Precision Frequency Comparator VCH-314

vremya-ch.com/index.php/en/products-en/freq-comparators-en/vch-314-en/index.html

Frequency comparator VCH-314 is intended for precise phase and frequency instability measurements. It contains two identical measuring channels (four input signals). Using cross-correlation technique in allows to obtain super-low measurement error and to calculate frequency instability of each single signal separately.

Key Applications
– Verification of metrological parameters of precision frequency signals sources;
– time keeping metrology systems;
– development, production and tests of frequency and time standards;
– scientific research measurements.

Manual for VCH-314
– Hardware Operational Manual download
– VCH-314 Routine for Multi-Channel Measurement of Frequency Instability download

Specifications

Input signals: 5 or 10 or 100 MHz nominal frequency, (0.8÷1.2) V into 50 Ω load.
Input impedance: 50 Ω.
Maximal measured relative frequency difference: $\pm 1.0 \cdot 10^{-6}$ (noise passband=10 kHz) and $\pm 1.0 \cdot 10^{-8}$ (noise passband=3 Hz).
Averaging timer range: from 1 s up to 500000 s.

Metrological characteristics are given in the table:

			Allan deviation noise floor	
	Averaging time, s	**Noise passband, Hz**	**One channel standart mode**	**Two channel crosscorrelation mode**
Main measurement error * (Frequency instability, inserted by noises of measurement channels)	1 s	3	$8.0 \cdot 10^{-14}$	$2.0 \cdot 10^{-14}$
	10 s		$2.0 \cdot 10^{-14}$	$5.0 \cdot 10^{-15}$
	100 s		$3.0 \cdot 10^{-15}$	$1.5 \cdot 10^{-15}$
	1000 s		$5.0 \cdot 10^{-16}$	$5.0 \cdot 10^{-16}$
	1 day		$\leq 1.0 \cdot 10^{-16}$	

*Specified under condition: ambient temperature changing rate <1 °C/hour.

Application software
– runs under Microsoft Windows 2000, XP, Vista, 7;
– calculates phase changing and frequency difference for each signals pair, two-samples Allan deviation, N-samples Allan deviation for each signals pair and for each signal separately;
– represents measurement results as tables and plots, stores information in files.
Operating temperature range: +5 °C to +40 °C.
Interface: RS-232.
Power supply: AC(198÷242)V, (50÷60)Hz.
Power consumption: ≤30 V·A.
Dimensions (W×H×D): 235×140×370 mm.
Weight: 8 kg.
Warranty: 3 years.
Live time: 15 years.