TMG4705

GNSS disciplined time & frequency generator with Rubidium Oscillator

The TMG4705 is a GNSS disciplined time & frequency generator specifically designed for low noise applications.
The equipment is housed in 2U 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 is a multi-constellation GNSS receiver delivering a very high precision UTC second reference pulse.

IRIG-B generator

The equipment includes an IRIG-B time code generator that provides:
- an IRIG-B122 or IRIG-B126 signal (amplitude modulated analog signal) on both outputs.
- An unmodulated signal IRIG-B002 or IRIG-B006 (DCLS) on a RS485/RS422 serial link.

These signals are in phase with the internal 1PPS equipment itself synchronized on the 1PPS of GNSS reference.

1 PPS IN

The equipment can synchronize its frequency using an external 1 PPS IN.

Oscillator

An internal Rubidium type oscillator provides a 10 MHz frequency used to maintain time.
The stability of this oscillator is better than $3x10^{-11}$ per month in case of loss of external time sourcing.
When disciplined by the GNSS, the long-term stability remains < $1x10^{-11}$/month.

NTP Service

The TMG4705 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.

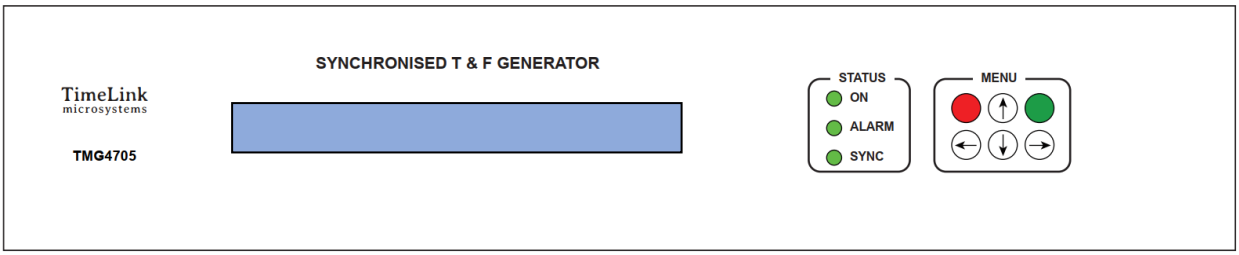
Remote control

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 equipment configuration either remotely of by extracting the SDCARD.



TMG4705 front panel

Specifications

OUTPUTS:

1 PPS output

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: IRIG-B00x or IRIG-B12x
IRIG B122 or IRIG B126 - 2 outputs
Modulated code (B12x) : 3V ±0.5 V peak-peak 1/1: 1/3 ratio isolated by transformer.BNC connectors (analog)
IRIG B002 or IRIG B006 - 1 output
Non modulated code (B00x)
RS422/RS485 interface

10 MHz outputs

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

1Hz	<-80 dBc/Hz
10Hz	<-100 dBc/Hz
100Hz	<-130 dBc/Hz
1 KHz	<-140 dBc/Hz
10 KHz	<-150 dBc/Hz
Spurious	< -110 dBc
Harmonics	< -40 dBc

Internal reference

Rubidium
Type ASQ3/X Oscillator, 10 MHz
free running mode:
Short term stability:
1s $< 1.10^{-11}$
10s $< 3.10^{-12}$
100s $< 1.10^{-12}$
Long term stability:
Month $< 3.10^{-11}$
Year $< 2.10^{-10}$
locked running mode:
Long term stability: $< 1.\ 10^{-12}$

GNSS receiver

Multi-constellation Time dedicated receiver (GPS, GALILEO, GLONASS, BEIDOU)
< ±50 ns / UTC

GNSS Antenna type

TNC connector
3V or 5V active antenna
Powered by receiver

Console

RS232 compliant console for configuration & maintenance

Connectors

1 x TNC for the GNSS antenna input
1 x BNC for 1PPS input
2 x BNC for 1PPS outputs
2 x BNC for IRIG B12x outputs
4 x BNC 10MHz Frequency outputs
1 x SUB'D 9-pin female for serial console
1 x SUB'D 9-pin female for 1 IRIG B00x output
1 x SUB'D 9-pin female for NMEA signal output on "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, REACH, ITAR Free & EAR Free

Network Protocols

NTP

Network Time Protocol server (RFC 1305) SNTP (RFC 1361) using UDP 123 port.
Server configuration V3, V4 or automatic V3/V4.

SNMP

Simple Network Management V2c (RFC 1155, 1157, 1213)
SNMP provides the equipment status to the network administrator.

HTTP

The integrated webserver allows to monitor the status of the equipment.

TCP / UDP remote monitoring

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

Dimensions:

Standard 19" 2U with Depth of 380 mm

Weight:

< 6 kg

MTBF

>100 000 h

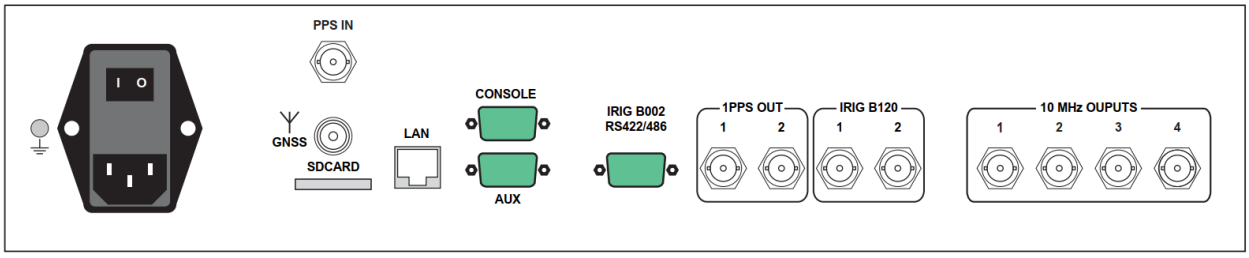
OPTIONS:

OPT1: NMEA

Periodic output of standard NMEA frames: ZDA, VTG, GGA and RMC.
Electrical interface RS232

Other options:

Please contact us



TMG4705 rear panel

Ordering code

TMG4705:	*Standard model*
OPT1:	*NMEA*
OTHER OPT:	*Please contact TimeLink*