

masibus®

A Sonepar Company



MFT20

Multifunction Transducer

Masibus MFT20 is a cost effective with versatile capabilities for electrical parameter monitoring and communication. It measures all sought of electrical parameters including voltage, current, PF, power and energy. All essential measuring values can be programmed to the output and are available through modbus communication, the connection of the input signals can be freely programmed for 3 phase 3 wire as well as 3 phase 4 wire, for both balanced and unbalanced load.

High sampling rate and true RMS measurement gives accurate reading under all harmonic conditions; measured electrical parameters in MFT can be converted to equivalent current or voltage signals. These signals can be flexibly assigned upto two analog o/p channels. Any parameter can be assigned to any channel as well as single parameter can be assigned to multiple channels. MFT has isolated interface between device' internal electronics and field to ensure personal safety.

Based on field requirement MFT20 offers various accuracy class options like Class 0.2s / Class 0.5s accuracy as per IS14697/ IEC 62053-22

MFT20 replaces a number of conventional single function transducers and thus reduces the inventory.

More than basic metering, it provides THD measurements, Maximum Demand and optionally a Programmable pulse output.

Multifunction transducer stores energy and programmed parameters into non-volatile memory.

MFT can be further connected to SCADA network, PLC, other indicating instruments and monitoring systems via RS485 modbus RTU port.

Features

- True RMS, Microcontroller based transducer
- Accuracy class 0.5s / 0.2s as per IS14697/ IEC 62053-22 for Energy
- Field programmable CT/PT Ratio
- LCD with backlight to display various parameters (optional)
- Auto Scrolling feature for easy readability for all parameters on LCD (optional)
- Auto Scaling from Kilo to Mega to Giga watt
- 28 Electrical parameters can be mapped to analog O/P
- Din Rail mount
- Isolated RS485 (Modbus-RTU protocol)
- Two Analog & one Digital Outputs [Isolated to each other] (Optional)
- Field programmable Analog output
- Analog o/p accuracy as per IEC60688
- Finger touch proof terminals
- Front panel LED output for calibration & measurement of selected type of energy
- Favourite page Store feature even after Power On-Off
- Store energy register efficiently during power failure
- Four Quadrant measurement for Power factor, Power & Energy (Active & Reactive)
- Stores Last day energy, old energy & Hours, Min-Max value
- THD measurement for voltage and current, up to the 31st harmonic
- Maximum demand measurement
- GUI based site configuration software for MFT

Applications

- Interface with PLC / SCADA / RTU
- Remote monitoring and Indicating Instruments
- Energy monitoring Management System (EMS)
- Process monitoring & control
- Electric Utility-Generation, Transmission and Distribution
- Control & Relay Panels
- Motor Control Center Panels
- Power Control Center Panels
- Process Control
- DG Set Panels
- Original Equipment Manufacturers (OEMs)
- HVAC & Building Management System
- HV & LV Switchgear Panels

TECHNICAL SPECIFICATIONS

System type		Accuracy Table	
3Ph4W / 3Ph3W (Site selectable)		Class 0.5 (Standard)	
Input		Class 0.2 (Optional)	
Voltage		Voltage	0.25% of reading
Direct Voltage	20VL-N to 300VL-N (34VL-L to 520VL-L)	Current	0.2% of reading
PT Secondary (Nominal Voltage)	64VL-N to 240VL-N	Frequency	±0.02Hz
Measurement Method	True RMS	Power Factor	0.25% of FS
Burden	<0.1VA per phase	Active Power* (≥0.02 of Ib)	+/- 0.01% of FS
PT Ratio	Programmable on site	Reactive Power* (≥0.02 of Ib)	0.5% of reading
Max continuous input voltage	1.3 x nominal value	Apparent Power* (≥0.02 of Ib)	+/- 0.02% of FS
Overload Withstand	2 x Nominal value for 5 s	Active Energy*	Class 0.5s as per IS14697/ IEC 62053-22
Accuracy Range	10%-Vn-120%	Reactive Energy*	Class 0.2s as per IS14697/ IEC 62053-22
Current		Apparent Energy*	Class 0.2s as per IS14697/ Class 0.2s
Direct Current	0.01A to 6A	(*PF 0.5 Lag-1.0 - 0.8 Lead Applicable for Power & Energy Parameter)	
Secondary Current	1 to 5A	Output	
Measurement Method	True RMS	Communication Output	
Burden	<0.1VA per phase	Interface	RS485
CT Ratio	Programmable on site	Baud rate	2400, 4800, 9600, 19200, 38400 (Selectable)
Max continuous input current	2 x nominal value	Parity bit	None, with 1 or 2 stop bit
Overload	20 x Nominal value for 1 s	Protocol	Modbus-RTU
Accuracy Range	1%-In-120%	Pulse output	
Starting current	0.1% of Nominal Current (5A sec.)	Assigned Energy Parameter	WH/VARH/VAH
Frequency	45 to 65Hz		Programmable from 1 to 60000 pulses per KWh[I] / 10KWh[I] / 100KWh[I] / MWh[I] / KWh[E] / 10KWh[E] / 100KWh[E] / MWh[E] / KVARh[I] / 10KVARh[I] / 100KVARh[I] / MVARh[I] / KVARh[E] / 10KVARh[E] / 100KVARh[E] / MVARh[E] / KVAh / 10KVAh / 100KVAh / MVAh of total.
Display (Optional)		Pulse rate	
Display	16x2 Backlight LCD	Pulse Duration	20 mSec ± 10%
Keys	UP, Down	Output Type	Open collector
Measured Parameters		Ratings	24VDC,20mA
Voltage	L1-L2, L2-L3, L1-L3 and Average (3Ph3W & 3Ph4W) L1-N, L2-N, L3-N & average (1Ph & 3Ph4W)	Analog output (Optional)	
Current	All phase currents, average, sum Neutral Current (3Ph4W)	No. of Outputs	Upto 2
Frequency	System Frequency	Output type	4-20mA, 0-20mA, 0-10V, 0-5V, 1-5V DC
Power Factor	Phase wise PF & Average PF	Response time	<500mS
Phase Angle	Phase wise	Mapping	Field Selected from inputs parameters
Power (Phase wise & Total)	Active Power (W, KW & MW) Reactive Power (VAR, KVAR & MVAR) Apparent Power (VA, KVA & MVA)	O/P Impedance	<550 Ω for mA O/P >2 KΩ for V O/P
Energy (Phase wise & Total)	Active Energy for Import & Export (Separate) (KWh, MWh & GWh) Reactive Energy for Import & Export (Separate) (KVARh, MVARh & GVARh) Apparent Energy (KVAh, MVAh & GVAh)	Auxiliary Power Supply	
Energy Update Rate	500 mSec	Power Supply	85-265VAC, 50/60Hz or 100-300VDC
Demand	Maximum Power Demand on KW/KVA Maximum Current Demand (Block/Sliding for 15/30 minutes window)	Burden	< 3VA (Without Analog o/p) < 7VA (With Analog o/p)
Power Quality	THD & Harmonics for each Voltage and Current (3rd to 31st odd) Phase wise DPF & Average DPF (Displacement Power Factor)	Isolation (Withstanding voltage)	
Percentage Voltage & Current Unbalance (Amplitude method)		<ul style="list-style-type: none"> Between primary terminals* and secondary terminals**: At least 2500 V AC for 1 minute Between primary terminals*: At least 2500 V AC for 1 minute Between secondary terminals**: At least 500 V AC for 1 minute 	
ON hour ,Load hour (up to 65000 hours Recording)		* Primary terminals indicate Aux power terminals, Voltage Input terminals and CT Input terminals.	
Auxiliary Power Interruption count (up to 65000)		** Secondary terminals indicate pulse O/P, Communication O/P, Analog O/P-1 and Analog O/P-2.	
Last day Energy for Total, Old Energy for Total, Old Overflow Count & Old Load Hours,		Insulation resistance: 200MΩ or more at 500 V DC between power terminals and grounding terminal	
Min-Max Value (V, I, PF, Frequency, Total w, Total VAR, Total VA)		Physical	
Standards Compliance[▲]		Mounting Type	DIN Rail
Standard	IEC 60688 IEC 61326-1	Dimension (in mm)	70H x 100W x 112D
[▲] Under Certification		Case Material	ABS, with fireproofing finish
		Weight	0.5 Kg
		Terminations	Metal Screw can accept up to 2.5 mm ² wire
		Environmental	
		Operating temperature	-10° to 60°C
		Storage temperature	-40° to 85°C
		Relative humidity	25-95% non-condensing
		Warm up time	5 minutes
		Installation Category	CAT III for < 300V AC
		Protection Class	II
		Pollution Degree	2
		Ingress protection	Housing IP40, Terminals IP20

TECHNICAL SPECIFICATIONS

Ordering code

Model	Accuracy	Analog output				Display		
		Output type	No. of Output					
MFT20	X	X		X		X		
	1	Class 0.5s	N	None	N	None	N	None
	2	Class 0.2s	1	4-20mA	1	One	Y	Required
			2	0-20mA	2	Two		
			3	0-5V				
			4	1-5V				
			5	0-10V				
			S	Special*				

*Consult Factory