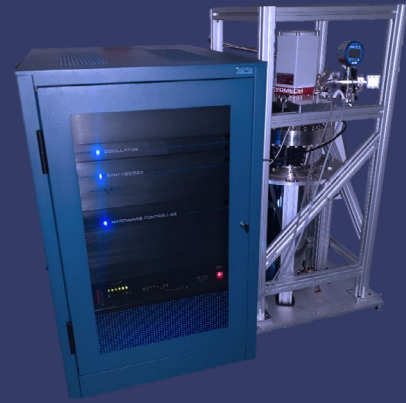


CRYOCLOCK

THE PUREST HF TO X-BAND REFERENCE SOURCE AVAILABLE

Based on a whispering gallery mode of a cryogenically cooled sapphire crystal, Quantx's CRYOCLOCK 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.

CRYOCLOCK APPLICATIONS

Over the horizon radar

Trapped ion quantum computing

GNSS satellite monitoring and geodesy

Deep-space tracking and VLBI

Ultra-precise laboratory reference

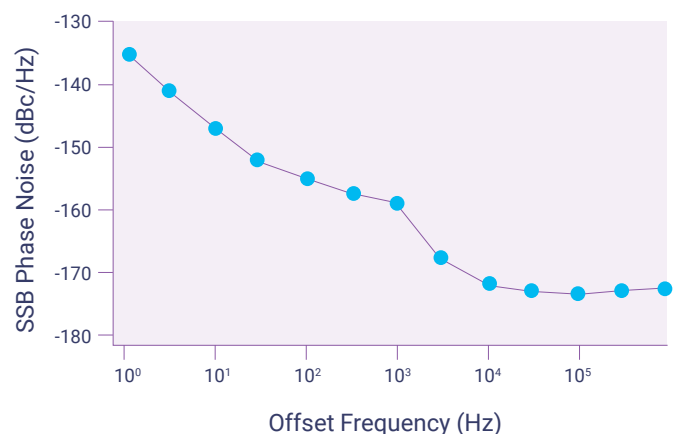
Local oscillator for atomic clocks

PHASE NOISE

for selected output frequencies

Output	10.6 GHz		1.0 GHz	
	Typ. (dBc/Hz)	Max (dBc/Hz)	Typ. (dBc/Hz)	Max (dBc/Hz)
Offset (Hz)				
1	-102	-97	-116	-110
10	-115	-110	-129	-125
100	-120	-115	-133	-128
1,000	-130	-127	-142	-137
10,000	-135	-130	-149	-145
100,000	-138	-133	-150	-145

100MHz PHASE NOISE



CRYOCLOCK

THE PUREST HF TO X-BAND
REFERENCE SOURCE AVAILABLE

FREQUENCY STABILITY

for selected output frequencies

Output	10.6 GHz	1.0 GHz
Averaging time(s)	ADEV (Max)	ADEV (Max)
1	3×10^{-15}	4×10^{-15}
10	3×10^{-15}	3×10^{-15}
100	3×10^{-15}	3×10^{-15}
1,000	7×10^{-15}	7×10^{-15}
10,000	1×10^{-14}	1×10^{-14}

1PPS OUTPUT

optional

	Output
(LVTTTL output to 50 Ω load)*	2.5 V (peak-peak)
Pulse width*	20 μ s
Time synchronisation resolution	10 ns

OTHER SPECIFICATIONS

Power consumption (peak)	7.0 kW @ 50 Hz (3-phase)
Cooling Method	Water or air-cooled options available
Weight (approx.)	80 kg (+ compressor 110 kg)
Dimensions (approx.)	1 m \times 1 m \times 1 m
Compressor	0.6 m \times 0.5 m \times 0.5 m
Environmental temperature	+15°C to +30°C
Environmental noise	Compressor
Warranty	1 year on-site or 12,000 hours

* Amplitude and pulse width customisable on request.
QuantX can work with customers to create bespoke solutions that suit their needs

sales@quantxlabs.com