



OCXO 8600 10 times better than any other OCXO

Oven Controlled Crystal Oscillator

The **8600-B** series is based on the technique of housing a state-of-the-art BVA crystal resonator and its associated oscillator components in double oven technology. The achieved overall frequency stability is 10 times better than any other OCXO's available on the market.

The BVA itself consists of an electrodeless, AT-cut, 5th overtone quartz crystal resonator decoupled from its mounting structure by four rigid bridges.

This unique design has resulted in substantial features by eliminating:

1. *The perturbing surface contacts between electrodes and resonator*
2. *The contamination problems linked to ion migration in the resonator*
3. *The constraints in the mounting connections*

Thanks to its remarkable overall frequency stability, the 8600-B BVA quartz crystal oscillator represents an excellent alternative to compact atomic standards.

Features

- Standard long term stability
"2 x 10⁻¹¹ / day and" 4 x 10⁻⁹ / year
- Frequency stability
2 x 10⁻¹⁰ over -30°C to + 60°C

- Ultra low phase noise and outstanding short term stability
- Excellent static "g" sensitivity
- Remarkable overall frequency stability

Benefits

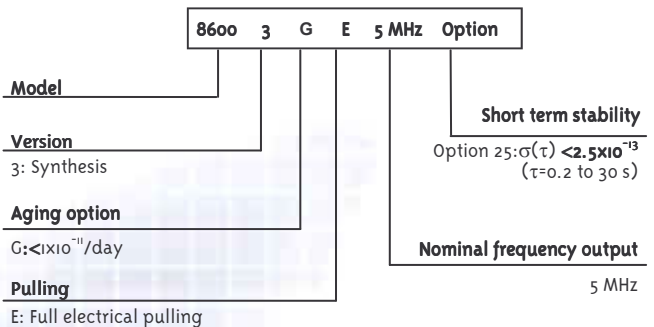
- Ideal as a stand-alone reference clock with reduced calibration intervals
- Excellent immunity to temperature gradients
- Ultra-clean signal generation for frequency multiplication
- Reduced effects on phase noise characteristics
- Compatible with CCITT level 2 recommendations and T1X1 Stratum 2 requirements

Applications

- Synchronization of digital networks and switching equipment
- Frequency distribution systems for satellite ground stations Radio navigation and positioning equipment
- GPS and Loran-C receivers
- Cesium and Hydrogen atomic frequency standards
- Measuring and calibration equipment
- Frequency synthesizers
- Satellite communications
- Very Long Base Interferometry (VLBI)

Phase noise (BW = 1 Hz)				
Frequencies	5 MHz		10 MHz	
	Standard	8600-3	Standard	8600-3
Standard / 8600-3				
Phase noise	1 Hz	- 115 dBc - 120 dBc	-108 dBc	- 113 dBc
	10 Hz	- 135 dBc - 140 dBc	-130 dBc	- 130 dBc
	100 Hz	- 145 dBc - 150 dBc	-140 dBc	- 140 dBc
	1'000 Hz	- 150 dBc - 155 dBc	-145 dBc	- 145 dBc

Ordering Information



Technical Specifications

OCXO 8600

Oven Controlled Crystal Oscillator

Standard / Option	B	3	Option
	Standard	Synthesis	
Crystal resonator	BVA technology		
Standard frequencies	5 and 5.12 MHz		
Optional frequency	10 and 10,24 MHz		
Operating temperature range (X)	-30°C to +60°C		
Frequency stability (Δ f/f)			
Long term stability (aging after 30 days of continuous operation)	2x10 ⁻¹¹ /day 5x10 ⁻¹⁰ /month 4x10 ⁻⁹ /year		G : 1x10 ⁻¹¹ /day H : 5x10 ⁻¹² /day J : 3x10 ⁻¹² /day See table
Over temperature range(γ)	≤ 2x10 ⁻¹⁰ peak to peak		≤ 1x10 ⁻¹⁰ peak to peak
Versus power supply	5x10 ⁻¹¹ (Vcc ±10%)		
Versus load changes	2x10 ⁻¹¹ (50Ω ±10%)		
Short term stability σ (τ)	1x10 ⁻¹² (0.2-30s)	5x10 ⁻¹³ (0.2-30s)	See table
g sensitivity	1x10 ⁻⁹ / g (typ. 5x10 ⁻¹⁰ / g)		
Frequency control range	Standard : M Mechanical		Option : E Full Electrical
Coarse adjustment option M	>± 1x10 ⁻⁷ by built-in 10 turn pot. With external control voltage at +5Volts		
Fine adjustment option M	>± 2x10 ⁻⁸ by external control voltage 0 to +10 Volts (with built-in potentiometer centered for nominal frequency at +5Volts)		
Fine adjustment option E	>± 1x10 ⁻⁷ < ± 1.5x10 ⁻⁷ by external control voltage 0 to +10Volts		
Output specifications	On both SMA connectors		
Wave form	Sine		
Level / Impedance	7 dBm ± 1/50Ω		
Phase noise at 5 MHz (Bw=1Hz)	See table page 1	See table page 1	Lower value on request
Harmonics	< -40 dBc		
Spurious	< -70 dBc		
Power supply			
Input voltage range (DC)	+24V DC ± 10%		
Power consumption	< 3W after warm-up at 25°C, < 10W during warm-up		
Environment			
Storage temperature	-30°C to 85°C		
Vibration	MIL STD 167-1		
Shock	30g, 11ms, 3 shocks in each direction of the main axis		
Size (LxWxH)	138 x 73 x 88 mm		
Weight	900 g		
Outline & electrical connections	See table		

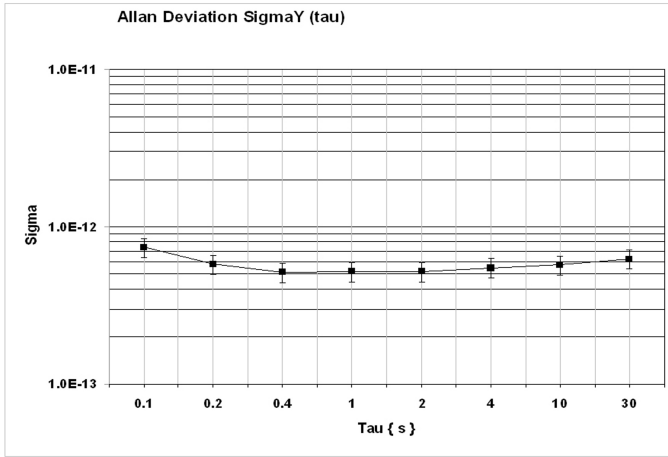
Short term stability option

*Sigma Tau < 3.5x10 ⁻¹³ (Tau = 0.2 to 30 s)	Choice 8600-3 and add « option 25 »	Option 35
*Sigma Tau < 3.0x10 ⁻¹³ (Tau = 0.2 to 30 s)	Choice 8600-3 and add « option 25 »	Option 30

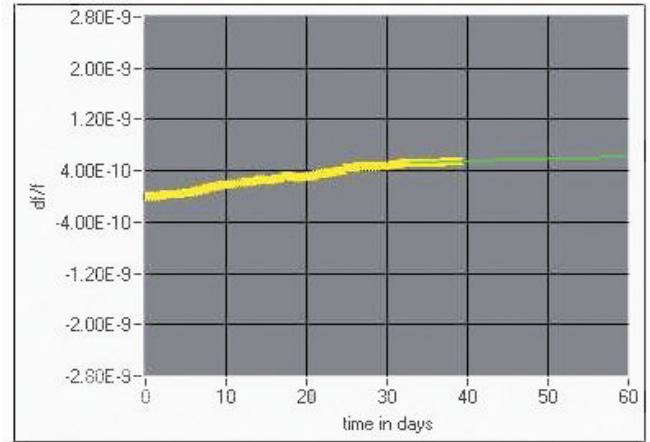
*For better value see our 8607 model

Oscilloquartz SA reserves the right to change all specifications contained herein at any time without prior notice.

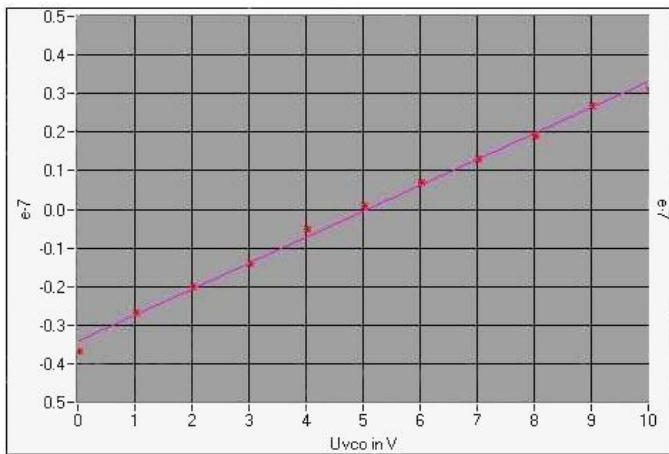
Sigma Tau



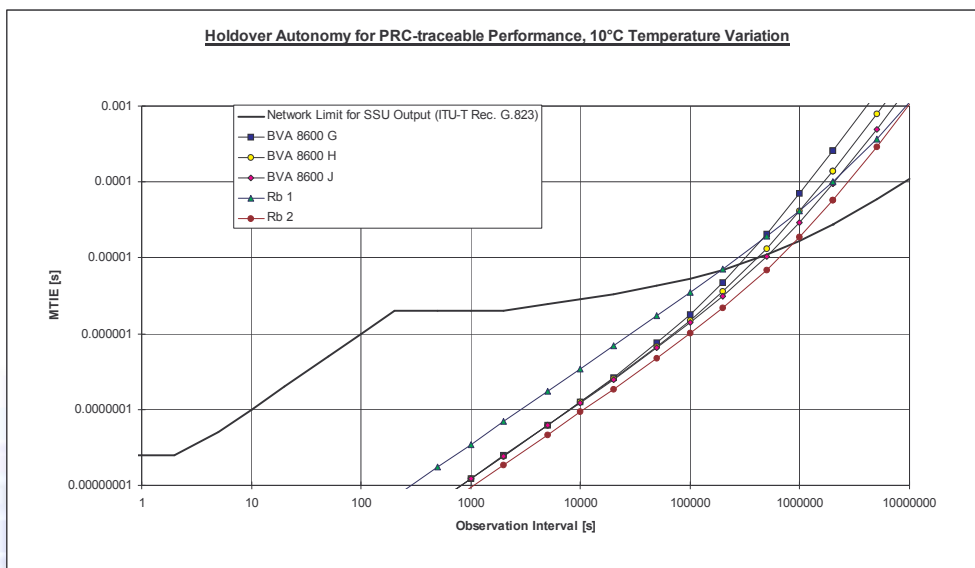
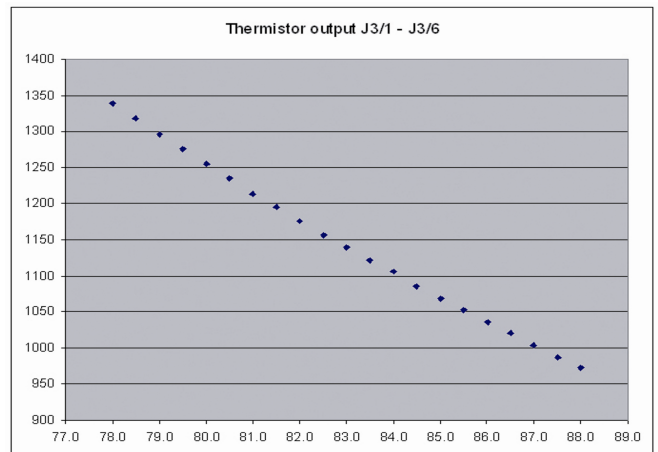
Aging



Pulling



Thermistor



Oscilloquartz SA reserves the right to change all specifications contained herein at any time without prior notice.

Aging					
Standard / Option	Standard	Standard	Option G	Option H	Option J
*Aging per day	2×10^{-11} pp	1×10^{-11} pp	1×10^{-11} pp	5×10^{-12} pp	3×10^{-12} pp
*Aging per year	4×10^{-9} pp	4×10^{-9} pp	3×10^{-9} pp	2×10^{-9} pp	1×10^{-9} pp
*AYfter continuous operation of	30 days	60 days	60 days	90 days	90 days

*For better value see our 8607 model

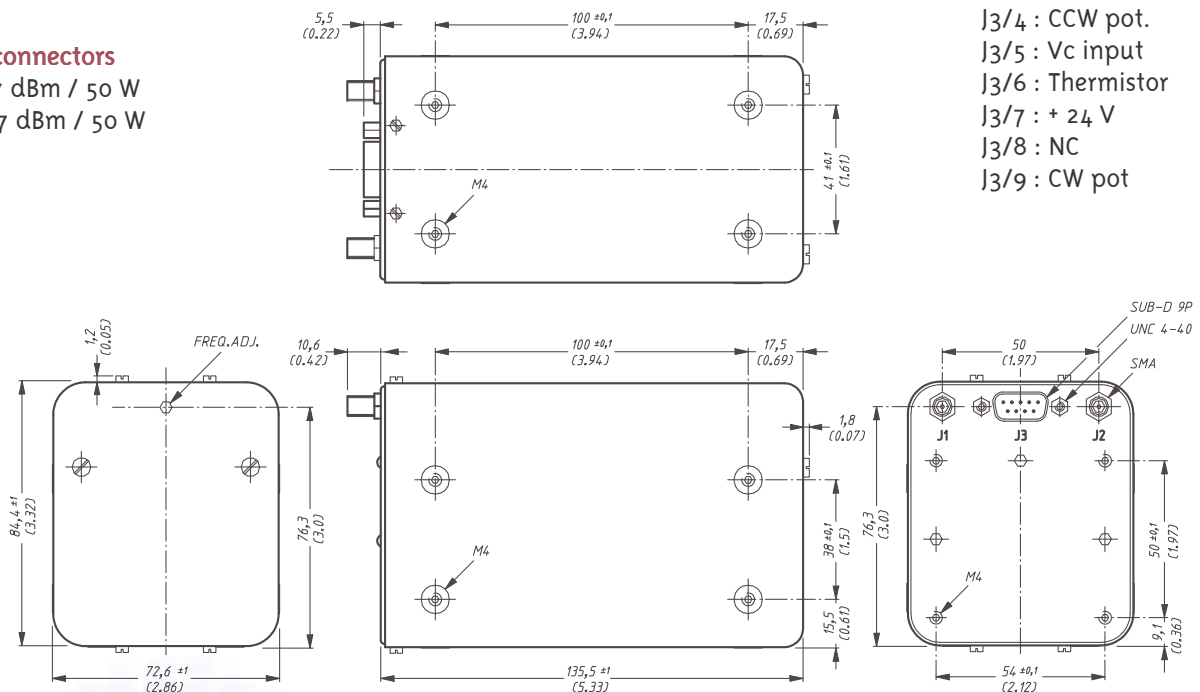
Outline and electrical connections (all dimensions in mm & inches)

SMA connectors

J1 : = 7 dBm / 50 W
J2 : = 7 dBm / 50 W

SUB D connector

J3/1 : Thermistor
J3/2 : 0V (GND)
J3/3 : Ground
J3/4 : CCW pot.
J3/5 : Vc input
J3/6 : Thermistor
J3/7 : + 24 V
J3/8 : NC
J3/9 : CW pot



Oscilloquartz SA reserves the right to change all specifications contained herein at any time without prior notice.