TimeLink

TMG1824

GNSS disciplined Time Frequency Generator

The TMG1824 is a GNSS disciplined time & frequency generator designed for a wide range of applications.
The equipment is housed in 1U 19" standard case.
GNSS signal is used for long term disciplining of the internal oscillator.

GNSS

The internal GNSS receiver is a specific receiver dedicated to time application. It is a multi-constellation model able to acquire GPS, GALILEO, BEIDOU and GLONASS satellites (a selection of 2 of them simultaneously). It delivers a very high precision UTC second reference pulse.

Manual Time

The GNSS synchronization source can be disabled, and a Manual time can be entered through the front face or a remote command. In that case, no 1PPS phasing can be expected.

IRIG-B generator

The equipment includes a IRIG B time code generator that provides an IRIG-B122 signal (amplitude modulated analog signal).
This signal is in phase with the internal 1PPS of the equipment itself synchronized on the 1PPS of GNSS reference.

Oscillator

An internal OCXO type oscillator provides a 10 MHz frequency and is used to maintain time. The stability of this oscillator is better than $\pm 1\times10^{-9}$ per day in case of loss of external time sourcing.
When disciplined by the GNSS, the long term stability remains better than 5×10^{-11}.

NTP Server

The equipment provides a time service implementing standard NTP protocol (Network Time Protocol) allowing any computer or equipment linked to the network to synchronize.
Customer's computers can be synchronized with an accuracy of 1 to 10ms. NTP client software must be installed on each client for its synchronization with the server.

PTP Grandmaster & slave

For more precise synchronization, the equipment implements a PTP clock (Precise Time Protocol).

Remote monitoring

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

- The SNMP (SNMP V2c or V3) standard protocol (MIB provided)
- A web server through HTTP/HTTPS
- The standard SSH protocol
- A proprietary TCP or UDP frame containing the time and status of the equipment.

Time Retention

The equipment includes a Super Cap allowing time to be maintained on power-off (1s hold over 3 days).

Configuration

The entire configuration of the unit is stored on a removable SDCARD memory for easy system configuration and software update.
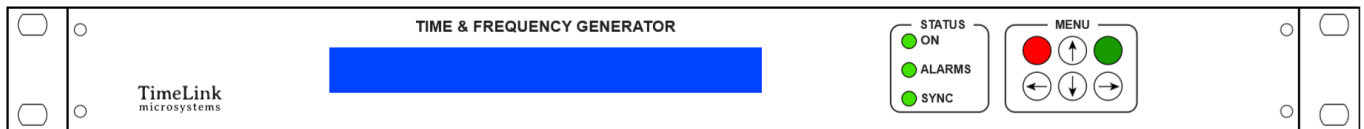
TMG1824 front panel

TimeLink

Specifications

Outputs

1 PPS output

TTL level
Accuracy of ±100 ns relative to UTC when locked to GNSS.

IRIG-B output

IRIG B122
Modulated code (B12x) : 3V ±0.5 V peak-peak 1/1: 1/3 ratio isolated by transformer.
BNC connector (analog)

10 MHz Output

Level +13 dBm ±1 dBm, 50Ω
Guaranteed Phase noise:
1Hz   <-90 dBc/Hz
10Hz   <-110 dBc/Hz
100Hz   <-130 dBc/Hz
1 KHz   <-145dBc/Hz

Internal reference

OCXO type Oscillator, 10 MHz
free running mode:
Short term stability:
1s-10s < 2.10^{-11}
Long term stability:
1 day   < 1.10^{-9}
1 month   < 3.10^{-8}
1 year   < 1.10^{-7}
locked running mode:
Long term stability: < 5.10^{-11}

Network interface

Two IEEE 802.3. 100/1000 Ethernet physically isolated

GNSS Antenna

TNC connector
3V or 5V active antenna
Powered by receiver
(Antenna is not included)
Different models are available

Console

RS232 compliant console for configuration & maintenance

Connectors:

1 x TNC for the GNSS antenna input
1 x BNC for 1PPS output
1 x BNC for 1PPS input
1 x BNC for IRIG B122 output
1 x BNC for 10MHz Frequency output
1 x USB female for serial console
2 x RJ45 network connection

Temperature:

Temperature: -10 ° 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)

Power supply:

230V AC mains supply:
EEC socket 2P + with filter & On / Off switch voltage: 85-264VAC / 47-440Hz
Power consumption: <20W 230VAC 50Hz

Certification:

Certified Hardware CE, ROHS, REACH
ITAR Free & EAR99

Network Protocols

PTP (Precision Time Protocol)

PTP v2 IEE1588-2008
Grandmaster & slave
Default PTP profile
Available on LAN connector

NTP (Network Time Protocol)

NTP (RFC 1305) SNTP (RFC 1361) using UDP 123 port.
Server configuration V3, V4 or automatic V3/V4.
Available on LAN and LAN2 connectors.

SNMP

(Simple Network Management)
(RFC 1155, 1157, 1213) V2c or V3
SNMP allows equipment monitoring by the network administrator.

HTTP

The integrated webserver allows monitoring the equipment.

TCP / UDP

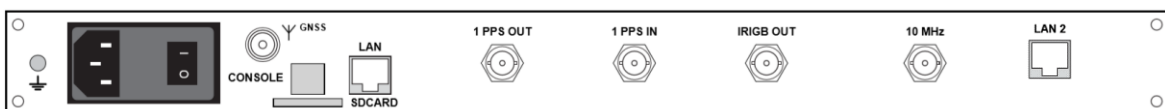Remote in "push" mode (UDP/ TCP) or "request / response" mode (TCP).

Dimensions:

Standard 19" 1U with Depth of 350 mm

Weight:

< 3 kg

MTBF

> 100 000 h

TMG1824 back panel

Ordering code

TMG1824: Standard model
For any further functions please do not hesitate to contact us