Digital Instruments

GPS-DS-8

Double Signal Generator with Exchange System

Digital Instruments S.r.l. | www.digital-instruments.com | Ph. +39 02 66506250 | Fax. +39 02 66506103

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Overview

GPS-DS-8 is a Time & Frequency multi-output Signal Generator (PPS and 10 MHz).

It consist of two independent GPS receivers individually provided with high stability OCXO's. The two hot-plug modules are in hot redundancy with hot swappable module generator. In the standard version there are 8 independent outputs at 10 MHz as well as 1PPS. Furthermore the unit has NTP capability via 10/100 Ethernet interface.

GPS-DS-8 is extremely reliable as both generators module are completely autonomous, because provided of power supply section and 10 MHz – 1PPS amplification section. The switch unit is completely passive and the choice between the two modules is realized using hi-rel RF relays.
Each of outputs, coming from the two generator modules it's continuously checked with indication of about short circuit, open circuit or regularly closed on 50 Ohm load.

In case a module generator failure will occur, the unit will switch automatically from the primary module to the back-up one sending a trap messages via SNMP protocol as well as on electrical signals over 7 relays installed on the rear panel of the unit.

IMPORTANT: THE SWITCHING POLICY IS COMPLETELY USER DEFINABLE

In fact switching policy is user define via a very user-friendly internal web server. The switch can be automatic between two generators module in case of failure, or manual by operator.

As previously mentioned **GPS-DS-8** sent its status via 7 dry contacts on the rear panel of the unit. Management is possible also with SNMP protocol via 10/100 Ethernet Interface. This Ethernet interface it has also NTP capabilities so, when correctly locked to the GPS constellation, the **GPS-DS-8** became a starum-1 NTP server too. In order to increase availability and reliability, **GPS-DS-8** is provided by dual redundant hot-swappable Power Supply Unit.

Switch Unit:

· 8 independents BNC connectors at 10 MHz frequency, with 13 dBm each of power level.
· 8 independents PPS connectors with TTL level terminated at 50 Ohm.
· 7 dry contact for electrical signaling of switch unit.
· 4 photo-coupled input for switch unit remotization.
· Serial connection in RS232 Standard.
· Standard network connection Ethernet 10/100 with TCP/IP protocol complete of descriptive MIB on SNMPv1 protocol.
· Web server integrated for direct browser management.
· Device's supply in logical OR.
· AC 85 Vac - 265 Vac 50/60 Hz.
· Rack 19" of 1U.

Generator module:

· High-stability inner oscillator OCXO with a full frequency drift of +/- 1*10-10 free run day operation.
· 12 channels GPS receiver with automatic tracking and timing error management system.
· New design DPLL fast lock
· 8 independent sine wave outputs at 10 MHz frequency with 13 dBm power level each.
· 8 PPS outputs with TTL level terminated at 50 Ohm.
· Electrical/serial signaling system turned towards switch unit.
· Device's supply in logical OR.
· AC 85 Vac - 265 Vac 50/60 Hz.
· Removable drawer container 120x220 mm.

Frequency reference
Signal: 10 MHz sine wave.
Spectral purity: -70 dBc at full output power. (harmonics), -75 dBc at full output power (non-harmonics).
Phase noise: -130 dBc at 1 kHz.
Outputs: 8 independent.
Output level: 13 dBm each output.
Output impedance: 50 Ohm.
Output connectors: BNC
Stability: 1e-12 daily average OCXO locked at GPS in SA.
OCXO Standard: 1e-10 daily average OCXO in free run,
OCXO SC: 2e-11 daily average OCXO on free run.

Time reference
Signal: 1 PPS, 100 µs Duty, Rising Edge.
Output: 8 independent.
Output level: TTL 5 Vpp, Square wave.
Output impedance: 50 Ω.
Output Connectors: BNC.

GPS section
Receiver: 12 Channels L1 1575.42 MHz.
Tracking: correlation over 12 satellites.
PPS precision: < 50 ns on SA.
Antenna connector: TNC
Capture time: < 4 min.

NTP Section
Protocol: NTPv4
Role: Master Clock Stratum 1

Signaling
Serial connection: RS-232 Connector DB9 Male ± 15 kV (ESD).
Network connection: Ethernet interface 10/100, TCP/IP protocol.
Signaling: 7 dry contact over Weidmuller connector step 3.5 mm.
Remote: 4 photo-coupled contact over Weidmuller connector step 3.5 mm.

Supply
Network: 85 Vac – 265 Vac, Plug IEC320 integrated, filter EMI/RFI.
Battery: 2 independent power suppliers

Size
Width: 1 Unity 19".
Depth: 300 mm connectors excluded.
Weight: 1.5 Kg.