

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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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/ KVARCH/ 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	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