GPS DISCIPLINED TIME AND FREQUENCY STANDARD

Electronic device generating precise time information and precise frequency signals – second time markers 1 PPS, harmonic signal 10 MHz and pulse signal 10 MPPS. All these signals are coherent and are very accurately fixed to UTC time scale using GPS satellite system. Appropriate data time message is generated with every 1 PPS mark. The device can be used as high-performance and cost-effective solution for measurement devices calibration, synchronization of communication systems, power utilities monitoring, time and space location of events, high accurate master clocks, and a variety of other applications.

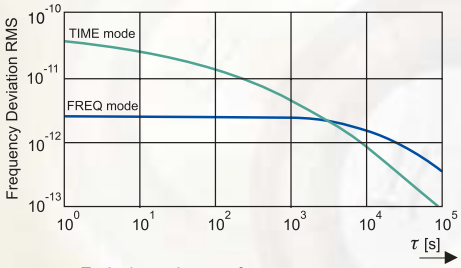
Technical specifications

1PPS Output

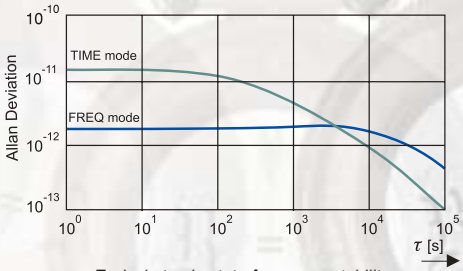
Level	TTL/50 Ω
Pulse Width	20 μs or 100 ms
Reference Time Scale	UTC (USNO)
Time Accuracy [1]	< 10 ns rms

10 MHz Output

Sine Wave Output Level	7 dBm (500 mV/50 Ω)
Pulse Output Level	TTL/50 Ω
Frequency Accuracy	$< 1.5 \cdot 10^{-13}$ rms (24 h) $< 5 \cdot 10^{-12}$ rms (≥ 1 s)
Allan Deviation	$< 3 \cdot 10^{-12}$ (≥ 1 s)
Phase Noise	< -125 dBc/Hz (10 Hz) < -140 dBc/Hz (100 Hz) < -145 dBc/Hz (≥ 1 kHz)
Harmonics	< -50 dBc
Spurious	< -100 dBc



Typical steady state frequency accuracy



Typical steady state frequency stability

Time Message Output

Level	RS232C
Format	ISO 8601/EN28601, ASCII
Control and Monitor I/O	RS232C
Alarm Output	relay contacts and RS232C
Warm-Up [2]	< 10 minutes
Power Supply	90 V to 260 V AC/max. 25 W 16 V to 30 V DC/max. 20 W built in back-up battery
Operating Temperature	0 °C to +50 °C
Dimensions	19"/2U standard chassis
Weight	< 11 kg

[1] Correct cable delay must be entered.

[2] Period from power-on to full operation.

Accuracy parameters without remarks are measured in steady state (24 hours after power-on).

Top parameters in non-atomic category

Superior accuracy and frequency stability have been achieved thanks to a high-quality ovened quartz oscillator disciplined by advanced LQG control algorithm with adaptive ability. Appropriate control criteria can be chosen.

Fully automatic operation

After the very first simple configuration, the device initiates and operates fully automatically including self locating and self calibrating.

Continuous accuracy supervision

Used control method provides the latest time and frequency accuracy information in statistical sense. If the values exceeds required accuracy, an ALARM signal is activated. Frequency accuracy and Allan deviation for number of time domains is available in addition to that.

Diagnostic functions

Many events (power supply failure, antenna disconnection etc.) can be indicated as WARNING. Every ALARM or WARNING activation is registered in operational history.

Option modules

Using up to 3 plug in modules, GPG24 may be configured to a device you exactly need. Off-the-shelf modules are available. Proprietary modules will be developed on demand.

Built-in back-up battery

If both AC and DC external power supplies fail, built-in back-up battery is automatically used.

DICOM
MESIT Group

DICOM, spol. s r. o., Sokolovská 573, 686 01 Uherské Hradiště, Czech Republic, Tel. +420 572 522 603, +420 572 801 603,
Fax: +420 572 522 836, +420 572 801 836, E-mail: obo@dicom.mesit.cz, http://www.dicom.cz