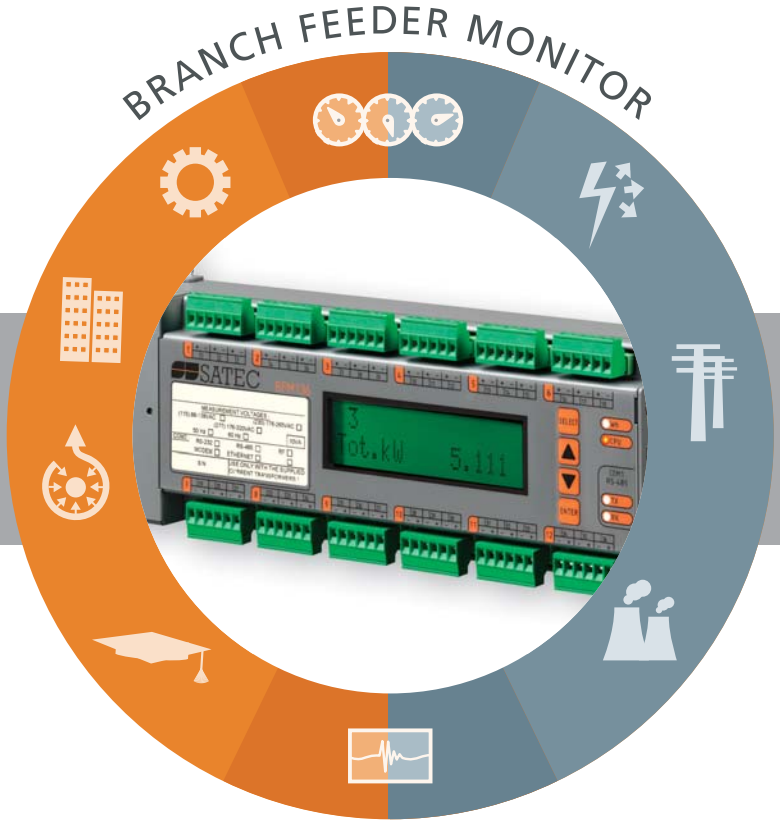
BFM136



SATEC
Powerful Solutions

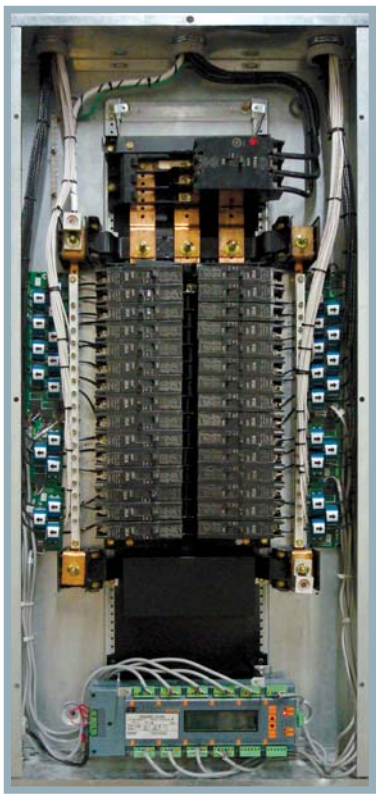
The Perfect Solution For Multi-Circuit, Multi-Client Metering

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

BFM136

Branch Feeder Monitor™

SATEC's 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 compact **BFM** is designed to easily fit into existing panel boards or be flush mounted 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 predictive maintenance action in order to avoid unnecessary outages.

Features &

- Multi-point **power, energy and demand** data logging.
- **Data storage**:
  - Real Time Clock (RTC) and Flash memory for data and event logger.
  - 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** 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 voltages and currents per phase.

Measurement Parameters

	Local Display	Communication	Setpoints	Alarm
Energy Measurements				
Import active energy per phase and total for each feeder	■	■		
Reactive energy per phase and total for each feeder	■	■		
Apparent energy per phase and total for each feeder	■	■		
Simple active energy TOU system (8 tariffs) for each feeder	■	■		
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	■	■	■	■ (total)
kVAr	■	■	■	
Power factor per phase and total for each feeder	■	■		
kVA per phase and total for each feeder	■	■	■	■
Frequency 39-70 Hz	■	■	■	■

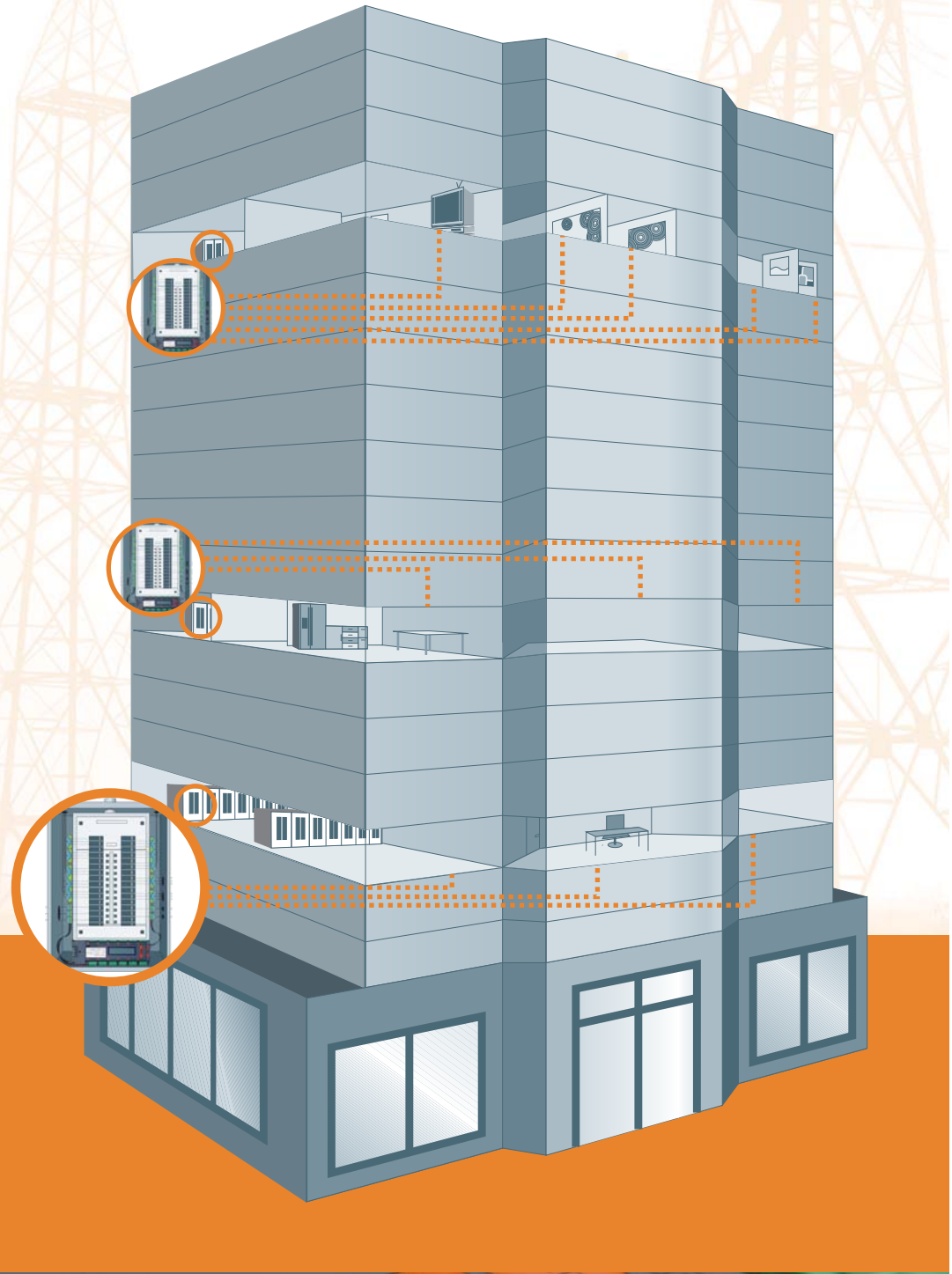
More measured parameters available

Contact **SATEC Sales** for more information

	Local Display	Communication
Present Demand		
Phase RMS amperes		■
Total kW		■
Total kVAr		■
Total kVA		■
Neutral current for three phase feeders		■
Volts (minimum)	■	■
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		■

Benefits

- **Standard Communication Platforms:**
  Protocols:
  Modbus RTU
  Modbus TCP/IP
  Ports:
  Standard: RS485 port
  Optional: Ethernet TCP/IP, dial-up modem, RS232, additional RS485/422 port
- **High accuracy** 0.5S
- **Input**
  - Current inputs: 36 per device.
  - Measured currents, per phase: with conventional CT 5 Amp. or 1 Amp. secondary, and up to 5000A primary configurable; or direct 100 Amp.
  - Voltage Input: wide range 88-138 VAC (115) or 176-265 VAC (400/230).
  - Self power supply: 3-phase + N fed from the measured voltages.
- **Alarm Configuration**
  Over/under voltage, over current, over kW, over kVA, over/under frequency.
- **Three-year warranty.**



Manage Your

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** automatically transfers the information to a remote computer for display and analysis. The data can also be viewed locally on the **BFM136** model's LCD display.

APPLICATIONS

PAS

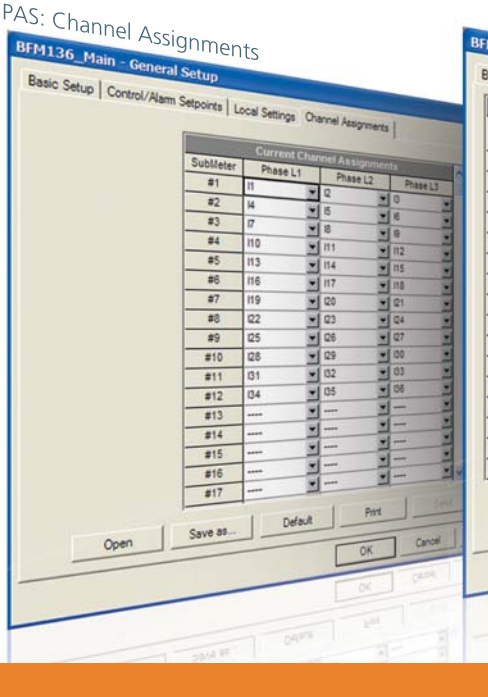
For remote reading and control, the **BFM** is supported by **SATEC PAS** software, designed for remote setup and data viewing and analysis.

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.

PAS: Channel Assignments



Energy System

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.

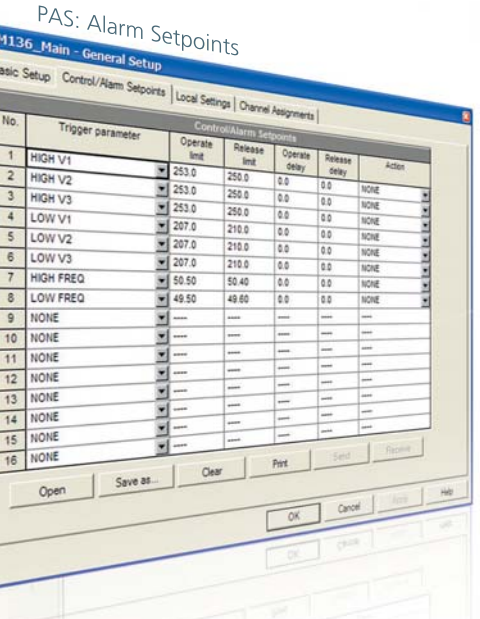
The system also provides information on peak demands and allows for the assessment of penalty if the power factor falls below the level defined by the local electricity suppliers.

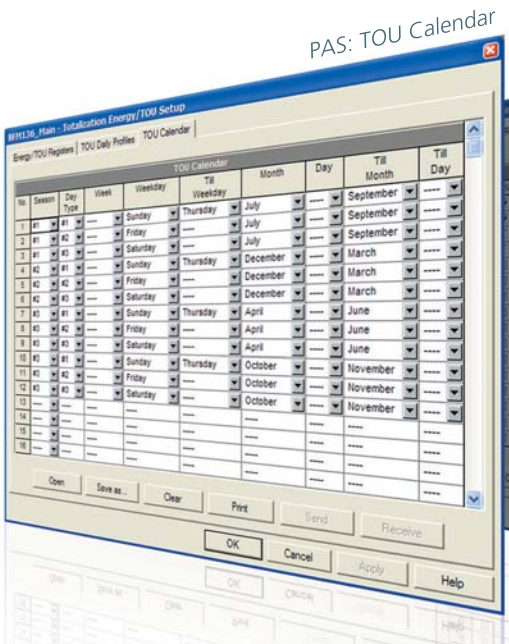
eXpertpower™

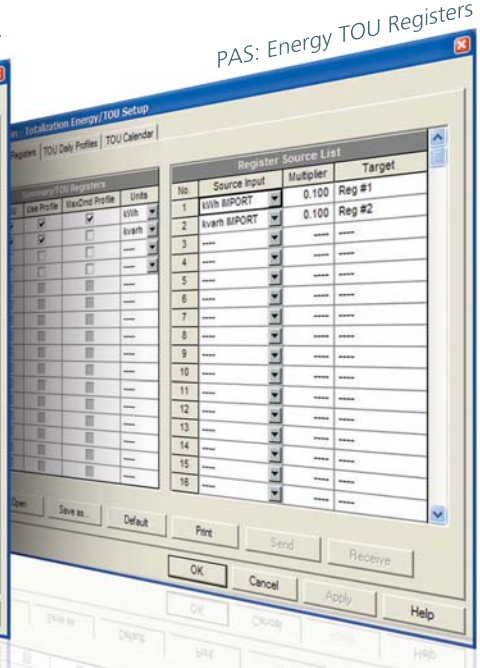
For automated monitoring, complete billing service, and more advanced analysis options, **SATEC** offers **eXpertpower™**, the web-based Energy Management **e**-Service.

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.

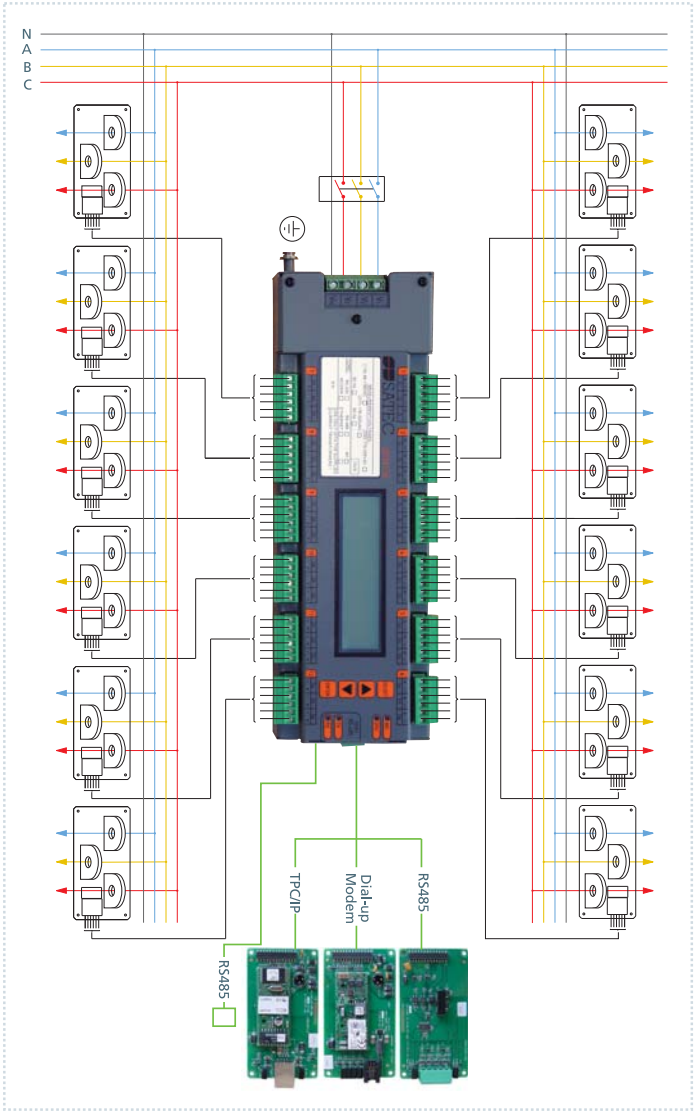
For more information on our **e**-Service, see The **SATEC eXpertpower™** brochure.



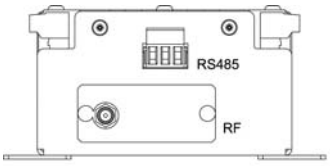




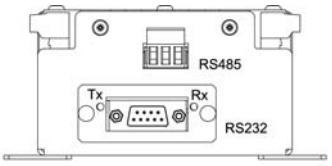
Diagrams & Dimensions



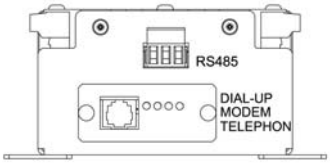
Optional COM 2 Communication Add-On Port



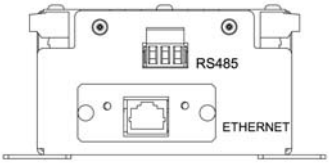
Model RFM RF Zigbee



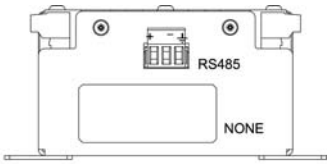
Model R2 RS232



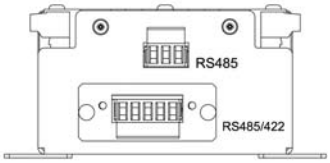
Model MOD 56K Modem



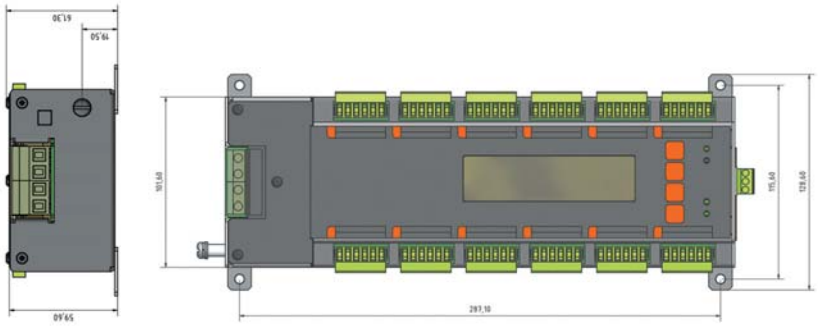
Model RTH Ethernet

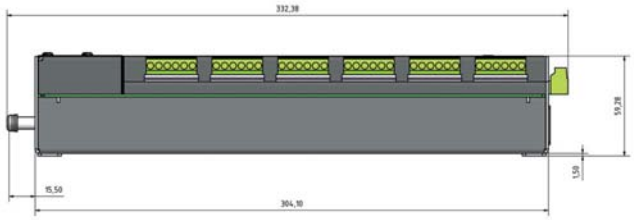


No COM 2 Option

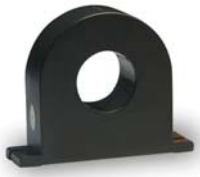


Model R4 RS485

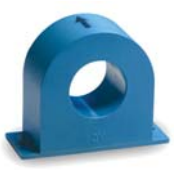




Current Transformers Options



Ø 26mm, 1.02"
400A



Ø 23mm, 0.91"
100A

Ø 12mm, 0.47"
100A

Split Core CT
Ø 16mm, 0.63"
100A

Measurement Specifications

Parameter	Accuracy % Reading	Range
Voltage	0.3	0 to Vmax=599 V
Line current	0.5	0 to CT primary current. Starting current: 0.1% FS
Active power	0.5	-120,000. to 120,000. kW
Reactive power	1	-120,000 to 120,000 kVAr
Apparent power	1	0 to 120,000 kVA
Power factor	1.0	-0.999 to +1.000
Frequency	0.02	39 Hz up to 70 Hz
Active energy import	Class 0.5S under conditions as per ANSI 1220-1998	0 to 99,999,999.9 kWhR
Reactive energy import/export	Class 1.0 under conditions as per ANSI 1220-1998	0 to 99,999,999.9 Mvarh
Apparent energy	Class 1.0 under conditions as per ANSI 1220-1998	0 to 99,999,999.9 MVAh

Technical Specifications

Input Ratings

Parameter	Value
Nominal frequency	50/60 Hz
AC Voltage	4 wires: 3 phases + neutral
Nominal voltage	120/240/277 VAC
Maximum Line to Neutral voltage	320 V
Maximum Line to Line voltage	544 V
Burden per phase	<1.5 W
Isolation	2.5 kV RMS, 60Hz, 1 min Impulse 6kV
PT ratio	1-6500
AC Current	36 current circuits
Nominal current	50 A
Maximum input direct current	100 A
Maximum momentary overcurrent	3000 A
Burden per phase	< 0.1 VA
Isolation	2.5 kV RMS, 60Hz, 1 min
Primary current	1-10000A
Hardware	
LCD display (model **136** only)	2 Rows, 16 digits in each
Push buttons	4
Non-Volatile Memory storage life	20 years
RTC storage upon loss of power	24 Hours minimum 1 Week typical
Voltage inputs terminal	10 AWG Max.
Weight	1.850 Kg

Environmental Conditions

Operating Temperature	-20ºC to 60ºC (-4ºF to 140ºF)
Storage Temperature	-25ºC to 80ºC (-13ºF to 176ºF)
Humidity	0 to 95% non-condensing

Standard Approvals

IEC 62053-22: 2003 Class 0.5S

ANSI C12.20-1998 Class 0.5

IEC 62052-11: 2003

EN 61000-3-2: 2000

EN 61000-3-3: 1995

IEC 61000-4-2: 1995

IEC 61000-4-3: 2002

IEC 61000-4-4: 1995

IEC 61000-4-5: 1995

IEC 61000-4-6: 1996

IEC 61000-4-11: 1994

Safety

UL 61010-1-2003

Authorized Labs - Approvals

UL: Listed for the US & Canada

CE

ISO

GOST

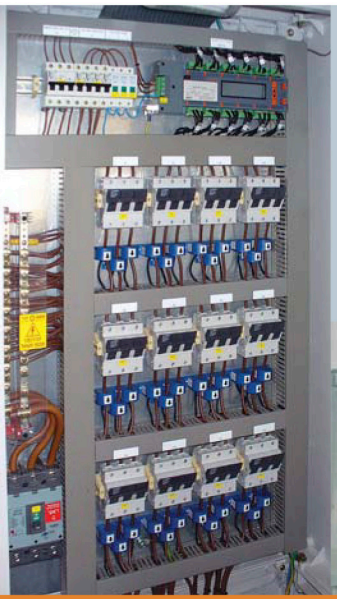
BFM ORDER STRING

BFM ☐ ☐ ☐ ☐ CON ☐ AN ☐

MODEL BFM136 Branch Feeder Monitor™	BFM136
OPTIONS	
FREQUENCY	
50 Hz	50HZ
60 Hz	60HZ
COM2 SECOND COMMUNICATION PORT	
None	0
RS232	R2
RS485	R4
Dial-up Modem	MOD
Ethernet (TCP/IP)	ETH
RF Basic—for use in the US	BUS
MOUNTING	
Wall-mount (standard)	0
DIN Rail	D
OPTIONS & ACCESSORIES	
CONCENTRATOR	CON
Concentrator—US	US
ANTENNA	AN
Antenna 1: Without cable (module or concentrator)	1
Antenna 2: With 2M cable (module or concentrator)	2
Antenna 3: External for concentrator only	3
Antenna 4: External for module or concentrator	4

CURRENT TRANSFORMERS ORDER STRING

Single CT 100A, 600V Inner diameter 12 mm. Cable length 2.5 meters	CT126 x ☐
Single CT 100A, 600V large hole Inner diameter 23 mm. Cable length 2.5 meters	CT236 x ☐
Single CT 100A split core, 600V Inner diameter 16 mm. Cable length 2.5 meters	CTSC6 x ☐
Single CT 400A, 600V Inner diameter 26 mm. Cable length 2.5 meters	CT4A6 x ☐



BFM136 Installations

誥鑫企業有限公司
ARITH COMPANY LTD.
地址：台北市105復興北路427巷30號
電話：(02) 2717-5038(代表號)
傳真：(02) 2717-5039
郵件：taipei@arith.com.tw
網址：www.arith.com.tw