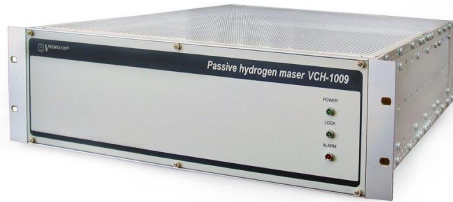


Passive Hydrogen Maser VCH-1009

 vremya-ch.com/index.php/en/products-en/perspective-en/vch-1009-en/index.html



The VCH-1009 Passive Hydrogen Maser is a compact hydrogen maser with excellent frequency stability and utilises state-of-the-art technology. Full digital processing of the modulation and servo loop signals makes it ideal for high accuracy applications. An internal GPS/GLONASS option is available and provides automatic output signal frequency calibration.

Key applications

- National Time Keeping Service;
- Space tracking and navigation;
- Verification of frequency signals;
- Scientific research.

Specifications

Output signals:

Sine: 5 MHz; 10 MHz; 100 MHz, (1 ± 0.2) V RMS into 50 Ω load.

Pulse: 2.048 MHz (square pulse), 1.5÷2.8 V (pp) into 75 Ω (ITU-T G.703 part15).

1Hz, positive polarity pulse, width 15 ± 5 μ s, TTL level at 50 Ω , rise time: <2 ns.

Metrological characteristics are given in the table:

	1 s	$\leq 5.0 \cdot 10^{-13}$
	10 s	$\leq 2.0 \cdot 10^{-13}$
Frequency stability (Allan deviation at $25 \pm 1^\circ\text{C}$, environmental effects are excluded)	100 s	$\leq 7.0 \cdot 10^{-14}$
	1 day	$\leq 3.0 \cdot 10^{-15}$
Relative frequency accuracy	$\pm 3 \cdot 10^{-13}$ (factory calibration)	$\leq \pm 1 \cdot 10^{-13}$ (in option with GPS calibrator)
	resolution	$1 \cdot 10^{-15}$
Output signals frequency corrector	tuning range	$1 \cdot 10^{-10}$

	Frequency offset	Spectral density (dBc/Hz)
Phase noise spectral density (dBc/Hz) (10 MHz output)	10 Hz	≤ -130
	100 Hz	≤ -150
	1000 Hz	≤ -160
Manual synchronization to external 1 pps TTL signal accuracy	$\leq \pm 10$ ns	
Time synchronization to UTC using GPS	$\leq \pm 20$ ns (using optional GPS calibrator)	
Temperature sensitivity in temperature operating range (10–40 C°)	$\leq \pm 5 \cdot 10^{-15}$ 1/C°	
Magnetic sensitivity	$\leq \pm 5 \cdot 10^{-15}$ 1/Oersted	

Full data monitoring and functions control. Application software running under Microsoft Windows.

Interface: RS-232C; LAN.

Power supply: AC(100÷240)V, (50÷60)Hz; DC(21÷72)V.

Power consumption: 100 V·A (AC), 100 W (DC).

Options: 1. Built-in battery to prevent temporary power failure (li-ion 3 Ah); 2. Internal GPS calibrator for automatic calibration.

Dimensions (W×H×D): 483×133×560 mm.

Weight: 20 kg.

Warranty: 5 years.

Life time: 15 years.

