Multilin™
EPM 6010
BUILDING AUTOMATION POWER METER

BACnet®/IP Communications and Energy Measurement

KEY BENEFITS

- Rapid integration into BACnet management systems
- High accuracy multifunction power meter, 0.2% class revenue certifiable energy and demand metering
- Ultra compact and easy to install, fits both ANSI and DIN cutouts
- EnerVista™ software makes metered data and power quality status easily accessible
- User programmable for different system voltages and current measurements
- Standard Modbus™ TCP communications
- Easy to read, large 3 line .56" bright LED display for better visibility and longer life

APPLICATIONS

- LEED projects
- Smart buildings
- Commercial energy management
- HVAC efficiency monitoring
- Building management systems

FEATURES

Communications
- BACnet/IP 100BaseT Ethernet protocol
- 40 pre-defined BACnet objects facilitate rapid integration
- Embedded web-server, allows BACnet/IP interface to be remotely configured and BACnet objects can be remotely viewed over the internet with a web browser
- Standard Modbus TCP communications can be used to poll the EPM 6010 while BACnet/IP interface is being used

Measuring and Metering
- High accuracy multifunction power meter, 0.2% class revenue certifiable energy and demand metering
- Samples at 400+ times per cycle and has 24 bit A/D conversion to measure accurately and reliably
- Meets ANSI C12.20 (0.2%) and IEC 687 (0.2%) accuracy classes
- Total harmonic distortion (%THD)
- Load percentage graphical bar for instant load visualization
- True RMS multifunction measurements including voltage, current, power, frequency and energy
Overview

The Multilin EPM 6010 is an industry leading revenue grade power meter with native BACnet/IP communications. This meter is designed to integrate seamlessly into existing and new building management systems using the popular BACnet protocol. The meter allows users to gather data on voltage, current, power and energy usage throughout a facility. Designed to be the perfect device for environmental initiatives, LEED certified projects and smart energy projects, the EPM 6010 provides superior metrology, and revenue testable 0.2% energy accuracy. The meter is in compliance with ANSI and IEC accuracy standards, has advanced DSP technology, samples at high rates, and has 24 bit A/D conversion to measure and analyze power accurately and reliably.

BACnet Communications

The Multilin EPM 6010 with BACnet/IP supports building energy management strategies, LEED certification and other Green Building initiatives. By allowing users to track energy use and power quality, the meters give users the information they need to accurately identify cost-saving measures and respond to power quality problems when they arise.

Measured Values

EPM 6010 measures the following values:

<table>
<thead>
<tr>
<th>MEASURED VALUES</th>
<th>REAL-TIME</th>
<th>AVG</th>
<th>MAX</th>
<th>MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage L-N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage L-L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Per Phase</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+Watt-hr</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Watt hr</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+Watt-hr net</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Watt-hr net</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Load Bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Communications Ports

The Multilin EPM 6010 provides two independent communication ports with advanced features:

- **IrDA port** – A unique optical IrDA port allows the unit to be set up and programmed using a remote laptop without needing a communication cable. Simply point at the meter with an IrDA-equipped PC computer to configure it.
- **Ethernet Port** – This port provides connectivity via a 10/100BaseT RJ45 connection. Modbus TCP and BACnet protocols are supported.

BACnet/IP Web Interface

The Multilin EPM 6010 comes standard with a web interface. Use the BACnet/IP interface to remotely set up the BACnet/IP configuration and track energy use with any standard web browser.

EnerVista Software

EnerVista Launchpad is a powerful software package that provides users a platform to access all of the setup and
Simultaneous Dual Communications Paths

- Direct PC Interface
- Wireless Communication

EPM 6010 Building Automation Power Meter

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Support tools needed for configuring and maintaining GE Multilin Products. Launchpad allows configuration of devices in real-time by communicating using RS232, RS485, Ethernet, or modem connections.

Using Launchpad as the single interface to the setup and analysis software makes it simple to enter setpoints, read metered values, monitor status and evaluate power quality.

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.

**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 Viewpoint Monitoring Data Recording and Real-Time Status**

Create tabular trending reports of usage data

Historical minimum and maximum values to understand fluctuations on the network

Real-time power values to instantly analyze system capacity

<table>
<thead>
<tr>
<th>Time</th>
<th>Amperes A</th>
<th>Amperes B</th>
<th>Amperes C</th>
</tr>
</thead>
<tbody>
<tr>
<td>06:07:12:09</td>
<td>150.07</td>
<td>145.07</td>
<td>144.07</td>
</tr>
<tr>
<td>06:07:12:10</td>
<td>150.08</td>
<td>145.08</td>
<td>144.08</td>
</tr>
<tr>
<td>06:07:12:11</td>
<td>150.09</td>
<td>145.09</td>
<td>144.09</td>
</tr>
<tr>
<td>06:07:12:12</td>
<td>150.10</td>
<td>145.10</td>
<td>144.10</td>
</tr>
<tr>
<td>06:07:12:13</td>
<td>150.11</td>
<td>145.11</td>
<td>144.11</td>
</tr>
<tr>
<td>06:07:12:14</td>
<td>150.12</td>
<td>145.12</td>
<td>144.12</td>
</tr>
<tr>
<td>06:07:12:15</td>
<td>150.13</td>
<td>145.13</td>
<td>144.13</td>
</tr>
<tr>
<td>06:07:12:16</td>
<td>150.14</td>
<td>145.14</td>
<td>144.14</td>
</tr>
<tr>
<td>06:07:12:17</td>
<td>150.15</td>
<td>145.15</td>
<td>144.15</td>
</tr>
<tr>
<td>06:07:12:18</td>
<td>150.16</td>
<td>145.16</td>
<td>144.16</td>
</tr>
<tr>
<td>06:07:12:19</td>
<td>150.17</td>
<td>145.17</td>
<td>144.17</td>
</tr>
<tr>
<td>06:07:12:20</td>
<td>150.18</td>
<td>145.18</td>
<td>144.18</td>
</tr>
</tbody>
</table>

**Main Menu**

- Overview
- Power
- Demand
- MinMax

**EPM6010**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Min</th>
<th>Max</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0</td>
<td>1001</td>
<td>500 A</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>1001</td>
<td>500 A</td>
</tr>
<tr>
<td>C</td>
<td>0</td>
<td>1001</td>
<td>500 A</td>
</tr>
</tbody>
</table>

**Viewpoint Monitoring**

- 3 Phase Power
- Real
- Reactive
- Apparent
- PF

- Received watt-hours: 0 kWh
- Delivered watt-hours: -1 kWh
- Net watt-hours: 0
- Total watt-hours: 0
- Positive var-hours: 0
- Negative var-hours: -1
- Total VA-hours: 0

**Energy**

- Received watt-hours: 0 kWh
- Delivered watt-hours: -1 kWh
- Net watt-hours: 0
- Total watt-hours: 0

**Viewpoint Monitoring**

- Simple-to-use HMI package
- Instantly puts device data on your PC
- Pre-configured graphical screens
- Critical real-time data monitoring

**EnerVista Viewpoint Monitoring**

- Data recording
- Real-time status
- Tabular trending reports
- Historical minimum and maximum values
- Automatic data updates
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

EnerVista Viewpoint Monitoring Data Recording and Real-Time Status
Create graphical trending reports of usage overtime
Real-time metering values and phasors to verify device connection

Dimensions and Mounting
Front View  Side View  Rear View  Transducer

User Interface
Reading Type Designator  Large .56" LEDs  Screen Selectors  Only 3.25"
IRDA Port  % Load Bar  Vh Pulse  KYZ Pulse Output
Auto Scale Indicator  Current "Gills"  10/100 BaseT via RJ45 Connector
Universal Voltage inputs
Technical Specifications

VOLTAGE INPUTS

Universal Voltage Input
• 0-416 Volts Line To Neutral
• 0-721 Volts Line to Line

Input withstand capability – Meets IEEE C37.90.1 (surge withstand Capability)
Programmable voltage range to any PT ratio
Supports: 3 element WYE, 2.5 element WYE, 2 Element Delta, 4 Wire Delta Systems
Burden: 0.36VA per phase max at 600V, 0.014VA at 120 Volts

Input wire gauge max (AWG 12/2.5mm2)

CURRENT INPUTS

Class 10: 0 to 11 Amps Secondary/5 Amps Nominal/10Amps Max
Class 2: 0 to 2 Amps Secondary/1 Amp Nominal2 Amps max

Fault Current Withstand:
• 100 Amps for 10 Seconds
• 300 Amps for 3 Seconds
• 500 Amps for 1 Second.

Programmable Current to Any CT Ratio
Burden 0.005VA per phase Max at 11Amps
5mA Pickup Current
Frequency 50 Hz or 60 Hz+-3Hz above and below nominal range
Pass through wire gauge dimension: 0.177”/4.5mm

ISOLATION

All Inputs and Outputs are galvanically isolated to 2500 Volts AC

SENSING RMS

True RMS
Sampling at 400+ Samples per Cycle on all channels measured readings simultaneously
Harmonic % THD (% of total harmonic distortion)

UPDATE RATE

Watts, VA and VA-100msec
All other parameters-1second

POWER SUPPLY

Universal AC/DC Supply
• 90 to 265 Volts AC and
• 100 to 370 Volts DC

Optional 24 to 48 Volts DC Supply.
Burden: 10VA max.

COMMUNICATIONS

2 Com Ports (Back and Face Plate):
• IRDA (Through Faceplate)
• Protocol Modbus ASCII
• Com Port Baud Rate: 56.7k
• Address: 1
• Ethernet (Back Panel)
- 10/100 BaseT via RJ45 connector
- Protocol Modbus TCP
- BACnet/IP

BACnet OBJECTS

| VOLTS A-N | VRh | Net |
| VOLTS B-N | Total VRh | |
| VOLTS C-N | Positive VARh | |
| VOLTS A-B | Negative VARh | |
| VOLTS B-C | Positive Watts, 3-Phase, Average Demand |
| VOLTS C-A | Positive VARs, 3-Phase, Average Demand |
| Amps A | Negative Watts, 3-Phase, Average Demand |
| Amps B | Negative VARs, 3-Phase, Average Demand |
| Amps C | Positive Watts, 3-Phase, Max Average Demand |
| Total Watts | Positive VARs, 3-Phase, Max Average Demand |
| Total VARs | Negative Watts, 3-Phase, Max Average Demand |
| Total VA | Negative VARs, 3-Phase, Max Average Demand |
| Total PF | VARs, 3-phase, Average Demand |
| Total Wh | VA, 3-Phase, Max Average Demand |
| Total VARh | Volts, B-N %THD |
| Frequency | Volts, C-N %THD |
| Neutral Current | Amps, A %THD |
| Whr Received | Amps, B %THD |
| Whr Delivered | Amps, C %THD |

There are 40 pre-defined BACnet Objects in the EPM 6010’s BACnet/IP protocol

METERING ACCURACY

<table>
<thead>
<tr>
<th>Measured Parameters</th>
<th>Accuracy/ % of Reading</th>
<th>Display Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage L-N</td>
<td>0.1%</td>
<td>0-9999 Scalable V or W</td>
</tr>
<tr>
<td>Voltage L-L</td>
<td>0.1%</td>
<td>0-9999 Vs or kV Scalable</td>
</tr>
<tr>
<td>Current</td>
<td>0.1%</td>
<td>0-9999 Amps or kAmps</td>
</tr>
<tr>
<td>+/- Watts</td>
<td>0.2%</td>
<td>0-9999 Watts, kWatts, MWatts</td>
</tr>
<tr>
<td>+/-VARs</td>
<td>0.2%</td>
<td>5 to 8 Digits Programmable</td>
</tr>
<tr>
<td>+/-VARh</td>
<td>0.2%</td>
<td>5 to 8 Digits Programmable</td>
</tr>
<tr>
<td>VA</td>
<td>0.2%</td>
<td>0-9999 VA, kVA, MVA</td>
</tr>
<tr>
<td>Wh</td>
<td>0.2%</td>
<td>5 to 8 Digits Programmable</td>
</tr>
<tr>
<td>PF</td>
<td>0.2%</td>
<td>+/- 0.5 to 1.0</td>
</tr>
<tr>
<td>Frequency</td>
<td>0.01 Hz</td>
<td>45 to 65 Hz</td>
</tr>
<tr>
<td>%THD</td>
<td>5%</td>
<td>0-200%</td>
</tr>
<tr>
<td>%Load Bar</td>
<td>1-120%</td>
<td>10 Digit Resolution Scalable</td>
</tr>
</tbody>
</table>

PULSE OUTPUT

Front panel Wh infrared test pulse
Back panel Wh pulse output

DIMENSIONS & SHIPPING

Weight: 2 lbs
Basic Unit: H4.85 x W4.82 x L4.25
Mounts in 92mm DIN and ANSI C39.1 Round Cut-outs
Shipping Container Dimensions: 6’ cube

ENVIRONMENTAL

Storage: -20°C to +70°C
Operating: -20°C to +70°C
Humidity: to 95% RH Non-Condensing
Faceplate Rating: NEMA 12 (Water Resistant) Mounting Gasket Included

COMPLIANCE

IEC 687 (0.2% Accuracy)
ANSI C12.20 (0.2% Accuracy)
ANSI (IEEE) C37.90.1 Surge Withstand
ANSI C62.41 (Burst)
IEC1000-4-2 – ESD
IEC1000-4-3 – Radiated Immunity
IEC 1000-4-4 – Fast Transient
IEC 1000-4-5 – Surge Immunity

APPROVALS

ISO – Conforms to European CE standards
UL/cUL – Manufactured to an ISO9001 registered program
CE – Listed under E200431

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Ordering

<table>
<thead>
<tr>
<th>PL6010</th>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>50Hz - BACnet/IP Communicating Multimeter</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>60Hz - BACnet/IP Communicating Multimeter</td>
</tr>
<tr>
<td>Current Inputs</td>
<td>5A</td>
<td>5 Amps</td>
</tr>
<tr>
<td></td>
<td>1A</td>
<td>1 Amp</td>
</tr>
<tr>
<td>Software</td>
<td>THD</td>
<td>THD, Limits Alarms &amp; One KYZ Pulse Output</td>
</tr>
<tr>
<td>Power Supply</td>
<td>HI</td>
<td>AC/DC Power Supply (90-265)VAC or (100-370)VDC</td>
</tr>
<tr>
<td></td>
<td>LDC</td>
<td>Low Voltage DC Power Supply (18-60)VDC</td>
</tr>
</tbody>
</table>

Example – EPM 6010 for 60Hz system with 5 Amp secondary and an AC/DC Power supply. PL601065ATHDHI

EPM 6010 is available without a display as the EPM 6010T. Please see the online store for ordering information.