

Oscillators available for Meinberg GPS Receivers / Time Servers:  
OCXO, TCXO, Rubidium

	TCXO	OCXO LQ	OCXO MQ	OCXO HQ	OCXO DHQ	Rubidium (only available for 3U models)
short term stability ( $\tau = 1$ sec)	$2 \cdot 10^{-9}$	$1 \cdot 10^{-9}$	$2 \cdot 10^{-10}$	$5 \cdot 10^{-12}$	$2 \cdot 10^{-12}$	$2 \cdot 10^{-11}$
accuracy of PPS (pulse per sec)	$< \pm 250$ ns	$< \pm 250$ ns	$< \pm 100$ ns	$< \pm 100$ ns	$< \pm 100$ ns	$< \pm 100$ ns
phase noise	1Hz -60dBc/Hz 10Hz -90dBc/Hz 100Hz -120dBc/Hz 1kHz -130dBc/Hz	1Hz -60dBc/Hz 10Hz -90dBc/Hz 100Hz -120dBc/Hz 1kHz -130dBc/Hz	1Hz -75dBc/Hz 10Hz -110dBc/Hz 100Hz -130dBc/Hz 1kHz -140dBc/Hz	1Hz < -85dBc/Hz 10Hz < -115dBc/Hz 100Hz < -130dBc/Hz 1kHz < -140dBc/Hz	1Hz < -80dBc/Hz 10Hz < -110dBc/Hz 100Hz < -125dBc/Hz 1kHz < -135dBc/Hz	1Hz -75dBc/Hz 10Hz -89dBc/Hz 100Hz -128dBc/Hz 1kHz -140dBc/Hz
accuracy free run, one day	$\pm 1 \cdot 10^{-7}$ $\pm 1$ Hz (Note1)	$\pm 2 \cdot 10^{-8}$ $\pm 0.2$ Hz (Note1)	$\pm 1.5 \cdot 10^{-9}$ $\pm 15$ mHz (Note1)	$\pm 5 \cdot 10^{-10}$ $\pm 5$ mHz (Note1)	$\pm 1 \cdot 10^{-10}$ $\pm 1$ mHz (Note1)	$\pm 2 \cdot 10^{-11}$ $\pm 0.2$ mHz (Note1)
accuracy, free run, 1 year	$\pm 1 \cdot 10^{-6}$ $\pm 10$ Hz (Note1)	$\pm 4 \cdot 10^{-7}$ $\pm 4$ Hz (Note1)	$\pm 1 \cdot 10^{-7}$ $\pm 1$ Hz (Note1)	$\pm 5 \cdot 10^{-8}$ $\pm 0.5$ Hz (Note1)	$\pm 1 \cdot 10^{-8}$ $\pm 0.1$ Hz (Note1)	$\pm 5 \cdot 10^{-10}$ $\pm 5$ mHz (Note1)
accuracy GPS-synchronous, average 24h	$\pm 1 \cdot 10^{-11}$	$\pm 1 \cdot 10^{-11}$	$\pm 5 \cdot 10^{-12}$	$\pm 1 \cdot 10^{-12}$	$\pm 1 \cdot 10^{-12}$	$\pm 1 \cdot 10^{-12}$
accuracy of time free run, 1 day	$\pm 4.3$ ms	$\pm 865$ $\mu$ s	$\pm 65$ $\mu$ s	$\pm 22$ $\mu$ s	$\pm 4.5$ $\mu$ s	$\pm 1.1$ $\mu$ s
accuracy of time free run, 1 year	$\pm 16$ s	$\pm 6.3$ s	$\pm 1.6$ s	$\pm 788$ ms	$\pm 158$ ms	$\pm 8$ ms
temperature dependant drift free run	$\pm 1 \cdot 10^{-6}$ (-20...70°C)	$\pm 2 \cdot 10^{-7}$ (0...60°C)	$\pm 5 \cdot 10^{-8}$ (-20...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  $\pm 1 \cdot 10^{-7} \cdot 10\text{MHz} = \pm 1$  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.