

System Interface Products

POP - Precision Oscillator Package



Precision OCXO 10MHz Oscillator and Mux/Tee in one package

How to order a Precision Oscillator Package (POP)

Module

POP - Precision Oscillator Package

10MHz Precision Oscillator Connectors

- J1:** DC in to power Oscillator
- J2:** Secondary in-phase 10MHz Out
- J3:** DC out to power Mux/Tee
- J4:** 10MHz out to attached component (Always SMA to SMA. jumper included)

POP -BSBS-NNBS

Mux/Tee Connectors

- J5:** To LNB, BDC or BUC
- J6:** To Receiver or modem
- J7:** DC in
- J8:** 10 MHz in (from Oscillator)

Connectors available:

J5, J6: L-Band: To LNB/BUC & Rx/Modem

- F - F, 75Ω
- N - N, 50Ω
- S - SMA, 50Ω

J2, J4, J8: 10MHz

- B - BNC (industry standard)
- S - SMA (recommended for outdoor use)
- N - N

J3, J7: DC Supply

- B - BNC (preferred)
- F - F
- N - N

BNC-to-pigtail adapters and BNC-to-binding post adapters for DC sold separately. See SIP price list for part number and price.

POP Features

Ovenized Oscillator (OCXO)

- Exceptionally low phase noise -160 dBc/Hz @ 1 kHz
- Exceptionally low drift, 0.05ppm, 0 to 50°C
- Exceptionally stable, $\pm 1 \times 10^{-9}$ per day after 30 days
- High output level for service as master system oscillator
- Sine wave purity, low harmonic content
- Red LED extinguishes when ovenized oscillator reaches stable operating equilibrium

Mux/Tee

- Highpass filtered L band, rolloff below 900 MHz, flat 950 thru 2900 MHz
- Bandpass filtered 10 MHz, opt. 20 MHz notch filter
- Low thru loss from 10 MHz input to LNB
- Lowpass filtered DC, 4.0 Amp maximum capacity
- Any in, Any out Impedance transforms (eg. 75 Ω in, 50 Ω out)
- DC block to Rx port and 10 MHz port
- Very low bandpass ripple
- Very low L band through loss
- Very high Rx to 10MHz port isolation, no leakage back to Rx
- Superior Input and Output VSWR
- Protects phase noise performance
- Exceptionally low insertion loss

Functional

- Will operate with LNBS, BDCs, VSATs, BUCs, and Modems

Structural

- Machined from solid aluminum billet for strength and stability
- Anodized finish for corrosion protection and excellent RF shielding/grounding
- Connectors are 'O' ring sealed for weather resistant operation

Power Supply

Orbital advises that a separate power supply be used for each power input (Oscillator and secondary package) as one power supply for both can cause extraneous signals to be transferred to the Oscillator, which can degrade its performance.

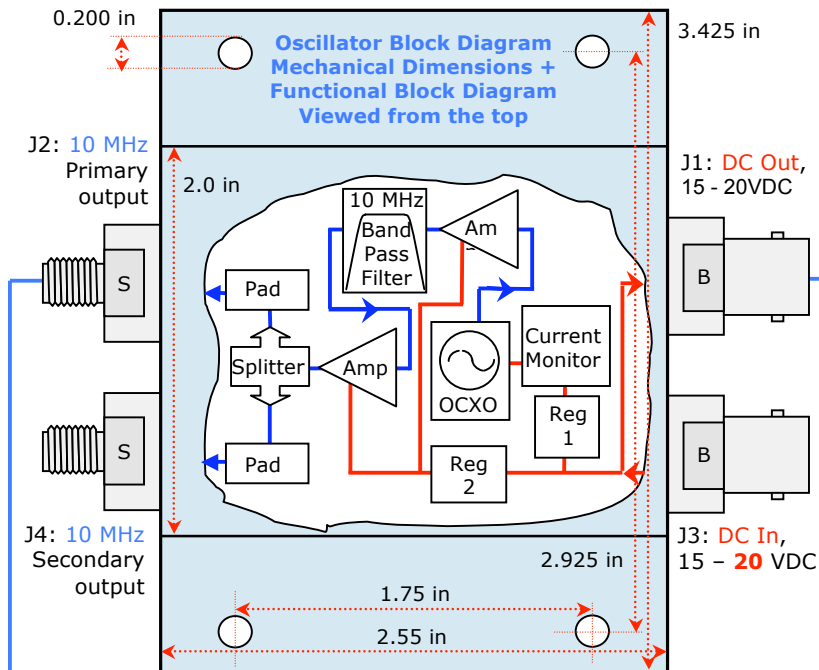
If only one power supply is desired by the customer then Orbital can provide a BNC 'T' adapter for this purpose. Please advise when ordering. But when using this option, the customer must still adhere to the 15 to 20 VDC restriction of the Oscillator.

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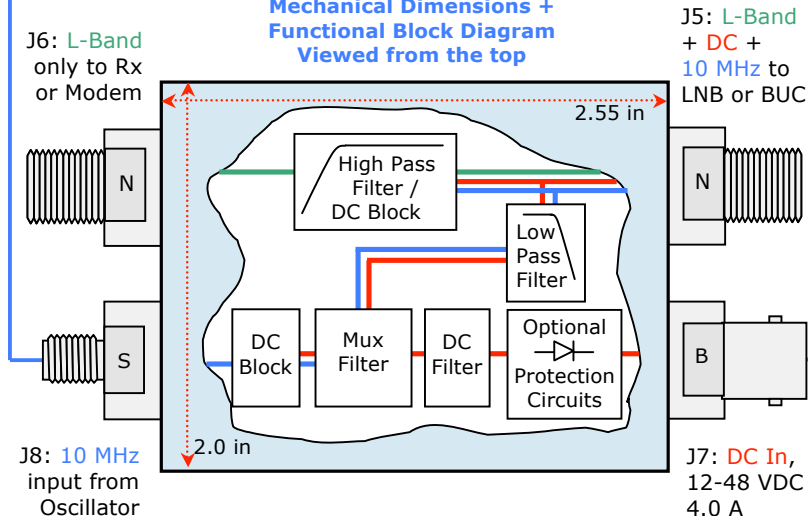
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System Interface Product (SIP): POP (OCXO) - Specifications

**POP Block Diagram
Mechanical Dimensions +
Functional Block Diagram
Viewed as if dismantled**



**Orbital Mux / Tee
Mechanical Dimensions +
Functional Block Diagram
Viewed from the top**



Mux/Tee

L Band

Bandpass: 900 to 2100 MHz
Thru Loss: 0.5 dB maximum
Ripple: ± 0.3 dB maximum
Input VSWR: 1.3 : 1 maximum
Output VSWR: 1.3 : 1 maximum

10 MHz

Passband: 1-100 MHz (3 dB down)
Thru Loss: 0.2 dB 10 MHz to LNB port
Isolation: >90 dB 10 MHz to Rx port

DC

Filtering: Hash filter, low pass filter
Resistance: 0.132 ohms (average)

10 MHz Oscillator

Frequency: 10 MHz
Output Level: J2: +2 dBm
J4: +2 dBm
Stability: $\pm 5 \times 10^{-8}$, 0 to +50°C
Aging: $\pm 1 \times 10^{-9}$ per day after 30 days
 $\pm 5 \times 10^{-7}$ per year after 180 days
Phase Noise:
10Hz -120 dBc/Hz
100Hz -145 dBc/Hz
1kHz -160 dBc/Hz
10kHz -165 dBc/Hz
100kHz -165 dBc/Hz

Power Specifications

Oscillator

Input DC Voltage: +15 to +20 V supplied
via DC input connector
Current Drain: 350 mA max (warm-up)
100 mA nominal
(after warm-up)

Mux/Tee

Input DC Voltage: Passive Device. No power
required
Power Capacity: 12 to 48 VDC - 4.0A

Mechanical Specifications

Measurements: Tolerance $\pm .005$ in.
Size (case): 3.425l x 2.55w x 1.875h in.
Size (with conn): 3.425l x 3.8w x 1.875h in.
Weight: 10 oz
Paint / Colour: Blue Anodized finish
Mounting holes: 3/8" (5mm)
Accepts standard
rackmounting screws:
10/32 or 10/34

Environmental Specifications

Operating Temp: 0 to +50° Celsius
Relative Humidity: Up to 100%
condensation and frost

Power Supply (not included with POP)

See: PS1 brochure for North America
PS2 brochure for Global

Featuring an ovenized oscillator (OCXO), the Precision Oscillator Package has been designed specifically for the satellite industry. Its sturdy case, allodined finish, small size and back-o-rack mounting system make it both enduring and easy to use. The Murray-style connectors guarantee the best possible connections for the life of the product.

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