

# Phase Locked Coaxial Resonator Oscillators Series PCRO



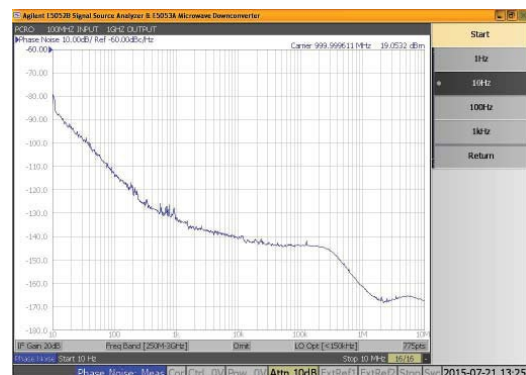
Supplying high performing, innovative and sophisticated RF, microwave, millimeter wave components and integrated assemblies worldwide.

CAES' series of phase locked coaxial resonator oscillators have been designed for use in commercial and military systems where demanding performance, high reliability and cost are critical.

This family of product takes advantage of low phase noise transistors and a metalized high Q coaxial resonator. When phase locked to an external crystal reference, the low noise characteristics of the high Q resonator are enhanced by the long-term stability of the external reference.

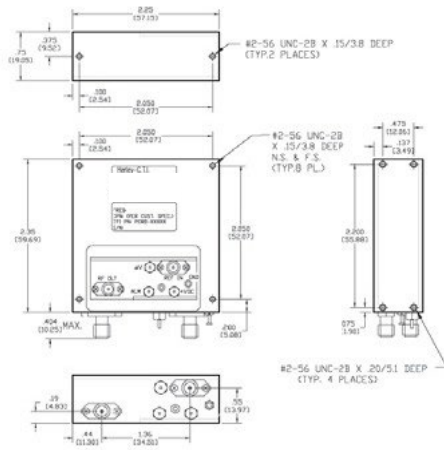
The series PCRO can be custom configured to meet the demanding electrical performance and environmental requirements for military airborne, radar and communications applications.

Features such as low phase noise, high power, small size, and low cost make Ultra's PCRO product line the best value on the market today. Contact the factory to discuss your special requirements.

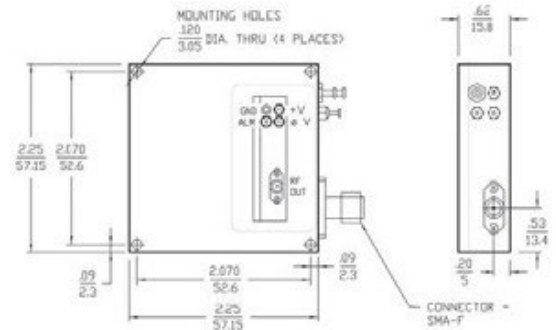


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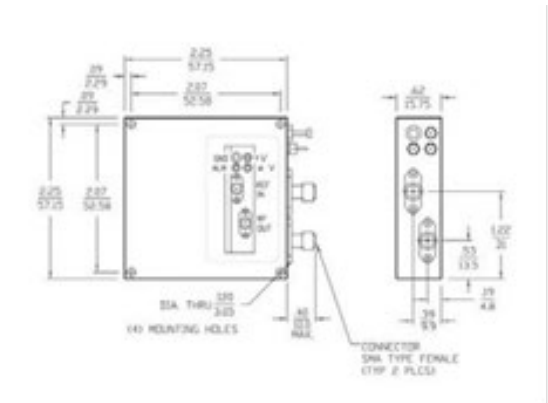
Standard Outline Drawing for  
External <50 MHz Reference Models



Standard Outline Drawing for Internal  
Reference Models



Standard Outline Drawing for Dual Loop  
Models



PRODUCT BRIEF

RELEASE DATE 12/31/2021

# Phase Locked Coaxial Resonator Oscillators Series PCRO

## Typical Phase Noise

### External 100 MHz reference models

Offset KHz	SSB Phase Noise dBc/Hz at		
	0.5 GHz	1 GHz	3 GHz
0.1	-105	-100	-90
1.0	-127	-125	-110
10	-137	-135	-120
100	-143	-140	-125
1,000	-150	-150	-135
10,000	-160	-160	-150

## Typical Phase Noise

### Internal reference models

Offset KHz	SSB Phase Noise dBc/Hz at		
	0.5 GHz	1 GHz	3 GHz
0.1	-100	-97	-90
1.0	-125	-123	-110
10	-130	-130	-120
100	-137	-135	-125
1,000	-150	-150	-135
10,000	-160	-160	-145

## Typical Phase Noise

### Dual loop models

Offset KHz	SSB Phase Noise dBc/Hz at		
	0.5 GHz	1 GHz	3 GHz
0.1	-95	-90	-80
1.0	-125	-120	-110
10	-130	-125	-115
100	-137	-135	-125
1,000	-150	-150	-135
10,000	-160	-160	-150

# Phase Locked Coaxial Resonator Oscillators

## Series PCRO

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### FEATURES:

- Frequencies from 300 MHz to 3 GHz
  - Wide operating temperature
  - Ultra-low phase noise
  - Low power consumption
  - Phase lockable to references from 1 MHz to 100 MHz
  - Low Spurious
  - Low loss high Q circuit
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### OPTIONS:

- High stability internal reference
  - Field replaceable connectors
  - Hermetic seal
  - Extended temperature ranges
  - Dual loop models
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### TYPICAL PERFORMANCE SPECIFICATIONS:

- Fixed frequencies from 300 MHz to 3 GHz
  - Output power +15 dBm standard
  - Power variation  $\pm 2$  dBm
  - Output impedance 50 ohms
  - Load VSWR 1.5:1
  - Output impedance 50 ohms
  - Spurious -80 dBc
  - Harmonics -20 dBc
  - Lock alarm TTL high when locked
  - Input reference frequency
  - 5 MHz to 100 MHz for single loop models, 1 MHz to 100 MHz for dual loop models
  - Input reference power level  $0 \pm 3$  dBm
  - Internal reference models frequency stability  $\pm 2.5$  ppm standard,  $\pm 1$  ppm optional
  - External reference models frequency stability same as reference
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### CONNECTORS AND CONTROL

- RF output SMA-F
  - Reference input SMA-F
  - Reference monitor SMA-F internal reference models only
  - Alarm Feed-thru
  - Supply voltage Feed-thru
  - Ground solder lug
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### POWER, DIMENSIONS AND ENVIRONMENTAL

- Supply voltage +12V, +15 V and
  - 8 VDC on select models
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# Phase Locked Coaxial Resonator Oscillators Series PCRO

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- Current 300 mA for external reference models, 450 mA steady state, 800 mA surge on internal reference models, 450 mA for dual loop models
- Operating temperature -30° to 70° centigrade
- Storage temperature -54° to +85° centigrade

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\* Product in development, targeted specification