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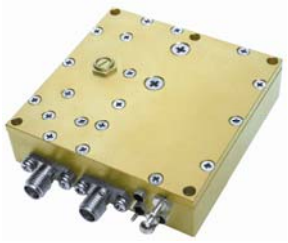
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Phase Locked Sources
Series PDRO – Dielectric Resonator Oscillators



Features

- Wide Operating Temperature Range -40 to +75°C Standard
- Ultra Low Phase-Noise
- Small Size
- Field Adjustable Tuning
- No Subharmonics
- Ideal for Outdoor Applications
- Low Cost, Low Profile, Low Power Consumption
- High Stability Internal References

Options

- Ruggedized for Military applications
- Dual Loop Option
- Field Replaceable SMA Connectors
- Hermetically sealed Militarized units -45°C to +85°C
- Digital Single Loop for 5 MHz or 10 MHz input frequencies
- Flush Profile Tuner

Description

The Herley-CTI series PDRO, Phase Locked Dielectric Resonator Oscillators, have been designed for use in Commercial and Military communication systems where demanding performance, high reliability and cost are critical. The series PDRO take advantage of the small size, low phase-noise and high efficiency offered by fundamental GaAs MESFET and BJT DROs when they are phase-locked to an external crystal oscillator in the 50 MHz to 300 MHz range.

In addition to the low-profile models which will phase-lock to an external reference in the 50 to 300 MHz range, two reference options are available.

The first option offers an integrated, high-stability internal crystal oscillator in the 100 MHz range in a slim line package.

The second option offers a dual loop design, also in a slim line package. This internal crystal source is phase-locked to an external frequency standard between 1 and 100 MHz using digital synthesis techniques and allows the output frequency to be phase-locked to an integer or fractional multiple of the reference used. Features such as ultra-low-phase noise, high power, small size and low cost make CTI's PDRO product line the best value on the market today for your Commercial or Military applications.

HERLEY-CTI, INC.
9 Whippany Rd. • Whippany NJ 07981 • Tel 973-884-2580
E-mail Sales@herley-cti.com • Fax 973-887-6245
Website: www.herley.com

May 2004

Typical Performance Specifications

Parameter	External Reference	Internal Reference	Dual Loop
Output Frequency Range	3 GHz to 45 GHz	3 GHz to 45 GHz	3 GHz to 45 GHz
Output Power	+15 dBm	+15 dBm	+15 dBm
Power Variation	±2 dBm	±2 dBm	±2 dBm
Output Impedance	50 Ω	50 Ω	50 Ω
Load VSWR	1.5:1	1.5:1	1.5:1
Supply Voltage*	+8, +12 or +15 Vdc	+8, +12 or +15 Vdc	+8, +12 or +15 Vdc
Regulation	±0.5 V	±0.5 V	±0.5 V
Current **	280 mA	350 mA Steady State 800 mA Surge	450 mA
Spurious	-80 dBc	-80 dBc	-80 dBc
Harmonics	-20 dBc	-20 dBc	-20 dBc
Phase Noise	See Table	See Table	See Table
Alarm	TTL High in Lock	TTL High in Lock	TTL High in Lock
External Reference Frequency Input Power Level	50 MHz to 300 MHz 0 dBm ± 3dB	N/A N/A	5 MHz to 15 MHz 0 dBm ± 3dB
Frequency Stability	Same as Reference	±2.5 ppm	Same as Reference
Connections RF Output *** Reference Input Reference Monitor Alarm Supply Voltage Ground	 SMA-F or 2.99 mm SMA-F N/A Feed thru Feed thru Solder Lug	 SMA-F or 2.99 mm SMA-F SMA-F Feed thru Feed thru Solder Lug	 SMA-F or 2.99 mm SMA-F N/A Feed thru Feed thru Solder Lug
Operating Temperature	-40°C to +75°C	-40°C to +75°C	-40°C to +75°C

*** 8 V option available for certain models, contact factory for details.**
**** Lower current option available for certain models, contact factory for details**
***** 2.99 mm connectors used on models above 26 GHz**

Typical Phase Noise for External Reference Units

Frequency Offset from Carrier (Hz)	Phase Noise (dBc/Hz) 5 GHz	Phase Noise (dBc/Hz) 10 GHz	Phase Noise (dBc/Hz) 14 GHz	Phase Noise (dBc/Hz) 28 GHz	Phase Noise (dBc/Hz) 43 GHz
100	-80	-75	-72	-66	-61
1 k	-105	-100	-97	-91	-86
10 k	-120	-110	-107	-101	-96
100 k	-123	-115	-110	-104	-100
1 M	-135	-128	-125	-119	-114
10 M	-145	-140	-140	-134	-126

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Typical Phase Noise for Internal Reference Units

Frequency Offset from Carrier (Hz)	Phase Noise (dBc/Hz) 5 GHz	Phase Noise (dBc/Hz) 10 GHz	Phase Noise (dBc/Hz) 14 GHz	Phase Noise (dBc/Hz) 28 GHz	Phase Noise (dBc/Hz) 43 GHz
100	-80	-75	-72	-66	-61
1 k	-105	-100	-97	-90	-86
10 k	-120	-110	-107	-101	-96
100 k	-123	-115	-110	-104	-100
1 M	-135	-128	-125	-119	-114
10 M	-145	-140	-140	-134	-126

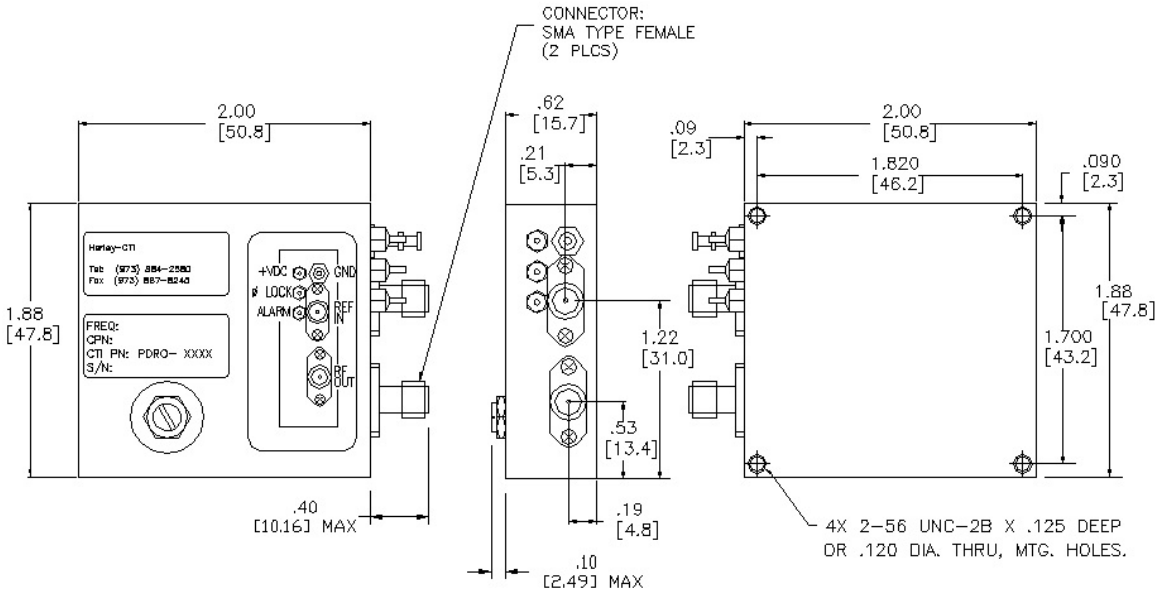
Typical Phase Noise for Dual Loop Units

Frequency Offset from Carrier (Hz)	Phase Noise (dBc/Hz) 5 GHz	Phase Noise (dBc/Hz) 10 GHz	Phase Noise (dBc/Hz) 14 GHz	Phase Noise (dBc/Hz) 28 GHz	Phase Noise (dBc/Hz) 43 GHz
100	-75	-70	-65	-59	-54
1 k	-100	-95	-90	-84	-81
10 k	-120	-110	-107	-101	-96
100 k	-123	-115	-110	-104	-100
1 M	-135	-128	-125	-119	-114
10 M	-145	-140	-140	-134	-126

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Outline Drawings

External Reference PDRO for Frequencies 8 GHz to 45 GHz With Standard Tuner Height

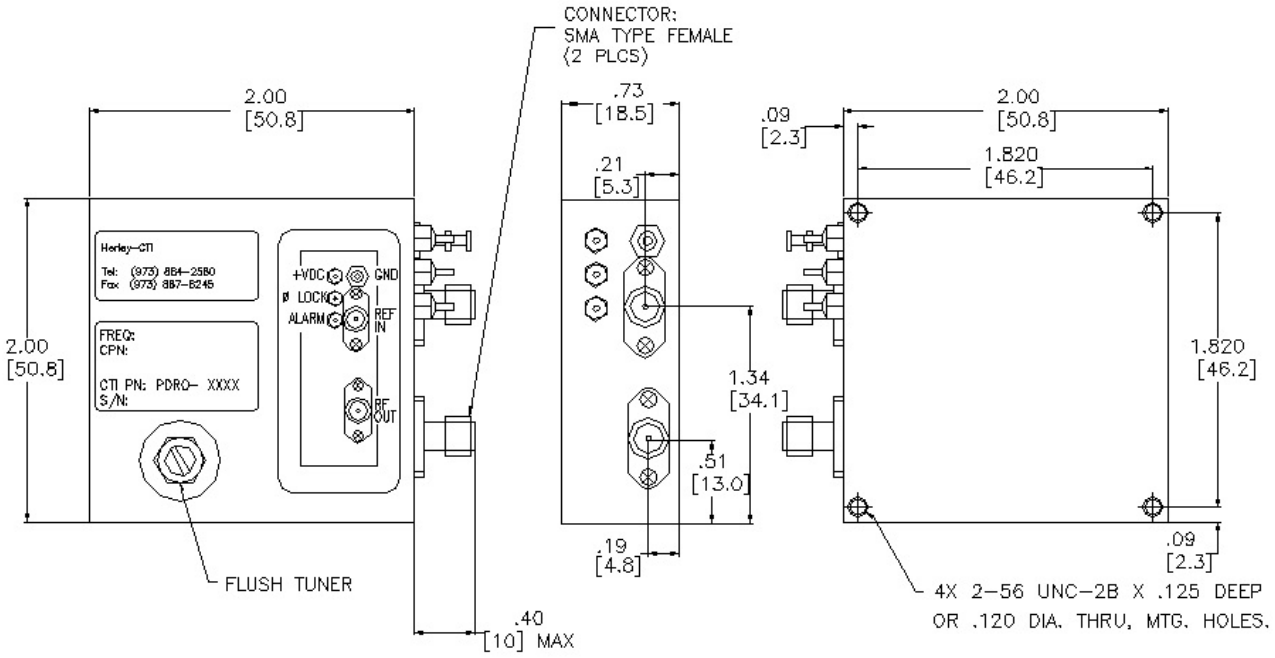


Dimensions are in Inches/mm, Tol. .xx=+/-.02, .xxx=+/-.005

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Outline Drawings

External Reference PDRO for Frequencies 6 GHz to 8 GHz With Flush Tuner

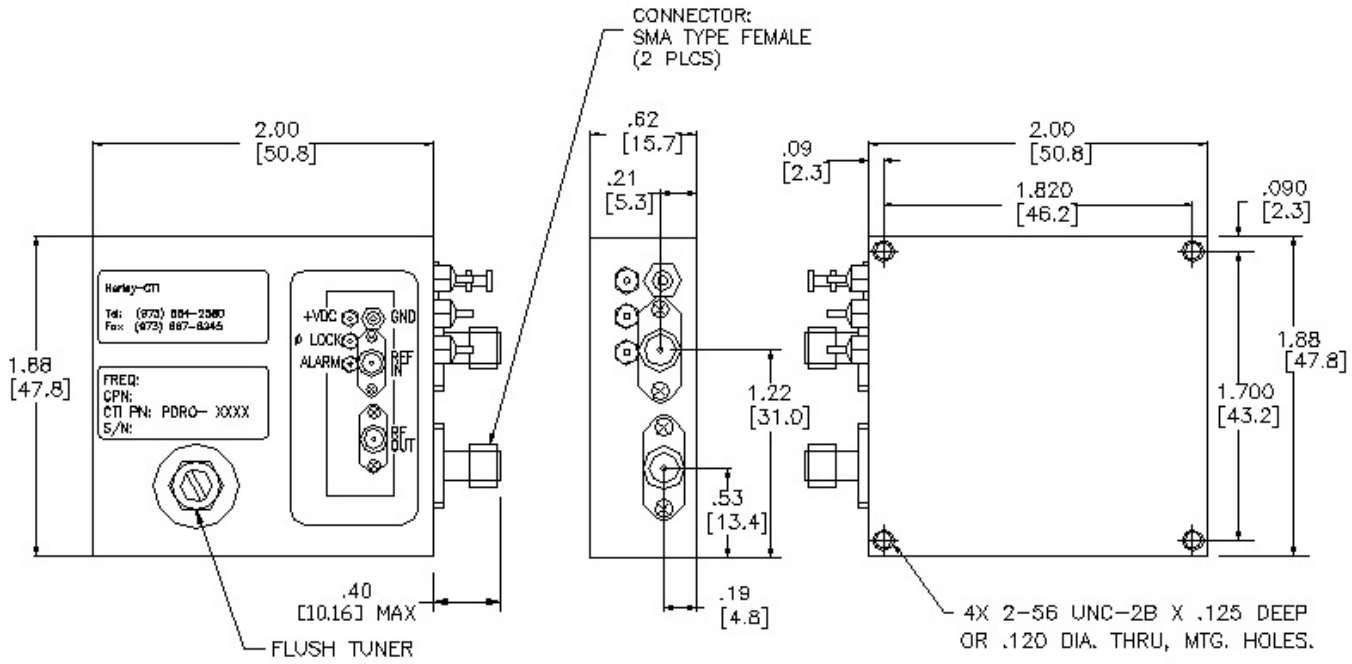


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Outline Drawings

External Reference PDRO for Frequencies 8 GHz to 45 GHz With Flush Tuner

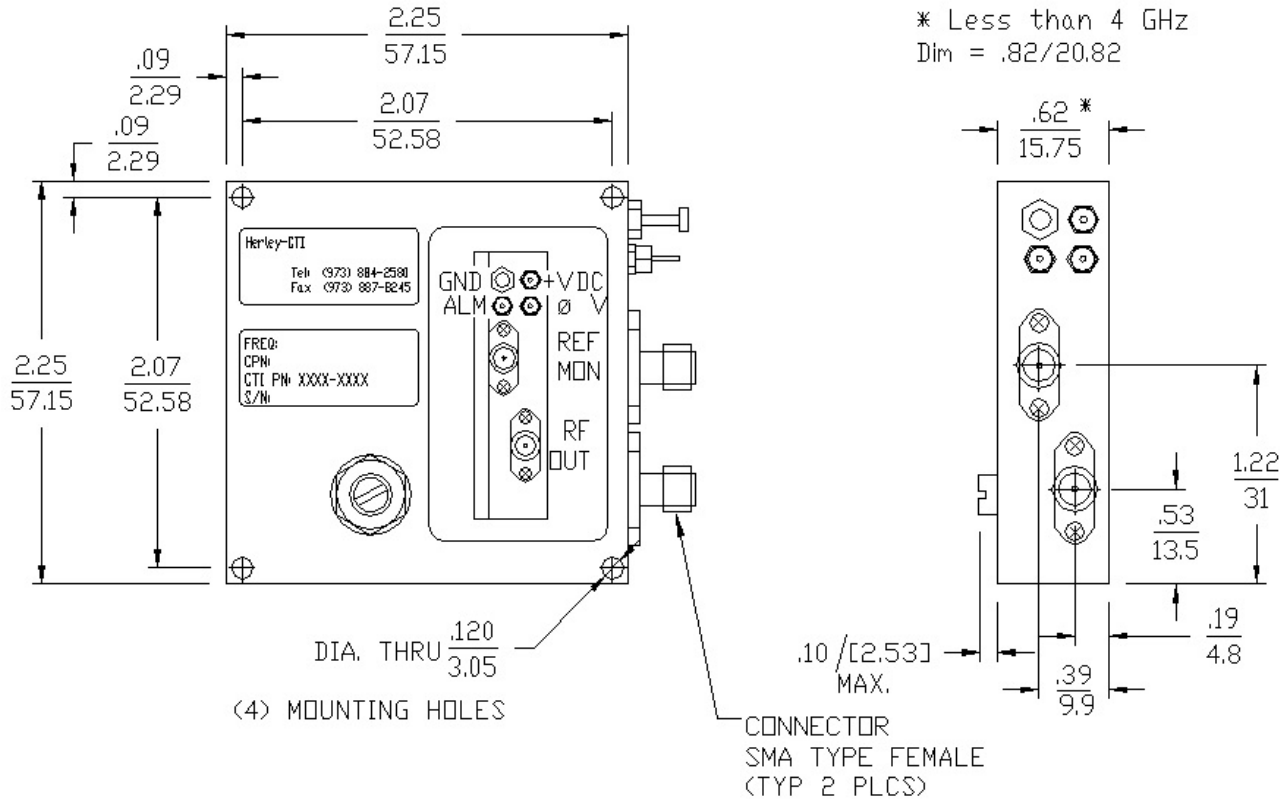


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Outline Drawings

Dual Loop XPDRO, Externally or Internally Referenced PDRO for Frequencies from 3 GHz to 18 GHz With Standard Tuner Height

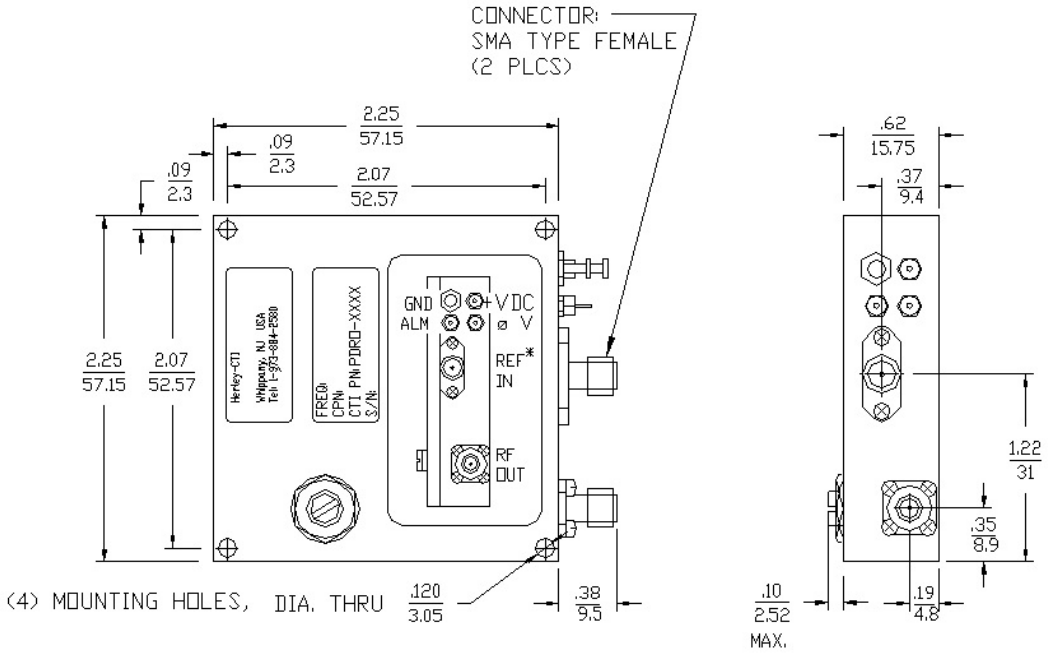


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Outline Drawings

Dual Loop XPDRO, Externally or Internally Referenced PDRO for Frequencies from 18 GHz to 45 GHz With Standard Tuner Height



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