

CH1-84 Frequency Standard

- ◆ Reference oscillator for navigation and communication equipment
- ◆ Frequency Standard for measurement equipment
- ◆ Frequency accuracy not more than $1 \cdot 10^{-9}$ per year
- ◆ 10 MHz output signal frequency
- ◆ Wide operating temperature range from $-40 \dots 65$ °C



DESCRIPTION

The CH1-84 Frequency Standard provides VCXO output frequency stabilization according to the high-stability atomic transition line in ^{87}Rb alkali metal isotope vapors.

The Instrument is based on the unique electrovacuum technology connected with physical and chemical processes of gaseous medium and alkali metal isotope interaction with optical and UHF signals.

The Oscillator metrological characteristics are superior to the best crystal oscillator characteristics and inferior to the high-stable Rb frequency standards characteristics. Four models of small size the P-1050 Rb Oscillator (A, B, C) were developed.

APPLICATIONS

The Oscillator high metrological characteristics define its wide application range:

- radionavigation systems;
- ground and satellite communication systems;
- chronometry systems.

Environmental resistance, small size and weight and low power consumption allow this Oscillator to be used in different mobile systems.

SPECIFICATIONS

Output: 10 MHz (sine), 1.0 ± 0.2 V into 50 Ohm

Characteristic	A	Б	В
Frequency stability, $\sigma_y(2, \tau)$:			
1 s	$1 \cdot 10^{-11}$	$3 \cdot 10^{-11}$	$1 \cdot 10^{-10}$
10 s	$5 \cdot 10^{-12}$	$1 \cdot 10^{-11}$	$3 \cdot 10^{-11}$
100 s	$3 \cdot 10^{-12}$	$3 \cdot 10^{-12}$	$1 \cdot 10^{-11}$
1 day	$5 \cdot 10^{-12}$	$1 \cdot 10^{-11}$	$3 \cdot 10^{-11}$
Drift per month	$\pm 1 \cdot 10^{-11}$	$\pm 4 \cdot 10^{-11}$	$\pm 5 \cdot 10^{-11}$
Offset from carrier:			
100 Hz	-130	-130	-100
1 kHz	-140	-140	-130
10 kHz	-150	-150	-145

Temperature coefficient of frequency: $1.5 \cdot 10^{-12} / ^\circ\text{C}$

Relative frequency deviation at $\pm 10\%$ supply voltage change: $1 \cdot 10^{-11}$

Warm-up time: 7 min

GENERAL

Power: 22-30 V dc

Power consumption: 16 W dc (70 W dc warm-up)

Operating temperature range: $-40 \dots 65$ °C

Volume: 1.1 dm^3

Dimensions: 88x76.5x158 mm

Weight: 1.5 kg

Warranty: 1 year

Life: 15 years