

Power Meter (Model 2150)



Masibus Model 2150 Power Meter is a solid state design, which is a complete LT/HT line measurement solution for the monitoring of three phase AC supply including all types of energies. The 2150 Power Meter is based on ASIC and Micro controller, with a high degree of programmability.

The meter meets the accuracy requirements of IS 13779/IEC 61036, and has been certified by the ERDA. This model is available for class 1 or class 0.5 accuracy. Maximum demand feature is available with class 1 accuracy also.

The meter can be programmed to operate as an intelligent electronic device (IED) for measurement and storage device with serial communication making it an ideal data source for EMS, SCADA, PLCs and BMS system.

The meter is supplied pre-programmed for operation and ready for use. Model 2150 power meter stores all its energy data and programming parameter into non-volatile memory using EEPROM. This power meter measures 51 electrical parameters of 3 phase AC line and displays using 19 screens which is selectable from front keys.

Model 2150 has auto scaling facility while measuring energy from Kilo to Mega to Giga. Instrument can be self or auxiliary powered with very low burden. Calibration can be done using front keys or through PC software.

Model 2150 has digital input and output facility. Programmable pulse output can be used for KWH (import-export), KVARH (lag-lead) and KVAH. Programmable pulse input can be used to totalize 3rd party energy device.

The CT & PT ratio (primary) can be programmed at site using front membrane key. Model 2150 is supplied packaged in panel mount or back panel DIN rail version.

Features

- Accuracy class 1.0 as per IS13779/ IEC 61036 (class 0.5 option)
- True four quadrant measurement
- Self/Aux powered
- Four row back-lit LCD display
- 51 Parameters of 3Ø AC Line using 19 display screens
- AUTO-SCALING from Kilo to Mega to Giga watt
- Programmable pulse input & output
- Calibration using front keys/ PC
- Isolated RS 485 (MODBUS-RTU protocol)

2150

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2150

TECHNICAL SPECIFICATIONS 2150

| | |
|------------------------------|--|
| Nominal Voltage Input | |
| Direct connection voltage | Between 57.8V and 550V |
| Standard Voltage offered | 63.5/110V,69.3/120V,120/208V,220/380V, 230/400V,240/415V,275/476V for 3ph4w 110V,120V,380V,400V, 415V,440V,476V for 3ph 3w |
| Accuracy Range | 50 – 115% of nominal voltage |
| Burden | < 2.5 VA per phase |
| Overload | 1.2x nominal continuous |
| PT Ratio | 1 to 9999.999 programmable (primary) |
| Input wire gauge | 12 AWG |
| Nominal Input Current | 1 or 5 Amp. |
| Accuracy Range | 5 – 120% nominal |
| Burden | < 0.5 VA per phase |
| Overload | 4.0x nominal continuous 20.0x nominal for 1 sec. |
| CT Ratio | 1 to 9999.999 programmable (primary) |
| Starting current | 0.4% of nominal Current. (Class 1.0) |
| Input wire gauge | 12 AWG |
| Frequency | 50Hz / 60Hz range \pm 5.0Hz |
| Measured Parameters | |
| Voltage | L1-L2,L2-L3,L1-L3 & average (3 ph 3 w) & (3 ph 4 w) L1-N,L2-N,L3-N & average (1ph & 3 ph 4 w) |
| Amps | L1, L2, L 3 & Average. (3 ph 3 w) & (3 ph 4 w) & Neutral Current. (3 ph 4 w) |
| Frequency | System Frequency |
| Power Factor | Per Phase PF & Avg PF |
| Active Power | Per Phase Watts & Total Watts (W, kW & MW) |
| Reactive Power | Per Phase VAR & Total VAR (VAR, kVAR, MVAR) |
| Apparent Power | Per Phase VA & Total VA (VA, kVA & MVA) |
| Active Energy | Per Phase & Total Active Energy for Import & Export.(separate) (Wh, kWh , MWh & GWh) |
| Reactive Energy | Per Phase & Total Reactive Energy For lagging & leading. (separate) (VARh, kVARh, MVARh & GVARh) |
| Apparent Energy | Per Phase & Total Apparent Energy (VAh, kVAh , MVAh & GVAh) |
| Auxiliary Power | No External power is required. (Draws power from the voltage signal inputs) |
| System | Single Phase 3 phase 3 wire unbalanced load 3 phase 4 wire unbalanced load |
| Accuracy | |
| Volt | 1% rdg \pm 1 dgts. |
| Current | 1% rdg \pm 2 dgts. |
| Frequency | 0.1Hz \pm 1 dgts. |
| Power Factor | 1% rdg \pm 2 dgts.(For 0.5 Lag - 1.0 - 0.8 Lead) |
| Active Power | 1% rdg \pm 2 dgts. |
| Reactive Power | 2% rdg \pm 2 dgts. |
| Apparent Power | 1% rdg \pm 2 dgts. |
| Active Energy | Class 1.0 (IS 13779/IEC 1036) |
| Reactive Energy | Class 2.0 (IEC 1268) |
| Apparent Energy | Class 1.0 |

TECHNICAL SPECIFICATIONS 2150

| | |
|-----------------------------|---|
| Output Relay | Watt/VAR/VA-SPNO |
| AC rating | 250V, 5 Amp |
| DC rating | + or - 30V, 5A |
| Pulse Output | WH/VARH/VAH - SPNO |
| AC rating | 200V, 100mA, Resistive |
| DC rating | \pm 200V, 100mA, Resistive |
| Pulse Rate | Programmable from 1 to 9999 pulse per KWH/[]/KWH[E]/KVARLH/ KVARH/ KVAH of total 80 mS \pm 10% |
| Pulse duration | |
| Communication Output | |
| Serial port. | RS485 |
| Baud rate | Selectable. 4800/9600/19200 |
| Start bit | 1 |
| Stop bit | 1 |
| Protocol | MODBUS - RTU |
| Environmental | |
| Working temp. | 0 to 55 °C. |
| Storage temp. | 10 to 70 °C. |
| Temperature Coeff. | IS-13779 |
| Relative humidity | 0 - 95% non-condensive |
| Warm up time | 5 min |
| Enclosure | |
| Mounting | Panel/ DIN rail (DIN rail version is without display) |
| Enclosure | 96 x 96 x 110 mm |
| Material | Noryle SE1 GFN1 |
| Terminals | Barrier(Feed through) type Screw Terminals |
| Accessory | 2 Panel mount clamps |
| Weight | 500 gms |
| Isolation | All Inputs and Outputs are galvanically isolated to 2000 Volts AC. |
| Burden | <5 VA |
| Sensing Method | True RMS Sampling at 320k sample per second on all channel measurement reading simultaneously. |
| Update Rate | 320ms |

ORDERING CODE

| Model 2150 | | | | | | | | | |
|------------|----------|-------------------|----------|----------|----------|-----------|-------|------------|----------|
| CT Ratio | PT Ratio | | Mounting | | Accuracy | | Power | | Output |
| X | X | | XX | | X | | X | | X |
| 1 1A | 1 | 63.5/110V - 3Ø 4W | P0 | Panel | 1 | Class 1.0 | 1 | Self power | 1 Pulses |
| 2 5A | 2 | 69.3/120V - 3Ø 4W | D0 | DIN rail | 2 | Class 0.5 | 2 | Aux power | 2 Relay |
| | 3 | 120/208V - 3Ø 4W | | | | | | | |
| | 4 | 220/380V - 3Ø 4W | | | | | | | |
| | 5 | 230/400V - 3Ø 4W | | | | | | | |
| | 6 | 240/415V - 3Ø 4W | | | | | | | |
| | 7 | 275/476V - 3Ø 4W | | | | | | | |
| | A | 110V - 3Ø 3W | | | | | | | |
| | B | 120V - 3Ø 3W | | | | | | | |
| | C | 380V - 3Ø 3W | | | | | | | |
| | D | 400V - 3Ø 3W | | | | | | | |
| | E | 415V - 3Ø 3W | | | | | | | |
| | F | 440V - 3Ø 3W | | | | | | | |
| | G | 476V - 3Ø 3W | | | | | | | |

X - Specify from table

All specifications are subject to change without notice due technology reasons.
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