

TMG1822

GNSS disciplined time & frequency generator

The TMG1822 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's a multi-constellation model able to acquire both 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 PPS phasing can be expected.

Irig-B generator

The equipment includes a IRIG B time code generator that allows to provide: an IRIGB122 signal (amplitude modulated analog signal).

These signals are in phase with the internal 1PPS equipment itself synchronized on the 1PPS of GNSS reference.

Oscillator

An internal OCXO type oscillator provides a 10 MHz frequency used to maintain time. The stability of this oscillator is better than $\pm 1 \times 10^{-9}$ 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 Service

The TMG1822 includes 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

For more precise synchronization, PTP protocol (Precise Time Protocol) can be used.

Remote monitoring

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

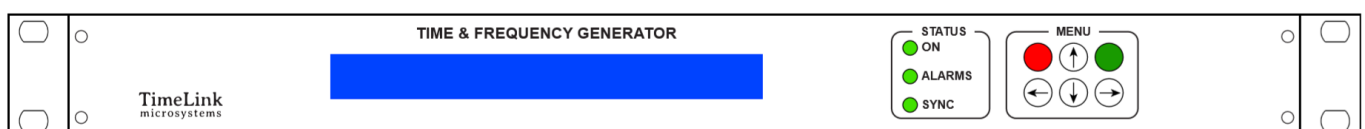
- The SNMP (SNMPV2c or V3) standard protocol (MIB provided)
- A web server through HTTP/HTTPS
- The standard SSH protocol
- A proprietary TCP or UDP frame containing the time and status of the equipment.

Time Retention

The TMG1822 includes a Super Cap allowing time to be maintained on power-off (1s hold over 3 days).

Configuration

The overall configuration of the unit is stored on a removable SDCARD memory which allows remote software update easily.



TMG1822 front panel

Specifications

Outputs

1 PPS output

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

IRIGB output

IRIG B122
Modulated code (B12x) : $3V \pm 0.5 V$
peak-peak 1/1: 1/3 ratio isolated by transformer.
BNC connectors (analog)

10 MHz Output

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

Internal reference

OCCO type Oscillator, 10 MHz

free running mode:

Short term stability:
1s-10s < $2 \cdot 10^{-11}$

Long term stability:

1 day < $1 \cdot 10^{-9}$

1 month < $3 \cdot 10^{-8}$

1 year < $1 \cdot 10^{-7}$

locked running mode:

Long term stability: < $5 \cdot 10^{-11}$

GNSS Antenna type

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

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 (option)
1 x BNC for IRIG B122 output
1 x BNC for 10MHz Frequency output
1 x USB female for serial console
1 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

Network Protocols

PTP (Precision Time Protocol)

PTP v2 IEE1588-2008
Grandmaster & Slave
Default PTP profile

NTP

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

SNMP

(Simple Network Management)
(RFC 1155, 1157, 1213) V2c or V3
SNMP provides to the network administrator the equipment status.

HTTP

The integrated webserver allows to view the status of 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

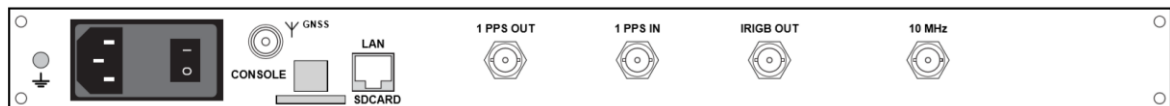
MTBF

> 100 000 h

OPTIONS :

OPT1: Single DC P.S.

DC power supply No AC power supply
9-36 VDC with external fuse
Connector Jaeger physically secured
Consumption OPT1: < 20W



TMG1822 rear panel

Ordering:

TMG1822: unit with GPS/GLONASS/GALILEO receiver

TMG1822 OPT1: Single DC Power Supply