BFM ORDER STRING

MODELS
BFM036 Branch Feeder Monitor™ without display
BFM136 Branch Feeder Monitor™ with LCD display

OPTIONS
FREQUENCY
50 Hz
60 Hz

SECOND COMMUNICATION PORT
None
RS232
RS485
Dial-up Modem
Ethernet (TCP/IP)

MOUNTING
Wall-mount (Standard)
DBN

CURRENT TRANSFORMERS ORDER STRING

3 CT Strip 1
QTY up to 12 units per BFM

9 CT Strip 1
QTY up to 4 units per BFM

Single CT: SET OF 3
QTY up to 12 sets per BFM

The Perfect Solution For Multi-Client Metering

➤ Multi-client billing
➤ Multi-circuit energy reading
➤ Built-in communication platforms
➤ Time-of-Use (TOU) metering

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BFM136
BFM036
Branch Feeder Monitor™

SATEC’s Model Branch Feeder Monitor™ (BFM) is the next generation in energy management metering for multi-point power solutions. Ideal for both new and retrofit projects, the BFM automatically provides metering, demand and energy readings, logging and multi-tariff (TOU) data.

The BFM monitors up to 12 three phase circuits or 36 single phase circuits, or any combination of single or three phase circuits. This flexibility makes the BFM perfect for multi-tenant facilities such as residential projects, office buildings and shopping malls.

The BFM is designed to easily fit into existing panel boards or flush mounts nearby, thus eliminating the need for expensive retrofit projects or for allocating extra space for the device.

The BFM monitors up to 36 currents via external Current Transformers (CTs). Each CT measures and reports the current consumed by each of the branch circuits at the panel board. For billing purposes, single or multiple circuits can be defined for each customer. This flexibility allows a simple reassignment of circuit groups without wiring changes, and allows for easy changes when tenants move in and out. Main panel board or load center installation makes for a valuable saving of both time and money.

The BFM’s user-defined and easily configured alarm system enables users to take proactive maintenance action in order to avoid unnecessary outages.

Features & Benefits

- Multi-point power, energy and demand data logging.
- Data storage:
  - Real Time Clock (RTC) and Flash memory for data and event logging.
  - TOU (Time of Use): The TOU function stores energy consumption data according to the programmed time schedule.
  - Daily energy tariff profile and Maximum demands programmable interval for load profile.
- Logging for any type of parameters, for all profiles.
- Local LCD display (BFM136 only) providing up to 36 channels of consumption readings for each tenant.
- Cost effective, space-saving compact design for easy installation into existing electric panelboards.
- Automatic installation verification: The BFM performs automatic synchronization between voltage and current lines for each phase (on single phase).
- Standard Communication Platforms:
  - Protocols: Modbus RTU, Modbus TCP/IP
  - Ports: Standard: RS485 port
  - Optional: Ethernet TCP/IP, dial-up modem, RS232, additional RS485 122 port
- High accuracy
- Input:
  - Current inputs: 36 per device.
  - Maximum measured currents: Conventional transformer with 5-10 secondary, and up to 200A primary configuration; or direct 100 Amp.
  - Voltage Input: wide range 88-138 VAC (115) or 176-265 VAC (460V230),
  - Self power supply: 1-phase + N feed from the measured voltages.
- Alarm Configuration:
  - Overvoltage, over current, over kW, over kVA, overvoltage, overcurrent, frequency.
- Three-year warranty.

BFM136
Local operation panel including LCD display—(16 characters x 2 rows) and 4 pushbuttons.

BFM036
Remote access via computer communications, without display.

Measurement Parameters

<table>
<thead>
<tr>
<th>Energy Measurements</th>
<th>Present Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import active energy per phase and total for each feeder</td>
<td>Phase RMS amperes</td>
</tr>
<tr>
<td>Reactive energy per phase and total for each feeder</td>
<td>Total kW</td>
</tr>
<tr>
<td>Apparent energy per phase and total for each feeder</td>
<td>Total kvar</td>
</tr>
<tr>
<td>Single active energy TOU system (8 tariffs) for each feeder</td>
<td>Total kVA</td>
</tr>
</tbody>
</table>

Average Measured Values

- L-N voltage per phase
- L-L voltage per phase
- Current per phase and per each feeder
- kW per phase and total for each feeder
- kvar
- Power factor per phase and total for each feeder
- kVA per phase and total for each feeder

Frequency 50-60 Hz

Maximum Demand

- Volts
- Amperes per phase
- Total kW
- Total kvar
- Total VA
- Neutral current for three phase feeders only

Service

- Self-diagnostic test
- Password per each feeder
- Device serial no.
- Software version
- Com1 & Com2 ID
- Phase rotation

More measured parameters available
Contact us for more information
Manage Your Energy System

MONITORING & DATA STORAGE
SATEC’s Branch Feeder Monitor™ collects and stores data, accessible in real-time. The BFM stores energy usage data in two formats, fixed-price and Time of Use (TOU). The BFM collects a variety of physical data such as: kVA, kW, kvar, current and voltage max., demands, and energies: kVAh, kWh and kvarh. The BFM transfers the data to a remote computer for sophisticated analysis. The data can also be viewed locally on the BFM136 model’s LCD display.

BILLING (TOU)
Tariffs vary according to different criteria, such as the type of consumer—whether private home accounts in multi-tenant buildings, businesses or industry. The BFM provides data for TOU billing in compliance with the rates set by the local electricity supplier. The system also provides information on peak demands and allows for the assessment of penalty if the power factor falls below the level defined by the local electricity suppliers.

APPLICATIONS

PAS
For remote reading and control, the BFM is supported by SATEC PAS software, designed for remote setup and data viewing and analysis. Both PAS and eXpertpower™ provide real-time access to data.

Building Management Systems
With the open Modbus protocol, the BFM can interface any system, such as Building Management, HMI and more.

eXpertpower™
For automated monitoring, complete billing service, and more advanced analysis options, SATEC offers eXpertpower™, the web-based Energy Management e-Service. This service provides automatic monitoring, billing and analyses for electric power systems.

eXpertpower™ delivers total visibility for entire power systems via the Internet, providing alarms, power diagrams, power profiles and demands, events logging, history and graphs. For more information on our e-Service, see our eXpertpower™ brochure.
**Diagrams & Dimensions**

**Measurement Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Accuracy</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0.3</td>
<td>0 to Vmax=599 V</td>
</tr>
<tr>
<td>Line current</td>
<td>0.5</td>
<td>0 to CT primary current</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Starting current: 0.1% P5</td>
</tr>
<tr>
<td>Active power</td>
<td>0.5</td>
<td>-120,000 to 120,000 kW</td>
</tr>
<tr>
<td>Reactive power</td>
<td>1</td>
<td>-120,000 to 120,000 kvar</td>
</tr>
<tr>
<td>Apparent power</td>
<td>1</td>
<td>0 to 120,000 kVA</td>
</tr>
<tr>
<td>Power factor</td>
<td>1.0</td>
<td>-2,999 to +1,000</td>
</tr>
<tr>
<td>Frequency</td>
<td>0.02</td>
<td>39 Hz up to 70 Hz</td>
</tr>
<tr>
<td>Active energy import</td>
<td></td>
<td>Class 0.55 as per IEC 62053-22:2003, 0 to 99,999,999.9 kWh</td>
</tr>
<tr>
<td>Reactive energy import</td>
<td></td>
<td>Class 1.0 as per IEC 62053-21:2003, 0 to 99,999,999.9 Mvarh</td>
</tr>
<tr>
<td>Apparent energy</td>
<td></td>
<td>Class 1.0 as per IEC 62053-21:2003, 0 to 99,999,999.9 MVArh</td>
</tr>
</tbody>
</table>

**Technical Specifications**

**Input Ratings**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>AC Voltage</td>
<td>4 wires: 3 phases + neutral</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>120/240/277 VAC</td>
</tr>
<tr>
<td>Maximum Line to Neutral voltage</td>
<td>320 V</td>
</tr>
<tr>
<td>Maximum Line to Line voltage</td>
<td>544 V</td>
</tr>
<tr>
<td>Burden per phase</td>
<td>≤1.9 W</td>
</tr>
<tr>
<td>Isolation</td>
<td>2.5 kV RMS, 60Hz, 1 min Impulse: 6kV</td>
</tr>
<tr>
<td>PT ratio</td>
<td>1:5000</td>
</tr>
<tr>
<td>AC Current</td>
<td>36 current circuits</td>
</tr>
<tr>
<td>Nominal current</td>
<td>50</td>
</tr>
<tr>
<td>Maximum input direct current</td>
<td>100 A</td>
</tr>
<tr>
<td>Maximum momentary overcurrent</td>
<td>3000 A</td>
</tr>
<tr>
<td>Burden per phase</td>
<td>≤ 0.1 VA</td>
</tr>
<tr>
<td>Isolation</td>
<td>2.5 kV RMS, 60Hz, 1 min</td>
</tr>
<tr>
<td>Primary current</td>
<td>1-10000A</td>
</tr>
</tbody>
</table>

**Standards Compliance**

- IEC 62053-22:2003
- IEC 62053-21:2003
- ANSI C12.20-1998
- EN50081-2 Generic Emission Standard—Industrial Environment
- EN50082-2 Generic Immunity Standard—Industrial Environment
- EN55022: 1994 Class A
- EN61000-4-2
- EN50140:1983
- ENV50204: 1995 (900MHz)
- ENV50141:1993
- EN61000-4-4:1995
- EN61000-4-8:1993

**Environmental Conditions**

- Operating Temperature: -20°C to 60°C (-4°F to 140°F)
- Storage Temperature: -25°C to 80°C (-13°F to 176°F)
- Humidity: 0 to 95% non-condensing