



MC-1-D

GPS Master Clock DIN Rail

Accurate. Reliable. Compact.

Masibus MC-1-D GPS Master Clock is a compact and cost-effective solution to address various power and process industry time synchronization requirements. It is a time synchronization solution for versatile applications like monitoring, control or analysis of the power system in compact DIN Rail mountable enclosure. MC-1-D provides timing accuracy better than 1 microsecond between distant locations.

MC-1-D generates wide range of timing signals via three programmable different output ports. It has range of timing signal outputs PPS Port, IRIG-B ports and RJ45 ports. These outputs have ample drive capability to easily drive multiple loads in parallel and have configurable parameter options. The GPS Backup battery improves acquisition time to as little as 15 seconds after a brief power loss by supplying constant power to the real-time clock.

MC-1-D has LED indication to provide at-a-glance status information. MC-1-D has facility to program the parameters by local PC connection via Ethernet port. Configurations time zone correction, hour setting, serial data format selection are password protected to avoid unauthorized access.

Features

- Reliable and cost effective
- Compact footprints DIN Rail Enclosure
- 4 time-formats over 3 output ports
- 12 Satellite parallel tracking
- No data loss under GPS unlock condition
- Universal (AC/DC) Power supply input
- Remote configuration using TELNET
- Multiple time-code formats
- Supports synchronization of IEC61850 compliant devices via NTP/SNTP protocol
- Configuration Security
- Water proof antenna
- Synchronization software for Server
- Supporting Protocols:
 - IRIG-B Modulated
 - IRIG-B TTL
 - SNTP/NTP

Applications

- Electrical utilities:
 - Generation
 - Transmission
 - Energy and Demand monitoring
- Distribution Interface with SCADA/RTU

Technical Specifications:

GPS Receiver

Timing Accuracy	< 20 ns (with respect to UTC / USNO) with Selective availability & tracking 12 satellites
Positioning Accuracy	< 25m
Input Frequency	1575.42 MHZ L1 C/A code
Tracking	12 parallel channels
Acquisition time	Hot Start < 15 Sec Warm Start < 40 Sec Cold Start < 150 Sec

Antenna

Type	Timing 3000 L1 band, 25dB Gain
Antenna Cable	RG6 / RG8 Cable (Optional coaxial cable)
Max length	150 meters

Interface and Configuration

Status LEDs	Power, 1PPS, GPS Lock
Configuration Programming	Parameters programmable by TELNET (Ethernet RJ45)

Power Supply

Power supply	AC: 90-270V, 47-55 Hz, 1ph DC: 18-72VDC
Power consumption	< 15 W

Physical

Mounting	DIN Rail (70mm)
Dimensions	66(W) x 138(H) x 118(D) mm
Ingress protection	IP 20 enclosure
Weight	3Kg (approx)

Environmental

Operating temperature	0 to +55 °C
Storage temperature	-40 to +85 °C
Humidity	< 30 to 90% Rh at 40 °C (Non-condensing)

Time Signal Output

Output	Description	Physical Interface	Accuracy	Available Output	Transmission Distance
1PPS	<ul style="list-style-type: none"> One pulse per second, Rise Time: < 15 ns 200 ms Pulse Width Isolation: 2000 MΩ at 500 VDC 	BNC Female connector	±500nSec	Standard: 1	10m
IRIG-B Modulated	<ul style="list-style-type: none"> Format: IRIG-B122 1 KHz AM Signal 3:1 Modulation Ratio 0-10Vpp (Unloaded) 0-3 Vpp (Impedance: 50Ω) 	BNC Female connector	±60μSec	1	3Km
IRIG-B TTL (PWM)	<ul style="list-style-type: none"> TTL Output (Impedance: 250Ω) Rise Time: < 15ns Isolation: 2000 MΩ at 500 VDC 	BNC Female connector	±60μSec	1	10m
NTP (LAN Interface)	<ul style="list-style-type: none"> Time sync protocol: NTP, SNTP Network Protocol: TCP, Telnet, UDP, IPV4 Modes : Server / Broadcast Protocol Time format : UTC Protocol standard : Universal 	RJ45, 10Mbps	±1mSec	2	NA

Accessories (Optional-On request)

Antenna mounting clamp
Surge Suppressor
Signal Amplifier
RS232/485 Repeater
TDR-4 (Time distribution rack)
TSR-4 (Time Signal Repeater)
Netser (NGTS-NTP)
TDU-64 (Time / Date / Frequency Display Unit)

Ordering Code

Model	Output-1		Output-2		Power Supply		Antenna Cable Length	
MC-1-D	1	IRIG-B TTL	0	None	1	90-270V AC	1	15 Meter
	2	IRIG-B AM	1	IRIG-B TTL	2	18-72VDC	2	30 Meter
	3	NTP	2	IRIG-B AM			3	50 Meter
			3	NTP			4	100 Meter
							5	150 Meter

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