



MFT Multi-Function Transducer

Masibus MFT has 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 / modnet 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 to four 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.

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

It provides 2 digital pulse o/p for energy and RS485 port supporting modbus-RTU protocol for communication, and optional RJ45 port supporting modnet protocol is also available

With a wide range of analog, digital output and communication options MFT can be used in many applications from a simple analog transducer to an ethernet transducer.

MFT can be further connected to SCADA network, PLC, other indicating instruments and monitoring systems.

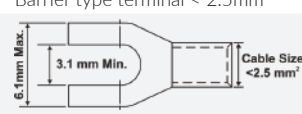
Features

- Four Analog & Two Digital Outputs [Isolated to each other]
- Up to 30 parameters can be mapped to Analog Output
- Din Rail Mount
- Fully programmable
- Analog o/p accuracy as per IEC60688
- Accuracy class 0.5s / 0.2s as per IS14697/ IEC 62053-22 for energy
- PC based configuration software
- 1-Ph, 3Ph3W, 3Ph4W configurations
- Measures V, I, Hz, PF, KW, KVA, KWh and KVARh
- True RMS measurement
- <350msec Response time
- Sampling frequency better than 3.9 KHz
- Isolated RS485 (Modbus-RTU protocol) / Modnet
- Backlight LCD to display various parameters (optional)

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		Output																			
3Ph4W/ 3Ph3W (Site configurable)		Analog Output																			
Input		No. of outputs	4																		
Voltage		Output type (factory set) [Current/ Voltage]	0/4-20mA, 0/1-5V, 0-10V DC																		
Direct voltage	20V to 350V (L-N) or 34V to 620V (L-L) @ 240V nominal	Response time	<350mSec (except frequency)																		
PT secondary (Nominal voltage)	63.5V L-N, 110V L-N or 240V L-N (Site selectable) Configurable for 3Ph3W or 3Ph4W system	Output Impedance	>750 Ω for 4-20mA O/P >2 KΩ for 0-10V O/P																		
PT ratio	1 to 9999.999 Programmable (Site selectable)	Pulse Output																			
Burden	<0.2VA per phase	No. of outputs	2 digital outputs																		
Overload	1.2 x Nominal voltage (Continuous)	Rating	24VDC, 20mA																		
Current		Type	WH/VARH/VAH																		
Direct current	1 or 5A (Site selectable)	Pulse rate	Programmable from 1 to 65000 pulses per KWh[I]/ KWh[E]/ KVARh[I]/ KVARh[E]/ KVAh/ MWh[I]/ MWh[E]/ MVARh[I]/ MVARh[E]/ MVAh of total																		
Burden	<0.2VA per phase	Pulse duration	40 mSec ± 10%																		
CT ratio	Site selectable	Output Type	Open collector [External Excitation Required]																		
Measurement range	1 to 9999.999 programmable	Communication Output																			
Overload	For 5A CT: 8A continuous/ 20A for 1Sec For 1A CT: 2A continuous/ 20A for 1Sec	<table border="1"> <thead> <tr> <th></th> <th>Modbus (Standard)</th> <th>Ethernet (Optional)</th> </tr> </thead> <tbody> <tr> <td>Interface</td> <td>RS485</td> <td>RJ45</td> </tr> <tr> <td>Baud rate</td> <td>9600, 19200, 38400 (Selectable)</td> <td>10/100 Mbps</td> </tr> <tr> <td>Protocol</td> <td>Modbus-RTU</td> <td>Modnet</td> </tr> </tbody> </table>			Modbus (Standard)	Ethernet (Optional)	Interface	RS485	RJ45	Baud rate	9600, 19200, 38400 (Selectable)	10/100 Mbps	Protocol	Modbus-RTU	Modnet						
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Interface	RS485	RJ45																			
Baud rate	9600, 19200, 38400 (Selectable)	10/100 Mbps																			
Protocol	Modbus-RTU	Modnet																			
Starting Current	0.1% of Nominal current																				
Frequency	45 to 65 Hz																				
Display (Optional)	16x2 Backlight LCD																				
Keys	PROG/Enter, Esc/Shift, UP, Down																				
Measured Parameters		Safety																			
Voltage	L1-L2, L2-L3, L1-L3 and Average (3Ph3W & 3Ph4W) L1-N, L2-N, L3-N and Average (1Ph & 3Ph4W)	Impulse voltage tests: 5 kV, 1.2/50 μs as per IEC60688 Isolation (Withstanding voltage)																			
Current	All phase currents & their average	<ul style="list-style-type: none"> Between primary terminals* and secondary terminals** and Earth: At least 2500 V AC for 1 minute Between primary terminals*: At least 2500 V AC for 1 minute Between secondary terminals**: At least 2500 V AC for 1 minute Between secondary terminals Pulse o/p***: At least 1500 V AC for 1 minute 																			
Frequency	System frequency	* Primary terminals indicate Aux power terminals, Voltage i/p terminals and CT terminals. ** Secondary terminals indicate Analog o/p A1, Analog o/p A2, Analog o/p A3, Analog o/p A4, pulse o/p [D1 & D2] and Communication o/p. *** Between secondary terminals Pulse o/p: Pulse o/p D1 & Pulse o/p D2																			
Power factor	Phase wise PF & average PF	Insulation resistance: 20MΩ or more at 500 V DC between power terminals and grounding terminal																			
Power (Phase wise & total)	Active power (W, KW & MW) Reactive power (VAR, KVAR & MVAR) Apparent power (VA, KVA & MVA)	Environmental																			
Energy (Phase wise & total)	Active energy for import & export (Separate) (KWh, MWh & Gwh) Reactive energy for import & export (Separately) (KVARh, MVARh & GVARh) Apparent Energy (KVAh, MVAh & GVAh)	Operating temperature	0...15...30...45...55°C																		
Accuracy		Storage temperature	-10 to 70°C																		
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(Applicable PF range = 0.5Lag - 1.0 - 0.8Lead, for power & energy parameters)		Relative humidity	30-95% non-condensing																		
Power Supply		Warm up time	10 minutes																		
Power supply	85-265VAC, 50/60Hz or 100-300VDC	Installation category	CATIII (Refer to measuring and auxiliary inputs ≤ 300VAC versus earth)																		
Burden	Less than 10 VA	Protection class	II																		
		Pollution degree	2																		
		Physical																			
		Mounting type	DIN Rail																		
		Dimensions (H x W x D)	78 x 100 x 110 (in mm)																		
		Weight	0.5 Kg																		
		Terminal [I/P and Aux]	Barrier type terminal < 2.5mm ²																		
		Cable Size																			
		Terminal [O/P and earth]	MKDS																		
		Cable size	2.5mm ²																		

Ordering Code

Model	Accuracy	Analog Output		Digital Output	Display (LCD)	Ethernet
		Output Type	No. of Output			
MFT	X	X	X	X	X	X
	1 Class 0.5s	1 0-5V	1 One	N None	N None	N None
	2 Class 0.2s	2 1-5V	2 Two	Y Two	Y Required	1 Yes
		3 0-10V	3 Three			
		4 4-20mA	4 Four			
		5 0-20mA				
		6 Special*				

* Consult Factory