

CH7-48, CH7-48A Phase Comparator Units

◆ **Small frequency comparison error:**

$5 \cdot 10^{-16}$ /hour at 5, 10 MHz

$3 \cdot 10^{-16}$ /hour at 100 MHz

◆ **Four (CH7-48) or three (CH7-48A) independent comparison channels**



DESCRIPTION

Designed for comparison of frequency standards signals.

Main applications: measurement systems.

PRINCIPLE OF OPERATION

The Instruments principle of operation is based on conversion of 5, 10 MHz or 100 MHz (option) compared frequency signals into two 1 Hz pulse signal with frequency instability increase by 10^4 times. A Time Interval Meter or a Frequency Counter can measure frequency instability.

The Phase Comparator Unit is available in two options: the CH7-48 and the CH7-48A. The CH7-48 comprises input frequency converter into 1 Hz frequency.

The CH7-48A comprises:

- the CH7-48 Phase Comparator Unit
- the PC (to customer order)
- the Time Interval Meter (built-in into PC)
- the Commutator (built-in into CH7-48)
- software.

SPECIFICATIONS

Input:

Frequency: 5, 10 or 100 MHz (options)

Level: 1 ± 0.2 V RMS into 50 Ohm

Number of independent channels: 4 (CH7-48);

3 (CH7-48A)

Multiplication coefficient of measurements resolution: 10^4

Relative frequencies difference: $\leq 1 \cdot 10^{-8}$

Deviation from the nominal value: $\leq 5 \cdot 10^{-9}$

Averaging time	Error	
	5, 10 MHz	100 MHz
1 s	$1 \cdot 10^{-13}$	$5 \cdot 10^{-14}$
10 s	$1 \cdot 10^{-14}$	$1 \cdot 10^{-14}$
100 s	$2 \cdot 10^{-15}$	$1 \cdot 10^{-15}$
1 h	$5 \cdot 10^{-16}$	$3 \cdot 10^{-16}$

Temperature coefficient of phase change in the operating temperature range: 10 ps/ °C

GENERAL

Power: 220 ± 22 V, 45-65 Hz

In case of a power line failure the Instrument switches automatically to 22-30 V external power supply without additional measurement error

Power consumption: 40 VA ac, 25 W dc

Operating temperature range: 5...50 °C

Dimensions: 475x 200x555 mm

Weight: 26 kg (CH7-48)