

LANTIME M600/MRS

NTP time server with ultra-stable integrated oscillator and intelligent Reference Selection Algorithm (IRSA)



Intelligent Switching between available Synchronization Sources:

- GPS
- Time Code (e.g. IRIG-B), both DCLS and AM
- Pulse Per Second (PPS)
- 10MHz (TTL)
- External NTP Servers

The LANTIME M600/MRS (Multi Reference Source) NTP Time Server uses an internal ultra stable oscillator as its stratum 0 reference. The oscillator can be disciplined based on other NTP servers over a network connection or – after connecting an (optional) GPS antenna - by GPS. In isolated networks without any possibility of using an external NTP server or a GPS antenna, the MRS utilizes its OCXO HQ to maintain a stable time base after the time has been manually set during initial configuration (free running mode).

Key Features:

- Synchronization of NTP and SNTP compatible clients
- Web based status and configuration interface and console based graphical configuration utility
- Supported networking protocols: IPv4, IPv6, HTTPS, HTTP, SSH, TELNET, SCP, SFTP, FTP, SYSLOG, SNMP
- Alert-Notification system of status changes by e-mail, WinMail, SNMP or on external wall mount displays
- Full SNMP V1,V2c,V3 support with own SNMP-daemon for status/configuration and SNMP traps
- USB port for performing updates, locking front panel buttons and backup/restore of configuration and log files.
- Four independent RJ-45 Ethernet interfaces 10/100 MBit

Description:

The LANTIME M600/MRS is a reliable and accurate time source for all NTP- or SNTP-compatible client systems and uses a built-in ultra-stable oscillator as its primary time reference and it is designed to provide a reliable time source for network environments where more than one reference is available. This oscillator can be disciplined by other NTP time servers over the network, a PPS (Pulse Per Second)

signal, a 10MHz Frequency or IRIG time codes generated by external devices. If required, a GPS antenna (optional accessory) can be connected as an additional source of time, allowing the MRS to switch between the available reference signals.

Additionally, the LANTIME M600/MRS can be run in a fully independent mode in networks where no external source of time is available. This requires setting the time manually during initial configuration. The battery buffered RTC keeps the time during power outages or reboots and the integrated oscillator maintains a stable timebase during normal operation.

All outputs of the M600, including PPS, 10MHz and the Sysplex Timer output are fully functional and stable, no matter which reference is used as a synchronization source.

The „automatic“ mode of the MRS will use GPS as its primary synchronization source and switches to the NTP reference mode whenever GPS reception is not possible.

The integrated OCXO-HQ guarantees a stable time base, a free running MRS (without any external reference like GPS or NTP) shows a maximum time error of +/- 1.6 seconds per year.

A large VF display shows the state of the internal GPS receiver and the NTP subsystem. Three LEDs (green/red) indicate the status of the three main components: Reference Time, Time Synchronization Service (NTP) and Network (Link status). A fourth red LED is labeled ALARM and can be configured to signal any event that is covered by the notification handling routines.



Configuration of the system can be performed by using a standard web browser to access the extensive but straightforward web interface. Alternatively a text based and menu driven setup utility can be started from the shell prompt after logging into the unit via Serial Console, Telnet or SSH.

- Three-Year Warranty
- Lifetime technical support via telephone or E-Mail including Firmware Updates

LANTIME M600/MRS Specifications



Front Panel:

- 1 x RS232 front panel interface , 9pin D-Sub male connector for initial setup and configuration
- 1 x USB (Rev. 1.1) front panel interface to:
 - install firmware upgrades
 - backup and restore configuration files
 - copy security keys
 - lock/unlock front panel keys
- 1 x Graphical VF display, 256 x 64 dots
- 3 x Bicolor LEDs: Ref. time (e.g. GPS), Time Synchronization Service (NTP) and Network-Link status
- 1 x Red alarm LED (configurable)

Network Interfaces:

- 4 x LAN interface, RJ45 connector, status LEDs for link, activity, speed (10/100 MBit)

Reference Inputs:

- 1 x Meinberg GPS antenna input, BNC connector, isolated
 - 1 x Pulse Per Second (PPS) input, TTL, pulse duration $\geq 5\mu\text{s}$, active high, female BNC connector
 - 1 x 10 MHz, TTL input, female BNC connector
 - 1 x Time Code AM (modulated) input, BNC connector, isolated by transformer
 - Insulation voltage 3000 VDC
 - Input impedance: 50 Ohm, 600 Ohm, 5 kOhm
 - Internally selectable by jumper (default 600 Ohm)
 - Input signal : 600mV to 8V (Mark, peak-to-peak)
 - 1 x Time Code DCLS (unmodulated) input, BNC connector, isolated by opto-coupler
 - Insulation voltage: 3750 Vrms
 - Internal series resistor: 330 Ohm,
 - Max. input current: 25mA
 - Diode forward voltage: 1.0V...1.3V
- selectable Time Code Inputs, AM/DCLS:
- B122/123 / B002/003
 - B126/127 / B006/007
 - IEEE1344 (AM and DCLS)
 - AFNOR NFS 87-500 (AM and DCLS)

Signal Outputs:

- 2 x RS232 interface, 9pin D-Sub female connector with following data formats:
 - Meinberg Standard-Telegram, SAT, NMEA0183 (RMC),
 - Uni Erlangen (NTP), COMPUTIME, SYSPLEX-1,
 - SPA, RACAL (ports can be configured independently)
- 1 x Pulse Per Second (PPS), TTL into 50 ohm, pulse duration 200 msec, active high, female BNC connector
- 1 x Pulse Per Minute (PPM), TTL into 50 ohm, pulse duration 200 msec, active high, female BNC connector
- 1 x Reference Frequency 10 MHz, TTL into 50 ohm, female BNC connector
- 1 x Frequency Synthesizer, from 0.1 Hz up to 10 Mhz, TTL into 50 ohm, female BNC connector
- 1 x IRIG-B amplitude modulated (AM) sinewave output, peak-to-peak voltage: 3 V into 50 ohm, female BNC connector
- 1 x IRIG-B pulse-width modulated DC output (DCLS), TTL into 50 ohm, active high, female BNC connector
- 1 x Alarm relay output, change-over contact, 3pin DFK connector

System Components:

- GPS C/A Code Receiver
- OCXO-HQ Timebase
- Single Board Computer with Linux Operating System, supporting the following protocols:
 - NTP/SNTP v4, Time protocol (RFC 868),
 - Daytime protocol (RFC 867)-SNMP v1,2,3,
 - SNMP Traps, SSH v2, IP v4, IP v6,
 - DHCP client, HTTP(S), Email, FTP, Telnet, Syslog
- Power supply: 100-240 VAC (also available in different DC variants)
- 19" Rackmount metal chassis, 1U/84HP - slimline 483 mm wide x 43 mm high x 285 mm deep (19 inch x 1.7 inch x 11.2 inch)