

# FREQUENCY STANDARD FN-GPS



- **Internal quartz-crystal oscillator class of accuracy  $10^{-10}$**
- **Disciplined by the time signals of the GPS satellite system**
- **10 MHz reference frequency output 2.048 MHz clock output (option)**
- **1 pps clock output (synchronous to UTC)**
- **Output of GPS receiver data and frequency error via RS 232**
- **Alarm relay contacts**
- **Worldwide application**

The Frequency Standard FN-GPS provides a 10 MHz standard frequency with high spectral purity; 2.048 MHz is available as an option. The accuracy and stability of the output frequencies are controlled by the timing signals of the GPS satellite system.

The internal oscillator frequency is continuously monitored and corrected by the timing signals of the GPS satellite system. The specified frequency accuracy of FN-GPS is guaranteed anytime - even under worst case conditions - by using best possible time constants. Any other output frequencies than 10 MHz are generated by direct digital synthesis (DDS).

The worldwide availability of GPS signals and the external battery operation allows the application at any in-house or field locations. The weather-proof GPS antenna can be mounted quickly and easily.

The most fundamental GPS receiver status data are available permanently via the RS-232 interface for monitoring and documentation. They can be transferred to an external computer, printer or to a modem for remote transmission. The frequency drift-correction data compared to the GPS reference signal are also available via this interface.

In general test & measurement applications our Frequency Standard FN-GPS is used as stand-alone reference sources in calibration laboratories or as in-house frequency standard to supply several labs and other test equipment with a cost effective reference signal.

The high accurate geographical position data are useful in mobile measuring stations for radio monitoring, measurements of radio propagation characteristics etc.

Minimum frequency deviations are guaranteed in synchronized broadcast stations including DAB-T and DVB-T and TV transmitters using precision carrier-frequency offset if they are supplied locally with a standard frequency.

The 2.048 MHz output is a reliable and independent clock source for telecommunications timing applications like PCM, SDH or SONET - even in areas with low level infrastructure. The output level corresponds to CCITT Recommendation G. 703 and accuracy to G.811.





Polling program via RS 232:

GPS receiver status data, number of available/tracked satellites, time and date (UTC), geographical position, GPS data valid /invalid, delta-frequency between internal oscillator and GPS reference, alarm status of FN-GPS.

Data format: ..... ASCII

Interface: ..... RS 232

Connector: ..... 25-pin socket

**GPS-antenna:**

Type: ..... active, weather-proof

Characteristic: ..... hemispherical

Impedance: ..... 50 Ω

Cable length: ..... 50 m

**General data:**

Power supply: ..... 115/125 V, 230/250 V, ± 10 %;  
47 Hz .. 63 Hz

Power consumption: ..... approx. 55 VA

Battery input:

Voltage: ..... 9 V ... 20 V (floating ground)  
or 30 V ... 80 V (floating ground)

GPS-antenna: ..... powered via RF-coax cable

Electrical safety: ..... EN 61010

EMC: ..... CE-mark

Operating temperature: ..... + 5 °C ... + 45 °C

GPS-antenna - 40 °C ... + 85 °C

Weight: ..... approx. 8.5 kg

Dimensions:

Frequency Standard (W x H x D): ... 447 x 88 x 416 mm

**Supplied accessories:**

1 ea ..... GPS-antenna with 50m cable

1 ea ..... Power cord

1 ea ..... Battery connector

1 set ..... Spare fuses

1 ea ..... Operation manual

**Ordering information for FN-GPS:**

Frequency Standard FN-GPS ..... BN 86812.002

**Options/accessories for FN-GPS:**

Clock frequency 2.048 MHz ..... BN 86812.101

Battery input 30 V... 80 V ..... BN 86812.110  
(replaces 9 V...18 V)

50 m extension antenna cable ..... BN 86812.111

19"-adapter for rack mounting ..... BN 86302.101

**\* internal OCXO-oscillator unlocked to GPS:**

Ageing (30 days contin. operation): .....  $\leq 3 \times 10^{-10}$ /day  
 $\leq 5 \times 10^{-8}$ /year

Temperature stability (+ 5 °C ... + 45 °C): .....  $\leq \pm 5 \times 10^{-9}$

Average temperature coefficient: .....  $\leq \pm 1 \times 10^{-10}/^\circ$

