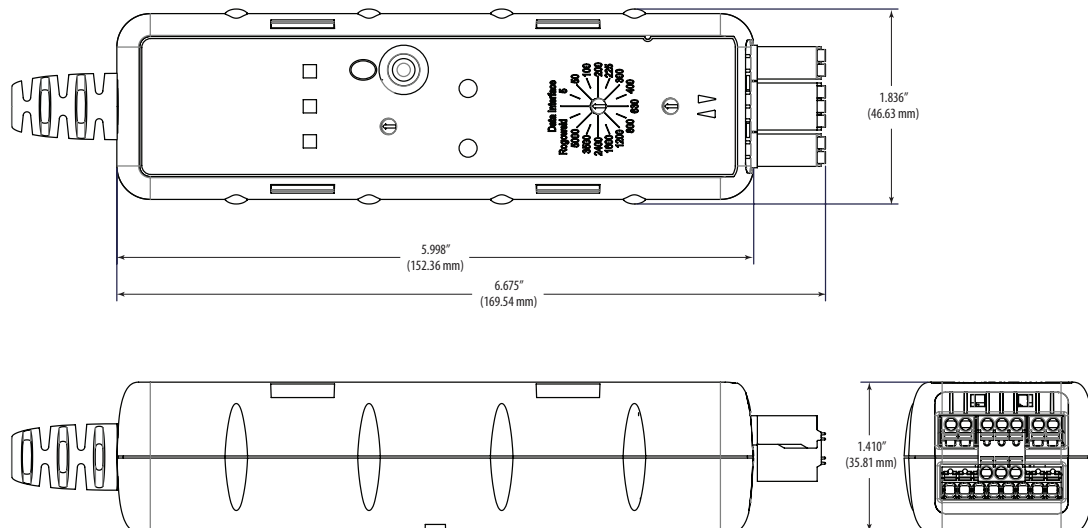


*The CE mark indicates RoHS2 compliance. Please refer to the CE Declaration of Conformity for additional details.

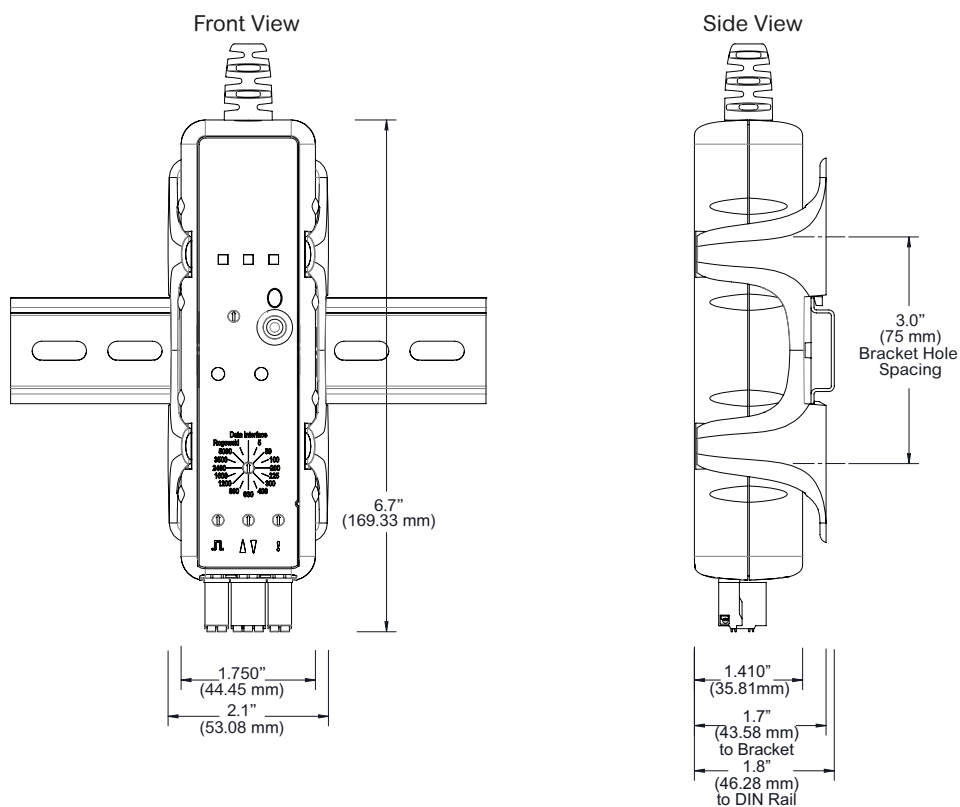
Available Products

Part Number	Description	Application	Communication	Real Time
EM4235	Enercept, Class 0.2S meter, Modbus/BACnet communication, Uni-Directional/Bi-Directional, RS-485, IEC wire code	Single-Circuit	Modbus/BACnet	Yes
EM4236	Enercept, Class 0.2S meter, Modbus/BACnet communication, Uni-Directional/Bi-Directional, RS-485, ANSI wire code	Single-Circuit	Modbus/BACnet	Yes

Dimensions in. (mm)



Dimensions, Mounted in. (mm)



Ordering Information

	EM4235	EM4236
Measurement Capability: Full Data Set		
Bi-directional Energy Measurements	✓	✓
Power (3-phase Total and Per Phase): Real (kW) Reactive (kVAR), and Apparent (kVA)	✓	✓
Power Factor: 3-phase Average and Per Phase	✓	✓
Present Power Demand: Real (kW), Reactive (kVAR), and Apparent (kVA)	✓	✓
Import and Export Totals of Present Power Demand: Real (kW), Reactive (kVAR), and Apparent (kVA)	✓	✓
Peak Power Demand: Real (kW), Reactive (kVAR), and Apparent (kVA)	✓	✓
Current (3-Phase Average and Per Phase)	✓	✓
Voltage: Line-Line and Line-Neutral (3-phase Average and Per Phase)	✓	✓
Frequency	✓	✓
ANSI C12.20 0.2% Accuracy, IEC 62053-22 Class 0.2S	✓	✓
Accumulated Net Energy: Real (kWh), Reactive (kVARh), and Apparent (kVAh)	✓	✓
Accumulated Real Energy by Phase (kWh)	✓	✓
Import and Export Accumulators of Real and Apparent Energy	✓	✓
Reactive Energy Accumulators by Quadrant (3-phase Total and Per Phase)	✓	✓
Demand Interval Configuration: Fixed or Rolling Block	✓	✓
Demand Interval Configuration: External Sync to Comms		✓
Data Logging		
Data Logging: 10 16-bit Configurable (Can Include Date/Time) Data Buffers		
Data Logging: 3 Timestamped 32-bit Configurable Data Buffers		
Store up to 60 Days of Readings at 15-minute Intervals		
Outputs		
Alarm Output (N.C.)		
1 Pulse Output (N.O.)		
2 Pulse Outputs (N.O.)		
RS-485 Serial (Modbus RTU Protocol)	✓	✓
RS-485 Serial (BACnet MS/TP Protocol)	✓	✓
Inputs		
2 Pulse Contact Accumulator Inputs		
1 Pulse Contact Accumulator Input		

Low Voltage CTs for EM4200 Series Meters

EM4200 Series meters use 0.333 V output LVCTs for the auxiliary inputs. These CTs are ordered separately from the meter.

Rope-Style (50 to 5000A)

12", 18", 24", & 36" lengths

U018-0001 (12")

U018-0002 (18")

U018-0003 (24")

U018-0004 (36")



Size 0

LVCT00050S (50 A)



Size 2

LVCT00102S (100 A)

LVCT00202S (200 A)

LVCT00302S (300 A)



Size 0

LVCT20050S (50 A)

LVCT20100S (100 A)



Size 1(a)

LVCT00101S (100 A)



Size 3

LVCT00403S (400 A)

LVCT00603S (600 A)

LVCT00803S (800 A)



Size 2

LVCT20202S (200 A)



Size 1(b)

LVCT00201S (200 A)



Size 4

LVCT00804S (800 A)

LVCT01004S (1000 A)

LVCT01204S (1200 A)

LVCT01604S (1600 A)

LVCT02004S (2000 A)

LVCT02404S (2400 A)



Size 3

LVCT20403S (400 A)



Split-Core

Accuracy: 1% of reading from 10% to 100% of rated current.

Solid-Core

Accuracy: 0.5% of reading from 5% to 100% of rated current.

Note: All low voltage CTs shown are CE rated.