TMS3000

GNSS or IRIGB network time server with 10 MHz output

The TMS3000 is rack unit equipment able to provide a high stability time source to any Ethernet TCP/IP network. This timeserver uses the NTP (Network Time Protocol) and TP (Time Protocol) to synchronize all the computers connected to the network.

NTP Server

The TMS3000 server is NTP-Primary server type with the following functions:

- Level 1 server, compliant with NTP protocol release 3.0 or 4.0
- Mode : server question/answer
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The client's computers could be synchronized with a precision of 1 to 10 ms, depending on network load. Equipment and server status information's are available through the SNMP (MIB) protocol.
A NTP client must be installed on every client computer for his synchronization with the server.

It holds three interface connectors:

- Standard RJ45 for network link IEEE802.3 10/100 Mbs
- BNC for 1PPS output in phase with UTC
- SubD 9 pins dedicated to RS232 link for equipment configuration.

A choice of two independent time sources is available for time input:

- IRIGB input
- A GPS module able to provide both UT and high stability 1 PPS signal.

Priority is given to the GNSS source when available because of its greater precision.

GNSS

The GNSS receiver is able to acquire simultaneously 24 satellites and to deliver 1 PPS very high precision.

IRIG-B

The IRIGB input uses the standard 1 KHz amplitude modulated signal compliant with IRIGB STANDARDS 200-98.
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Remote control

Remote monitoring of the equipment is made by the network connection by using an embedded web server. or SNMP.

Oscillator

An internal OCXO type oscillator allows a time stability of $1x10^{-10}$/day in case of external time source loss. (IRIGB in or GPS failure)

Configuration

The entire configuration of the equipment is contained in a removable Micro SD memory SDCARD.

TMS3000 front face

Features

NTP/SNTP

(Network Time Protocol):
NTP (RFC 1305) SNTP (RFC 1361) port UDP 123.
Server configuration: V3, V4 or V3/V4 automatic.

TP (Time Protocol)

DAY TIME

Time (RFC 868) using port UDP37

SNMP

(Simple Network Management Protocol): (RFC 1155, 1157, 1213) V2c

SNMP provides to the network administrator the status of the equipment. For safety reasons, no configuration changes can be made in this way

HTTP:

Web pages for remote control.

Connectors:

TNC for GNSS input antenna
BNC isolated: IRIGB input
BNC for 10 MHz sine output
BNC for 1PPS output.
SUB'D 9 pins female for the console serial link.
RJ45 for network connection.

Network interface:

Ethernet IEEE 802.3. 10/100 Base TX.

1 PPS accuracy:

± 100 ns relative to UTC when the equipment is disciplined with GPS.
± 500 ns relative to the beginning of the IRIGB frame when disciplined with IRIGB.

IRIGB code:

IRIG-B, signal amplitude modulated 1/3, 1/1 – isolated by transformer.
Code input are compliant with the "year" information.

Internal reference:

OCXO 10 MHz
Short term stability
1s, 10s: < 2.10-11
Long term stability (free running)
<1.10-9 / day
<3.10-8 / month
<2.10-7 / year
Long term stability (GNSS disciplined)
< 1.10-10

Accessories:

To be specifies at time of order regarding the receiver type:

- Antenna GNSS (GPS, GPS+GLONASS…)
- lightning arrester

Temperature:

Temperature: -20 ° to 60 ° C
Storage temperature: -20 ° to 70 ° C
Relative Humidity range: 10% to 90% (non-condensing)
Storage Relative Humidity: 5% to 95% (non-condensing)

Dimensions:

Rack 1U, 19'', and depth: 350 mm
Weight: 3 kg

MTBF:

TMS3000 STD /OPT4 : 100 000 h
TMS3000 OPT3 : 150 000 h

Standard Power supply:

Single AC Power Supply
Female CEE 2P+T filter & with On/Off
Voltage: 85-264VAC / 47-440Hz
Consumption STD: < 20W

Certification :

CE, ROHS & ITAR Free

OPTIONS :

OPT1 : High stability OCXO

Oscillator 10 MHz
Short term stability
1s: < 1.10^{-12}
Long term stability
<5.10^{-10} / day
<5.10^{-9} / month
<3.10^{-8} / year
Long term stability (GNSS disciplined)
< 1.10-10
Level +13 dBm ±1 dBm
Phase Noise :

1 Hz	< -100 dBc
10 Hz	< -130 dBc
100 Hz	< -150 dBc
1 KHz	< -155 dBc
≥10 KHz	< -155 dBc

OPT2: NMEA Output

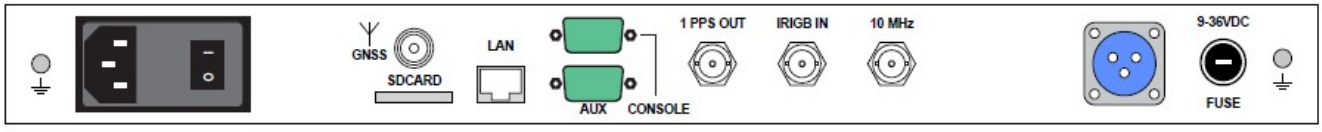
Output frames in NMEA standard, GGA and RMC Emission at 4800 baud, 1 time per second to "AUX" DB9
Electrical interface RS232

OPT3: Redundant DC P.S.

AC & DC power supply
AC:
Female CEE 2P+T filter & with On/Off
Voltage: 85-264VAC / 47-440Hz
DC:
9-36 VDC with external fuse
Connector Jaeger physically secured
Consumption OPT3: < 40W

OPT4: Single DC P.S.

DC power supply No AC power supply
9-36 VDC with external fuse
Connector Jaeger physically secured
Consumption OPT4: < 20W



TMS3000 OPT3 real face

Ordering:

TMS3000: unit with GPS/GLONASS receiver
TMS3000 OPT1: High stability for OCXO
TMS3000 OPT2: NMEA output
TMS3000 OPT3: REDUNDANT AC & DC Power Supply
TMS3000 OPT4: Single DC Power Supply