TMG5000

GNSS/IRIG-B disciplined T/F generator with 8 configurable outputs (IRIG-B, PPS, Digital, Analog 10Mhz)

The TMG5000 is a GNSS disciplined time & frequency generator specifically designed for applications requiring different type of time & frequency signals on the same unit.

The 8 independent outputs are programmable in order to get IRIGB, 1PPS, or 10 MHz on each output.

The equipment is housed in 1U 19" standard rack. GNSS signal is used for long term disciplining of the internal oscillator.

Source GNSS/IRIG-B

The internal GNSS receiver is a specific receiver dedicated to time application. It's a bi-constellation model able to acquire both GPS and GLONASS satellites simultaneously. It delivers a very high precision UTC second reference pulse.
An analog B122 IRIG-B source can also be used as a primary or secondary time source

Irig-B generator

The equipment includes a IRIG time code generator that allows to provide:

- An IRIGB12x signal (amplitude modulated analog signal) on both outputs.
- An unmodulated signal IRIGB00x (DCLS) on a RS485 serial link.

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 $1x10^{-9}$ per day in case of loss of external time sourcing.
When disciplined by the GNSS, the long term stability remains better than $5x10^{-11}$.

NTP Service

The TMG5000 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. NTP client software must be installed on each client for its synchronization with the server.

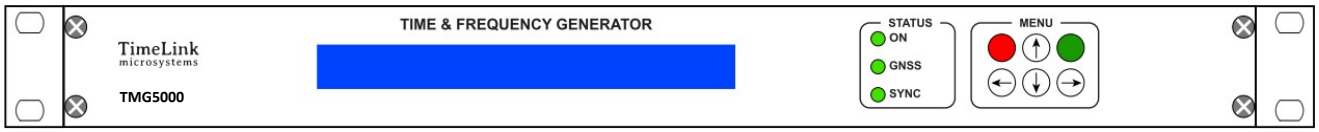
Remote control

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

- The SNMP standard protocol (MIB provided)
- A proprietary UDP or TCP protocol

Configuration

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



TMG5000 front panel

Specifications

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 web server allows viewing the status of the equipment.

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

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

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

IRIGB outputs
Selectable format on both types of outputs: standard, Bxx6, or IEEE1344
IRIG B12x
Modulated code (B12x) : 3V ±0.5 V peak-peak 1/1: 1/3 ratio isolated by transformer. BNC connectors (analog)
IRIG B00x
No modulated (B00x)
RS422/RS485 interface

10 MHz Outputs
Level +13 dBm ±1 dBm, 50 Ω
Guaranteed Phase noise:

1Hz	-90 dBc/Hz
10Hz	-110 dBc/Hz
100Hz	-130 dBc/Hz
1 KHz	-140 dBc/Hz
≥ 10KHz	-145 dBc/Hz

Internal reference
OCXO type Oscillator, 10 MHz
Free running mode:
Short term stability:

1s	< 2.10-11
10s - 100s	< 2.10-11

Long term stability:

1 day	< 2.10-10
1 month	< 5.10-9
1 year	< 3.10-8

Locked running mode:
Long term stability: < 5.10-11
GNSS receiver
Time dedicated receiver with TRAIM.
Bi-constellation GPS/GLONASS
< ±50 ns / UTC

Digital signals
4 signals defining by the user.
1µs pulse width of 999 ms or frequency of 1Hz to 1MHz with a level of 0 to 5 volts.

GNSS type
Multi-constellation GNSS
TNC connector
3V or 5V active antenna
Powered by receiver
(Antenna not included)

Console
RS232 compliant
Console for configuration & maintenance

Connectors:
1 x TNC for the GNSS antenna input
1 x BNC for the IRIG-B input
1x BNC outputs for 1PPS
1 x BNC input for 1PPS
8 x BNC output for programmable outputs: 1PPS, IRIG B12x, IRIG B00x, 10MHz & digital frequencies
1x SUB'D 9-pin female for serial console
1 x 9-pin female SUB'D for serial console link.
1x SUB'D 9-pin female for "AUX" optional
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

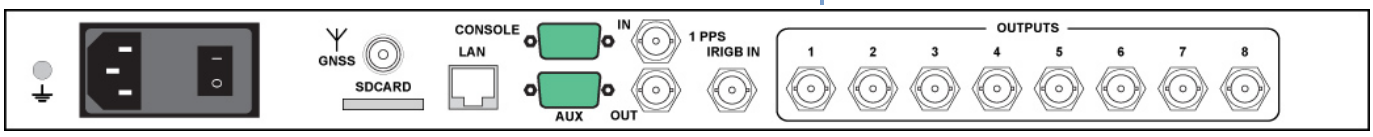
Certification:
Certified Hardware CE, ROHS and ITAR free

Dimensions:
Standard 19" 1U with Depth of 350 mm

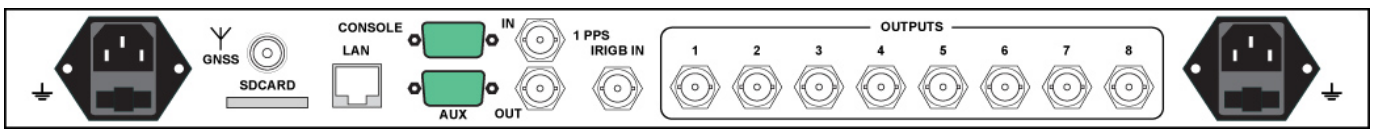
Weight:
< 3 kg

MTBF
> 100 000 h
> 150 000 h with OPT 2nd AC input

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



TMG5000 rear panel



TMG5000 OPT 2nd AC input rear panel

Ordering code

TMG5000:	*Standard model*
TMG5000 OPT	*2nd AC input*