

TMS6002

Secure NTP Server Multi-sources synchronization

NTP server stratum 1

*Multi-sources synchronization
GNSS (multi-constellations)
IRIG-B
NMEA/PPS
External NTP server*

*HTTPS Monitoring and Control
through a web based interface*

*Secure access to the server by
SSH*

Monitoring with SNMP V2c, V3

On-site equipment update

*Protected configuration on
SDCARD*

*Hardware Accuracy of PPS $\pm 100ns$
vs UTC if GNSS disciplined*

The TMS6002 is rack mount equipment able to provide a high stable time source on an Ethernet TCP / IP network. The TMS6002 is a time server that uses the Network Time Protocol (NTP) to synchronize all connected computers on the network.

NTP Server

The equipment provides an NTP service in request / response mode in stratum1 when it is synchronized on an external time source. The server manages frame authentication.

The client computers can be synchronized with a precision better than 5 ms.

The server has the following main interfaces:

- Network connection IEEE802.3 100/1000 Mbs
- Synchronous UTC top pulse (1 PPS)

Multi-source synchronization

The equipment synchronizes on the GNSS or an external NTP server and optionally on analog IRIG-B or NMEA/PPS. It can also manage these several sources in parallel using a priority list.

The internal GNSS receiver is a multi-constellation receiver dedicated to time application. It is able to acquire 24 or more satellites (depending on the type of receiver) simultaneously. It delivers a very high precision second UTC reference pulse.

Remote monitoring

The remote monitoring and control of the equipment is done via the network, using:

- standard SNMP protocol (MIB provided)
- standard SSH protocol

A TCP or UDP frame containing the time and status of the equipment can be emitted every second.

Oscillator

An internal CFPT type oscillator provides a 10 MHz frequency used to maintain time in case of loss of external time source (No GNSS signal or free running mode)

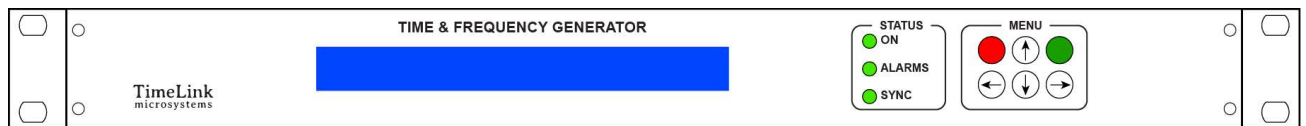
When disciplined (GNSS locked running mode) the stability is better than 2×10^{-10}

Configuration

The entire configuration of the equipment is located in a removable SDCARD memory for easy system configuration and equipment update. In case of equipment replacement, the current configuration can simply be transferred by plugging the SDCARD in the new equipment minimizing the MTTR.

802.1X Authentication

Before transmitting over the network, the equipment can perform authentication according to the 802.1X protocol.



TMS6002 Front panel

Specifications

NETWORK PROTOCOLS

NTP (Network Time Protocol)

NTP (RFC 1305) SNTP (RFC 1361) using UDP 123 port
 Server configuration V3, V4 or automatic V3/V4

HTTPS

Advanced web interface for equipment control and monitoring

SNMP (Simple Network Management Protocol)

(RFC 1155, 1157, 1213) V2c, V3
 SNMP provides the equipment status to the network administrator.
 For security reasons no configuration changes can be made with this protocol.

SSH (Secure Shell Protocol)

SSH allows accessing securely the equipment.
 It is especially used to update the internal software of the equipment.

Network Interface

IEEE 802.3 10/100/1000 Ethernet
 IEEE 802.1X Authentication

Connectors

1 x TNC for the GNSS antenna input
 1 x BNC output for 1PPS
 1 x BNC input for IRIG-B (optional)
 1 x Subd9 for IRIG-B DCLS (optional)
 1 x Subd9 for NMEA/PPS (optional)
 1 x, 2 x or 4 x RJ45 network connection

Syslog

Standard Syslog message logging

Console

USB compliant Console for configuration & maintenance

1PPS Accuracy

±100 ns over UTC when the equipment is synchronized by GNSS

Internal Reference

Internal 10MHz. CFPT Oscillator.
 Optional OCXO (refer to OPT3)

Power Supply

230V AC main supply:
 EEC socket 2P + with filter
 On / Off switch voltage: 90-264VAC / 47-63Hz
 Power consumption: <20W @ 230VAC 50Hz

Temperature

Operating temperature: 0 ° to 60 ° C
 Storage temperature: 0 ° to 70 ° C
 Operating relative humidity: 10% to 90% (non-condensing)
 Storage relative humidity: 5% to 95% (non-condensing)

Certification

Certified Hardware CE, Reach, ROHS, ITAR free

Dimensions:

Standard 19" 1U with Depth of 350 mm
 Rack 1U 19" L=483 x I=350 x H= 44 mm

Weight

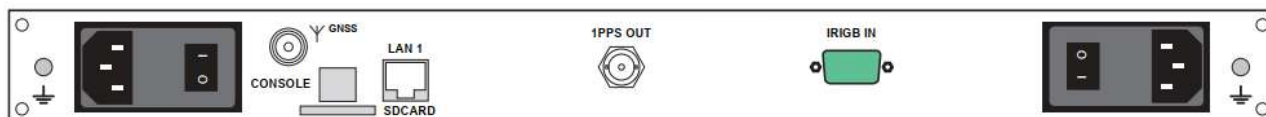
< 6.61 lb including the power cable

MTBF

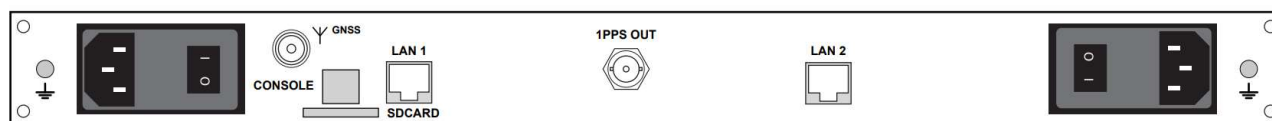
> 100 000 h
 > 150 000 h with OPT1.x

Option

- Redundant Power Supply
- Up to 4 Ethernet ports total
- OCXO stability
- Ethernet port security



TMS6002-B00X OPT1.1 Back panel



TMS6002 Standard OPT1.1- OPT2.1 Back panel

Ordering code:

TMS6002: standard model	GNSS synchronization with 1 LAN
TMS6002-B12X:	GNSS and B12X synchronization with 1 LAN
TMS6002-B00X:	GNSS and B00X synchronization with 1 LAN
TMS6002-NMEA:	GNSS and NMEA/PPS synchronization with 1 LAN
TMS6002-NMEA-B00X:	B00X and NMEA/PPS synchronization with 1 LAN
TMS6002-MULTI:	GNSS, IRIGB12X and NMEA/PPS synchronization with 1 LAN

Additional Options for each equipment types above are available and combinations can be implemented

- OPT1.X Redundant AC Power (X=1) or Redundant DC power (X=2)**
- OPT2.X Ethernet Port Extension X=1 to 3**
- OPT3 OCXO stability**
- OPT4 Ethernet port security**