TMG3420

TMG3421

TMG3422

TMG3423

GNSS or IRIG-B or NMEA disciplined time & frequency generator

The TMG342x is a GNSS or IRIG-B or NMEA disciplined time & frequency generator specifically designed for low phase noise applications.
The equipment is housed in 1U 19" standard case.
Time source reference (GNSS, IRIG-B or NMEA) 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.

IRIG-B/TOD ASCII generator

The equipment includes a IRIG-B time code generator that allows to provide:
- an IRIG-B12x signal (amplitude modulated analog signal) on both outputs.
- An unmodulated signal IRIG-B00x (DCLS) or an ASCII TOD 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 5×10^{-11}.

NTP Service

The TMG342x includes a time service implementing standard NTP protocol (Network Time Protocol) allowing any computer or equipment on 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

Compatible with the previous TMG3400 range.
The remote control of the equipment is done via the network, using:

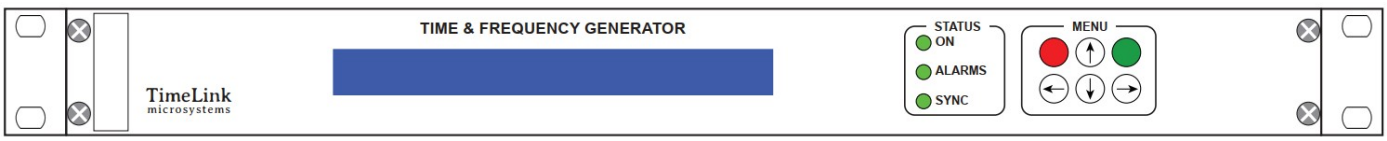
- The SNMP standard protocol (MIB provided)
- A proprietary UDP or TCP protocol
- An internal web server

Configuration

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

SSI

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



TMG342x front panel

Specifications

1 PPS outputs

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

IRIG-B outputs

Selectable format on both types of outputs: standard, BXXX or IEEE1344
IRIG-B12x 2 outputs
Modulated code: 3V ±0.5 V peak-peak 1/1: 1/3 ratio isolated by transformer. BNC connectors (analog)
IRIG-B00x or TOD ASCII 1 output
Non modulated signal (DCLS) format IRIGB-B00X or TOD ASCII (STX/DAY/DD/MM/YY/HH/MM/SS/CR) RS422/RS485 interface

10 MHz Outputs

4 outputs
Level +13 dBm ±1 dBm, 50 Ω
Guaranteed Phase noise:

1Hz	<-100 dBc/Hz
10Hz	<-130 dBc/Hz
100Hz	<-140 dBc/Hz
1 KHz	<-148 dBc/Hz
10 KHz	<-150 dBc/Hz
100 KHz	<-150 dBc/Hz
1MHz	<-150 dBc/Hz
Spurious :	< - 80 dBc
Harmonics :	< -20 dBc

Internal reference

OCXO 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: $< 5.10^{-11}$

Console

USB compliant console for configuration & maintenance

GNSS receiver

Time dedicated receiver with TRAIM. multi-constellation GPS, GALILEO, BEIDOU, GLONASS (Two constellations at the same time). < ±50 ns / UTC

IRIG-B12X/AFNOR NFS 87500 input (TMG3421)

IRIGB00X input (TMG3422)

NMEA input (TMG3423)

GNSS Antenna type

3V or 5V active antenna powered by receiver. *(Antenna not included)*

Connectors:

1 x TNC for the GNSS antenna input
1 x BNC for the IRIG B12X input (opt.)
1 x 9-pin female SUB'D for input IRIG B00X or NMEA or TOD
2 x BNC outputs for 1PPS
2 x BNC outputs for IRIG B12X
4 x BNC outputs Frequency 10MHz
1 x USB for serial console
1 x 9-pin female SUB'D for IRIG-B00X output
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: 90-264VAC / 47-63Hz
Power consumption: <20W 230VAC 50Hz

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, V3
SNMP provides to the network administrator the equipment status.

HTTP/HTTPS

The integrated web server allows to view the status of the equipment.

TCP / UDP

Remote in "push" mode UDP or TCP.

Dimensions:

Standard 19" 1U with Depth of 350 mm

Weight:

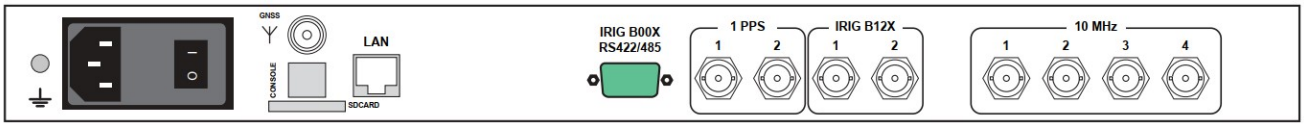
< 3 kg

MTBF

> 100 000 h

Certification:

CE mark: Safety & EMC, WEEE, RoHS & ITAR Free



TMG3420 Standard Model rear panel

Ordering code

TMG3420:	*Standard, GNSS-Synchronisation*
TMG3421:	*IRIG-B12X/ AFNOR NFS 87500 Synchronisation*
TMG3422:	*IRIG-B00X synchronisation*
TMG3423:	*NMEA synchronisation*