



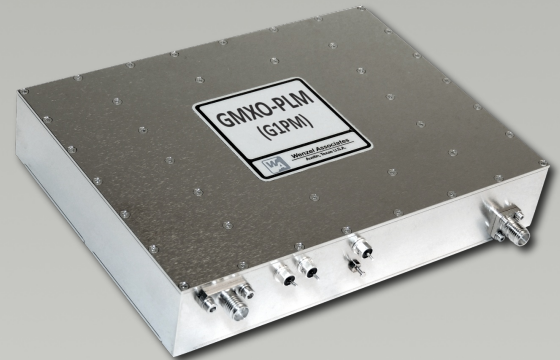
**Low Noise Crystal Oscillators > Golden MXO (PLO w/ Ref. Multipliers)**

**Features:**

- PLO with Integrated Multipliers
- Reference Multipliers Used When Phase Locking
- Frequencies from 200 MHz to 12 GHz, fixed
- Golden Ultra Low Phase Noise Performance
- Excellent Spectral Purity
- Easily Customized to Specific Frequency

**Applications:**

- Military Applications
- Radar Systems
- Test Equipment
- Instruments
- Reference Source



**Description:**

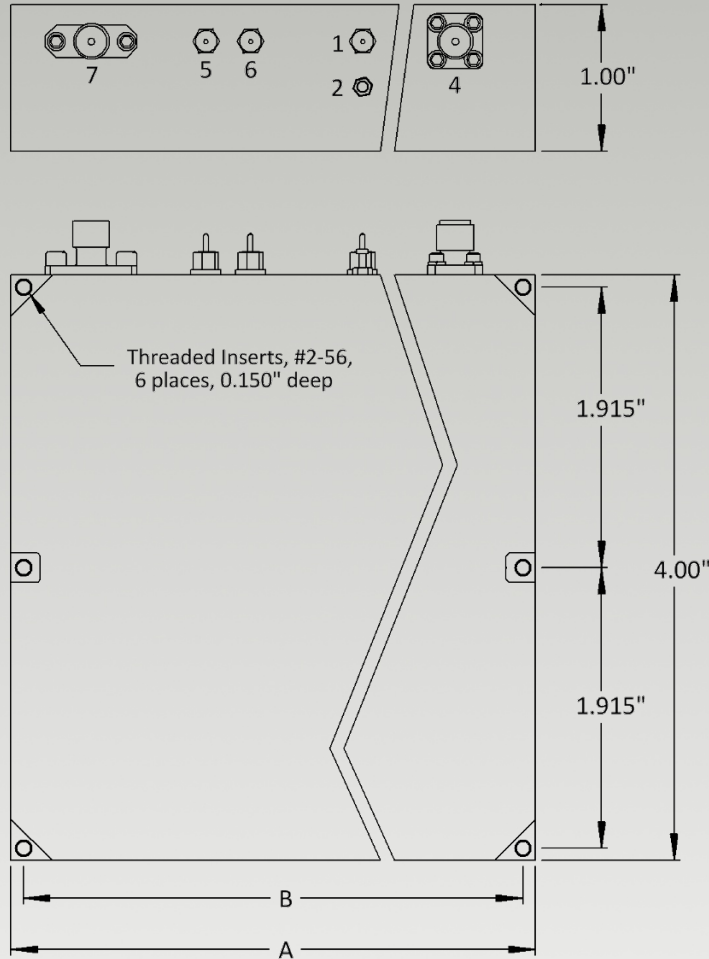
The Golden Multiplied Crystal Oscillator (GMXO-PLM) is a fixed frequency industry leading ultra-low noise Golden PLO with a phase noise floor as low as -190 dBc/Hz, highly integrated with one or more "special" low noise multipliers stages to create a high performance frequency signal between 200 MHz and 12 GHz with unsurpassed phase noise performance in an OCXO based product. The GMXO-PLM also provides good temperature stability (when free-running) and excellent spectral purity. Additional frequency multipliers are used to multiply the external reference up to phase lock at the internal VHF oscillator frequency. This allows the PLL loop bandwidth to be set between ~200 and ~300 Hz, and can be configured for optimal performance considering the reference signal provided. The higher loop bandwidth allows the close-in phase noise of the MXO output to be improved if a low noise reference signal is provided. The package varies depending on the number of multiplier stages needed to create the desired frequency and range in size from 5.4" x 4" x 1", 6.36" x 4" x 1" and 7.31" x 4" x 1". The base VHF oscillator frequency and multiple outputs are available as options. (i.e. If ordering a 10 GHz GMXO-PLM, you may also request the 100 MHz, 500 MHz and 5 GHz outputs since they are also being created in the multiplier string.) An internal voltage regulator is provided for excellent power supply line rejection. Please consult the factory if you need any specifications to be modified to better suit your application.

Electrical Specifications	
Output Frequency (fixed; specify within range)	<b>200 MHz to 12 GHz</b>
Output Level	+13 dBm ±2 dB into 50 ohms
External Reference Input Frequency	10 MHz (standard; other options available)
External Reference Input Level	+13 dBm ±1 dB into 50 ohms
Aging	
Per day after 30 days operating, typical	$5 \times 10^{-9}$
Second year, typical	$5 \times 10^{-7}$
Per year thereafter, typical	$3 \times 10^{-7}$
Temperature Stability (consult factory for other ranges)	
Range E: 0 to +50°C (Ref: +25°C)	$\leq \pm 5 \times 10^{-7}$
Range F: -20 to +70°C (Ref: +25°C)	$\leq \pm 1 \times 10^{-6}$
Phase Noise	(Frequency Dependent: See Standard Specifications and Part Numbers table below for details)
Harmonics	$\leq -25$ dBc
Sub-Harmonics	$\leq -60$ dBc
PLL & Reference Multiplier Products	$\leq -60$ dBc
Spurious	$\leq -80$ dBc
PLL Loop Bandwidth	~250 Hz, typical
Supply Voltage	+15 VDC (±5%)
Warm-up	$\leq 13$ to 24 Watts for 5 minutes at +25°C
Total	$\leq 9$ to 20 Watts at +25°C
Crystal Type	SC-cut
Crystal Acceleration Sensitivity	$5 \times 10^{-10}$ /g, typical; to $2 \times 10^{-10}$ /g, available
Mechanical	
Packaging	Nickel-Plated Machined Aluminum
Dimensions	See Mechanical Drawing
Connectors / Mounting	SMA(f) and solder pins on side Threaded Inserts, #2-56, 6 places





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**GMXO-PLM**

Package	Dimension A	Dimension B
G1PM	5.40"	5.230"
G2PM	6.36"	6.185"
G3PM	7.31"	7.140"

Connector	Function
1	Supply Voltage
2	Ground, Case
4	RF Output
5	Phase Lock Voltage
6	Phase Lock Alarm
7	External Reference Input

