



2160-A Multifunction Power & Energy Meter



% Load Bar



Aux. Supply



RTC



MD



THD



Available In Class 0.2s/ 0.5s/ 1.0 Accuracy

Masibus 2160-A is an easy-to-use, cost effective electrical energy meter that offers all the basic measurement capabilities required for monitoring an electrical installation.

2160-A is available in two display options either bright LED or large multi-line backlit LCD panel for superior readability in poor lighting conditions. It provides four parameters display at a same time.

Based on field requirement 2160-A offers various accuracy class options like Class 0.2s / Class 0.5s accuracy as per IS14697/ IEC 62053-22 and Class 1.0 accuracy as per IS13779/ IEC 62053-21.

The CT/PT ratio and installation type are site selectable, making it possible to use the meter in various types of three phase installations.

2160-A provides four-quadrant energy measurement along with ON (working) hour, RUN (Load) Hour, thus helping to measure and control energy cost.

More than basic metering, it optionally provides RS485 port supporting Modbus-RTU protocol, RJ45 port supporting Modnet protocol, THD measurements, Maximum Demand and Programmable pulse output.

Along with Maximum Demand option 2160-A can store Power Interruption count with (Last Power OFF & Latest Power ON) Time & Date

Meter stores energy and programmed parameters into non-volatile memory.

Features

- Available in Accuracy class 1.0 as per IS13779/ IEC 62053-21
- Optional Accuracy class 0.5s or 0.2s as per IS14697/ IEC 62053-22
- Field programmable CT/PT primary & secondary values
- True RMS measurement
- More than 100 Electrical parameters
- 4 lines 4 digit high-visibility LED display 0.4" [10mm] to display various parameters OR Optional large multi-line backlit LCD panel
- Isolated RS485 (Modbus-RTU protocol)
- Digital pulse output for energy
- Auto Scaling from Kilo to Mega to Giga watt
- Auto Scrolling feature for easy readability for all parameters
- Favorite page Store feature
- Store energy register efficiently during power failure.
- Four Quadrant measurement for PF, Power & Energy (Active & Reactive)
- ON Hour, RUN HOUR & IDLE HOUR register in Non-Volatile Memory
- Password Protection for set parameters

Applications

- Control & Relay Panels
- Motor Control Center Panels
- Power Control Center Panels
- Process Control
- DG Set panels
- Original Equipment Manufacturers (OEMs)
- HVAC & Building Management System
- Energy Management System (EMS)
- HV & LV Switchgear Panels

TECHNICAL SPECIFICATIONS

Meter Type		Pulse Output (Optional)			
3Ph4W/ 3Ph3W (Site selectable)		Type	WH/ VARH/ VAH		
Input		Pulse rate	Programmable from 100 to 60000 pulses per Energy		
		Pulse duration	40 mSec ± 10%		
Voltage		Output Type	Open collector [External Excitation Required]		
Direct Voltage	20 to 350V (L-N) or 34V to 620V (L-L) @ 240V Nominal Voltage	Accuracy			
PT Secondary (Nominal Voltage)	63.5V L-N, 110V L-N or 240V L-N (Site selectable) Configurable for 3Ph3W or 3Ph4W system		Class 0.2 Optional	Class 0.5 Optional	Class 1.0 (Standard)
Burden	<0.2VA per phase	Voltage	0.25% of reading		
PT Ratio	1 to 9999.999 Programmable	Current	0.1% of reading	0.2% of reading	0.5% of reading
Overload	1.2 x Nominal Voltage (Continuous)	Frequency	±0.01Hz		
Current		Power Factor	0.2% of FS	0.25% of FS	0.5% of FS
		Secondary Current	1 or 5A (Site selectable)	Active Power*	0.2% of reading (≥0.02 of Ib)
Burden	<0.2VA per phase	Reactive Power*	0.2% of reading (≥0.02 of Ib)	0.5% of reading (±0.02% of FS)	1.0% of reading (±0.02% of FS)
CT Ratio	1 to 9999.999 Programmable	Apparent Power*	0.2% of reading (≥0.02 of Ib)	0.3% of reading (±0.02% of FS)	1.0% of reading (±0.02% of FS)
Overload	For 5A CT: 8A Continuous/ 20A for 1Sec For 1A CT: 2A Continuous/ 20A for 1Sec	Active Energy*	Class 0.2s as per IS14697/ IEC 62053-22	Class 0.5s as per IS14697/ IEC 62053-22	Class 1.0 as per IS13779/ IEC 62053-21
Starting Current	0.1% of Nominal Current	Reactive Energy*	Class 0.2s as per IS14697	Class 0.5s as per IS14697	Class 1.0 as per IS13779
Frequency	45 to 65 Hz	Apparent Energy*	Class 0.2s	Class 0.5s	Class 1.0
Display & Keys		(*PF 0.5 Lag-1.0 - 0.8 Lead Applicable for Power & Energy Parameter)			
		Auxiliary Power Supply			
LED	4 line 4 digit 0.4" [10mm] 7-segment Display [3 line 4 digit in Red & 1 line 4 digit in Green] 3mm Round LED for Parameter Indication Bar type LED for '-' indication & % Load	Power Supply	85-265VAC, 50/60Hz or 100-300VDC		
LCD Panel (Optional)	Large multi-line backlit LCD Panel 3 lines 7 digits – Height: 9.1 x Width: 5.15 mm last line of 9 digits – Height: 7 x Width: 3.97 mm Bar Graph for % Load for each phase	Burden	Less than 4VA for LED Display Less than 3VA [LCD Panel with Backlight], Less than 2VA [LCD Panel w/o Backlight through Configuration]		
Keys	PROG/Enter, Esc/Shift, UP, Down	Isolation (Withstanding voltage) <ul style="list-style-type: none"> Between primary terminals* and secondary terminals**: At least 2000 V AC for 1 minute Between primary terminals*: At least 2000 V AC for 1 minute Between secondary terminals**: At least 2000 V AC for 1 minute * Primary terminals indicate Aux Supply voltage i/p and current i/p ** Secondary terminals indicate Communication o/p and Pulse o/p Insulation resistance: 20MΩ or more at 500 V DC between power terminals and grounding terminal			
Calculated Parameters					
Voltage	L1-L2, L2-L3, L1-L3 and Average (3Ph3W & 3Ph4W) L1-N, L2-N, L3-N & average (1Ph & 3Ph4W)	Physical			
Current	All phase currents & their average	Mounting Type	Panel mount		
Frequency	System Frequency	Size (in mm)	96 (H) x 96(W) x 64 [#] (D)		
Power (Phase wise & Total)	Active Power Reactive Power Apparent Power	Front Bezel (in mm)	96 (H) x 96(W)		
Energy (Phase wise & Total)	Active Energy for Import & Export (Separate) Reactive Energy for Import & Export (Separate) Apparent Energy	Panel cutout (in mm)	92 (H) x 92(W)		
Demand	Maximum Demand on KW/KVA (Block/Sliding)	Depth behind panel	64 [#] mm (110 mm in case if ethernet option selected)		
Power Quality	Harmonics for each Voltage and Current (3 rd to 15 th odd) THD for Voltage & Current (Phase wise)	Material	ABS		
Special Features		Accessory	2 Panel mount clamps		
		Weight	0.5 Kg		
Real clock & date	ON hour, LOAD hour, IDLE hour	Enclosure Protection	IP51		
	PINTR Power Interruption count	Terminal & Cable Size	Barrier Type terminal Cable Size [3.3 mm ² (12 - 22 AWG)]		
	PINTR Time Stamp (Available with MD option only)	Time & Date stamp			
Output		Environmental			
		Working temperature	0 to 55 °C		
Communication Output RS485 (Optional)	Interface	Storage temperature	-10 to 70°C		
	RS485	Relative Humidity	30 to 95% non-condensing		
	Baud Rate	Warm up time	5 minutes		
	9600, 19200, 38400 (Selectable)				
	Start bit				
	1				
	Stop bit				
	1				
	Protocol				
	Modbus-RTU				
Communication Output Ethernet (Optional)	Interface				
	RJ45 (Optional)				
	Baud rate				
	10/ 100 Mbps				
	Protocol				
	Modnet				

Ordering code

Model	Accuracy	Communication	Max. Demand	THD	Output	Display Type
2160-A	X	X	X	X	X	X
	S	Class 1.0	N	None	N	None
	1	Class 0.5s	1	RS485 Modbus	Y	Required
	2	Class 0.2s	2	Ethernet [#]	Y	Required

Note: [#]In case of Ethernet option Depth will be 110mm in place of 64mm

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