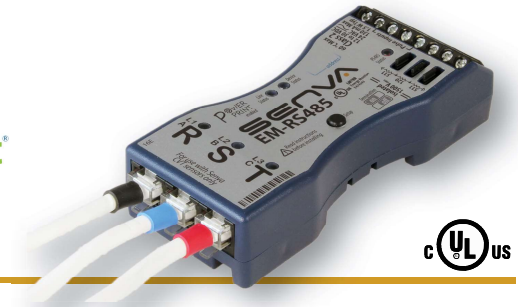
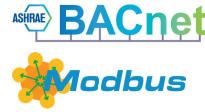


EM-RS485 Series Energy Meters

Protocol Version: BACnet & Modbus
Pulse Version: kWh, KVAR, kVA
Flexible Split-core Rogowski CVT™ Sensors
Monitor loads from 30-6000A & 90-600V



DESCRIPTION

The EM Series is the safest and fastest meter to install on the market. Unique design makes the meter entirely low-voltage. Ideal for retrofits as the high voltage components are embedded in the Current/Voltage Transducer™ (CVT™). Experience high accuracy data rich power metering in a compact easy to use package. Meter recognizes CVTs automatically eliminating time consuming scaling.

Each CVT™ uses digital communication with the meter for superior noise immunity. The CVTs™ are individually calibrated and can be mixed or matched as independent meter channels--1% total accuracy! Features both Modbus and self configuring plug and play BACnet MS/TP for seamless integration.

APPLICATIONS

- Energy Management and performance contracting
- Monitoring for commercial tenants
- Activity-based costing in commercial and industrial facilities
- Real-time power monitoring
- Load shedding
- Audits/temporary monitoring
- Distributed generation



7 year limited warranty

FEATURES

Intelligent Meter Technology

- EM Series meters auto-detect and self configure for electrical service, CVT™ size, communication protocol (BACnet/Modbus), baud rate and more for simple and efficient installation
- Calibration is at the CVT™ level so any CVT™ from the product family will maintain its accuracy with any EM Series meter
- Functions as three independent voltage/current power meters in one--mix and match CVT sizes for multiple loads.
- 2 pulse inputs for summing multiple meters on the EM-PULSE or for general (configurable) pulse counting on the EM-RS485 (from any pulse meter - water, gas, steam, etc.)
- 2 pulse outputs on the EM-PULSE for separately tracking positive and negative energy usage, additional power metrics or power quality alarms

Ultimate Flexibility

- One universal meter supports all CVT™ options in the product family
- Flexible Mounting Options
 - Supports mounting on either horizontal or vertical PR30 (TS 35/F6) DIN rail
 - Snap-in mounting ears allow screwing to any suitable surface
 - Integrated rare earth magnets secure the EM meter to any ferrous enclosure or surface.



Split-core Rogowski CVT™

- Easiest in the industry to install
- Senses both voltage & current
- High accuracy...digitally calibrated; interchangeable
- Available in multiple sizes & ratings to meet any project requirements

Quick Start Auto-detection

- Meter base recognizes the CVT™ sensors and scales itself accordingly
- No manual configuration necessary

Compact Size

- Most compact meter ever - fits in the palm of your hand!

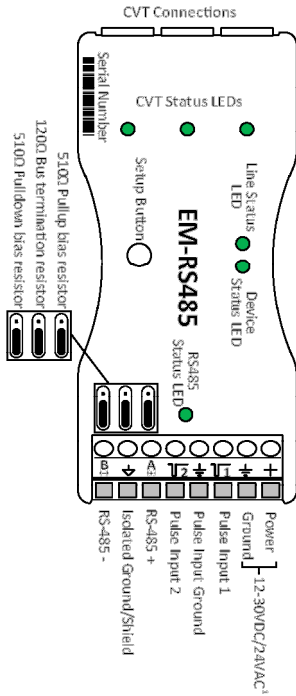
ORDERING

EM-RS485

RS485 = Modbus & BACnet

CVT Current/voltage transducers

See page 32



Magnetic mount--no drilling!



DIN Rail (vertical)



DIN Rail (horizontal)



Snap-in mounting tabs

SPECIFICATIONS

Power Supply Input	12-30VDC/24VAC ⁽¹⁾ , 100mA max.
Output	RS-485 2-wire, BACnet MS/TP, Modbus RTU
	Baud Rates 9600, 19200, 38400, 57600, 76800, 115200
	RS-485 Loading 1/4 unit
Wiring Requirements	Conductor gauge 14-26 AWG
	Terminal torque rating 0.5 min, 0.6 max
Pulse Inputs	Dual Inputs 3.5 +/- 0.5 VDC, short circuit current is 10mA max
	Pulse Rate 50 Hz (default), configurable up to 500 Hz
	Pulse active <100 ohms
	Pulse Undefined 100-1000 ohms
	Pulse Idle >1000 ohms
Service Types	Configurations 1Ph, 2Ph, 3Ph Wye (4-Wire), 3Ph Delta (3-Wire)
	Voltages 90VL-N through 600VL-L
	Frequency 45-65 Hz
Performance	Meter Accuracy 0.2% (ANSI C12.20 Class 0.2 standards)
	System Accuracy 1% for V, A, kW, kVAR, kVA
Operating Environment	Temperature 32 to 140F (0 to 60C)
	Humidity 0-95% non-condensing
Meter Enclosure	Material Polycarbonate/ABS
	Dimensions 4.1"h x 1.8"w x 0.9"d

TYPICAL OUTPUT POINTS (SEE PROTOCAL GUIDES FOR COMPREHENSIVE POINTS LIST)

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)

Current (3-Phase Average and Per Phase)

Voltage: Line-Line and Line-Neutral (3-Phase Average and Per Phase)

Frequency

Accumulated Net Energy: Real (kWh), Reactive (kVARh), and Apparent (kVAh)*

Accumulated Real Energy per Phase: Real (kWh), Reactive (kVARh), and Apparent (kVAh)

Import and Export Accumulators of Real and Apparent Energy

Reactive Energy Accumulators (3-Phase Total and Per Phase)

Demand Interval Configuration Fixed or Rolling Block

Demand Interval Configuration: External Sync to Comms (Time Inputs or Protocol)

EM BACnet Protocol Guide

▪ www.senvainc.com/emrs485bn



EM Modbus Protocol Guide

▪ www.senvainc.com/emrs485mb



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