



MFT

Multi-Function Transducer

Masibus MFT has versatile capabilities for electrical parameter monitoring and communication. It measures all sought electrical parameters including Voltage, Current, PF, Power and Energy for both 3Ph3W and 3Ph4W systems.

Measured electrical parameters in MFT can be converted to equivalent current or voltage signals. These signals can be flexibly assigned to four analog channels. Any parameter can be assigned to any channel as well as single parameter can be assigned to all channels.

Both analog and digital communication interfaces enables accurate and reliable electrical measurement and communication. This Transducer is available in DIN rail mounting.

Features

- Fully Programmable
- Accuracy Class 0.5s as per IS14697
- PC based Configuration software
- 1-Ph, 3Ph3W, 3Ph4W configurations
- Measures V, I, Hz, PF, KW, KVA, KWh and KVARh
- Up to 30 parameter can be mapped to Analog Output
- Four Analog & Two Digital Outputs
- True RMS measurement
- <350msec Response time
- Sampling frequency better than 3.9 KHz
- RS485 Modbus Communication

Applications

- Interface with SCADA / RTU
- Remote monitoring
- Energy and Demand monitoring
- Process monitoring & control
- Electric utility-Generation, Transmission and Distribution

Technical Specifications:

System type

3Ph4W/ 3Ph3W (Site configurable)

Input

Voltage

Direct Voltage	20 to 620V L-N
PT Secondary (Nominal Voltage)	63.5V L-N, 110V L-N or 240V L-N (Site selectable)
PT Ratio	1 to 220KV (Site selectable)
Burden	<0.2VA per phase
Overload	1.2 x Nominal Voltage (Continuous)

Current

Direct Current	1 or 5A (Site selectable)
Burden	<0.2VA per phase
CT Ratio	Site selectable
Measurement range	1 to 9999A Programmable
Overload	For 5A CT: 8A Continuous/ 20A for 1Sec For 1A CT: 2A Continuous/ 20A for 1Sec

Starting current : 0.1% of Nominal Current (class 0.5)

Frequency 50Hz \pm 5.0%

Measured Parameters

Voltage	L1-L2, L2-L3, L1-L3 and Average (3Ph3W & 3Ph4W)
	L1-N, L2-N, L3-N & average (1Ph & 3Ph4W)
Current	All phase currents & their average
Frequency	System Frequency
Power Factor	Phase wise PF & Average PF
Power (Phase wise & Total)	Active Power (W, KW & MW)
	Reactive Power (VAR, KVAR & MVAR)
	Apparent Power (VA, KVA & MVA)
Energy (Phase wise & Total)	Active Energy for Import & Export (Separate) (WH, KWh, MWh & GWh)
	Reactive Energy for lagging & leading (Separately) (VARh, KVARh, MVARh & GVARh)
	Apparent Energy (VAh, KVAh, MVAh & GVAh)

Accuracy (Class 0.5)

Voltage	0.25% of reading
Current	0.1% of reading
Frequency	\pm 0.1Hz
Power Factor	0.25% of FS
Active Power	0.3% of reading (0.01% of FS, \geq 0.02 of Ib)
Reactive Power	0.5% of reading (0.02% of FS, \geq 0.02 of Ib)
Apparent Power	0.5% of reading (0.02% of FS, \geq 0.02 of Ib)
Active Energy	Class 0.5 (IS14697)
Reactive Energy	Class 0.5 (IS14697)
Apparent Energy	Class 0.5

Output

Analog Output

Current / Voltage	4-Channels x 4-20mA / 0-10V (Factory Set)
Response time	<350mS (except frequency)
Output Impedance	750 Ω

Pulse output

No. of Outputs	up to 2 digital outputs
Type	WH/VARh/VAh
Pulse rate	Programmable from 1 to 65000 pulses per KWh[I]/KWh[E]/KVARLh/KVARCh/KVAh/MWh[I]/MWh[E]/MVARLh/MVARCh/MVAh of total.
Pulse Duration	40 mSec \pm 10%

Communication Output

	Modbus
Interface	RS485
Baud rate	9600, 19200, 38400 (Selectable)
Protocol	Modbus-RTU

Power Supply

Power Supply	90-270VAC, 50/60Hz or 110-370VDC
Burden	Less than 10 VA

Isolation (Withstanding voltage)

- Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute
 - Between primary terminals* and grounding terminal: At least 1500 V AC for 1 minute
 - Between grounding terminal and secondary terminals**: At least 1500 V AC for 1 minute
 - Between secondary terminals**: At least 1000 V AC for 1 minute
- * Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate analog I/O signal and Communication O/P.
Insulation resistance: 20M Ω or more at 500 V DC between power terminals and grounding terminal

Environmental

Working temperature	0 to 50°C
Storage temperature	-10 to 70°C
Relative humidity	30-95% non-condensing
Warm up time	10 minutes

Physical

Mounting Type	DIN Rail
Dimensions	100 x 75 x 110 mm
Weight	0.5 Kg

Ordering Code

Model	Analog Output				Digital Output		RS 485 (MODBUS)	
	Output Type	No. of Output						
MFT	1	0-5V	1	One	N	No Output	N	None
	2	1-5V	2	Two	Y	Two	Y	Yes
	3	0-10V	3	Three				
	4	4-20mA	4	Four				
	5	0-20mA						
	6	Special*						

* To be specified with Ordering Code.

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All specifications are subject to change without notice due to continuous improvements.
Doc. Ref. MFT/R0/1112

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