



EPM 5300/5350

POWER METERING SYSTEM

Multi-Function Meter with Power Quality

KEY BENEFITS

- 3-phase true RMS measurements of voltage, current & power
- Power quality (THD & K Factor) to 31st order for facility wide power quality monitoring
- Bidirectional energy measurement with min/max on all electrical parameters
- Advanced control features for relay activation at user definable set points
- Rugged metal enclosure utility grade construction for panel mounting - fits in standard ANSI cut out
- Large, bright three line (.56" character height) LED display visible even in complete darkness
- Economical design, small footprint easy to program and simple to install
- Control relays can open and close at the pre-programmed (min, max etc) set-points for alarms and notifications
- KYZ pulse outputs for energy information to PLCs, RTU and other non digital communication devices
- Open Modbus protocol over RS 485 or over built in Ethernet TCP/IP allows easy integration to EnerVista or third party systems

APPLICATIONS

- Ideal circuit monitoring for main feeds, branch circuits, gensets and equipment
- Programmable set-point for alarms and control
- Pulse energy outputs to PLCs for load shedding
- Panel mount low and medium voltage applications

FEATURES

Monitoring and Metering

- True RMS measurement of over 80 electrical parameters with ANSI C12.16 revenue accuracy
- Measures 3-phase real-time amps, volts, power, energy, power factor and frequency

Communications

- EPM 5300: User programmable Modbus or DNP communication over RS-485
- EPM 5350: Modbus over Ethernet TCP/IP
- Form C control relays with programmable set-points
- KYZ pulse output for PLC and other device interfaces

Standard Features

Description

The EPM 5300 Multi-Function Power Meter System provide complete access to all voltage, current, and power values through an easy to use interface. The unit provides advanced features like harmonic analysis that make this instrument useful for most power monitoring and control applications.

Rugged Utility Grade Construction

The meter is housed in a rugged metal enclosure protected from EMI and RFI emission. Internal protection circuits protect the power supply from damaging spikes and transients. With the small footprint, meters can easily fit into the existing standard ANSI 39.1 switchboard meter cutouts.

Display Features

All 5300 meters have a large three-lined LED display with .56" character height. Extra bright LEDs and large character size of the display provides easy readability from a distance in bright or dark conditions. The LED display provides long life and durability. It is ideal for harsh temperature environments.

A five-button keypad at the bottom provides a simple, easy-to-use interface to read all metered data. Meter can be programmed to scroll through different values. Voltage, Current, and Power values can also be simultaneously displayed.

Metering & Measurements

The EPM 5300 is a four-quadrant, multi-function power meter that measures the following parameters:

- 3 Phase Voltage (L-N)
- 3 Phase Voltage (L-L)

- 3 Phase Current
- Neutral Current
- Bi-directional kW (3 Phase and Total)
- Bi-directional kVAR (3 Phase and Total)
- kVA (3 Phase and Total)
- PF (3 Phase and Total)
- Bi-directional kWh
- kVAh
- Frequency
- %THD
- K Factor

Advanced Measurement Features

The EPM 5300 includes multiple advanced measurement features to support power analysis and control. The meter includes the following Max/Min readings:

- Voltage Max/Min
- Amps Demand Max/Min
- kW Demand Max/Min
- kVAR Demand Max/Min
- kVA Demand Max/Min
- PF Max/Min
- Frequency Max/Min
- %THD Max/Min
- K-Factor Max/Min

Harmonic / Power Quality Measurements

The harmonic option calculates harmonic values on each phase of voltage and current through the 31st order.

- Phase Voltage %THD
- Phase Current %THD
- Phase Current K Factor
- Harmonic Magnitudes
- Harmonic Angles

Options

Control Options:

EPM 5300 Power Metering Systems provide relay options which can be programmed to be activated at user-defined set points for most of the measured values including:

- Over/Under Voltage
- Over/Under Current
- Over/Under kVA
- Over/Under kW
- Over/Under kVAR
- Over/Under PF
- Over/Under Frequency
- Over %THD
- Phase Reversal
- Reverse Power
- Logic and Hysteresis Functions on Set Points
- Relay Output Control for all Limits

Output Options:

The EPM 5300 Power Metering Systems output option has two control relays and one KYZ pulse:

- Two Form C relays - Relays operate automatically through user programmable set points or through the digital commands using programmable logical descriptors
- One KYZ pulse output - KYZ pulses can be configured for positive or negative Watt-hour and VA/Hr

EPM 5300: RS-485 Multi-Point Communication

Modbus/DNP 3.0



EPM 5350: Multi-Socket Ethernet/Internet Access

(12 Simultaneous Requests)

System
Monitoring
(PMCS)Internet Based
Reporting Software

Ethernet TCP/IP



Additional Users

Multiple Communication & Interface Options

The EPM 5300 is offered with RS-485, Modbus and DNP communications. EPM 5350 provides Modbus over Ethernet TCP/IP. EPM 5300 has the following user selectable open protocols:

- Modbus
- RTU/ASCII
- DNP

Using its non-proprietary open protocols EPM 5300 communicates with almost all utility RTUs, industrial PLCs and commercial energy-management systems. Integration into existing systems is simple and quick.

EnerVista Software**EnerVista Launchpad**

EnerVista Launchpad is a powerful software package that provides users a platform to access all of the setup and support tools needed for configuring and maintaining GE Multilin Products.

Included in Launchpad is a document archiving and management system that ensures critical documentation is up-

to-date and available when needed by automatically checking for and downloading new versions of manuals, applications notes, specifications, and service bulletins.

EnerVista Viewpoint Monitoring

Viewpoint monitoring is a simple-to-use, full-featured monitoring and data recording software package for small systems. Viewpoint Monitoring provides a complete HMI package that instantly puts critical real-time device data on your PC through pre-configured graphical screens with the following functionality.

- Plug-&-Play Device Monitoring
- System Single-Line Monitoring & Control
- Annunciator Alarm Screens
- Trending Reports
- Automatic Event Retrieval
- Automatic Waveform Retrieval

EnerVista Integrator

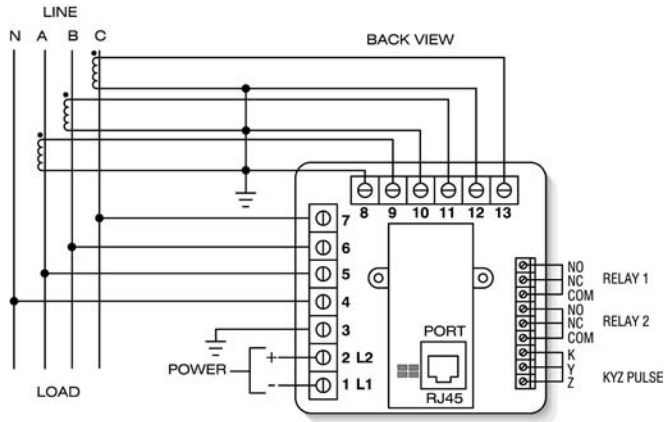
EnerVista Integrator is a toolkit that allows seamless integration of GE Multilin devices into new or existing automation systems by sending GE device data to HMI, DCS, and SCADA systems. Included in EnerVista Integrator is:

- OPC/DDE Server
- GE Multilin Drivers
- Automatic Event Retrieval
- Automatic Waveform Retrieval

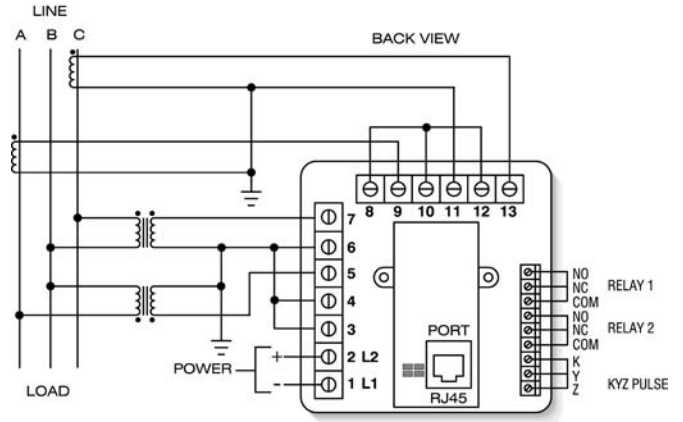
Typical Wiring

EPM 5350

3 phase wye with CTs



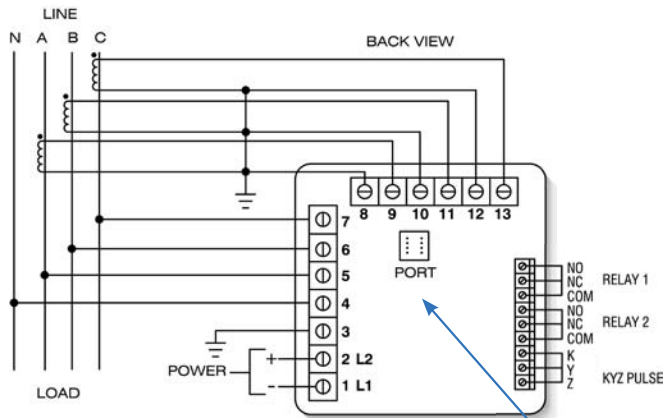
3 phase open delta



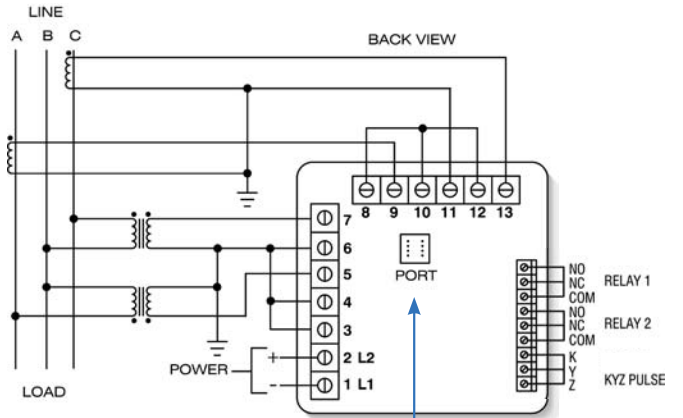
Built in TCP/IP Ethernet port

EPM 5300

3 phase wye with CTs



3 phase open delta



RS-485 port

EPM 5300/5350 Technical Specifications

DEMAND MONITORING

Measured values: Phase A/B/C/N current (A)
3 ϕ real power (kW)
3 ϕ reactive power (kvar)
3 ϕ apparent power (kVA)

Measurement type: Thermal exponential
Programmable block interval

POWER SUPPLY

CONTROL POWER

Input options: 95-135 Volt AC Power Supply
100-150 Volt AC/DC Power Supply
24-48 Volt DC Power Supply

Frequency: 45-75 Hz
Operating Power: 6 VA max

METERING

MEASURED VALUES

MEASUREMENTS	ACCURACY	RESOLUTION	RANGE
Volts(All Channels)	0.3%	0.1%	0 - 2000
Volt Max/Min Demand	0.3%	0.1%	0 -100%
Amperes	0.3%	0.1%	0 - 2000
Amp Max/Min Demand	0.3%	0.1%	0 - 100.0%
kW	0.5 %	0.1%	0 - 2000
kVA	0.5 %	0.1%	0 - 2000
kVAR	0.5 %	0.1%	0 - 2000
PF	0.5 %	1.0%	0 - 2000
kW Max/Min Demand	0.5 %	0.1%	1.0 - 5%
kW-Hour	0.5 %	1 kW Hour	0 -100%
kVA-Hour	0.5 %	1kVA Hour	0 - 999,999
Frequency	0.02Hz	0.01Hz	45-75Hz
Harmonics	0.50%	0.1%	0-100%

INPUTS

INPUT VOLTAGE RANGE

150V phase to neutral, 300V phase to phase*
300V phase to neutral, 600V phase to phase
*To be used also with PTs for extended input voltage.

INPUT CURRENT RANGE

5A input at full scale, 10A maximum (programmable with any CT ratio)

FREQUENCY RANGE

Fundamental 45-75 Hz

BURDEN

Voltage: 0.1 VA, maximum
Current: 0.1 VA, maximum

SENSING METHOD

True RMS Sampling at 64 samples per cycle

UPDATE TIME

1 second

COMMUNICATIONS

Format: 1 start bit, 8 data bits, 1 stop bit; programmable up to 9600 baud
Media: RS485 2-wire, half duplex, isolated CAT 5 TCP/IP T base 10
Baud rate: 5300: 1,200 - 9,600 RS485 bps
5350: Ethernet 10 BASE T
Protocol: 5300: ModBus® RTU/ASCII, DNP
5350: ModBus® over Ethernet
Functions: Read/write setpoints
Read actual values

OUTPUTS

Pulse Outputs: One programmable KYZ
Parameters: +ve kWh, -ve kWh, VAh
Demand Interval: 1-9999 in steps of 1 sec.
Control Relay Output: form C No/NC

ENVIRONMENTAL

Humidity: 95% non-condensing
Temperature: -20° C to +70° C ambient

CONSTRUCTION

Metal housing with standard switchboard dimensions and cutout per ANSI 39.1

PACKAGING

Shipping box: 11" L x 9.5" H x 8" D
(275 mm x 238 mm x 200 mm)
Ship weight: 5 lbs (2.3 kg)

TYPE TESTS

Type tests as per UL® & CE®

Emissions: EN55011
Immunity: EN50082
Accuracy: ANSI C-12 Revenue Certifiable
Communication isolation:

Input withstand: 2500 volts AC 60 Hz
V and A continuous 200% rated;
surge 10 x maximum input for 3 seconds

Surge withstand: IEEE C37.90.1

APPROVALS

ISO: Manufactured to an ISO9001 registered program
UL/cUL: Recognized under E250818
CE: Conforms to EN 55011/ EN 50082

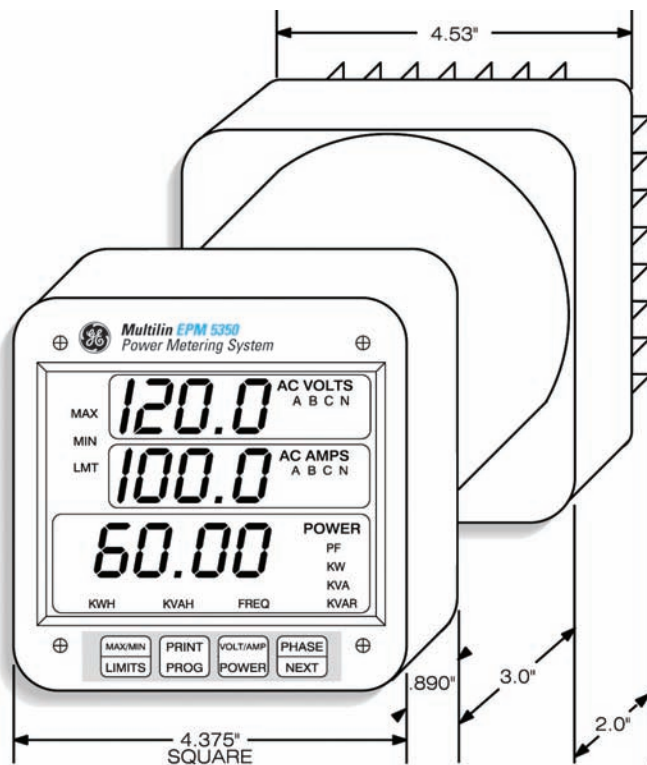
*Specifications subject to change without notice.

EPM 5300/5350 Guideform Specifications

For an electronic version of the EPM 5300/5350 guideform specifications, please visit: www.GEMultilin.com/specs, fax your request to 905-201-2098 or email to literature.multilin@ge.com.

Dimensions

EPM 5300/5350



Ordering

EPM 5300 - 3-phase multi-function advanced meter

PL 5300	*	*	*	*	* 0000	Description
Voltage Input	0					120/208 Volt, 3 Element, 3 voltages, 3 currents, Wye
	1					277/480 Volt, 3 Element, 3 voltages, 3 currents, Wye
	2					120 Volt, 2 Element, 2 voltages, 2 or 3 currents, Open Delta
	3					347/600 Volt, 3 Element, 3 voltages, 3 currents, Wye
Control Power	A					95-135 Volt AC Power Supply
	B					100-150 Volt AC/DC Power Supply
	C					24-48 Volt DC Power Supply
Relays	0					No Relay Outputs
	1					Two Relay Outputs and One kyz Pulse Output
Communication	A					No Communications Output
	B					RS-485 Digital Communication w/ Modbus RTU/ASCII, DNP Protocol
Labeling	0					Labeling - Volts V, Amps A, Power kW
	1					Labeling - Volts kV, Amps A, Power MW

EPM 5350 - 3-phase multi-function advanced meter with built in Ethernet

PL 5350	*	*	*	A	* 0000	Description
Voltage Input	0					120/208 Volt, 3 Element, 3 voltages, 3 currents, Wye
	1					277/480 Volt, 3 Element, 3 voltages, 3 currents, Wye
	2					120 Volt, 2 Element, 2 voltages, 2 or 3 currents, Open Delta
	3					347/600 Volt, 3 Element, 3 voltages, 3 currents, Wye
Control Power	A					95-135 Volt AC Power Supply
	B					100-150 Volt AC/DC Power Supply
	C					24-48 Volt DC Power Supply
Relays	0					No Relay Outputs
	1					Two Relay Outputs and One kyz Pulse Output
Communication				A		Modbus TCP/IP Communication
Labeling	0					Labeling - Volts V, Amps A, Power kW
	1					Labeling - Volts kV, Amps A, Power MW

Accessories:

PL 35MNTKT - EPM 5000 Mounting Kit