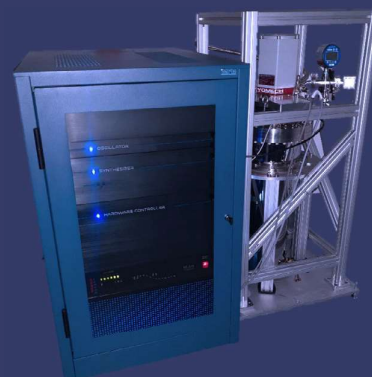


CRYO

ULTRA LOW PHASE NOISE OSCILLATOR

THE PUREST HF TO X-BAND REFERENCE SOURCE AVAILABLE

Based on a whispering gallery mode of a cryogenically cooled sapphire crystal, Quantx's CRYO is an ultra-low phase-noise oscillator that produces extremely stable signals from HF to X-band.



KEY FEATURES AND BENEFITS

World-leading close-to-carrier phase noise

Phase noise < -102 dBc/Hz (10.6 GHz) @ 1 Hz offset

Ultra-high stability

Best fractional frequency stability of 6×10^{-16} @ 1 s achieved in the lab.

Broad range of output frequencies

Ultra-low-noise frequency synthesis from 12 GHz to 10 MHz and 1 PPS, and customisable on request

Closed-system cryogenic cooling

Continuous operation with low maintenance cycle of 20,000 hours

Fully autonomous

Self contained unit, with monitoring software to ensure smooth operation and self-recovery from errors or power interruptions.

CRYO APPLICATIONS

Over the horizon radar

Trapped ion quantum computing

GNSS satellite monitoring and geodesy

Deep-space tracking and VLBI

Ultra-precise laboratory reference

Local oscillator for atomic clocks

FREQUENCY STABILITY

Integration Time(s)	ADEV (Typical)	ADEV (Max)
1	$1.5 \times 10^{-15*}$	$3 \times 10^{-15*}$
10	9×10^{-16}	3×10^{-15}
100	9×10^{-16}	5×10^{-15}
1,000	4×10^{-15}	2×10^{-14}
10,000	8×10^{-15}	5×10^{-14}

*Output frequencies below 100 MHz exhibit increased short-term noise.

PHASE NOISE

for selected output frequencies

Output	10.6 GHz	1.0 GHz	100 MHz	10 MHz
Offset (Hz)	Typical (dBc/Hz)	Typical (dBc/Hz)	Typical (dBc/Hz)	Typical (dBc/Hz)
1	-102	-116	-129	-130
10	-115	-129	-141	-142
100	-120	-133	-149	-152
1,000	-130	-142	-155	-162
10,000	-135	-149	-168	-167
100,000	-138	-150	-169	-167

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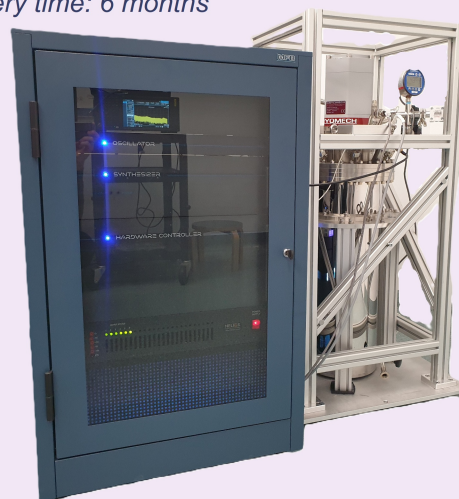
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OTHER SPECIFICATIONS

Power consumption (peak)	7.0 kW @ 50 Hz (3-phase)
Cooling Method	Water or air-cooled options available (default Air)
Weight (approx.)	80 kg cryostat, 60kg rack, 110kg compressor
Dimensions (approx.)	1 m × 1 m × 1 m
Compressor	0.6 m × 0.5 m × 0.5 m
Environmental temperature	+15°C to +30°C
Environmental noise	70 dBA at 1 meter (compressor)
Warranty	1 year, remote support

CRYO

Available for order now.
Delivery time: 6 months



Ordering Information

QuantX can work with customers to create a bespoke solution for their needs

Product	Order Code	Default Configuration
CRYO	CRYO-NA	10.6GHz - 8GHz - 1GHz - 100MHz - 10MHz and 1PPS

*Frequencies from X-band to 10MHz available on customer request.

