

Main Applications

- Clock characterization such as quartz crystal oscillator, Rubidium atomic clocks and cesium clocks
- Calibration of quartz crystal oscillator, and atomic clocks

Main Features

- Easy to use
- Small volume
- DUT Frequency Range: 1 MHz - 30 MHz
- Phase time resolution and noise: <2ps rms
- Automatic operation
- No calibration required
- User friendly software



The PicoTime™ is a low-cost, high-performance measurement test set. It features a cutting-edge 1 ps resolution and an easy-to-use software application for performance analysis.

System Description

The system is designed to make a direct frequency measurement in comparison with an external 10 MHz frequency reference. PicoTime is based on a heterodyne system using direct digital synthesizer (DDS) technology to allow measurements in the range of up to 30 MHz. The external 10MHz reference divided by 2×10^7 is used to make time interval measurement each second.

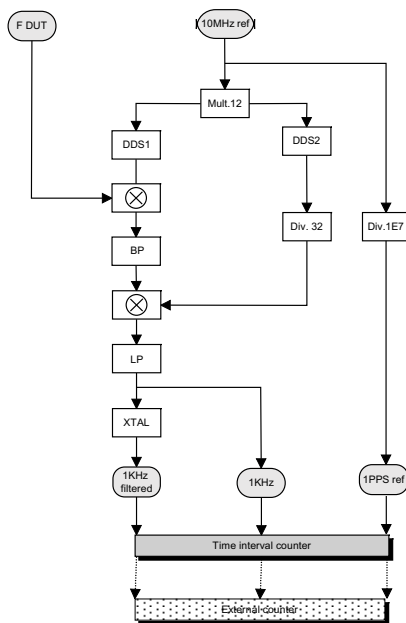


Fig.1 : Block diagram

Direct frequency measurement is used for programming DDS. The DDS divides the device frequency around 1KHz by using two mixers. As indicated in the block-diagram, the whole system is based on a heterodyne architecture with a double frequency conversion.

Three outputs are available:

- 1KHz where a crystal filter based PLL is used to restrict the bandwidth to only 1Hz
- 1KHz with about several 100KHz bandwidth
- 1PPS reference

The system is controlled with the PC COM interface. When connecting an external counter, other types of measurements can be performed. The power is supplied by an external power supply converter (230V~ / 50Hz to +12V DC).

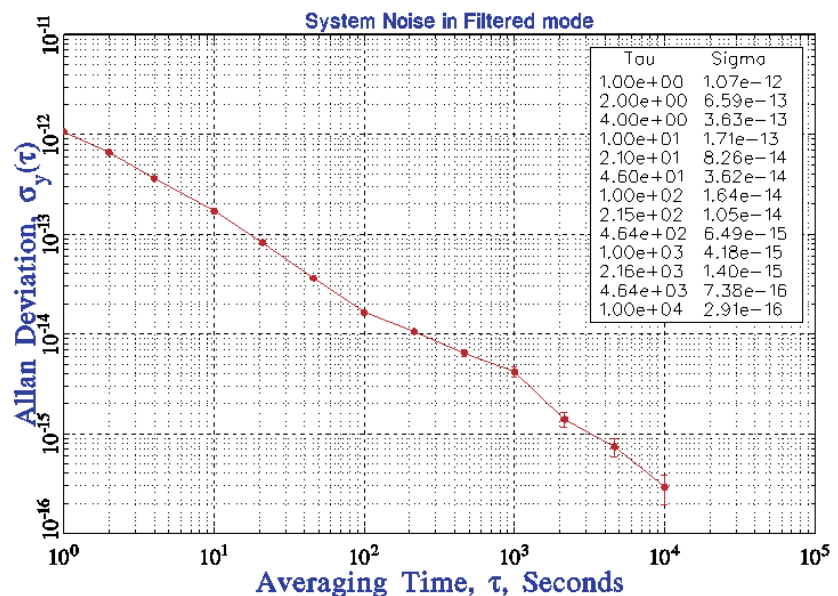


Fig. 2 : System Noise in ideal conditions

PicoTime Technical Specifications

Electrical

Type	PICOTIME
	Standard version
DUT Center Frequency Range	1 MHz – 30 MHz
Measurement Noise in filtered mode (1Hz bandwidth)@10MHz (Maximum Relative Frequency Deviation During Measurements $< 1 \times 10^{-8}$)	< 2 ps
Measurement Noise in unfiltered mode (> 3 KHz bandwidth) @10MHz (Maximum Relative Frequency Deviation During Measurements $< 1 \times 10^{-7}$)	< 10 ps
Reference Frequency	10 MHz
Phase time sensitivity versus temperature	< 20 ps / °C
Input Signal Level	+3 dBm to 17 dBm
Input Impedance	50 Ohms
Connector Type	BNC
PC Port	Standard – Serial (COM1 or COM2 or COM3 or COM4)

Environment

Type	PICOTIME	
	Temperature	Relative Humidity
Operating	15 to 30°C	10% - 85%
Storage	-25 to 55°C	
Transportation	-25 to 70°C	

Power Requirements

Type	PICOTIME
	Standard version
Power Supply	External Converter
Input	100-240V~ 50/60 Hz
Output	12V- 2,92A
Power Input Fluctuation	$\pm 10\%$ of nominal supply voltage (230V~)
Input Frequency	47 – 63 HZ
Power Consumption @25°C	< 10 W after warm-up
Connector Type	+12V- Jack
	230V~ IEC plug

Ordering Information

Pico Time Picosecond resolution test set

Options and accessories

Option ST32 Stable32 postprocessing and analysis SW

Option ExtW-3 Extended Warranty to 3 years

Option ExtW-5 Extended warranty to 5 years

Included with shipment

Power supply 100V-240V

EUR power cable

US power cable

Users manual on CD

RS232 communication cable to PC

Picotime instrallation SW on CD

Physical

Type	PICOTIME
	Standard version
Size	168 x 103 x 42 mm
Weight	0.8 Kg

Software Upgrades

PICOTIME
The latest software upgrades can be downloaded – free of charge from www.pendulum-instruments.com

Specifications subject to change without prior notice

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- Experts in time & frequency calibration, measurement and analysis

Pendulum Instruments is a company of the Orolia Group