# TMG1800

## GNSS disciplined time & frequency generator

The TMG1800 is a GNSS disciplined time & frequency generator designed for a wide range of 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 a IRIG time code generator that allows to provide:
an IRIGB122 signal (amplitude modulated analog signal).
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 $\pm 1\times10^{-9}$ per day in case of loss of external time sourcing.
When disciplined by the GNSS, the long term stability remains better than $5\times10^{-11}$.

### NTP Service

The TMG1800 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 an internal web server

### Configuration

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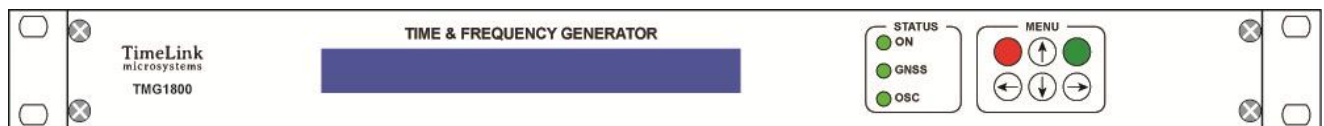


*TMG1800  front panel*

**TimeLink**
m i c r o s y s t e m s

# Specifications

## Outputs

### 1 PPS output
TTL level
Accuracy of ± 100 ns relative to UTC when locked to GNSS.

### IRIGB outputs
IRIG B122
Modulated code (B12x) : 3V ±0.5 V peak-peak 1/1: 1/3 ratio isolated by transformer. BNC connectors (analog)

### 10 MHz Output
Level +13 dBm ±1 dBm, 50 Ω
**Guaranteed** Phase noise:
1Hz      <-90 dBc/Hz
10Hz     <-110 dBc/Hz
100Hz    <-130 dBc/Hz
1 KHz     <-145dBc/Hz

### Internal reference
OCXO type Oscillator, 10 MHz
**free running mode**:
Short term stability:
1s-10s      $< 2.10^{-11}$
Long term stability:
1 day      $< 1.10^{-9}$
1 month    $< 3.10^{-8}$
1 year      $< 1.10^{-7}$
**locked running mode:**
Long term stability: $< .10^{-10}$

### 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 for 1PPS output
1 x BNC for 1PPS input (option)
1 x BNC for IRIG B122 output
1 x BNC for 10MHz outputs Frequency
1 x SUB'D 1 x 9-pin female for serial console
SUB'D 1 x 9-pin female to output the output "AUX" (reserved)
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 and ITAR

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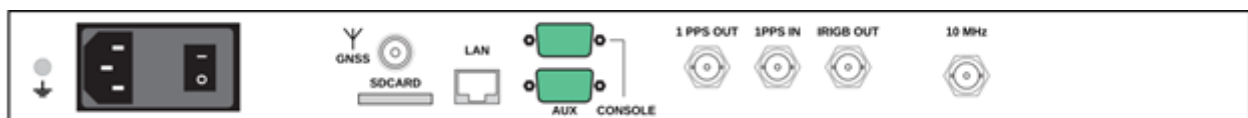Remote in "push" mode (UDP / TCP) or "request / response" mode (TCP).

### Dimensions:
Standard 19" 1U with Depth of 350 mm

### Weight:
< 3 kg

### MTBF
> 100 000 h



*TMG1800 rear panel*

## Ordering code
*TMG1800:*      *Standard model*