TMG5080

Time and frequency generator with programmable & digital outputs

The TMG5080 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.

Programmable outputs

The equipment includes a programmable generator able to provide:
8 outputs on BNC connectors with the following signals available:

- 10 MHz frequency from internal oscillator (sinus +13 dBm)
- IRIG B analog (modulation 1:3/1:1, level 0 to 8V peak-peak 600 Ω)
- IRIG B not modulated (DCLS, level 0-5V)
- Digital signals (4 signals user's settable , pulse width from 1µs to 999ms or frequency from 1Hz to 1MHz, level 0-5V)

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 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.

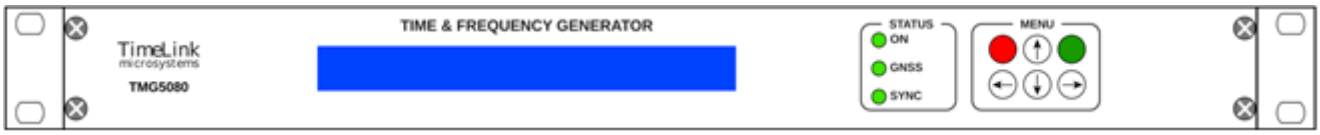
Remote control

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.



TMG5080 front panel

Specifications

Outputs

1 PPS output

1 output
TTL level
Accuracy of ± 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

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

Oscillator

OCXO type Oscillator, 10 MHz
free running mode:
Short term stability:
1s < 2.10^{-12}
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

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 GNSS antenna
1 x SUB'D 9 pins female for 1 PPS outputs
1 x SUB'D 9 pins female for NMEA outputs
8x BNC dedicated to programmable outputs. (10 MHz, IRIGB002/122, digital signal)
1 x SUB'D 9 pins female for the serial console link.
1 x SUB'D 9 pins female RS232 (réserve)
1 x RJ45 for network link

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.

SSH

(Secure Shell Protocol).The use of SSH allows secure access to equipment. It allows the update of the internal software.

Dimensions:

Standard 19" 1U with Depth of 350 mm

Weight:

< 3,5 kg

MTBF

> 100 000 h

Option 1: Standard oscillator

Short term stability
1s: < 2.10^{-11}
Long term stability free running mode:
<1.10^{-9} / day
<3.10^{-8} / month
<2.10^{-7}/ year
Long term stability locked running mode:
< 5.10^{-11}
Phase noise :

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

TMG5080 rear panel

Ordering code

TMG5080: Standard model
OPT1: With standard oscillator