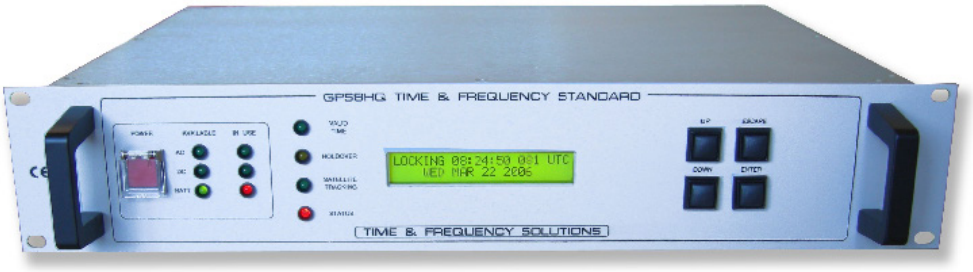
Time & Frequency Solutions

GPS8-HQ

Time & Frequency Standard with HaveQuick

The GPS8-HQ is a sophisticated instrument for use in military communications applications. It combines all the features of the GPS8plus Time & Frequency Standard with the addition of a suite of selected timing interface options.



Features

- GPS reference using high-performance 12-channel C/A code GPS receiver.
- Automatic position-averaging enables best use of GPS when operating in fixed locations.
- Front panel keyboard and alphanumeric display indicates time, date and status information, as well as allowing control and configuration
- Choice of internal oscillator providing a range of prices and performance options
- Advanced, patented algorithm provides optimal control of the internal oscillator ensuring the highest frequency accuracy is obtained.

Key Benefits

Oscillator

The GPS8-HQ is fitted with an internal oscillator in order that time information can be accurately maintained when satellite tracking is not available. The internal oscillator also provides a highly stable frequency standard.

Options include:

- TCXO
- OCXO
- Precision OCXO
- Rubidium.

Outputs

Four isolated sine wave and two square wave outputs, grouped in pairs, may be configured to provide 1MHz, 5MHz or 10MHz frequency outputs from the disciplined oscillator.

Alternatively, these outputs can be configured to provide Telecomm Output references (1.544MHz or 2.048MHz) allowing the GPS8-HQ to be used a telecommunications primary reference clock compliant with G.703 sections 6 and 10. An 8kHz “frame” pulse is provided to complement the Telecomm outputs.

Standard serial time code outputs allow time synchronisation to be distributed to computers, displays, and other equipment requiring precision time.

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GPS8-HQ Specifications

General

Front panel: LED status indicators (power, status); 2 row by 24-character display; 5-button keyboard

Mechanical: 19 inch rack mount; 1U high (45mm); 305mm deep

Power: 110/230VAC rear panel selectable (standard) 240VDC, 48VDC (optional)

Alarm Status: Power, status, TTL Changeover contacts

Weight: 5kg typical

MTBF: 160,000 hours (GB +25°C)

GPS Reception

Satellite Code: C/A 1.023 MHz, parallel 8-channel

Start-up: <20 secs (warm); <120 secs (autonomous); automatic (cold)

Accuracy: ± 150 nanosecond from UTC (tracking satellites)

Outputs Included as Standard

1PPS Output: BNC connector, type TTL, on time: Rising Edge

Pulse Output: BNC connector, type TTL Code options: HaveQuick, Saturn, TD1, TD2

Timecode Output: BNC connector, type: modulated 1kHz carrier

Code options: IRIG-B, NASA36, 2137, AFNOR

Output Options

1MHz, 5MHz, 10MHz, T1 (1.5544MHz), E1 (2.048MHz) **NB** T1 & E1 frequencies cannot be mixed

Sinewave1: 2 x selected frequency (50 Ohm)

Sinewave 2: 2 x selected frequency (50, 75 or 120 Ohm by jumper)

Squarewave: 2 x selected frequency (75 Ohm)

Frame Output: BNC connector, 75Ω Squarewave, at rate of 800kHz

Environmental

(Operation & Storage):

Temperature: -10°C to +50°C (instrument); 40°C to +85°C (antenna)

Humidity: Up to 95% RH, non-condensing (instrument); 100% (antenna)

Oscillator Options

Frequency Stability at 25°C

Oscillator		Holdover Stability Per °C	Locked frequency stability over averaging times						Holdover stability for 1 day
Option	Description		1s	10s	100s	1000s	10000s	1 day	
1	TCXO	$1.7x10^{-8}$	$2x10^{-9}$	$5x10^{-10}$	$5x10^{-10}$	$5x10^{-10}$	$6x10^{-11}$	$1x10^{-12}$	30ms
2	OCXO	$1.0x10^{-9}$	$1x10^{-10}$	$4 x10^{-11}$	$6x10^{-11}$	$4 x10^{-11}$	$4 x10^{-12}$	$1x10^{-12}$	60µs
3	Precision OCXO	$1x10^{-11}$	$5x10^{-12}$	$3x10^{-12}$	$1x10^{-11}$	$4 x10^{-11}$	$3x10^{-12}$	$1x10^{-12}$	8µs
4	Rubidium	7x10-12	$3x10^{-11}$	$8x10^{-12}$	$3x10^{-12}$	$3x10^{-12}$	$2x10^{-12}$	$8x10^{-13}$	3µs
5	Precision Rubidium	3x10-12	$2x10^{-11}$	$3x10^{-12}$	$3x10^{-12}$	$1x10^{-12}$	$1x10^{-12}$	$8x10^{-13}$	1µs

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