

# TMG3210

## GNSS disciplined time & frequency generator

The TMG3210 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 an IRIG B time code generator that allows providing an unmodulated signal IRIGB002 (DCLS) on a RS485 serial link.

That signal is 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  $5 \times 10^{-11}$ .

### External synchronization

It is made by:

- A 1PPS reference signal for phasing and the internal oscillator's enslavement.
- A time frame NMEA (GGA or ZDA) for synchronization of the internal time of the equipment.

In the absence of an external time source, a manual update is possible via remote control

### NTP Service

The TMG3210 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.

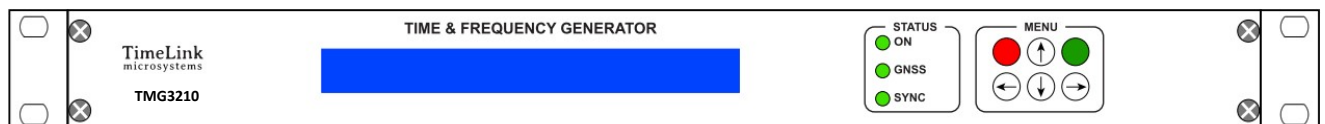
### Remote control

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.



TMG3210 front panel

## Specifications

### Outputs

#### 1 PPS output

**1 output**  
TTL level

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

#### IRIGB outputs

**IRIG B002 1 output**

No modulated (B002)  
RS422/RS485 interface

#### NMEA outputs

**1 output**

RS232 interface 115200 bauds 8 data bits  
1 stop bit no parity  
Messages GGA RMC VTG & ZDA  
Period : 1 Hz

#### 10 MHz Outputs

**2 outputs**

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

**Guaranteed** Phase noise:

1Hz <-100 dBc/Hz  
10Hz <-130 dBc/Hz  
100Hz <-145 dBc/Hz  
1 KHz <-155 dBc/Hz  
10 KHz <-155 dBc/Hz  
100 KHz <-155 dBc/Hz  
1MHz <-155 dBc/Hz  
Spurious: < -80 dBc  
Harmonics: < -30 dBc

#### Internal reference

OCXO type Oscillator, 10 MHz

**free running mode:**

Short term stability:

1s <  $2 \cdot 10^{-11}$   
10s - 100s <  $2 \cdot 10^{-11}$

Long term stability:

1 day <  $2 \cdot 10^{-10}$   
1 month <  $5 \cdot 10^{-9}$   
1 year <  $3 \cdot 10^{-8}$

**locked running mode:**

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

### 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  
1 x BNC outputs for 1PPS  
2 x BNC outputs Frequency 10MHz  
1x SUB'D 1 x 9-pin female for serial console  
1 x 9-pin female SUB'D for output IRIG B002  
1x SUB'D 1 x 9-pin female for NMEA output identification "AUX"  
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 CE, ROHS and ITAR Free

### 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 / TCP) or "request / response" mode (TCP).

#### Dimensions:

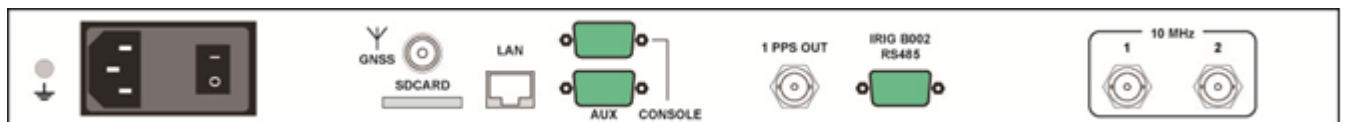
Standard 19" 1U with Depth of 350 mm

#### Weight:

< 3,5 kg

#### MTBF

> 100 000 h



TMG3210 rear panel

### Ordering code

TMG3210: Standard model

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