TMG3480

TMG3481

TMG3482

GNSS or IRIG-B disciplined time, frequency & tri-level sync generator

The TMG348x is a GNSS or IRIG-B disciplined time & frequency generator specifically designed for broadcast applications.
The equipment is housed in 1U 19" standard case.
Time source reference (GNSS or IRIG-B) 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.

IRIGB

An IRIG-B12X or an IRIG-B00X synchronization can be used.

IRIG-B 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) on a RS485 serial link.

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

TRI-LEVEL SYNC generator

The equipment generates 3G-SDI external sync reference and supports different formats up to 1080p 60Hz.

NTP Service

The TMG348x 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.

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}.

Remote control

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

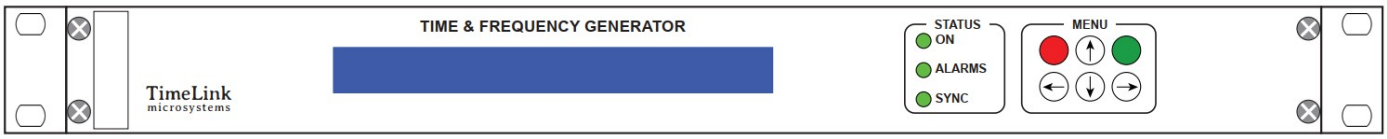
- The SNMP standard protocol (MIB provided)
- A proprietary UDP or TCP protocol
- An internal web server

Configuration

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

SSI

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



TMG348x 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 1 output
Non modulated signal (DCLS)
RS422/RS485 interface

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

3G-SDI Sync outputs

3x 3G-SDI external sync reference.
Standard SMPTE 274M signals.
Up to 1080p 60Hz format.

GNSS receiver

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

IRIG-B12X input (optional)

IRIG-B00X input (optional)

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
2 x BNC outputs for 1PPS
2 x BNC outputs for IRIG B12X
3 x BNC outputs 3G SDI
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.

PTP

IEE-1588-2008 (PTP V2)
Default, 802.1AS, Enterprise, Automotive profiles, SMPTE wo TLV.
Contact us for defining dedicated profiles

Multicast mode addressing with full performance (<2µs accuracy)
Unicast and Hybrid mode addressing with degraded performance (<30µs accuracy)

SNMP

Simple Network Management (RFC 1155, 1157, 1213) V2c, V3
SNMP provides the equipment status to the network administrator.

HTTP/HTTPS

The integrated web server allows to monitor and control the equipment.

TCP / UDP

Remote in "push" mode UDP or TCP.

Dimensions:

Standard 19" 1U with Depth of 350 mm

Weight:

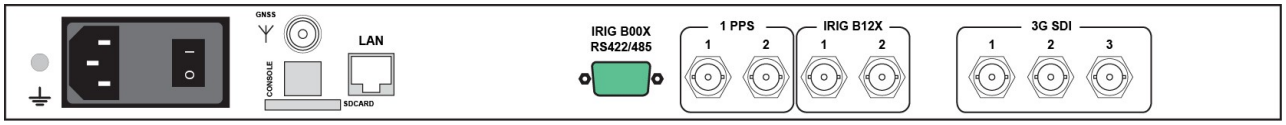
< 3 kg

MTBF

> 100 000 h

Certification:

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



TMG3480 Standard Model rear panel

Ordering code

TMG3480: *Standard model, GNSS synchronisation*
TMG3481: *IRIG-B12X synchronisation*
TMG3482: *IRIG-B00X synchronisation*