

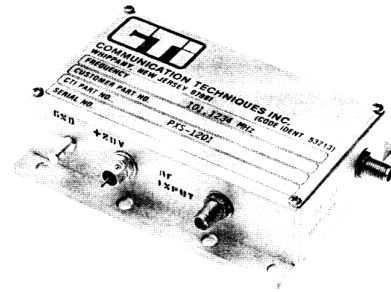
SERIES PXS; SINGLE FREQUENCY CRYSTAL OSCILLATOR PHASE-LOCKED TO 5 OR 10 MHz STANDARD 30 TO 200 MHz FREQUENCY RANGE LOW PHASE-NOISE

Features

- Locked to Fractional Frequencies
- Ultra Low Phase-Noise
- Long Term Stability of Standard
- No Phase-Noise Degradation
- Lock Alarm
- Small Size
- No Ovens-Low Power Drain
- Low Microphonics
- Low Spurious (<100 dBc)
- Harmonics >30 dBc
- No Sub-Harmonics

Options

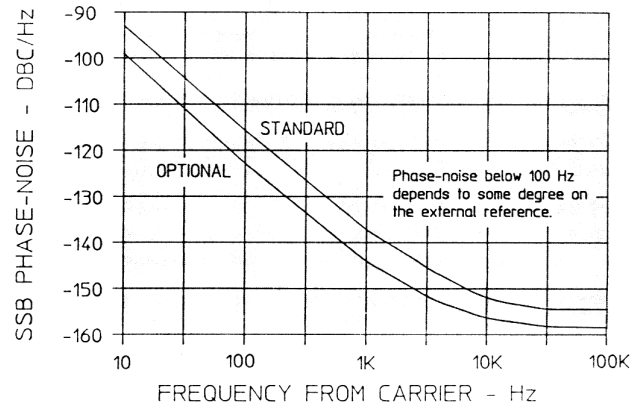
- FM Modulatable
- Bandwidth Tailoring
- Different Voltages
- Multiple Crystals
- Field Changeable Crystals
- Higher Output Powers
- Multiple Outputs
- Militarized to MIL-E-5400
- Ultra-Low Noise



DESCRIPTION

Series PXS phase locks a crystal oscillator at a specific frequency in the 30 to 200 MHz range to an external 5 or 10 MHz reference standard. (Other reference frequencies in the 1 to 20 MHz range available optionally.) The internal crystal oscillator is phase lockable by digital synthesis techniques to an external frequency standard for improved close-in (<100 Hz) phase-noise, as well as improved long-term frequency stability, without degrading the crystal oscillator's overall noise performance. The phase-lock loop can be tailored to optimize the noise performance depending on the reference standard used. The output frequency does not have to be an integer multiple of the reference frequency. The digital synthesis technique used enables the output frequency to be set to almost any desired frequency. For example an output frequency of 111.04427 MHz is possible. An internal voltage regulator enables the unit to be operated at +15, +20 or

CRYSTAL OSCILLATOR — PHASE NOISE
ULTRA LOW-NOISE



+ 24 volts. When combined with a P/MP Microwave Phase-Locked Signal Source (See the XSM/XSMP-Series), the results is the extremely low phase-noise from a VHF crystal oscillator and the long term frequency stability of the external frequency standard.

SPECIFICATIONS

RF Output:

Frequency Range: 30 MHz to 200 MHz (Specify)
 Power: 0 to 13 dBm \pm 1 dBm (Specify)
 Power Variation Over Temperature: \pm 1 dB
 Harmonic: -30 dBc (greater harmonic rejection optionally available)
 Non-Harmonic Spurious: -90 dBc
 Frequency Stability: same as external reference
 Phase-Noise: See Figure 1.
 Load VSWR: 1.5:1 (max) all phase angles

External Reference Input:

Frequency Range: 1 MHz to 20 MHz (Specify)
 Power Level: 0 dBm \pm 3 dB
 Phase Lock Indicator: LED "ON" In Lock
 LED "OFF" Out-of-Lock

Phase Lock Alarm: TTL
 Locked: 4 ± 0.2 VDC
 Out-of-Lock: 4 ± 1 VDC

Temperature Range:

Operating: 0°C to 60°C
 (other ranges available)
 Storage: -54°C to +85°C

Power Supply Requirements:

Voltage Range: +15 to +24 VDC
 Current: 250 mA

Connectors:

RF Output: SMA-F
 RF Input: SMA-F
 Supply Voltage: solder terminal
 Phase Lock: solder terminal
 Alarm: solder terminal

PXS; SINGLE FREQUENCY CRYSTAL OSCILLATOR PHASE-LOCKED TO 5 OR 10 MHz STANDARD 30 TO 200 MHz FREQUENCY RANGE LOW PHASE-NOISE

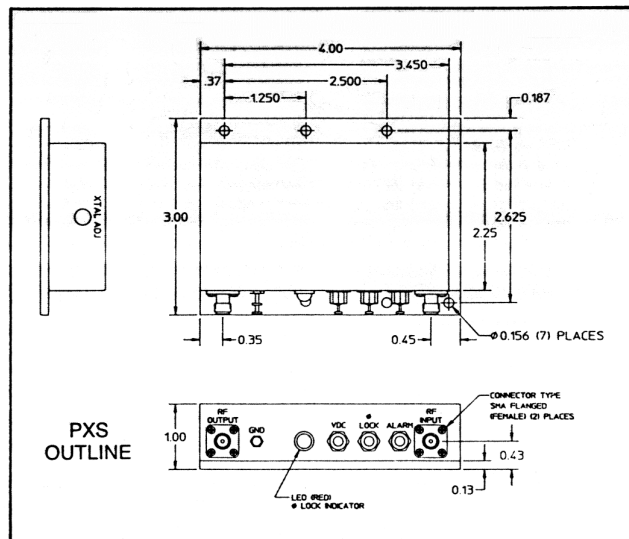
Exceptionally High Reliability Is Obtained In All Units Through The Use Of:

1. JAN and JANTX or equivalent transistors and diodes;
2. Microwave diodes screened to JANTX;
3. Thermal shock cycles of subassemblies;
4. Extended burn-in.

Optional Tests That Are Available Include:

1. Vibration screening;
2. Temperature screening;
3. Phase-Noise test data using computer controlled HP-11740A Phase-Noise Test Set.

These sources can be specially configured to meet a wide variety of Military Specifications such as MIL-E-5400, and to operate from -54°C to $+85^{\circ}\text{C}$. (See page 82 for more details.) If you have a unique (or not so unique) frequency multiplier requirement, please call CTI. With our broad experience and expertise in both commercial and military sources, we can custom design to customer specifications to include a wide variety of optional features. Consult the factory for more information.



ENVIRONMENTAL CONDITIONS

Temperature:

- Operating: $- 0^{\circ}\text{C}$ to $+ 60^{\circ}\text{C}$
- Storage: $- 54^{\circ}\text{C}$ to $+ 85^{\circ}\text{C}$

Altitude:

- Operating: 15,000 ft.
- Storage: 50,000 ft.

- Humidity: 95% RH at 40°C per MIL-STD-202 Method 103B test condition B

Random Vibration
(Non-Operating):

MIL-STD-202 Method 214, test condition B, 7.3 G RMS overall

Shock
(Non-Operating):

MIL-STD-202, Method 213B, test condition J, 30 G, 11 millisecond half sine.

HOW TO ORDER

Series PXS

Because of CTI's unique capability to custom configure units to a wide variety of requirements, a special model number will be assigned to each new order. The model numbers shown in this catalog are, therefore, only representative of CTI's capabilities.

When ordering, the following minimum information should be stated.

1. Output Frequency

2. Output Power (min)
3. Input Frequency
4. Input Power Level
5. Supply Voltage
6. Critical in-band or out-of-band spurious levels
7. Phase-Noise required (input &/or output)
8. Environmental Conditions, if different from specifications
9. Other special features required.