

TMG4605

GNSS disciplined time & frequency generator

Rubidium pilot

The TMG4605 is a GNSS disciplined time & frequency generator.

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 at the same time two constellations amongst GPS, GALILEO, GLONASS and BEIDOU. It delivers a very high precision UTC second reference pulse (+-50ns vs UTC).

1 PPS generator

The equipment includes a PPS generator synchronized with the GNSS PPS at +-50ns.

Rubidium Oscillator

An internal Rubidium oscillator provides a 10 MHz frequency used to maintain time. The stability of this oscillator is better than $\pm 1 \times 10^{-11}$ per day in case of loss of external time sourcing.

When disciplined by the GNSS, the long-term stability remains better than 1×10^{-11} .

IRIG-B/TOD ASCII generator

The equipment includes an IRIG-B time code generator that allows to provide:

- An IRIG-B00x signal (DCLS unmodulated signal)
- or an ASCII TOD on a serial link.

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

NTP Service

The TMG4605 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 10 ms.

Monitoring

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

- The SNMP standard protocol (MIB provided)
- A proprietary UDP protocol
- An internal web server

Configuration

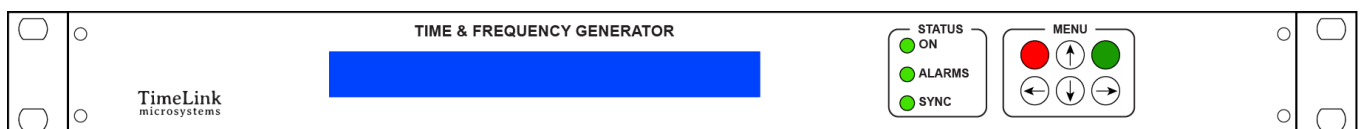
The overall configuration of the unit is stored on a removable SDCARD memory which allows software update easily.

SSI

- Internal firewall
- SYSLOG available
- Custom minimal built in-house Linux distribution
- Compliant to ANSSI Linux guide

Certification:

Certified Hardware CE, ROHS, REACH, ITAR & EAR free



TMG4605 front panel

Specifications

1 PPS output

4 outputs
TTL level
Accuracy of ± 50 ns relative to UTC when locked to GNSS

10 MHz Outputs

4 outputs
Level +13 dBm ± 1 dBm, 50 Ω
Guaranteed Phase noise:
1 Hz < -60 dBc/Hz
10 Hz < -85 dBc/Hz
100 Hz < -110 dBc/Hz
1 kHz < -135 dBc/Hz
10 kHz < -140 dBc/Hz
Spurious: < -80 dBc

IRIG-B00x output

Non modulated signal (DCLS on SUBD9 connector)
RS422/RS485 interface level

TOD ASCII output

1x RS232 TOD ASCII output
1x RS485 TOD ASCII output
SUBD9 connector

Internal reference

Rubidium type Oscillator, 10 MHz

free running mode:

Short term stability:
1s ..10s < 1.10-10
Long term stability:
1 day < 1.10-11

locked running mode:

Long term stability: < 1.10-11

GNSS Antenna type

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

Network Interface

Ethernet IEEE 802.3. 10/100/1000

Connectors:

1 x TNC for the GNSS antenna input
4 x BNC for 1PPS outputs
4 x BNC 10MHz Frequency outputs
1 x USB for console link
1 x RJ45 network connection
1 x female SUB'D9 for IRIG-B00X / TOD ASCII output

Power supply:

DC supply 48V nominal with fuse and secured connector (Jaeger ref 038 351 06)
Power consumption < 30W

NTP

Network Time Protocol
NTP (RFC 1305) SNTP (RFC 1361) using UDP 123 port

SNMP

Simple Network Management (RFC 1155, 1157, 1213) V2c, V3

HTTP/HTTPS

The integrated web server allowing the monitoring of the equipment status

Console

USB compliant
Console for configuration & maintenance

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)

Dimensions:

Standard 19" 1U with Depth of 305 mm

Weight:

< 3,5 kg

< 4 kg with OPT2

MTBF

> 100 000 h

> 150 000 h with OPT2

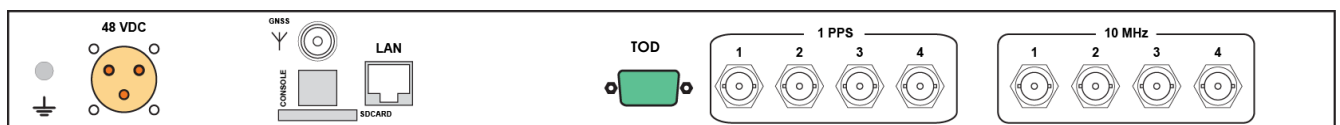
OPTIONS:

OPT1: AC power supply

230V AC main supply:
EEC socket 2P + with filter & On / Off
Switch voltage: 90-264VAC / 47-63Hz
Power consumption: <30W 230VAC 50Hz

OPT2: 2nd AC Power supply

2nd 230V AC main supply:
EEC socket 2P + with filter & On / Off
switch voltage: 90-264VAC / 47-63Hz
Power consumption: <30W 230VAC 50Hz



TMG4605 front panel (standard model)

Ordering code

TMG4605: Standard model, DC power supply

TMG4605 Opt1: AC power supply

TMG4600 Opt2: Double AC Power supply