

PowerLogic power-monitoring units
EM3500 series DIN Rail meter

Technical data sheet



The EM3500 Series DIN Rail Meter combines exceptional performance and easy installation to deliver a cost-effective solution for power monitoring applications. The EM3500 series can be installed on standard DIN rail or surface mounted as needed. Pulse output and phase alarms provide additional versatility. The Modbus and BACnet output options offer added flexibility for system integration. The data logging capability (EM3555 and EM3560) protects data in the event of a power failure. Modbus, pulse output, and phase alarms are all provided to suit a wide variety of applications.

Additional pulse inputs on EM3560 provide an easy way to incorporate simple flow sensors to track gas, water, steam, or other energy forms using a BACnet system in addition to full monitoring of electrical energy.

The EM3555 models adds a bi-directional monitoring feature designed expressly for renewable energy applications, allowing measurement of power imported from the utility grid as well as power exported from the renewable energy source (e.g. solar panels). In this way, a facility administrator track all energy data, ensuring accuracy in billing and crediting.

Applications

- > Energy monitoring in building automation systems
- > Renewable energy monitoring
- > Energy management
- > Commercial submetering
- > Industrial monitoring
- > Cost allocation

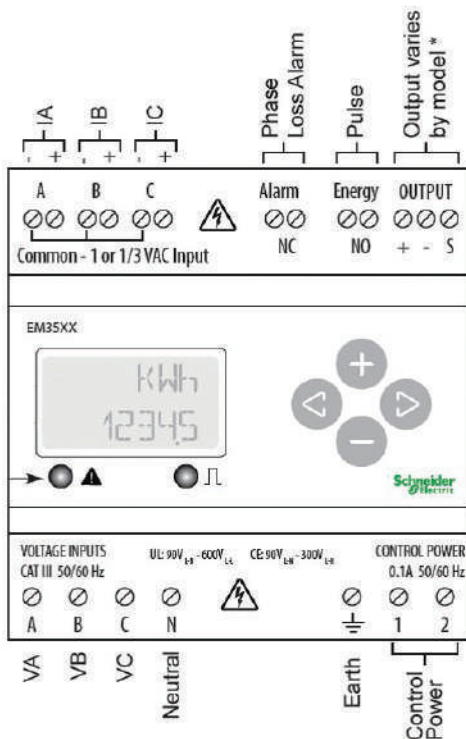
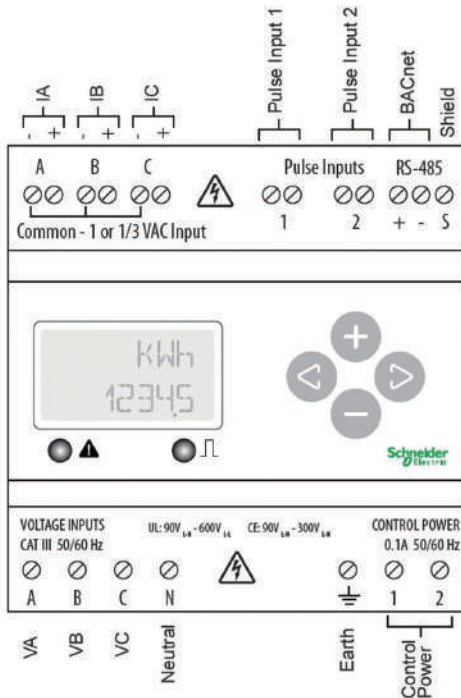
Features

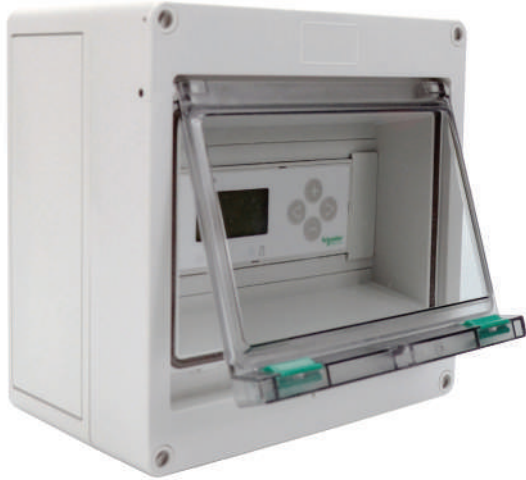
All Models: A compact solution for panelboard monitoring

- > DIN rail mounting option; easy installation
- > ANSI 12.20 0.5% accuracy, IEC 62053-22 Class 0.5S; great for cost allocation
- > Real energy output and phase loss alarm output on EM3502, EM3550, and EM3555 models; one device serves multiple applications
- > 90-600 VAC; application versatility with fewer models to stock
- > Bright backlit LCD; easy visibility in dark enclosures
- > Data logging capability EM3555 and EM3560; safeguard during power failures
- > Compatible with LVCTs from 5A to 32000A; wide range of service types
- > User-enabled password protection; prevents tampering
- > System integration via Modbus EM355x or BACnet MS/TP EM3560; convenient compatibility with existing systems
- > Native BACnet MS/TP support (no gateway) with serial rates up to 115.2 kbaud EM3560

EM3555 Models: An essential solution for Solar and other renewable energy applications

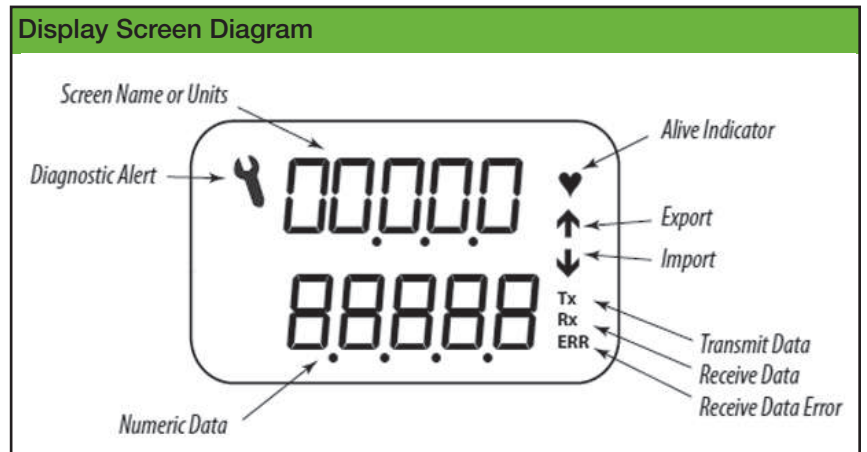
- > Bi-directional metering (4-quadrant); allows net metering
- > Data logging capability; ensures long term data retrieval
- > CSI approved



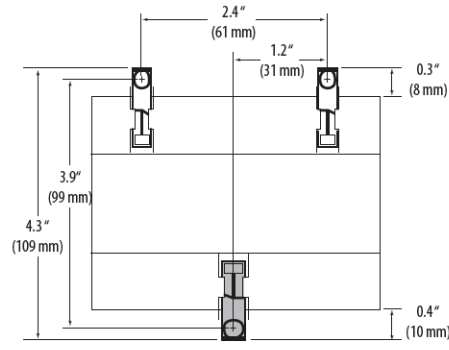
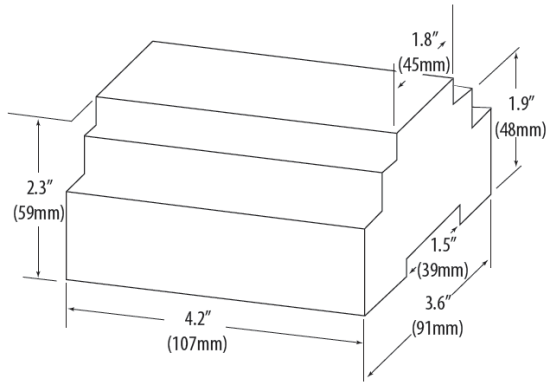


EM3500 in enclosure with door open

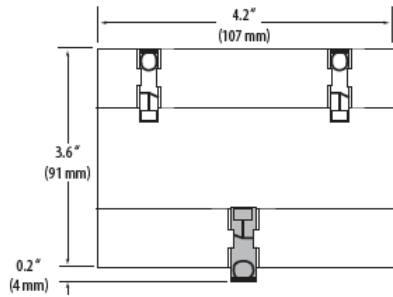
Selection guide		
Electrical characteristics		
Inputs	Control Power, AC	50/60 Hz; 5VA max.; 90V min.; UL Maximums: 600V L-L (347V L-N) CE Maximums: 300V L-N (520V L-L)
	Control Power, DC	3W max.; UL and CE: 125 to 300VDC (external DC current limiting required)
	Voltage Input	UL: 90V L-N to 600V L-L; CE: 90V L-N to 300V L
	Current Input	5A to 32,000A
	Scaling	
	Input Range	1/3V and 1V nominal LVCT (selectable)
	Pulse Inputs (EM3560 only)	Two sets of contact inputs to pulse accumulators
Accuracy	Real Power and Energy	0.5% (ANSI C12.20, IEC 62053-22 Class 0.5S)
Outputs	All models (except EM3560)	Real Energy Pulse: N.O. static; Alarm contacts: N.C. static
	EM3502	Reactive energy pulse 30 VAC/DC
	EM355x	RS-485 2-wire Modbus RTU (1200 baud to 38.4 kbaud)
	EM3560	RS-485 2-wire BACnet MS/TP (9600 baud to 115.2 kbaud)
Mechanical characteristics		
Mounting	DIN Rail or 3-point screw mount	
Environmental conditions		
Operating temperature Range	-30° to 70°C (-22° to 158°F)	
Storage Temperature Range	-40° to 85°C (-40° to 185°F)	
Humidity Range	<95% RH noncondensing	
Accessories		
NEMA4 enclosure (EM3500-ENC, pictured)		
Local and key set (EM3500-KEY)		
Split-core low voltage CTs (LVCTxx)		
Fuse kits (EFP1, EFP2, EFP3)		
Safety		
US and Canada (cULus) UL508 (open type device)/CSA 22.2 No. 14-05		
Europe (CE) EN61010-1:2001		



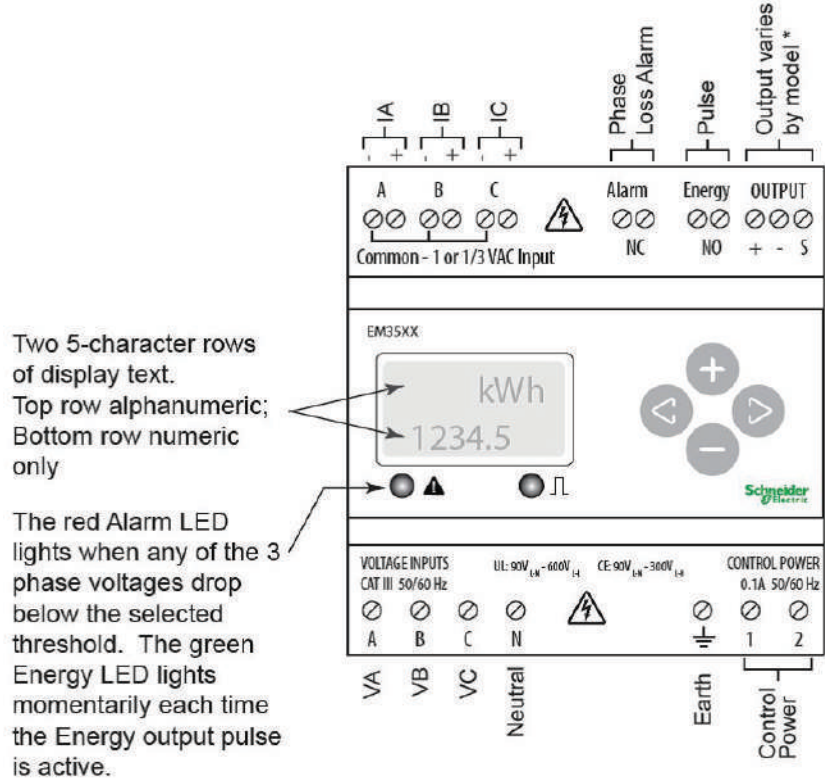
EM3500 dimensions



Bottom View (DIN Mount Option)



Product diagram



Connection representation only. Other types of connection are possible. See product installation guide for complete wiring and communication connection details.

Wiring diagram

Diagram 1: 1-Phase Line-to-Neutral 2-Wire System 1 CT
USE SYSTEM TYPE 10 (1L + 1n)

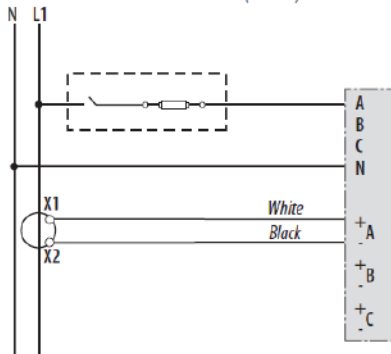


Diagram 2: 1-Phase Line-to-Line 2-Wire System 1 CT
USE SYSTEM TYPE 11 (2L)

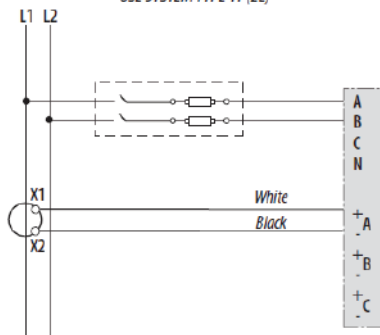


Diagram 3: 1-Phase Direct Voltage Connection 2 CT
USE SYSTEM TYPE 12 (2L + 1n)

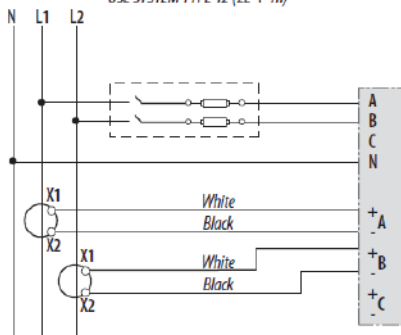


Diagram 4: 3-Phase 3-Wire 3 CT no PT
USE SYSTEM TYPE 31 (3L)

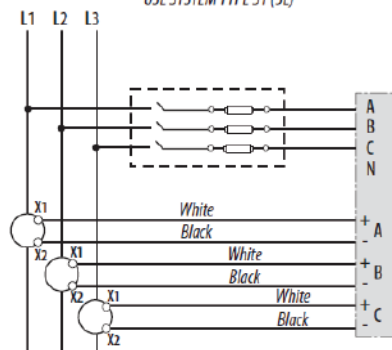


Diagram 5: 3-Phase 4-Wire Wye Direct Voltage Input Connection 3 CT
USE SYSTEM TYPE 40 (3L + 1n)

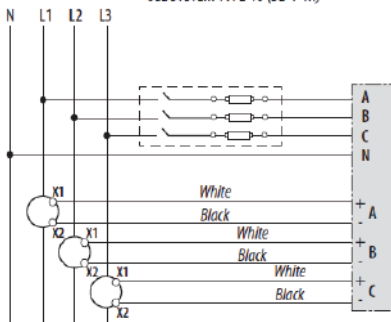
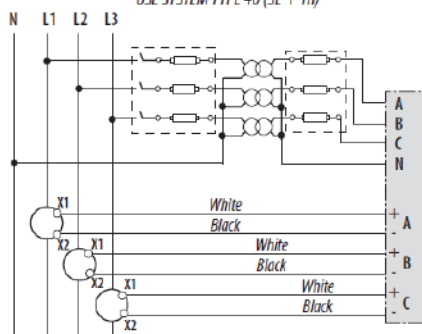
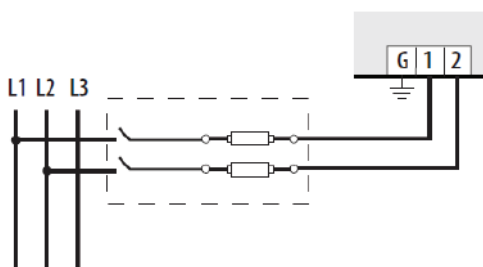


Diagram 6: 3-Phase 4-Wire Wye Connection 3 CT 3 PT
USE SYSTEM TYPE 40 (3L + 1n)

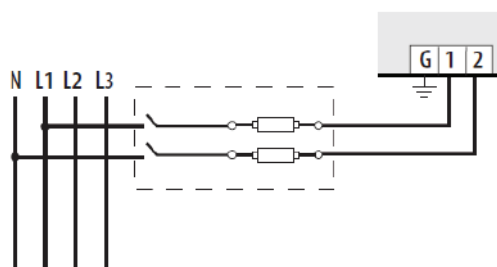


Control power

Direct Connect Control Power (Line to Line)



Direct Connect Control Power (Line to Neutral)



Basic energy metering

EM3500 Functions and characteristics



	EM3502	EM3550	EM3555	EM3560
Measurement Capability - Full Data Set				
Bi-directional Energy Managements			■	
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	■	■	■	■
Accumulated Energy-Real (kWh), Reactive (kVARh), and Apparent (kVAh)	■	■		■
Import and Export Accumulators of Real and Apparent Energy			■	
Reactive Energy Accumulators by Quadrant (3-phase total and per phase)			■	
Configurable Demand Subinterval	■	■	■	■
Demand Interval Configuration: Fixed or Rolling Block	■	■	■	■
Demand Interval Configuration: External Sync to Comms		■	■	■
Data Logging (store up to 60 days at 15-minute interval):				
Data Logging - 10 16-Bit Configurable (can include Date/Time) Data Buffers			■	
Data Logging - 3 Timestamped 32-Bit Configurable Data Buffers				■
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				■

Model	Description	Part Numbers
EM3502	Pulse out only	METSEEM3502
EM3550	Modbus - 2 quadrant	METSEEM3550
EM3555	Modbus - 4 quadrant with logging	METSEEM3555
EM3560	BACnet with logging	METSEEM3560

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