Precision GPS Clock

PGC 3000

Discover the Precision GPS Clock

The PGC 3000 is by far the most compact professional redundant GPS clock in the market. It combines a full-featured, redundant high quality reference clock in only one height unit. A wide range of applications is covered by the PGC 3000 where highly accurate reference signals as well as precise time stamp are needed. The device is ideally suited for digital video and radio broadcasting applications.

The PGC 3000 is built according to the highest reliability aspects. It has full redundancy in antenna, cable, GPS receiver, oscillator, power supply module and supply line.

On the rear side, eight 10 MHz outputs and eight 1 PPS outputs are provided. If more outputs are needed, the PGC 3000 can be extended by a fully monitored external distribution unit. This expansion is fed by the redundant power supplies of the PGC 3000.

It is an ease to configure and monitor the PGC 3000 remotely via HTTP/SNMP. The software can be up graded via the Ethernet interface without interruption of the reference signals.

The PGC 3000 is a perfect complement to the Plisch transmitter product line. It can feed several digital video and audio transmitters with reference signals. By replacing the integrated GPS receivers in the transmitter system, it provides a cost-effective solution in only one height unit which yields not only saving of expenses but also technical benefits.

Key Features

- Most compact redundant dual GPS clock available in the market
- GPS/GLONASS & GALILEO
- Two fully redundant high performance reference signal modules
  (GPS receiver and OCXO) with seperate antennas
- Pre-Warning concept: early module switching if module failure is anticipated
- Two fully redundant power supplies and supply lines
- Hot pluggable modules (power supply & GPS module) accessible from the front panel
- Remote management over HTTP/SNMP in Plisch GUI Look&Feel or relay contacts
- Time server applications over NTP or TOD (time of day) interface
- Remote software upgrade over Ethernet
- 8 x 1 PPS output and 8 x 10 MHz output in one height unit
- Additional output extensions available (customized): 7 x 1 PPS, 7 x 10 MHz, 7 x 2,048 MHz
- Auxiliary 1 PPS reference input

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Specifications

Internal 10 MHz clock (free run – single oscillator):

	Standard OCXO	High stability OCXO (option)
Aging	< ± 1 · 10^{-9}/day < ± 1 · 10^{-7}/year	< ± 2 · 10^{-10}/day < ± 3 · 10^{-8}/year
Stability over temperature	< ± 2 · 10^{-8} (-10 °C to +60 °C)	< ± 3 · 10^{-9} (+5 °C to +70 °C)
Phase noise @ 1 Hz: @ 10 Hz: @ 100 Hz: @ 1 kHz:	- 90 dBc - 120 dBc - 140 dBc - 150 dBc	- 100 dBc - 120 dBc - 145 dBc - 155 dBc
Frequency error (locked)	< ± 4 · 10^{-10}	< ± 3 · 10^{-10}

GPS characteristics:

Connector	TNC
Impedance	50 Ω
Sensitivity	-148 dBm (cold start) / -162 dBm (tracking)

Output characteristics 1PPS:

Connector	8x BNC
Output level	advanced CMOS typical 2.3 V at 50 Ω
SFN synchronization accuracy	± 100 ns relative to UTC (typical)
Time error	• Standard OCXO: < ± 5.5 µs (after 8 h free run) • High stability OCXO (option): < ± 10 µs typical (after 24 h free run)
Synchronizing time	< 4 s (hot start) < 4 min (heating time after cold start)

Output characteristics 10MHz:

Connector	8x BNC
Output level	1 Vrms at 50 Ω optional: advanced CMOS typical 2.3 V at 50 Ω

Output characteristics TOD:

Connector	D-Sub socket, 9-pin
Output format	NMEA time string

Save/Load configuration:

Connector	USB 2.0

Storage recommendations:

Storage temperature	-10 °C to +70 °C
Relative humidity in storage location	10 to 80% at 50 °C

Operating environment:

Power supply	90 V to 264 V AC
Operating temperature	-5 °C to +50 °C
Altitude	3000 m
Dimensions (W x H x D) Main unit: Main unit with output extension equipment:	 480 x 45 x 592 mm 480 x 90 x 592 mm
Weight Main unit: Main unit with output extension equipment:	 approx. 5.5 kg approx. 6.5 kg
Humidity	90% non-condensing

Option redundancy system:

Redundancy	antenna, cable, GPS receiver, oscillator, power supply module and supply line
Module replacement	failure-free while device is online (all modules accessible from front)
Switch-over failure	automatic

Option Webserver:

Remote control	via HTTP / SNMP unitised user interface (transmitter and device handling)
Time server	via NTP
Software update	via HTTP remote control

Option UPS:

Input voltage	48 VDC

Option Auxiliary 1PPS reference input:

Impedance	50 Ω
Input voltage	1.2 V to 5 V (TTL)

Option GLONASS:

Connection type	TNC-socket
Impedance	50 Ω
Input Frequency	GPS L1 and GLONASS L1
Receiver Type	72-channel engine
Sensitivity	-148 dBm (cold start) / -167 dBm (tracking)

Option output extension 10 MHz / 1 PPS:

Connection type	BNC-sockets 1x 1PPS input, 1x 10MHz input 7x 1PPS output, 7x 10MHz output
Impedance	50 Ω
Input voltage 1PPS	1.2 V to 5 V (TTL)
Input voltage 10MHz	0.5 Vrms
Output level 1PPS	advanced CMOS / typical 2.3 V at 50 Ω
Output level 10MHz	1 Vrms at 50 Ω optional: advanced CMOS / typical 2.3 V at 50 Ω

Option output extension 2M048:

Connection type	BNC-sockets 8 x 2M048 output
Impedance	50 Ω
Output level 2M048	advanced CMOS / typical 2.3 V at 50 Ω
Jitter	typical 0.5 ps

OPTIONAL Model - PGC 3010:

The Precision Generic Clock PGC 3010 generates a 1 second (1 PPS) clock and a 10 MHz signal from an externally supplied 1PPS reference signal. Both signalsare phase locked to each other. The 1PPS reference signal must be derived from a stable GPS / GLONASS & GALILEO reference source.

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