

# OSI MULTI-FUNCTION POWER METER

MODEL **BM1200**

## DESCRIPTION

BM1200 devices are designed for measurement in electrical distribution systems or industrial plants. They are suitable as a replacement for analog built-in measuring devices as well as a cost-effective alternative to energy meters. All parameters may be selected on-site. A Modbus RTU (RS485) interface is available for the connection of the devices to higher ranking systems.

The universal measuring device BM1200 is suited for fixed mounting and the measurement of voltage, current, frequency, power, energy (active, reactive and apparent), power factor, phase angle, etc. in low-voltage switchgear. The units are designed for unbalanced load network forms of single-phase to 3-phase mains with 2-, 3- or 4-wire connections.



## MODEL SELECTION

| MODEL    | SYSTEM CONFIGURATION | COMMUNICATION INTERFACE |
|----------|----------------------|-------------------------|
| BM1200-0 | 1Φ2W, 3Φ3W or        | N/A                     |
| BM1200-1 | 3Φ4W, asymmetrical   | RS-485 Modbus/RTU       |

## SPECIFICATIONS

### INPUT

#### Voltage

Nominal Range ..... 57.7 to 277V<sub>L-N</sub>, 100 to 480V<sub>L-L</sub>  
 Maximum ..... 120% of Nominal Range  
 Overrange Without Damage ..... 2 X rated  
 (1s application 10 times at 10s intervals)

Burden ..... ≤0.3VA per phase

#### Current

Nominal Range (with CTs) ..... 2mA-1A or 10mA-5A  
 Maximum ..... 120% of Nominal Range  
 Overrange Without Damage ..... 20 X Rated for 0.5s  
 Burden ..... ≤0.3VA per phase

#### System Configurations Accommodated

1Φ2W, 3Φ3W or 3Φ4W, unbalanced load

Frequency Range ..... 45 to 65Hz  
 Power Factor ..... 0.5Lag to 0.8Lead  
 Total Harmonic Distortion (THD) ..... 0 to 50%  
 True RMS Measurement ..... up to 15th harmonic

### OUTPUT

#### Optical

Impulse ..... (110V<sub>L-L</sub>) ..... 16000pulses/kWh  
 (230V<sub>L-L</sub>) ..... 8000pulses/kWh  
 (415V<sub>L-L</sub>) ..... 4000pulses/kWh

#### Display

Programmable for 3 Measured Values, 4 digits each  
 Type ..... LCD-Display with backlight  
 Update Rate ..... 1s, approx.

### INSTRUMENT POWER

Range ..... 60 to 300Vac/dc  
 Nominal ..... 230Vac/dc, 50/60Hz, ≤6VA

### DIELECTRIC TEST

Input/Instr. Pwr to Enclosure ..... 4kVrms, 50Hz, 1min  
 Input to Output/Instr. Pwr ..... 2kVrms, 50Hz, 1min

### COMMUNICATION INTERFACE (BM-1200-1 only)

Protocol ..... Modbus/RTU  
 Type ..... RS485 ..... 1200m, max  
 Baud Rate ..... 4800, 9600, 38400 Baud (programmable)

Number of Participants ..... <32

### ACCURACY (at 23°C ±2°C)

Voltage, Current ..... ±0.5% F.S.  
 Active Power ..... (PF=1) ..... ±0.5% F.S.  
 Reactive Power ... (PF=0) ..... ±1.0% F.S.  
 Apparent Power ..... ±0.5% F.S.  
 Power Factor / Phase Angle ..... ±3.0°  
 Frequency ..... ±0.2% of mid frequency  
 Active Energy ..... (EN 62053-21) ..... Class 1  
 Reactive Energy .. (EN 62053-23) ..... Class 2  
 Apparent Energy ..... Class 1  
 THD ..... (voltage, current) ..... ±2.0%

### PHYSICAL AND ENVIRONMENTAL

Temperature ..... Operating ..... -10 to 55°C  
 Storage ..... -20 to 65°C  
 Relative Humidity ..... 0 to 90%, non-condensing  
 Enclosure Material ..... Polycarbonate 10% unfilled  
 Rating ... IP54 front, IP20 housing/term. per IEC 60529  
 Weight ..... 0.71 lb (320g)  
 Mounting Orientation ..... Any

### SAFETY

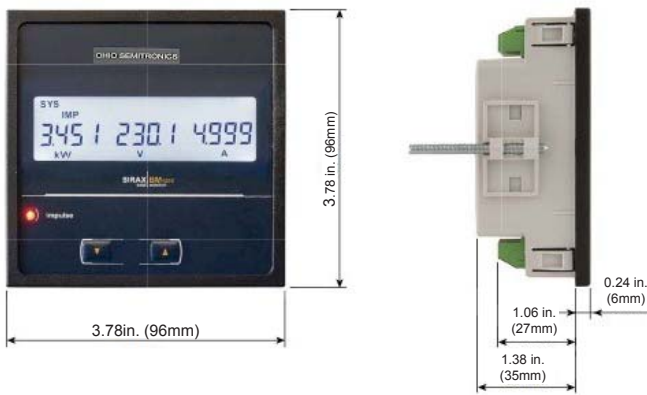
Flammability Class ..... UL94V-0, halogen-free  
 Shock ..... 300 m/s<sup>2</sup> (30g), duration 18ms  
 Vibration ..... 10 to 150 to 10Hz, 0.15mm amplitude  
 EMC Emission ..... IEC 61326-1:2005  
 EMC Immunity ..... 10V/m, min. (IEC 61000-4-3)  
 Safety ..... IEC 61010-1:2001  
 Protection Class ..... II  
 Pollution Degree ..... II  
 Installation Category ..... CATIII  
 Overvoltage Category ..... CATIII, 300V

# OHIO SEMITRONICS, INC.

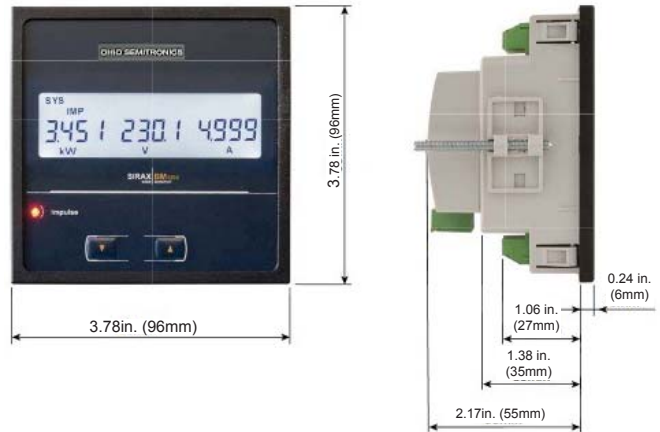
4242 REYNOLDS DRIVE \* HILLIARD, OHIO \* 43026-1264  
 PHONE: (614) 777-1005 \* FAX: (614) 777-4511  
 WWW.OHIOSEMITRONICS.COM \* 1-800-537-6732

**CASE DIMENSIONS**

**BM1200-0**



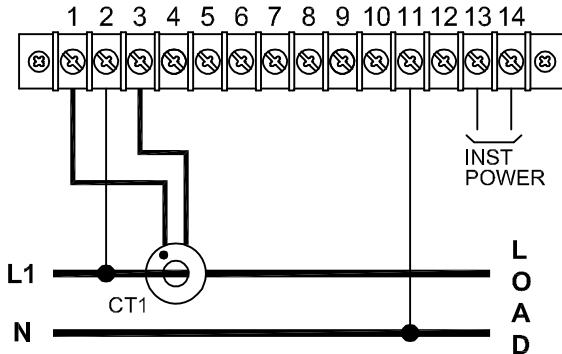
**BM1200-1**



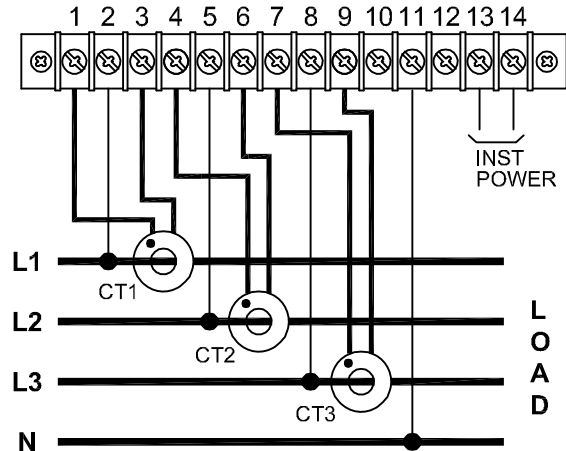
**CONNECTION DIAGRAMS**

**Direct Connection**

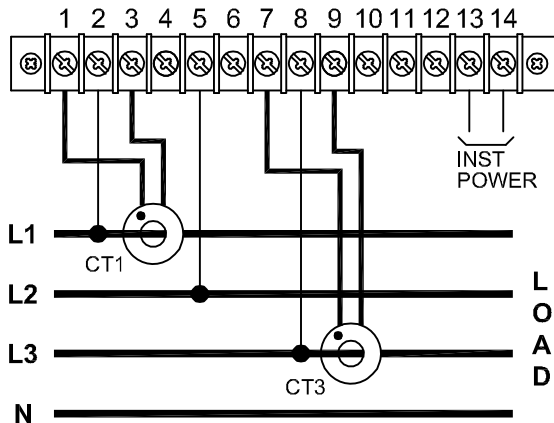
**One Phase - Two Wire**



**Three Phase - Four Wire, unbalanced load**



**Three Phase - Three Wire, unbalanced load**



DWG # 0902-01023-B REV-