

# TMG4100

## GNSS

## disciplined time & frequency generator

The TMG3400 is a GNSS disciplined time & frequency generator specifically designed for low noise 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 bi-constellation model able to acquire both GPS and GLONASS satellites simultaneously. It delivers a very high precision UTC second reference pulse.

### 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  $\pm 2 \times 10^{-10}$  per day in case of loss of external time sourcing.

When disciplined by the GNSS, the long term stability remains better than  $5 \times 10^{-11}$ .

### NTP Service

The TMG3400 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.

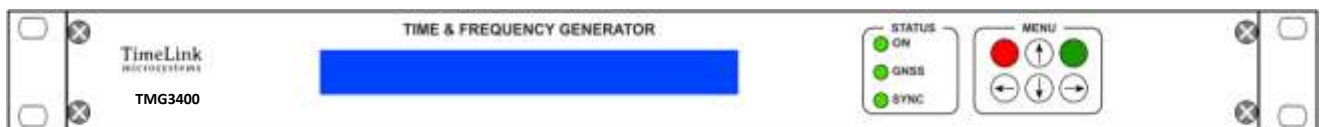
### Remote control

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

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

### Configuration

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



TMG4100 front panel

## Specifications

### Outputs

#### 1 PPS output

#### 2 outputs

TTL level

Accuracy of  $\pm 100$  ns relative to UTC when locked to GNSS.

#### IRIGB outputs

Selectable format on both types of outputs: standard, Bxx6 or IEEE1344

#### IRIG B12x 2 outputs

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

#### IRIG B00x 1 output

No modulated (B00x)

RS422/RS485 interface

#### 10 MHz Outputs

#### 4 outputs

Level +13 dBm  $\pm 1$  dBm, 50  $\Omega$

**Guaranteed** Phase noise:

1Hz < -100 dBc/Hz

10Hz < -130 dBc/Hz

100Hz < -150 dBc/Hz

1 KHz < -155 dBc/Hz

$\geq 10$  KHz < -155 dBc/Hz

Spurious : < - 80 dBc

Harmonics: < - 40 dBc

#### Internal reference

OCCO type Oscillator, 10 MHz

#### free running mode:

Short term stability:

1s ..10s < 1.10-12

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

#### Frequency accuracy:

When you power up the equipment, the frequency precision is  $> 1.10^{-9}$  at 25 °C in 6 minutes.

### GNSS receiver

Time dedicated receiver with TRAIM. Bi-constellation GPS/GLONASS <  $\pm 50$  ns / UTC

### GNSS Antenna type

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

2 x BNC outputs for 1PPS

2 x BNC outputs for IRIG B122

4 x BNC outputs Frequency 10MHz

SUB'D 1 x 9-pin female for serial console

1 x 9-pin female SUB'D for output IRIG B002

SUB'D 1 x 9-pin female to output the output "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

### Network Protocols

#### 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 to view the status of the equipment.

#### TCP / UDP

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

#### Dimensions:

Standard 19" 1U with Depth of 350 mm

#### Weight:

< 3 kg

#### MTBF

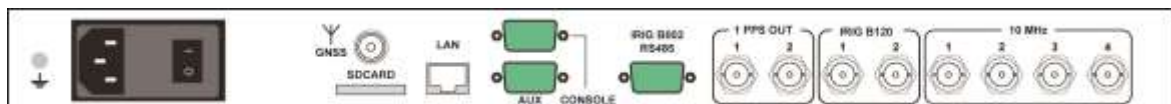
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#### OPTIONS:

#### OPT1: NMEA

Output frames in standard NMEA GGA and RMC Emission at 4800 baud, 1 time per second on connector "AUX" DB9.

Electrical interface RS232



TMG4100 rear panel

### Ordering code

TMG4100: Standard model

TMG4100 Opt1: NMEA output