Enhanced Features!

TIME MACHINES

The TM2000B takes the proven accuracy and reliability of the TM2000A and vastly improves the accuracy of its holdover features through advanced measurement and processing of the OCXO output. This processing allows the TM2000B to better control its timing output during holdover for both PTP and NTP fuctions. The reference time during GPS lock is also improved. Further enhancements to broaden PTP support for IPv4, IPv6, and Layer 2 (gPTP). PTP without GPS is also possible. Improved use of hardware timestamping is included. Firmware updates are always free!

GPS PTP Network Time Server / TM2000B

Synchronized Time

With a TM2000B NTP/PTP Server on the local network, synchronized time is assured no matter the state of your Internet connection. Time accuracy is greatly improved, when compared to Internet based time sources, because delay is reduced to that of the local LAN segment. When paired with our POE and WiFi based clocks, building and campus wide synchronized time systems can be created. Other systems that benefit from local time sources are voice and video logging systems, VoIP PBX phone systems, and any isolated network with time requirements.

How It Works

The TimeMachines NTP/PTP Network Time Server represents a major step forward in technology. It supplies accurate time for computers and time keeping devices on the network. Supporting both Precision Time Protocol (PTP) and Network Time Protocol (NTP), a Stratum 1 time source is available on a local network with no need for an internet connection. It uses an active GPS antenna to maintain the current time as broadcast by United States GPS satellites. In addition, a highly stable OCXO reference clock is included allowing it to serve time if GPS lock is lost for periods of time.

Connect both the included power supply and GPS antenna to base unit, then connect base unit to a local network.

Go to a computer on a network, point a browser to the device at its default ip address to enter the software setup within the web page.

Set parameters to match network, and the system will send out time packets to any device on the system that asks for an update from it.

GPS PTP Network Time Server
TM2000B

TIME MACHINES

APPLICATIONS and MARKETS:

TimeMachines GPS based time servers are suited to any application where coordination of events at multiple locations is required. Without coordinated network time, searching for problems across multiple system logs becomes much more difficult. Education, industrial facilities, military installations, public safety command rooms, government, broadcasting, and hospitals are all candidates for synchronized time systems.

TIME SERVER FEATURES and SPECIFICATIONS:

- Receive time information from GPS satellites anywhere on the surface of the earth.
- RFC1119/1305/5905 NTP Protocol to serve time (Network Time Protocol).
- RFC1769/2030/4330 SNTP Protocol (Simple Network Time Protocol).
- IEEE 1588 2008 PTP Protocol, 802.1AS (gPTP), Telecom Profiles G.8265.1, G.8275.1, G.8275.2, Automotive Profiles, SMPTE
- Server Time Level: Stratum 1.
- NTP Server Time Precision: Better than 1mS + network jitter.
- PTP Server Time Precision: Better than <1uS + network jitter.
- Holdover time: PTP: User settable from 1 minute to infinite
- 10M/100M auto sensing network interface.
- Unit is capable of serving 750+ NTP synchronizations per second. That provides support for over 600,000+ devices updating every 15 minutes on the network.
- Compliant with FCC Part 15B and CE marked for radiated emissions and is a lead free product.
- Power Requirements: 5W at startup and 2.5W continuous at 12V DC. Supports 9-16V DC input.
- Environmental: Full accuracy temperature range, -10-50C, 95% humidity non-condensing. Altitude -304m to 18km
- Degraded timing performance below -10C and above 50C. Startup minimum temperate 5C.
- Networking: Static or DHCP IPv4 addressing. Standard browser interface for setup. IPv6 support.
- Indications: Power, GPS Signal Lock, and 1PPS indications.
- Rear Connections: Power, Cat5 Ethernet, Serial, and GPS antenna via SMA connection.
- Supports +3.3V and 5V active GPS antennas with internal jumper setting.
- Mechanical Dimensions: 5" x 4.2" x 1.3".
- Each TM2000B includes a 12V international power supply and GPS antenna.

GPS SPECIFICATIONS:

- Based on MediaTek MT3339 Chipset.
- 22 channel low power receiver module.
- Sensitivity: -165dBm.
- GPS Time Precision: +/- 20ns RMS jitter.
- Antenna Connection: 1575.42MHz (L1 Band).
- TTFF (Time To First Fix).
  - Cold start @-125dBm typically 33 seconds.
  - Re-acquisition (<10s obstruction) typically 1 second.

ANTENNA SPECIFICATIONS:

- Active patch antenna with magnetic base.
- Size: 1.57" x 1.89" x 0.51", 43 grams.
- Amplifier: LNA +28dB, Noise: 1.5dB, VSWR: 2.0, Volts: 2.7-6.0V.
- Cable: RG174, 5m length, SMA male.
- Environmental: -40 to +85C.
- Waterproof to IPx6.

TimeMachines Inc. | 300 South 68th St. Place, Suite 100 | Lincoln NE 68510
402.486.0511 | tmsales@timemachinescorp.com | www.timemachinescorp.com

MADE in the USA