

# DIGITAL METERING FAMILY



## ELECTRONIC POWER METERING

Energy/demand data  
logging meters

### KEY BENEFITS

- Complete line of high-performance meters for power, energy and power quality for commercial, utilities, municipals, and IPP applications
- Record faults and events with time stamp - identify and respond to PQ events quickly
- Monitor reliability of breakers and relays to improve operational efficiencies
- Identify and manage peak demand - shed or shift loads
- Enhance levels of communication and data transmission
- Provide real time data on the web
- Built-in RTU functionality with I/Os
- Submetering cost allocation

### APPLICATIONS

- View energy usage and generate bills
- Efficiently control and manage energy consumption
- Increase power distribution reliability
- Real-time PQ monitoring and analysis
- Improve substation automation solutions

### FEATURES

#### Monitoring and Metering

- Current, voltage, real and reactive power, energy use, cost of power, power factor and frequency
- Revenue class metering with data logging
- Harmonic analysis to 255th order with flicker and waveform recording

#### Control

- Fully programmable set-points for alarms and relay activation
- 90msec. high-speed updates for control
- Built-in PLC & RTU functionality

#### Communications

- On-board RS-485, Ethernet TCP/IP and web capability
- Built-in communication ports using open architecture protocols
- Choice of LED and LCD touch screen display
- Analog and digital inputs and outputs

## Introduction

From basic metering to high end transient capture and flicker detection, GE Multilin offers a full range of commercial, industrial and utility grade meters. Accuracy of power and energy measurement ranges from 0.04% to 0.5% on full scale. All meters use open architecture protocols such as industrial standard ModBus RTU and/or DNP, making them easy to integrate to third party systems and PLCs. Ethernet and web options are also available on selected meters. Meters are readily accessible through GE Multilin EnerVista line of software for monitoring, control and cost allocation. EPM series of meters are offered in four basic categories to meet the specific application needs.

### Multi-function Power Metering Systems

EPM 2000, 5000 and 6000 series meters offer monitoring of electrical and power parameters. These multi-function power meters provide complete access to all voltages, currents, and power values through large LED displays or through built-in Modbus RS 485 communications. Power meters measure over 50 electrical power parameters providing a low-cost, multifunction monitoring solution for utility, industrial and power generation applications. Meters can easily be mounted in a panel or switchgear for monitoring and substation automation. EPM 2000 and 6000 come with universal voltage inputs thus eliminating the need for ordering multiple meters for different electrical systems. EPM 6000 also has a front IRDA port for infra-red communication with laptops. Ethernet is standard on EPM 5350 for communications to multiple systems simultaneously.

### Power Quality Metering Systems

PQM II meters are designed for continuous monitoring of power quality events and automatic capture of waveform based on user programmable setpoints. Both meters are based on the same reliable technology that GE Multilin offers in its protection relay family. PQM II is a versatile meter which is easy to use and set-up. It is an ideal choice when continuous monitoring of a three phase

system is required. It provides metering for current, voltage, real and reactive power, energy use, cost of power, power factor, frequency, sag/swells, captures waveform, generate events and alarms.

Programmable set points and 4 assignable output relays allow control functions to be added for specific applications. This includes basic alarm on over/under current or voltage, unbalance, demand based load shedding, and capacitor power factor correction control. More complex control is possible using the 4 switch inputs which also can be used for status check such as breaker open/closed, flow information such as pulse count etc.

With the optional Multinet module, users can add Ethernet capability to their meter. Multinet is an Ethernet communications module that allows connection of up to 30 ModBus devices, providing ModBus TCP/IP communications for these devices over Ethernet. This allows connection to Fiber Optic LAN and WAN systems for remote access to data from the PQM.

### Advanced Power Quality Metering Systems

Perfect for Industrial, Commercial and Utility Applications, the "Performance Enhanced" EPM 9000 series include all the attributes required for highest level of PQ analysis, communication and accuracy.

The EPM 9000 series consists of EPM 9450, EPM 9650 and EPM 9800. EPM 9450/9650 are designed for mounting in or outside electrical equipment with remote displays whereas EPM 9800 has socket type mounting with built in display. EPM 9800 is also available in a draw-out switchboard mounting case.

EPM 9000 are advanced monitoring meters that provide the total picture of power usage and power quality for any metered point within a power distribution network allowing users to make power related decisions quickly and effectively. Up to 512 samples per cycle for an event voltage and current are recorded with pre and post-event analysis. Hardware and software triggers are available to activate a waveform reading, which can be used for power quality surveys, fault analysis,

breaker timing, motor start-up etc. Dual 16 Bit A/D converters provide supreme sampling accuracy and resolution. The EPM 9000 series far exceeds ANSI C-12 and IEC 687 accuracy standards.

EPM 9000 series meters offer I/O capability in conjunction with all metering functions. Expandable I/Os enable the meters to be used for every metering and data gathering application. Modular plug-in design allows addition of remote analog and digital I/Os in the field to meet new requirements. Through the use of these advanced I/Os, EPM 9000 series meters can replace RTUs and PLCs for energy management and substation automation solutions.

EPM 9000 series offer multiple built-in communication ports with each port being able to communicate in any supported protocol. Standard protocols include Modbus RTU/ASCII and DNP 3.0. Logs and Waveform events are available in Modbus format. EPM 9000 series meters can be used as a Modbus master for I/O modules. With their Ethernet and Web Server capability EPM 9000 can be monitored anytime and from anywhere via the Internet.