

# GPTop

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## All-on-the-top GPS/GLONASS timing and synchronization unit

### DESCRIPTION

GPTOP is a full-featured synchronization device that resides completely on the roof and provides customer equipment with a quality clock outputs that are phase locked to GPS/UTC second. GPTOP can be equipped with GPS-only or combined GPS/GLONASS receiver.

The device includes all the necessary components – antenna, receiver, oscillator and DPLL - inside one weatherproof case. It was designed in order to minimize the customer expenses for building of the complete synchronization solution. GPTOP also requires virtually no modification for the customer equipment – just provide the power and plug in the clocks. The device installation on the roof is easy and not different from the regular antenna placement, which is needed anyway.

GPTOP can provide a variety of output frequencies, such as 1PPS, 10MHz, 2.048MHz or others upon request. It is available with a range of power options, including the standard telecom 48V source.

### APPLICATIONS

Telecom base stations:

- Optimized for femtocell base stations
- CDMA, WCDMA
- Wi-MAX (IEEE 802.16d, e) and Wi-Bro, Wi-Bro wave 2 & Wi-Bro Evolution
- LTE
- Etc.

Broadband, multi-service access products

Core and access IP switches

Reference for clock servers

Game device based on femtocell

### FEATURES

- Full integration of the antenna, receiver and timing module with a holdover oscillator in one enclosure
- Easiest integration – virtually no changes of the customer equipment are required
- Simple installation – mounted just as a regular antenna
- Extremely cost-effective
- Output signals phase coherent with GPS/UTC time
- Multiple clock outputs of various frequencies available, including NxE1/T1
- Can be equipped with an advanced GPS or GPS/GLONASS receiver
- GPS engine: 50 channel
- TTFF: 30sec/Cold start, 30sec/Warm start, 1sec/Hot start
- Tracking sensitivity: -160dBm typical
- Reacquisition: -160dBm typical
- Configurable to be Bellcore GR-1244-CORE Stratum 1 level quality timing source
- Easily configurable in according to the customer request
- Various connector types available
- High MTBF

# Appearance



## TECHNICAL SPECIFICATIONS

Output signals frequency: .....1PPS, 10MHz, 2.048MHz, 40.0MHz, NxE1/T1, others available

Output waveform:..... LVTTTL/LVCMOS, HCMOS

### DPLL performance

- Free run accuracy .....  $\pm 4.6$  PPM (typical), others available
- Holdover stability .....  $\pm 10$   $\mu$ s for 1 hour (typical),  $\pm 8$   $\mu$ s for 24 hours available
- Lock accuracy .....  $\pm 1 \cdot 10^{-11}$  (typical)

### GNSS characteristics

- Accuracy of 1 PPS to UTC .....  $\pm 50$  nSec RMS typical
- Position accuracy ..... 2.5 m CEP (50%)
- Tracking sensitivity ..... -160 dBm min.
- GPS L1 frequency ..... 1575.42 MHz
- GLONASS L1 frequency ..... 1602 MHz

### Power supply

- - Voltage .....3.3V $\pm$ 5%, 5V $\pm$ 5%, 48V (nominal)
- - Power.....<1W (TCXO), <5W (OCXO)

### Environmental specifications

- - Weatherproof
- - Operating temperature.....0 to 65°C (-40 to 85° C optional)
- - Humidity.....95%