



## Dual Loop PLO-4200 Series

*DUAL LOOP PLDRO WITH 10 MHZ EXT REF*

### FEATURES

- \* DIELECTRIC RESONATOR
- \* DUAL LOOP DESIGN WITH VCXO
- \* VERY LOW PHASE NOISE
- \* INTERNAL VOLTAGE REGULATOR
- \* PHASE LOCK INDICATOR ALARM
- \* LOW MICROPHONICS
- \* LOW POWER CONSUMPTION
- \* UP TO +25 dBm OUTPUT POWER
- \* AVAILABLE FROM 1-50 GHz
- \* OPERATING RANGE: -40°C TO +85°C

### APPLICATION

- \* SATELLITE COMMUNICATIONS
- \* CABLE TV LINKS (CATV)
- \* LOCAL AREA NETWORKS (LAN)
- \* GLOBAL POSITIONING SYSTEMS (GPS)
- \* TEST EQUIPMENT
- \* POINT TO POINT
- \* UP/DOWN CONVERTERS
- \* TRANSMITTER & RECEIVERS
- \* DIGITAL RADIOS
- \* MISSILE GUIDANCE
- \* SPACE, MILITARY, COMMERCIAL

### DESCRIPTION

**Quantic MWDs' Dual Loop PLO-4200 design** incorporates a low noise sc-cut VCXO to be locked to 10MHz to offer the best phase noise performance achievable.

**PLO-4200** Phase Locked Dielectric Resonator Oscillator (PLDRO) utilizes state of the art MIC to provide highly stable, reliable and efficient signal source at microwave frequencies up to 50 GHz. The low profile and rugged construction provide excellent durability against harsh environmental conditions

**PLO-4200** oscillator is designed using FET and Dielectric Resonator at the gate. High gain, low-noise FETs are biased positively or negatively at the gate to ensure minimum phase-noise. The device is carefully matched for maximum power, minimum phase-noise and Voltage Standing Wave Ratio (VSWR).

**PLO-4200** oscillator is buffered by cascaded low-noise driver and power amplifiers for minimum load pulling, maximum isolation and power. FET devices are directly attached to gold plated Kovar carriers to minimize shear effect and maximize heat sinking. Kovar carriers are mounted to the chassis to provide an efficient thermal junction and a stable structure for reduction of microphonics.

**PLO-4200** series proprietary phase lock loop uses Surface Mount Technology. The 10 MHz reference frequency is locked to a low phase noise VCXO and sampled to output frequency. Produced error voltage due to frequency drift is sensed by a Wein-Bridge Oscillator to provide the necessary sweep voltage to an ultra H-Q tuning varactor diode for the purpose of compensation and phase locking.

**PLO-4200** series is internally voltage regulated to avoid reverse bias, frequency pushing, bias modulation and voltage transients. A phase lock indicator alarm of TTL type is provided as a feature. The PLO-4200 series externally referenced locked and factory tuned to specified frequency.

# SPECIFICATIONS

Model Number	PLO-4200-XX.XX (Where XX.XX is freq in GHz)
Single Frequency	1.00 to 50.00 GHz
Mechanical Tuning Range	100 MHz
Power Output	+13 dBm, up to + 25 dBm Optional
Load VSWR, Maximum	2.0: 1.0
Power Requirements	+12, +15 VDC, 330 mA, after 2 minutes (some models)
Reference Input Frequency	10 or 5 MHz Optional
Frequency Stability	Same as Reference
Phase Noise	-110 dBc/Hz @ 10 GHz TYP (see Phase Noise Envelope)
Spurious	-75dBc
Harmonics	-25 dBc
Alarm	TTL
Operating Temperature	0°C to 50°C Standard; -40°C to +85°C Optional
Storage Temperature	-55°C to 125°C
Connectors	SMA-Female or 2.92 mm-Female
Size	2.25" x 2.25" 1.25"
Finish	Nickel

## PHASE NOISE ENVELOPE

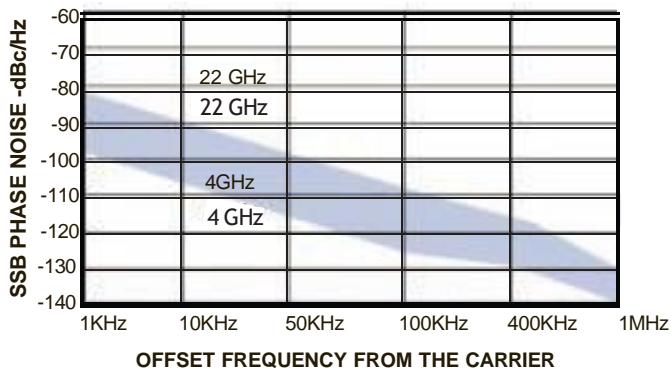
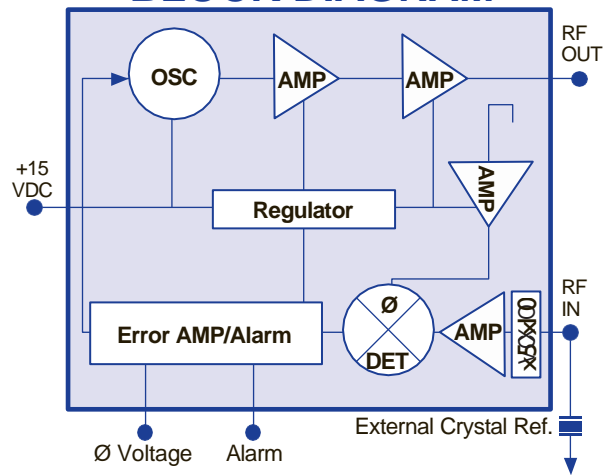
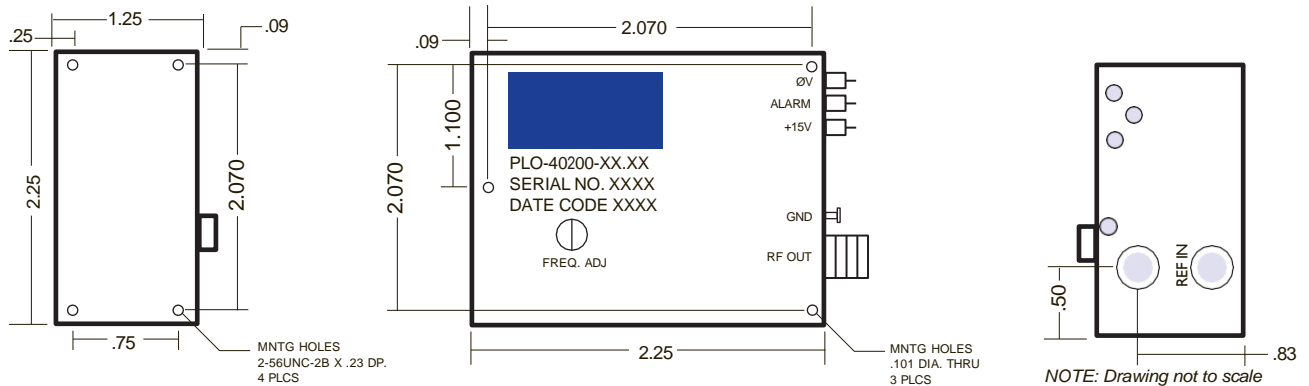


FIGURE A

## BLOCK DIAGRAM



## OUTLINE DRAWING



NOTE: Drawing not to scale

MICROWAVE DYNAMICS dba QUANTIC MWD, 16541 Scientific Way, Irvine, CA      PHONE: 949-679-7788      FAX: 949-679-7748

Web Page : <http://www.quantmwd.com>

Email: [sales@quantmwd.com](mailto:sales@quantmwd.com)

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