

# System Interface Products

## POP – Precision 10 MHz 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 LNB/BUC (MuxTee)
- J4:** 10MHz out to attached component (Always SMA to SMA. jumper included)

POP-BSBS-FFBS-AM

#### Mux/Tee Connectors

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

#### Optional

- " " - (blank) Standard version
- EP - Enhanced Phase Noise
- AM - Optimized for Airborne

#### 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)      ft - feedthru
- S - SMA                      T - TNC
- N - N

### POP Features

#### Ovenized Oscillator (OCXO)

Orbital Research now has three OCXO Oscillators depending on your requirements:

- 1) Our standard offering for most applications
- 2) Our enhanced offering with better phase noise
- 3) Our Airborne offering with better immunity to vibration and a greater temperature range.

#### Mux/Tee (as secondary modules)

- Highpass filtered L band, rolloff below 900 MHz, flat 950 thru 2900 MHz
- Very low bandpass ripple
- Very high Rx to 10MHz port isolation (no leakage back to receiver)

#### Functional

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

#### Structural

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

#### 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.

Because the POP is ovenized, it can draw as much as 350 mA during startup, as it heats to operating temperature.

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

## ELECTRICAL SPECIFICATIONS

Parameter		Specification		
Oscillator Specs		Standard	Enhanced	Airborne
10 MHz Reference	Frequency	10 MHz		
	Output Level	2 dBm		
	Stability over Temperature	$\pm 5 \times 10^{-8}$	$\pm 5 \times 10^{-8}$	$\pm 1 \times 10^{-8}$
	10 year aging	$\pm 5 \times 10^{-7}/\text{year}$	$\pm 5 \times 10^{-7}/\text{year}$	$\pm 1 \times 10^{-7}/\text{year}$
	Temperature Range	0°C to +50°C	0°C to +50°C	-40°C to +80°C
	Phase Noise 10Hz	-120 dBc/Hz	-120 dBc/Hz	-120 dBc/Hz
	100Hz	-145 dBc/Hz	-145 dBc/Hz	-150 dBc/Hz
	1 kHz	-152 dBc/Hz	-158 dBc/Hz	-158 dBc/Hz
	10 kHz	-155 dBc/Hz	-160 dBc/Hz	-165 dBc/Hz
	100 kHz	-155 dBc/Hz	-160 dBc/Hz	-165 dBc/Hz
	1 MHz	-155 dBc/Hz	-160 dBc/Hz	-165 dBc/Hz
	Harmonics	<-45 dBc		
	Port-to-Port Isolation	30 dB		
Power requirement	+12.5 to +18 VDC supplied through Oscillator DC input connector.			
Current Drain	350 mA max during warm-up. 125 mA max after warm-up.			
<b>Mux/Tee Specs</b>				
Mux/Tee	Bandpass	900 to 2100 MHz		
	Thru Loss	0.5 dB max		
	Ripple	+/-0.3 dB max		
	Input VSWR	1.3 : 1 max		
	Output VSWR	1.3 : 1 max		
	10 MHz Passband	1-100 MHz (3 dB down)		
	10 MHz Thru Loss	0.2 dB, 10 MHz to LNB port		
	10 MHz Isolation	>90 dB, 10 MHz to Rx port		
	DC Filtering	Hash filter, low pass filter		
	DC Resistance	0.132 ohms average		
	Power Capability	+12 to +48 VDC, 4.0 Amps		
	Power Requirement	Passive. No power required		

## MECHANICAL SPECIFICATIONS

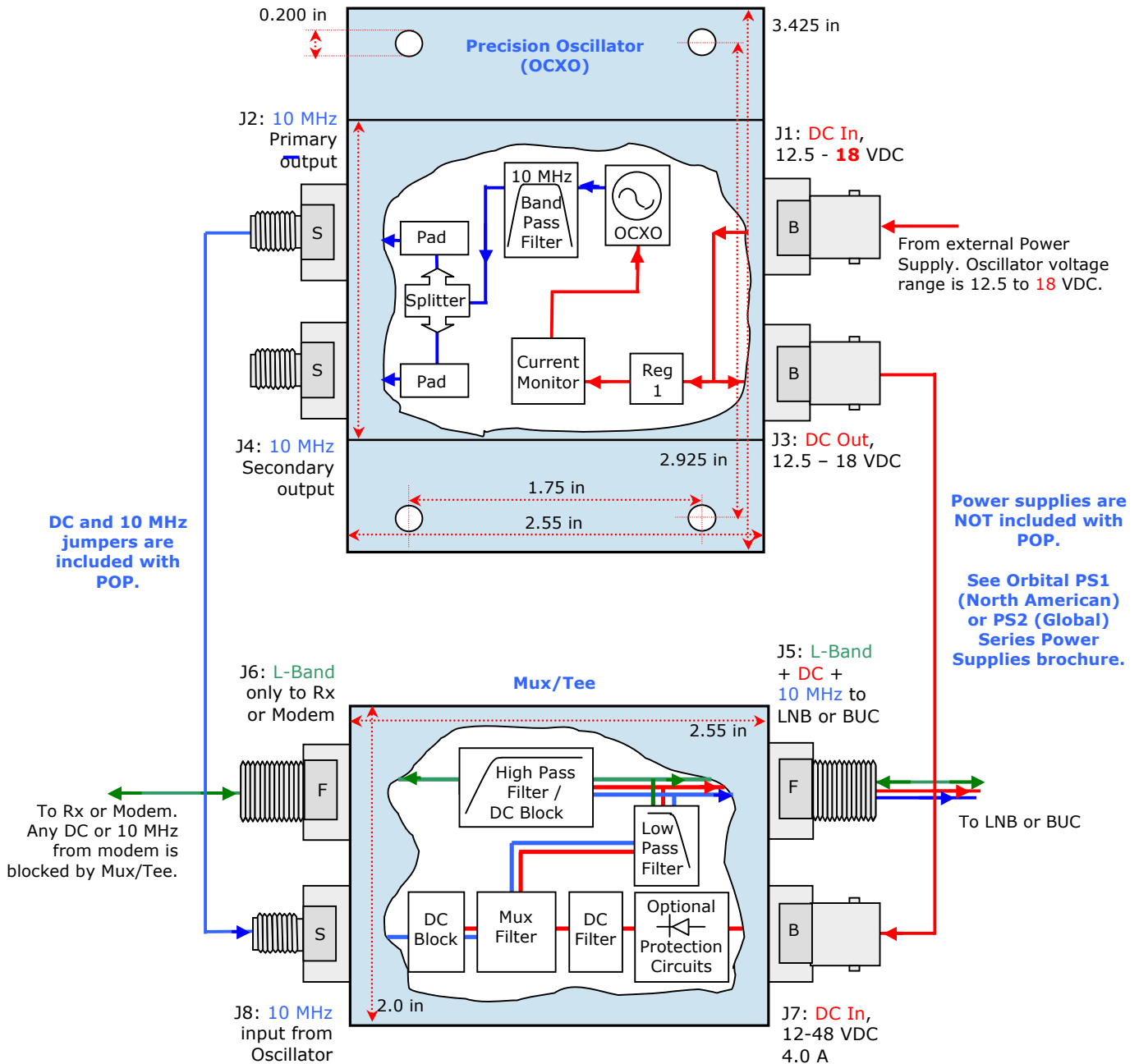
Size (case)	3.425(L) x 2.55(W) x 1.875(H) inches
Weight	15 oz
Paint / Color	Anodized Blue, MIL-STD-595

## ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0°C to +50°C	0°C to +50°C	-40°C to +80°C
Relative Humidity	Up to 100% condensation and frost		
	RoHS & REACH		

# System Interface Product: POP – Mechanical Diagram

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



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