

Oscillators available for Meinberg Reference Clocks / Time Servers: TCXO, OCXO, Rubidium

	TCXO	OCXO LQ	OCXO SQ	OCXO HQ	OCXO DHQ	Rubidium (only available for 3U models)
short term stability ($\tau = 1$ sec)	$2 \cdot 10^{-9}$	$1 \cdot 10^{-9}$	$5 \cdot 10^{-10}$	$5 \cdot 10^{-12}$	$2 \cdot 10^{-12}$	$2 \cdot 10^{-11}$
accuracy of PPS (pulse per sec)	$< \pm 100$ ns	$< \pm 100$ ns	$< \pm 50$ ns	$< \pm 50$ ns	$< \pm 50$ ns	$< \pm 50$ ns
phase noise	1 Hz -60 dBc/Hz 10 Hz -90 dBc/Hz 100 Hz -120 dBc/Hz 1 kHz -130 dBc/Hz	1 Hz -60 dBc/Hz 10 Hz -90 dBc/Hz 100 Hz -120 dBc/Hz 1 kHz -130 dBc/Hz	1 Hz -70 dBc/Hz 10 Hz -105 dBc/Hz 100 Hz -125 dBc/Hz 1 kHz -140 dBc/Hz	1 Hz < -85 dBc/Hz 10 Hz < -115 dBc/Hz 100 Hz < -130 dBc/Hz 1 kHz < -140 dBc/Hz	1 Hz < -80 dBc/Hz 10 Hz < -110 dBc/Hz 100 Hz < -125 dBc/Hz 1 kHz < -135 dBc/Hz	1 Hz -75 dBc/Hz 10 Hz -89 dBc/Hz 100 Hz -128 dBc/Hz 1 kHz -140 dBc/Hz
accuracy free run, one day	$\pm 1 \cdot 10^{-7}$ ± 1 Hz (Note1)	$\pm 2 \cdot 10^{-8}$ ± 0.2 Hz (Note1)	$\pm 5 \cdot 10^{-9}$ ± 50 mHz (Note1)	$\pm 5 \cdot 10^{-10}$ ± 5 mHz (Note1)	$\pm 1 \cdot 10^{-10}$ ± 1 mHz (Note1)	$\pm 1 \cdot 10^{-11}$ ± 0.2 mHz (Note1)
accuracy, free run, 1 year	$\pm 1 \cdot 10^{-6}$ ± 10 Hz (Note1)	$\pm 4 \cdot 10^{-7}$ ± 4 Hz (Note1)	$\pm 2 \cdot 10^{-7}$ ± 2 Hz (Note1)	$\pm 5 \cdot 10^{-8}$ ± 0.5 Hz (Note1)	$\pm 1 \cdot 10^{-8}$ ± 0.1 Hz (Note1)	$\pm 5 \cdot 10^{-10}$ ± 5 mHz (Note1)
accuracy GPS-synchronous, average 24h	$\pm 1 \cdot 10^{-11}$	$\pm 1 \cdot 10^{-11}$	$\pm 1 \cdot 10^{-11}$	$\pm 1 \cdot 10^{-12}$	$\pm 1 \cdot 10^{-12}$	$\pm 1 \cdot 10^{-12}$
accuracy of time free run, 1 day	± 4.3 ms	± 865 μ s	± 65 μ s	± 10 μ s	± 4.5 μ s	± 800 ns
accuracy of time free run, 7 days	± 128 ms	± 32 ms	± 9.2 ms	± 1.0 ms	± 204 μ s	± 34 μ s
accuracy of time free run, 30 days	± 1.1 s	± 330 ms	± 120 ms	± 16 ms	± 3.3 ms	± 370 μ s
accuracy of time free run, 1 year	± 16 s	± 6.3 s	± 4.7 s	± 788 ms	± 158 ms	± 8 ms
temperature dependant drift free run	$\pm 1 \cdot 10^{-6}$ (-20...70°C)	$\pm 2 \cdot 10^{-7}$ (0...60°C)	$\pm 1 \cdot 10^{-7}$ (-10...70°C)	$\pm 1 \cdot 10^{-8}$ (5...70°C)	$\pm 2 \cdot 10^{-10}$ (5...70°C)	$\pm 6 \cdot 10^{-10}$ (-25...70°C)

Note 1: The accuracy in Hertz is based on the standard frequency of 10 MHz.

For example: Accuracy of TCXO (free run one day) is $\pm 1 \cdot 10^{-7} \cdot 10$ MHz = ± 1 Hz

The given values for the accuracy of frequency and time (not short term accuracy) are only valid for a constant ambient temperature!
A minimum time of 24 hours of GPS-synchronicity is required before free run starts.