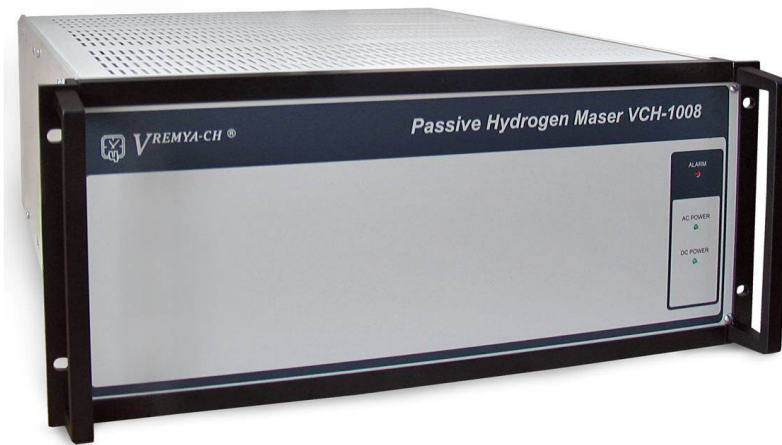




# Passive Hydrogen Maser VCH-1008

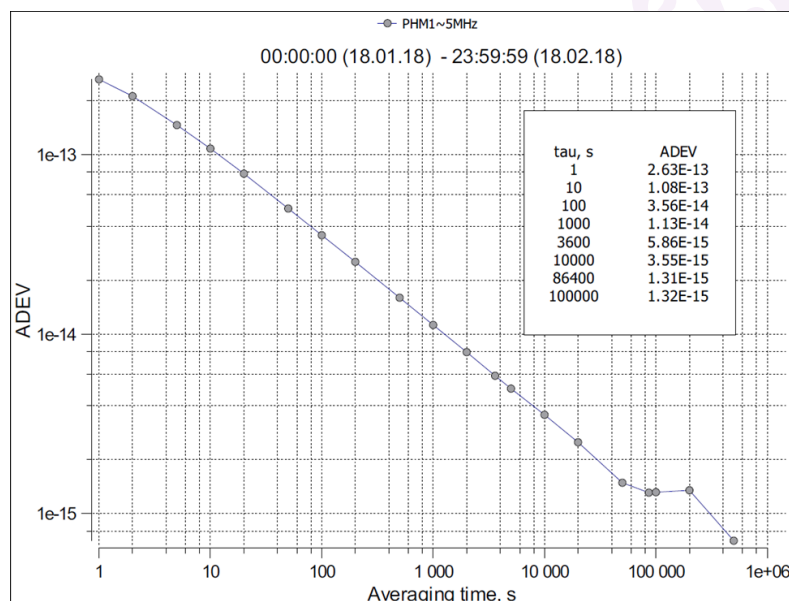


Passive Hydrogen Maser Frequency and Time Standard VCH-1008 is designed to be used as the high-stable signal source for time frequency measurements and for the application in reference measurement systems and telecommunications (VCH-1008C).

### Key applications:-

- ◆ Time Keeping;
- ◆ Metrology;
- ◆ Space tracking and navigation;
- ◆ Scientific research measurements.

The device can be used as an integral part in automated measurement systems. The working and controlled parameters of the device are accessible for read and write operations via RS-232C, USB, Ethernet 10/100 (LAN) interfaces.



**Outputs :-**

Waveform	Qty	Amplitude	Width, $\mu$ s	Rise time, ns	Termination
5MHz (sine)	2	1 $\pm$ 0.2 V <sub>RMS</sub>	-	-	SMA/50 $\Omega$
10 MHz (sine)	2	1 $\pm$ 0.2 V <sub>RMS</sub>	-	-	SMA/50 $\Omega$
100 MHz (sine)	1	1 $\pm$ 0.2 V <sub>RMS</sub>	-	-	SMA/50 $\Omega$
2048 MHz ( pulse)	1	2.5 ~ 2.8 V <sub>(pp)</sub>	(ITU-T G.703 part13)		SMA/ 75 $\Omega$
1 Hz (pulse) PPS	1	>2.5 V (TTL)	100 $\pm$ 0.1; 10 $\pm$ 0.01;	< 10	BNC/ 50 $\Omega$
1/60 Hz (pulse) PPM	1	>2.5 V (TTL)	1 $\pm$ 0.01; 0.1 $\pm$ 0.01	< 10	BNC/ 50 $\Omega$

Performance		Option 1 (Std- Factory)	Option 3 (GPS calibrator)	
Relative frequency accuracy		$\pm 3 \cdot 10^{-13}$	$\leq \pm 1 \cdot 10^{-13}$	
Output signals frequency corrector	resolution	$1 \cdot 10^{-15}$		
	tuning range	$1 \cdot 10^{-10}$		
Frequency stability (Allan deviation at 25 $\pm$ 1C $^\circ$ , environmental effects are excluded)		1 s	$\leq 5.0 \cdot 10^{-13}$	
		10 s	$\leq 2.0 \cdot 10^{-13}$	
		100 s	$\leq 5.0 \cdot 10^{-14}$	
		1 hour	$\leq 9.0 \cdot 10^{-15}$	
		1 day	$\leq 4.0 \cdot 10^{-15}$ (2.0 $\cdot 10^{-15}$ typ.)	
Phase Noise Spectral density (dBc/Hz)	Offset	@5MHz	@10MHz	@100MHz
	1 Hz	$\leq -105$	$\leq -100$	$\leq -80$
	10 Hz	$\leq -130$	$\leq -120$	$\leq -100$
	100 Hz	$\leq -145$	$\leq -140$	$\leq -120$
	1000 Hz	$\leq -155$	$\leq -145$	$\leq -150$
	10000 Hz	$\leq -155$	$\leq -145$	$\leq -150$
Frequency drift		$\pm 2 \cdot 10^{-15}$ /Day		
Manual synchronization to external 1 pps TTL signal accuracy		$\leq 25$ ns		
Time synchronization to UTC with Option 3 - GPS calibrator		$\leq 50$ ns		
Magnetic sensitivity		$\leq 1 \cdot 10^{-14}$ /Gauss		
Temperature sensitivity		$\leq 2 \cdot 10^{-14}$ 1/C $^\circ$		
Harmonic distortion (for 5 MHz output)		< -30 dB		
Non-harmonic distortion from 10 Hz to 10 kHz		< -100 dB		
Options				
Internal GPS/GLONASS calibrator for automatic calibration		Option 3		

**General**

Dimensions (WxHxD) mm :	470 x 200 x 530
Weight:	~27- 33kg
Digital control and monitoring:	Remotely via PC (Win OS)
Interface:	RS-232C; USB; LAN
Power AC:	100–240 V, 50-60 Hz
Power DC:	22~30 V.
Temperature operating range ( $\pm 1^\circ$ C/Hour):	10–35 $^\circ$ C (recom. +22 $^\circ$ C)
Relative humidity:	< 80% at +25 $^\circ$ C
Power consumption:	120 VA AC, 100 W DC.

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