**SHARK® 50B**

**DUAL BACNET MS/TP & MODBUS TCP/IP COMMUNICATING MULTIFUNCTION POWER METER**

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**Features**
- Multifunction Measurements of AC Voltage, Current, Power and Energy
- Industry Recognized Superior 0.5% Energy Class Accuracy
- BACnet MS/TP Serial
- Modbus TCP/IP Ethernet
- Highly Reliable Industrial Rated Design

**Applications**
- LEED Projects
- Smart Buildings
- Commercial Energy Management
- HVAC Efficiency Monitoring
- Building Management Systems

**Introduction**
Electro Industries introduces our industry leading revenue grade power meter with native BACnet MS/TP and Modbus TCP/IP protocols. This universal meter is designed to integrate seamlessly into existing and new building management systems. The unit allows users to gather data on voltage, current, power and energy usage throughout a facility.

The Shark® 50B power meter was designed to be the perfect device for “Green” initiatives, LEED certified projects, smart buildings and all kinds of smart energy projects. This multifunction power meter's dual communication interface provides the information needed by both energy management and building control applications.

Having one metering product to fill almost every metering integration application is essential for a smooth and cost effective energy management system integration. This meter fills that need with highly accurate energy measurements and flexible communication capability.

The unit utilizes advanced DSP technology, high sampling rates and 24 bit analog to digital conversion to measure and analyze power accurately and reliably.

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**Highly Accurate Energy Measurements Perfect for Building Management Integration**

**Electro Industries/GaugeTech™**

*The Leader in Power Monitoring and Smart Grid Solutions™*
Shark® 50B with BACnet: the “Green” Choice

The Shark® 50B meter with BACnet MS/TP protocol supports building energy management strategies, LEED certification and other Green Building initiatives. By letting you track energy use and power with your building management system, the meter gives you the information you need to accurately identify cost saving measures and respond to power problems when they arise. The Shark® 50B meter’s readings can also be viewed and analyzed using Communicator EXT™ software, which lets you program the meter and view real-time readings remotely.

### BACnet Objects

- **Volts A-N** VARh Net Positive Watts, 3-Phase, Average Demand
- **Volts B-N** kVARh Net Positive kWatts, 3-Phase, Average Demand
- **Volts C-N** Frequency Positive VARS, 3-Phase, Average Demand
- **Volts A-B** Neutral Positive kVARs, 3-Phase, Average Demand
- **Volts B-C** Current Negative Watts, 3-Phase, Average Demand
- **Volts C-A** Whr Received Negative kWatts, 3-Phase, Average Demand
- **Amps A** kWhr Received Negative VARs, 3-Phase, Average Demand
- **Amps B** Whr Delivered Negative kVARs, 3-Phase, Average Demand
- **Amps C** kWhr Delivered Positive VARS, 3-Phase, Max Average Demand
- **Total Watts** Whr Net Positive kVARs, 3-Phase, Max Average Demand
- **Total kWatts** kWhr Net Negative Watts, 3-Phase, Max Average Demand
- **Total VARs** Total Whr Negative kWatts, 3-Phase, Max Average Demand
- **Total kVARs** Total kWhr Negative kVARs, 3-Phase, Max Average Demand
- **Total VA** Positive VArh Negative kVARs, 3-Phase, Max Average Demand
- **Total kVA** Positive kVArh Positive Watts, 3-Phase, Max Average Demand
- **Total PF** Negative VArh Positive kVARs, 3-Phase, Max Average Demand
- **Total VAh** Negative kVArh VAs, 3-Phase, Average Demand
- **Total kVAh** kVAs, 3-Phase, Average Demand
- **Total VARh** VAs, 3-Phase, Max Average Demand
- **Total kVARh** VAs, 3-Phase, Max Average Demand

### Measured Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Accuracy % of Reading</th>
<th>Display Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage L-N</td>
<td>0.2%</td>
<td>0-9999 V or kV</td>
</tr>
<tr>
<td>Voltage L-L</td>
<td>0.4%</td>
<td>0-9999 V or kV Scalable</td>
</tr>
<tr>
<td>Current</td>
<td>0.2%</td>
<td>0-9999 Amps or kAmps</td>
</tr>
<tr>
<td>+/- Watts</td>
<td>0.5%</td>
<td>0-9999 Watts, kWatts, MWatts</td>
</tr>
<tr>
<td>+/- Wh</td>
<td>0.5%</td>
<td>5 to 8 Digits Programmable</td>
</tr>
<tr>
<td>+/- VAr</td>
<td>1.0%</td>
<td>0-9999 VAr, kVAR, MVARs</td>
</tr>
<tr>
<td>+/- VARh</td>
<td>1.0%</td>
<td>5 to 8 Digits Programmable</td>
</tr>
<tr>
<td>VA</td>
<td>1.0%</td>
<td>0-9999 VA, kVA, MVA</td>
</tr>
<tr>
<td>VAh</td>
<td>1.0%</td>
<td>5 to 8 Digits Programmable</td>
</tr>
<tr>
<td>PF</td>
<td>1.0%</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>% Load Bar</td>
<td>1-120%</td>
<td>10 Segment Resolution</td>
</tr>
</tbody>
</table>

**Note:** Typical results are more accurate. Applies to 3 Element WYE and 2 Element Delta Connections. Add 0.1% of Full Scale plus 1 digit to Accuracy specs for 2.5 Element connections.

The 56 pre-defined objects in the Shark® 50B meter’s BACnet MS/TP protocol

### View Real Time Data and Configure the Meter through the Web Server

The Shark® 50B meter is field configurable and easy to use. Its BACNet structure is configured through the built-in web server. Additionally, the web server can also be used to view real time data.

With the Shark® 50B meter, the user has the benefit of serial MS/TP protocol and a web enabled meter, simultaneously.
**Dimensional Drawings**

**Shark® 50B Meter ANSI & DIN Mounting**

The unit mounts directly in an ANSI C39.1 (4" round form) or an IEC 92 mm DIN square form. This is perfect for new installations and for existing panels. In new installations, simply use DIN or ANSI punches. For existing panels, pull out old analog meters and replace them with the Shark® 50B meter. The meter uses standard voltage and current inputs so that CT and PT wiring does not need to be replaced.

- Perfect for switchgear panel direct retrofit
- Uses minimal panel space
- Mounts in only 4.25" panel depth

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**Wiring Diagrams**

3 Phase, 3 wire Delta with PTs

3 Phase, 3 wire Delta Direct

3 Phase, 4 wire WYE with PTs

3 Phase, 4 wire WYE Direct

3 Phase, 3 wire Delta with PTs

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**Universal for American and European Conventions**
Specifications

Voltage Inputs
- Up to 416VAC L-N and up to 721VAC L-L
- 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: 0.0144VA/Phase at 120 Volts
- Input Wire Gauge Max (AWG 12 / 2.5mm²)

Current Inputs
- Class 10: (0 to 10)A, 5 Amp Nominal, 10 Amp Maximum
- Fault Current Withstand (For 23°C, 3 Phase Balanced WYE or Delta load): 100 Amps for 10 Seconds, 300 Amps for 3 Seconds, 500 Amps for 1 Second
- Programmable Current to Any CT Ratio
- Burden 0.005VA/Phase

Environmental Rating
- Storage: (-20 to +70)°C
- Operating: (-20 to +70)°C
- Humidity: to 95% RH Non-Condensing
- Faceplate Rating: NEMA12 (Water Resistant) Gasket Included

Sensing Method
- RMS
- Sampling at 400+ Samples per Cycle on All Channels Measured Readings Simultaneously

Update Rate
- All Parameters Every 60 cycles

Power Supply
- (90 to 265) Volts AC
- AC Power Supply Only

Communication Format
- BACnet Serial MS/TP (RS485)
- 10/100 BaseT Ethernet Modbus TCP/IP

Dimensions and Shipping
- Weight: 2 lbs
- Basic Unit: H4.85 x W4.85 x L4.25 in.
- Continuous Current Withstand: 20 Amps for Screw Terminated or Pass Through Current Connections
- Input Wire Gauge Max: (AWG 12 / 2.5mm²)
- Output Wire Gauge Max: (AWG 14 / 1.5mm²)
- Isolation: All Inputs and Outputs are Galvanically Isolated to 2500 Volts AC
- IS: 2005
- EN 61000-6-4 - Emission Standards for Industrial Environments: 2007
- EN 61326-1 - EMC Requirements: 2006
- REACH Compliant
- RoHS Compliant

Ordering Information:

To order, please fill out ordering guide:

<table>
<thead>
<tr>
<th>Model</th>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shark 50</td>
<td>-</td>
</tr>
</tbody>
</table>

Shark 50B (meter / transducer)

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

Additional Accessories

Solid Core Current Transformers*
- EI-20ARL-181: ANSI Rated 100/5A solid core CT with 1.0” window
- EI-20ARL-201: ANSI Rated 200/5A solid core CT with 1.0” window
- EI-SARL-401: ANSI Rated 400/5A solid core CT with 1.5” window

Split Core Current Transformers*
- EI-1SP-100-00: 100/5A split core CT with 0.84” x 2.00” window
- EI-1SP-200-00: 200/5A split core CT with 0.84” x 2.00” window
- EI-WC4-400-RA05: 400/5A split core CT with 1.3” x 1.7” window

Shorting Block and Fuses
- EI-SB-6TC: CT Shorting Block for easy install
- EI-CP: Voltage and power supply protection fuse kit

*Note: For WYE systems, you will need to order 3 CTs; for Delta systems, you will need at least 2 CTs per meter

Compliance:
- IEC 62053-22 (Class 0.5S)
- ANSI C12.20 (0.5% Accuracy Class)
- ANSI (IEEE) C37.90.1 Surge Withstand
- ANSI C62.41 (Burst)
- EN 61000-6-2 - Immunity for Industrial Environments: 2005
- EN 61000-6-4 - Emission Standards for Industrial Environments: 2007
- Certified to UL 61010-1 and CSA C22.2 No. 61010-1, UL File: E250818
- REACH Compliant
- RoHS Compliant

Compliance Documents
Certificate of Calibration, Part # CCAL - This provides Certificate of Calibration with NIST traceable Test Data.