Enhanced Power and Energy Meter

E50/E51

Versatile Energy Monitoring Solution

DESCRIPTION

The **E5x Series** DIN Rail Meter combines exceptional performance and easy installation to deliver a cost-effective solution for power monitoring applications. The E5x can be installed on standard DIN rail or surface mounted as needed. The Modbus, LON, and BACnet output models offer added flexibility for system integration. The data logging capability (E5xC3 and E5xx5) protects data in the event of a power failure. Combinations of serial communication, pulse output, and phase alarms are provided to suit a wide variety of applications.

Additional pulse inputs on E5xHx and E50Fx provide an easy way to incorporate simple flow sensors to track gas, water, steam, or other energy forms using a BACnet or LON system.

The E51 models add 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 can track all energy data, ensuring accuracy in billing and crediting. They are also useful for monitoring loads that use regenerative braking.

APPLICATIONS

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

FEATURES

- Revenue Grade measurements
- ANSI C12.20 0.5% accuracy, IEC 62053-22 Class 0.5S on E50xx or ANSI C12.20 0.2% accuracy, IEC 62053-22 Class 0.2S on E51xx...great for cost allocation
- DIN rail or screw mounting options...easy installation
- Real energy output and phase loss alarm output on E50Bx and E5xCx models... one device serves multiple applications
- 90-600VAC...application versatility with fewer models to stock
- Data logging capability (E5xC3 and E5xx5)... ensures long term data retrieval and safeguards during power failures
- Compatible with CTs from 5A to 32000A...wide range of service types
- User-enabled password protection...protect from tampering
- System integration via Modbus (E5xCx), BACnet MS/TP (E5xHx), or Lonmark-certified LON FT (E50Fx)...convenient compatibility with existing systems
- Native BACnet MS/TP support (no gateway) with serial rates up to 115.2 kbaud (E5xHx)
- BTL-certified (E5xH2)
- E51 models: Bi-directional metering (4-quadrant), an essential solution for solar and other renewable energy applications, measures Import, Export and net energy transfer
- CSI approved...eases submission process for California Solar Initiative
- E51Cx includes SunSpec compliant common and meter register blocks

SPECIFICATIONS

5 Year Warranty

Inputs:

Control Power, AC	50/60 Hz; 5VA max.; 90V min.; UL Maximums: 600V$_{L-L}$ (347V$_{L-N}$); CE Maximum: 300V$_{L-N}$
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$_{L-L}$
Current Input	
Scaling	5A to 32,000A
Input Range	0 to 0.333V or 0 to 1V (selectable)
Pulse Inputs (E5xHx and E50Fx only)	Contact inputs to pulse accumulators (one set with E5xH2 and E50F2; two sets with E5xH5 and E51F5)

Accuracy:

Real Power and Energy	E50xx: 0.5% (ANSI C12.20, IEC 62053-22 Class 0.5S); E51xx: 0.2% (ANSI C12.20, IEC 62053-22 Class 0.2S)

Outputs:

All Models (except E5xHx and E50Fx)	Real Energy Pulse: N.O. static; Alarm contacts: N.C. static
E50Bx	Reactive energy pulse 30VAC/DC
E5xCx	RS-485 2-wire Modbus RTU (1200 baud to 38.4 kbaud)
E5xHx	RS-485 2-wire BACnet MS/TP (9600 baud to 115.2 kbaud)
E50Fx	2-wire LON FT

Mechanical:

Mounting	DIN Rail or 3-point screw mount

Environmental:

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
Agency Approvals	UL508, EN61010, California CSI Solar, ANSI C12.20

VERIS INDUSTRIES

ORDERING INFORMATION

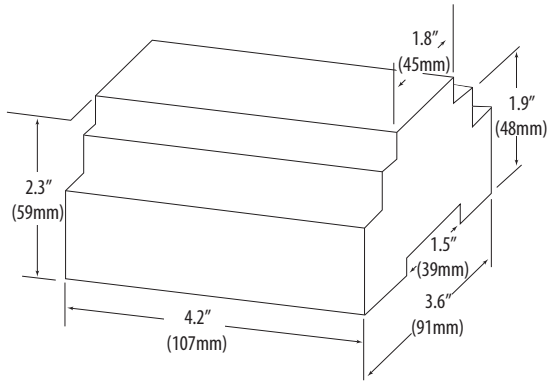
E51Cx only E5xH2 only E50Fx only

	E50B1	E50C2	E50C3	E50F2 NEW	E50F5	E50H2 NEW	E50H5	E51C2	E51C3	E51H2 NEW	E51H5
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 12.20 0.5% accuracy, IEC 62053-22 Class 0.5S	●	●	●	●	●	●	●				
ANSI 12.20 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)						●	●			●	●
LON FT Serial (LonTalk Protocol)				●	●						
INPUTS:											
2 Pulse Contact Accumulator Inputs					●		●				●
1 Pulse Contact Accumulator Input				●		●				●	

ACCESSORIES

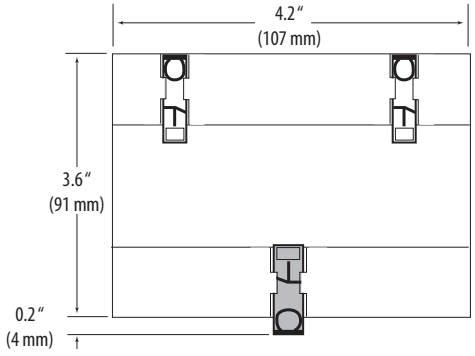
NEMA 4X enclosure (AE012)
Fuse Kits with hi-interrupt capability AC Fuses (AH02, AH03, AH04)
Split-core and solid-core CTs (H681x, SCT)
Replacement mounting clips (AE004)
DIN Rail (AV01), DIN Rail Stop Clips (AV02)
Modbus TCP Gateway (U013-0012)
BACnet IP Router (U013-0013)
Network Display (H8932, H8936)

DIMENSIONAL DRAWING

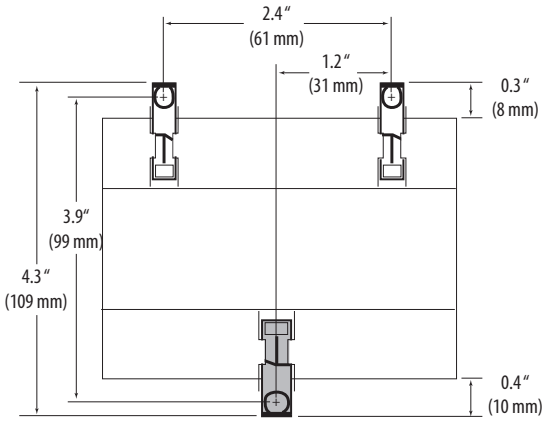


MOUNTING DIAGRAMS

DIN Mount Configuration



Screw Mount Configuration



U013-0012

U013-0013

AH04

AE012

H8932/H8936

AV01/AV02
(clip styles may vary)

POWER/ENERGY MONITORING