



# TMS6002

## Secure NTP Server with Multi-sources synchronization

*NTP server stratum 1*

*GNSS (multi-constellation)/IRIG-B/NMEA multi-source synchronization*

*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 ± 100ns / UTC when synchronized by GNSS*

*Number of NTP requests > 800 / second*

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 Mbps
- Synchronous UTC top pulse (1 PPS)

### Multi-source synchronization

The equipment synchronizes on the GNSS 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)

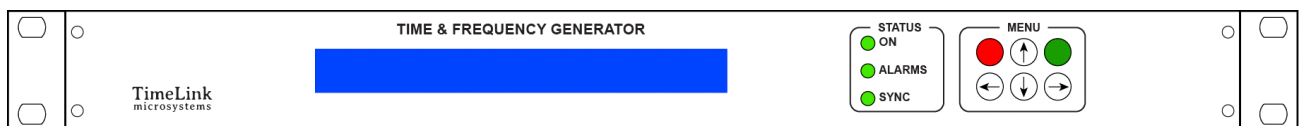
When disciplined (GNSS locked running mode) the stability is better than  $2 \times 10^{-10}$

### 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 801.2X 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 801.2X Authentication

### Connectors

1 x TNC for the GNSS antenna input  
1 x BNC output for 1PPS  
1 x BNC input for IRIGB (optional)  
1 x Subd9 NMEA/PPS input  
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.

### 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, ROHS and ITAR free

### Dimensions:

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

### Weight

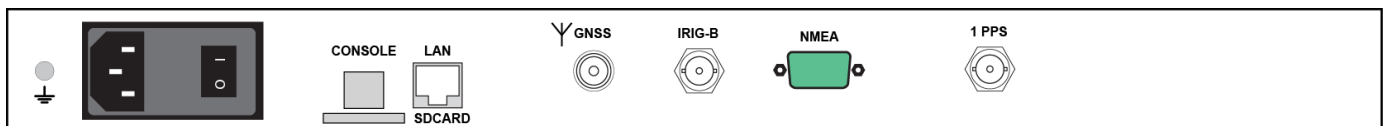
< 6.61 lb including the power cable

### MTBF

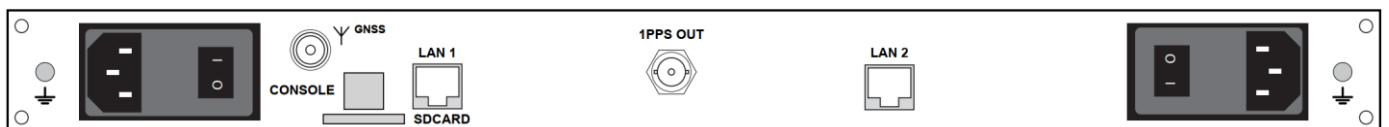
> 100 000 h  
> 150 000 h with OPT1

### Option

Redundant Power Supply  
Up to 4 Ethernet port  
OCXO stability  
Ethernet port security



TMS6002-MULTI – GNSS, IRIGB and NMEA Back panel



TMS6002 Standard OPT1-OPT2.2 Back panel

### Ordering code

TMS6002: standard model – GNSS synchronization

TMS6002-B12X: GNSS and B12X synchronization

TMS6002-B00X: GNSS and B00X synchronization

TMS6002-NMEA: GNSS and NMEA/PPS synchronization

TMS6002-MULTI: GNSS, IRIGB and NMEA/PPS synchronization

Additional Options for each equipment above. Can be combined.

OPT1 Double AC power

OPT2X Ethernet Port X=2 to 4

OPT3 OCXO stability

OPT4 Ethernet port security