Introduction

Electro Industries introduces our industry-leading revenue grade power meter with native BACnet protocol. This meter is designed to integrate seamlessly into existing and new building management systems that use BACnet. Available as either a meter or a transducer (100BT), the unit allows you to gather data on voltage, current, power, and energy usage throughout a facility.

The Shark® 50B/100B was designed to be the perfect device for “green” initiatives, LEED certified projects, smart buildings, and other smart energy projects. The Shark® 50B/100B’s metrology is industry recognized as superior, providing revenue testable 0.2% (100B)/5% (50B) energy accuracy with compliance to modern ANSI and IEC accuracy standards. The unit utilizes advanced DSP technology, high sampling rates, and 24-bit analog to digital conversion to measure and analyze power accurately and reliably.

Applications

- LEED Projects
- Alternative Energy Monitoring
- Commercial Energy Management
- HVAC Efficiency Monitoring
- Building Management Systems

Features

- Multifunction Measurements of Voltage, Current, Power and Energy
- Industry Recognized Superior 0.2% (100B)/0.5% (50B) Energy Class Accuracy
- BACnet/IP and Modbus TCP/IP Ethernet (100B); BACnet MS/TP Serial and Modbus TCP/IP Ethernet (50B)
- Available in Meter or Transducer Version (100BT)
- Highly Reliable Industrial Rated Design

Bi-directional, Highly Accurate Energy Measurements Perfect for Alternative Energy
Shark® 50B/100B with BACnet: the “Green” Choice

The Shark® 50B/100B meter with BACnet MS/TP or BACnet/IP supports building energy management strategies, LEED certification and other green building initiatives. By letting you track energy use and power quality from wherever you are, the meter gives you the information you need to accurately identify cost saving measures and respond to power quality problems when they arise. The Shark® 100B meter’s readings can also be viewed and analyzed using CommunicatorPQA® software which lets you program the meter and view real time readings remotely.

Additional Features Include:

- **100B**: BACnet/IP, Modbus TCP/IP, IrDA
- **50B**: BACnet MS/TP, Modbus TCP/IP

Both meters support an embedded web server.

### BACnet Objects

<table>
<thead>
<tr>
<th>BACnet Objects</th>
<th>Measured Parameters</th>
<th>Accuracy % of Reading</th>
<th>Display Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts A-N</td>
<td>VARh Net</td>
<td>Positive Watts, 3-Phase, Average Demand</td>
<td>100B</td>
</tr>
<tr>
<td>Volts B-N</td>
<td>kVARh Net</td>
<td>Positive kWatts, 3-Phase, Average Demand*</td>
<td>Volts, A-N THD**</td>
</tr>
<tr>
<td>Volts C-N</td>
<td>Frequency</td>
<td>Positive VARs, 3-Phase, Average Demand</td>
<td>Volts, B-N THD**</td>
</tr>
<tr>
<td>Volts A-B</td>
<td>Neutral Current</td>
<td>Positive kVARs, 3-Phase, Average Demand*</td>
<td>Volts, C-N THD**</td>
</tr>
<tr>
<td>Volts B-C</td>
<td>Whr Received</td>
<td>Negative Watts, 3-Phase, Average Demand</td>
<td>Volts, B-N THD**</td>
</tr>
<tr>
<td>Volts C-A</td>
<td>kWh Received</td>
<td>Negative kWatts, 3-Phase, Average Demand*</td>
<td>Volts, C-N THD**</td>
</tr>
<tr>
<td>Amps A</td>
<td>Whr Delivered</td>
<td>Negative VARs, 3-Phase, Average Demand</td>
<td>Amps, A THD**</td>
</tr>
<tr>
<td>Amps B</td>
<td>kWh Delivered*</td>
<td>Negative kVARs, 3-Phase, Average Demand*</td>
<td>Amps, B THD**</td>
</tr>
<tr>
<td>Amps C</td>
<td>Whr Net</td>
<td>Positive Watts, 3-Phase, Max Average Demand</td>
<td>Amps, C THD**</td>
</tr>
<tr>
<td>Total Watts</td>
<td>kWhr Net</td>
<td>Positive kWatts, 3-Phase, Max Average Demand</td>
<td>Amps, C THD**</td>
</tr>
<tr>
<td>Total kWhr</td>
<td>Total Whr</td>
<td>Negative Watts, 3-Phase, Average Demand</td>
<td>Amps, C THD**</td>
</tr>
<tr>
<td>Total kVARs</td>
<td>Total kWh</td>
<td>Negative kWatts, 3-Phase, Average Demand</td>
<td>Amps, C THD**</td>
</tr>
<tr>
<td>Total VARh</td>
<td>Total kWhr*</td>
<td>Negative kVARs, 3-Phase, Max Average Demand</td>
<td>Amps, C THD**</td>
</tr>
<tr>
<td>Total VA</td>
<td>Positive VARh</td>
<td>Negative VARs, 3-Phase, Max Average Demand</td>
<td>Amps, C THD**</td>
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<tr>
<td>Total PF</td>
<td>Negative VARh*</td>
<td>Positive kVARs, 3-Phase, Average Demand</td>
<td>Amps, C THD**</td>
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<tr>
<td>Total VAh</td>
<td>VAh, 3-Phase, Average Demand</td>
<td>Amps, C THD**</td>
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</tr>
<tr>
<td>Total kVAh*</td>
<td>Total Wh</td>
<td>Positive VARs, 3-Phase, Max Average Demand</td>
<td>Amps, C THD**</td>
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<tr>
<td>Total kVARh</td>
<td>Total kWhr</td>
<td>Positive kVARs, 3-Phase, Average Demand</td>
<td>Amps, C THD**</td>
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<tr>
<td>Total kWh</td>
<td>Total VARh</td>
<td>Positive VARs, 3-Phase, Max Average Demand</td>
<td>Amps, C THD**</td>
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<tr>
<td>Total kVA</td>
<td>Total VARh*</td>
<td>Positive kVARs, 3-Phase, Average Demand</td>
<td>Amps, C THD**</td>
</tr>
</tbody>
</table>

Pre-defined objects in the Shark® meters’ BACnet protocol. *These values are only for the 50B meter. **These values are only for the 100B meter.

### Shark® 50B/100B BACnet Through the Web

The Shark® 50B/100B meter’s BACnet comes standard with a web interface. Use the interface to remotely set up the BACnet configuration and track energy usage through the Internet with any standard web browser. You do not need to be on-site; you can check on your buildings from anywhere in the world! There is also a Modbus TCP/IP socket that can be used to simultaneously poll Modbus TCP/IP through the same device.
Wiring Diagrams

3 Phase, 4 wire WYE Direct

3 Phase, 3 wire Delta Direct

3 Phase, 4 wire WYE with PTs

3 Phase, 3 wire Delta with PTs

Dimensional Drawings

Front View

Side View

Rear View

Transducer
### Specifications

**Voltage Inputs**
- Absolute Range: (20-416) Volts Line to Neutral, (0-721) Volts Line to Line
- Universal Voltage Input
- 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: 0.36 VA per phase max at 600 V, 0.014 VA at 120 V
- Input wire gauge max (AWG 12 / 2.5 mm²)

**Current Inputs**
- Class 10: (0.005 to 10) A, 5 A Nominal CT Secondary
- Class 2: (0.001 to 2) A, 1 A Nominal CT Secondary
- Fault Current Withstand (at 23 °C):
  - Class 2: (0.001 to 2) A, 1 A Nominal CT Secondary
  - Class 10: (0.005 to 10) A, 5 A Nominal CT Secondary

**Isolation**
All Inputs and Outputs are galvanically isolated to 2500 V AC.

**Environmental Rating**
- Storage: (-20 to +70) °C
- Operating: (-20 to +70) °C
- Humidity: to 95% RH Non-Condensing
- Faceplate Rating: NEMA12 (Water Resistant)
- Mounting Gasket Included
- Protection:
  - IP30 - Meter Front/Back, System
  - DIN Rail Mounting: DIN Mounting (Euro Mounting)
  - Optional DIN Rail Mounting (DIN Mounting)

**Sensing Method**
- RMS
- Programmable Current to Any Ratio

**Power Supply**
- Option D2:
  - (90 to 265) V AC and (100 to 370) V DC Universal AC/DC Supply
  - (18-60) V DC
  - Burden: 10 VA Max

**Communication Format**
- 2 Com Ports (Back and Faceplate)
- BACnet / IP Ethernet (through Backplate)
- IrDA (through Faceplate)
- Modbus TCP/IP

**KYZ Pulse**
- Type Form A

**Dimensions and Shipping**
- Weight: 2 lbs
- Basic Unit: (H4.85 x W4.85 x L4.25) in.
- Shark® 50B/100B – mounts in 92 mm DIN and ANSI C39.1 4'' round cutouts
- Shark® 100BT-DIN rail mounted transducer
- Shipping Container Dimensions: 6' cube

**Meter Accuracy**
- See page 2

**Compliance**
- ANSI C12.20-2010 Accuracy, Class 0.2 CL - 100B; 0.5 CL - 50B
- IEC 62053-23 Edition 1 Class 2
- CE (IEC 61000-6-2 & IEC 61000-6-4 & IEC 61326-1)*
- IEC 61000-4-2 (Electrostatic Discharge)*
- IEC 61000-4-3 (Radiated EM Immunity)*
- IEC 61000-4-4 (Electromagnetic Compatibility)*
- IEC/CISPR 11, Class A (Conducted, Radiated Emissions)*
- IEC 61000-4-11 (Voltage Variations Immunity)*
- IEC/CISPR 11, Class A (Conducted, Radiated Emissions)*
- IEEE C37.90.1 (Surge Withstand)
- IEEE C62.41 (Surge Immunity)
- EU Directive 2011/65/EU (RoHS 2 Directive)
- REACH Compliant
- Certified to UL 61010-1 and CSA C22.2 No. 61010-1, UL File: E250818

* Third party lab tested

### Ordering Information:

To order, please fill out ordering guide:

<table>
<thead>
<tr>
<th>Option Numbers:</th>
<th>Model</th>
<th>Frequency</th>
<th>Current Class</th>
<th>Power Supply</th>
<th>Mounting (Shark 100B Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example:</td>
<td>Shark 100B (Meter/Transducer)</td>
<td>50 Hz System</td>
<td>5</td>
<td>D2</td>
<td>ANSI Mounting</td>
</tr>
<tr>
<td>Shark 100B</td>
<td>-</td>
<td>60</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Shark 100BT</td>
<td>60 Hz System</td>
<td>10</td>
<td>-</td>
<td>D</td>
<td>DIN Mounting (Euro Mounting)</td>
</tr>
</tbody>
</table>

### Ordering Instructions:

Email or fax part number above, plus quantity, to the address below. Lead times are typically stock to 2 weeks. For any technical questions, call toll-free 1-877-EIMETER to speak with a sales engineer.

### Additional Accessories

Communication Converters
- CAb6490 - USB to IrDA Adapter (100B)

Contact EIG for available CTs, shorting blocks, and fuses.