



Crystal Oscillators > 500 MHz to 12 GHz

Multiplied Crystal Oscillator (MXO) Series

Features:

- Fixed Outputs between 200 MHz to 12 GHz
- Ultra Low Phase Noise
- Integrated ULN Oscillator & Low Noise Multiplier
- Exceptional Sub-Harmonics & Spurious Content
- High Output Power Option Available
- Phase Lock Option Available
- Various Configurations



The Multiplied Crystal Oscillator (MXO) Series is comprised of Wenzel's Industry Leading Ultra Low Noise Crystal Oscillator, and several low noise multiplier stages. The (MXO) Series is easily customized to any fixed frequency between 200 MHz and 12 GHz. Phase locking circuitry is also available for the use of external references, like Rubidium, Cesium, and GPS Standards.





Frequency Source Only (No PLL)		Frequency Source with Phase Locking ¹ (Includes PLL)		Output Frequency ²	Typical Output Level ³	Typical Phase Noise (dBc/Hz) (Free-Running)				Harmonics	Sub- Harmonics	Spurious	Supply		
Part Number	Package Size	Part Number	Package Size			100 Hz	1 kHz	10 kHz	100 kHz				Voltage ⁴	Current	
													Warm-Up	Total	
MXO-200-J1	2.25 x 4 x 1"	MXO-200-J1P	3.445 x 4 x 1"	200 MHz	+13 ±2 dBm	-123	-149	-167	-168	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 10 Watts	≤ 8 Watts
MXO-300-J1	2.25 x 4 x 1"	MXO-300-J1P	3.445 x 4 x 1"	300 MHz	+13 ±2 dBm	-119	-145	-163	-164	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 10.5 Watts	≤ 8.5 Watts
MXO-320-J1	2.25 x 4 x 1"	MXO-320-J1P	3.445 x 4 x 1"	320 MHz	+13 ±2 dBm	-119	-142	-160	-161	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 10.5 Watts	≤ 8.5 Watts
MXO-400-J1	2.25 x 4 x 1"	MXO-400-J1P	3.445 x 4 x 1"	400 MHz	+13 ±2 dBm	-117	-142	-160	-161	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 10.5 Watts	≤ 8.5 Watts
MXO-500-J1	2.25 x 4 x 1"	MXO-500-J1P	3.445 x 4 x 1"	500 MHz	+13 ±2 dBm	-115	-142	-160	-161	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 10.5 Watts	≤ 8.5 Watts
MXO-512-J1	2.25 x 4 x 1"	MXO-512-J1P	3.445 x 4 x 1"	512 MHz	+13 ±2 dBm	-107	-134	-157	-158	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 10.5 Watts	≤ 8.5 Watts
MXO-600-J2	3.205 x 4 x 1"	MXO-600-J2P	4.40 x 4 x 1"	600 MHz	+13 ±2 dBm	-113	-138	-156	-157	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 12 Watts	≤ 10 Watts
MXO-640-J2	3.205 x 4 x 1"	MXO-640-J2P	4.40 x 4 x 1"	640 MHz	+13 ±2 dBm	-113	-135	-153	-154	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 12 Watts	≤ 10 Watts
MXO-700-J2	3.205 x 4 x 1"	MXO-700-J2P	4.40 x 4 x 1"	700 MHz	+13 ±2 dBm	-112	-137	-155	-156	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 12 Watts	≤ 10 Watts
MXO-800-J2	3.205 x 4 x 1"	MXO-800-J2P	4.40 x 4 x 1"	800 MHz	+13 ±2 dBm	-111	-135	-153	-154	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 12 Watts	≤ 10 Watts
MXO-900-J2	3.205 x 4 x 1"	MXO-900-J2P	4.40 x 4 x 1"	900 MHz	+13 ±2 dBm	-110	-135	-153	-154	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 13.5 Watts	≤ 11.5 Watts
MXO-1000-J1	2.25 x 4 x 1"	MXO-1000-J1P	3.445 x 4 x 1"	1 GHz	+13 ±2 dBm	-109	-133	-151	-152	≤ -25 dBc	≤ -60 dBc	≤ -80 dBc	+15 VDC	≤ 12 Watts	≤ 10 Watts
MXO-1280-J2	3.205 x 4 x 1"	MXO-1280-J2P	4.40 x 4 x 1"	1.28 GHz	+13 ±2 dBm	-107	-129	-147	-148	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 13.5 Watts	≤ 11.5 Watts
MXO-2000-J2	3.205 x 4 x 1"	MXO-2000-J2P	4.40 x 4 x 1"	2 GHz	+13 ±2 dBm	-103	-128	-146	-147	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 13.5 Watts	≤ 11.5 Watts
MXO-2560-J3	4.16 x 4 x 1"	MXO-2560-J3P	5.355 x 4 x 1"	2.56 GHz	+13 ±2 dBm	-101	-122	-140	-141	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 14.5 Watts	≤ 12.5 Watts
MXO-3000-J2	3.205 x 4 x 1"	MXO-3000-J2P	4.40 x 4 x 1"	3 GHz	+13 ±2 dBm	-99	-121	-139	-140	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 15 Watts	≤ 13 Watts
MXO-4000-J2	3.205 x 4 x 1"	MXO-4000-J2P	4.40 x 4 x 1"	4 GHz	+13 ±2 dBm	-97	-119	-137	-138	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 15 Watts	≤ 13 Watts
MXO-5000-J2	3.205 x 4 x 1"	MXO-5000-J2P	4.40 x 4 x 1"	5 GHz	+13 ±2 dBm	-87	-111	-135	-136	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 15 Watts	≤ 13 Watts
MXO-5120-J3	4.16 x 4 x 1"	MXO-5120-J3P	5.355 x 4 x 1"	5.12 GHz	+13 ±2 dBm	-95	-115	-133	-134	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 16 Watts	≤ 14 Watts
MXO-6000-J2	3.205 x 4 x 1"	MXO-6000-J2P	4.40 x 4 x 1"	6 GHz	+13 ±2 dBm	-93	-114	-132	-133	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 15 Watts	≤ 13 Watts
MXO-7000-J2	3.205 x 4 x 1"	MXO-7000-J2P	4.40 x 4 x 1"	7 GHz	+13 ±2 dBm	-92	-115	-133	-134	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 15 Watts	≤ 13 Watts
MXO-8000-J3	4.16 x 4 x 1"	MXO-8000-J3P	5.355 x 4 x 1"	8 GHz	+13 ±2 dBm	-91	-112	-130	-131	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 15.5 Watts	≤ 13.5 Watts
MXO-9000-J3	4.16 x 4 x 1"	MXO-9000-J3P	5.355 x 4 x 1"	9 GHz	+13 ±2 dBm	-90	-111	-129	-130	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 17 Watts	≤ 15 Watts
MXO-10000-J3	4.16 x 4 x 1"	MXO-10000-J3P	5.355 x 4 x 1"	10 GHz	+13 ±2 dBm	-89	-111	-129	-130	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 17 Watts	≤ 15 Watts
MXO-10240-J3	4.16 x 4 x 1"	MXO-10240-J3P	5.355 x 4 x 1"	10.24 GHz	+13 ±2 dBm	-89	-108	-126	-127	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 17 Watts	≤ 15 Watts
MXO-11000-J3	4.16 x 4 x 1"	MXO-11000-J3P	5.355 x 4 x 1"	11 GHz	+13 ±2 dBm	-79	-103	-127	-128	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 17 Watts	≤ 15 Watts
MXO-12000-J3	4.16 x 4 x 1"	MXO-12000-J3P	5.355 x 4 x 1"	12 GHz	+13 ±2 dBm	-87	-108	-126	-127	≤ -25 dBc	≤ -80 dBc	≤ -80 dBc	+15 VDC	≤ 17 Watts	≤ 15 Watts

NOTES:

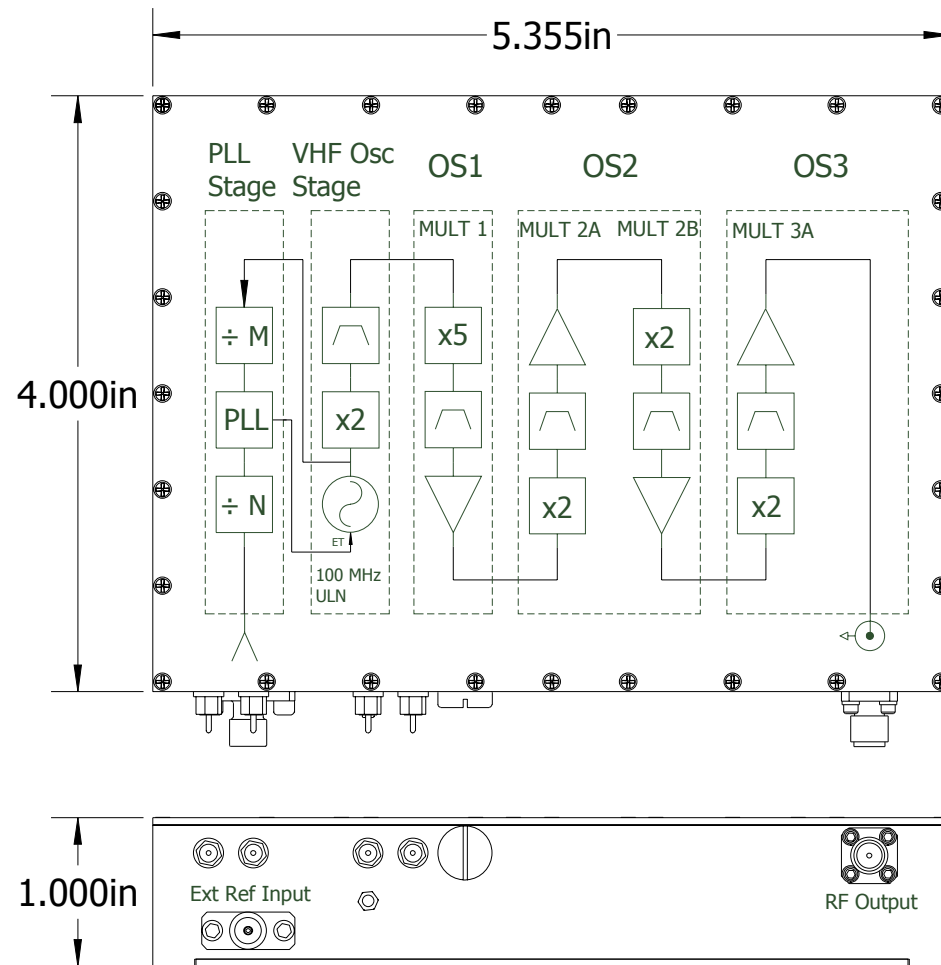
1. Contact factory to discuss external reference frequencies and loop bandwidth options.
2. Contact factory to discuss custom frequency options to 12 GHz and beyond.
3. Output Levels to +21 dBm available on some models.
4. +12 VDC Supply Voltage option available on some models.

Consult Factory for Custom Configuration



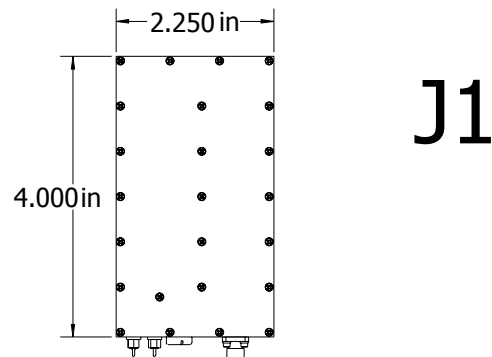


8 GHz Example

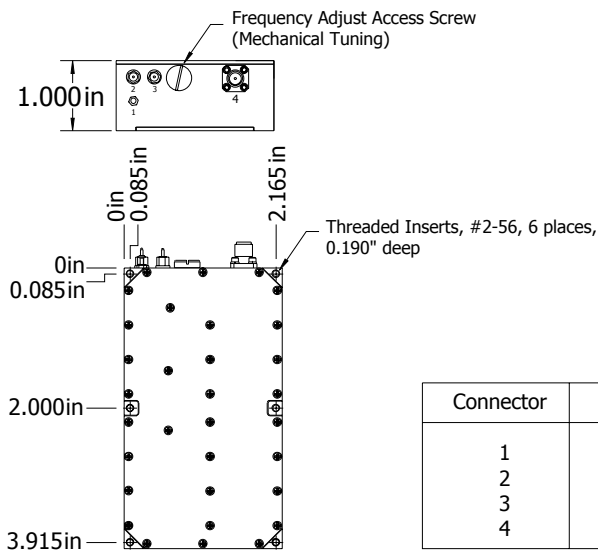




Block Diagrams & Case Details

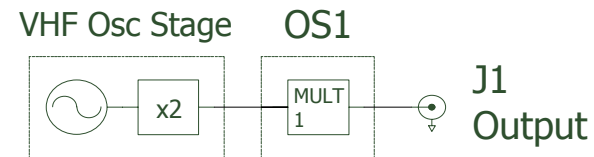


J1



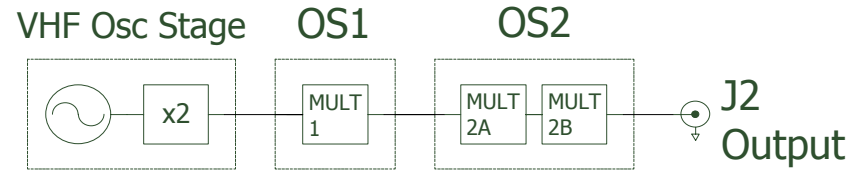
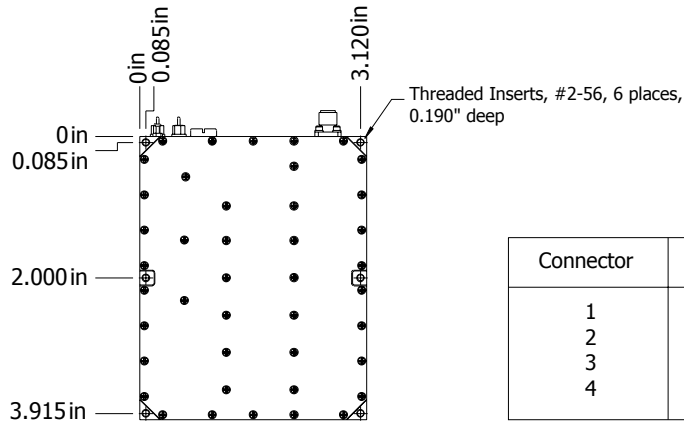
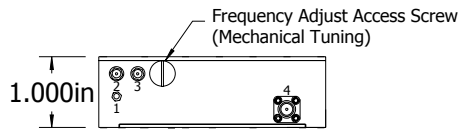
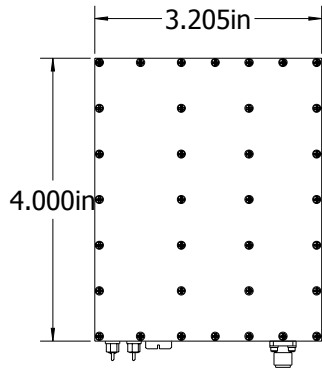
Connector	Function
1	Ground, Case
2	Supply Voltage
3	Electrical Tuning
4	RF Output

Connector numbers are for reference only, and are not marked on unit.





J2



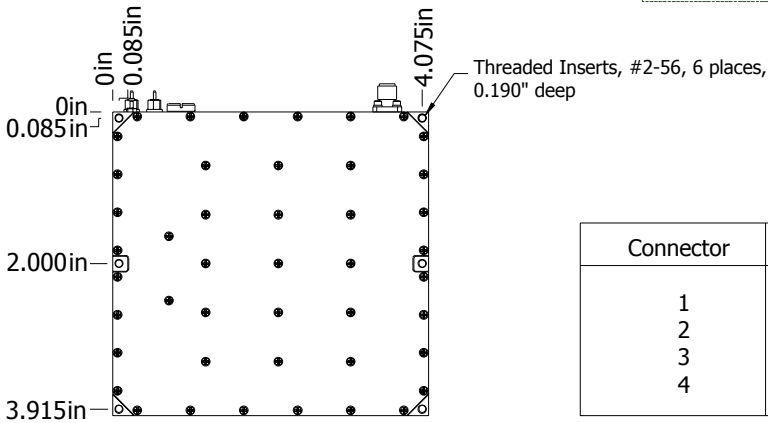
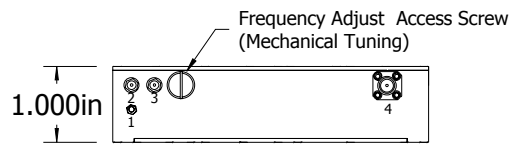
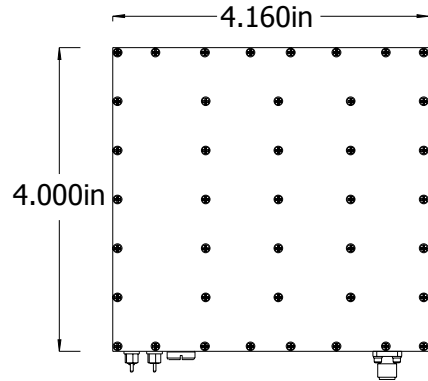
Connector	Function
1	Ground, Case
2	Supply Voltage
3	Electrical Tuning
4	RF Output

Connector numbers are for reference only, and are not marked on unit.





J3

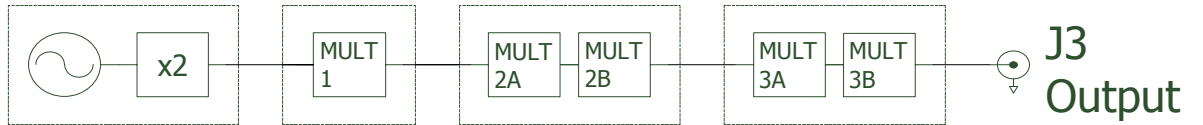


VHF Osc Stage

OS1

OS2

OS3



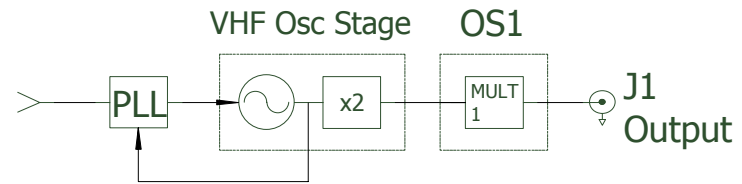
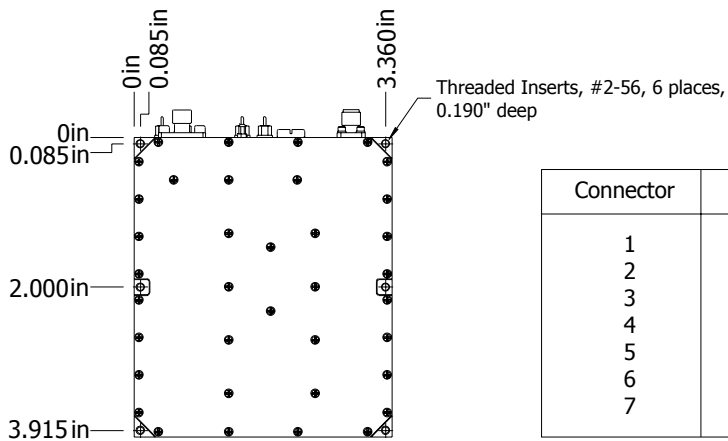
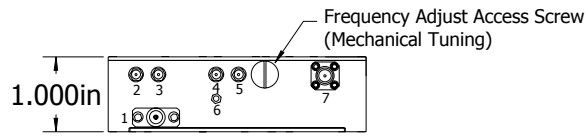
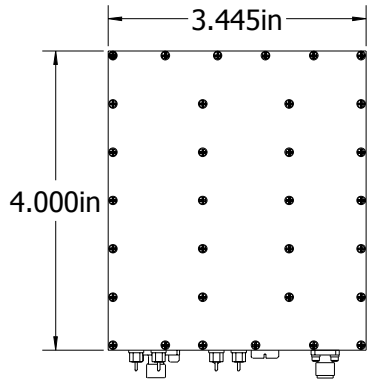
Connector	Function
1	Ground, Case
2	Supply Voltage
3	Electrical Tuning
4	RF Output

Connector numbers are for reference only, and are not marked on unit.





J1P



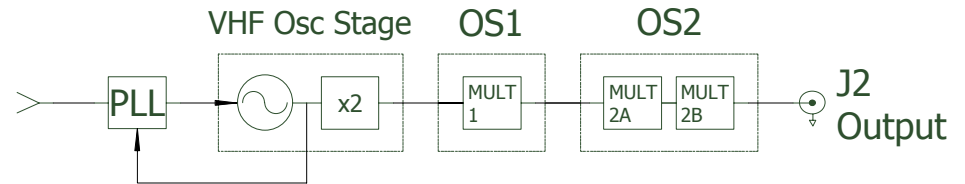
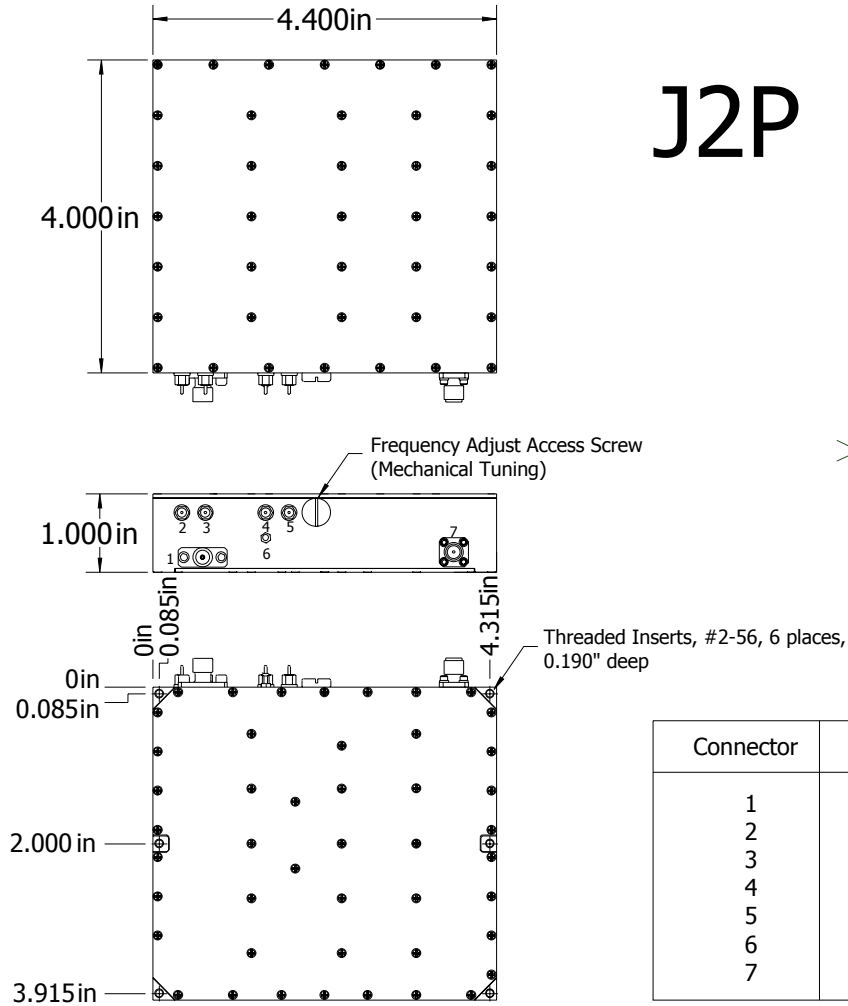
Connector	Function
1	External Reference Input
2	Phase Lock Voltage
3	Phase Lock Alarm
4	Supply Voltage
5	N/C
6	Ground, Case
7	RF Output

Connector numbers are for reference only, and are not marked on unit.





J2P



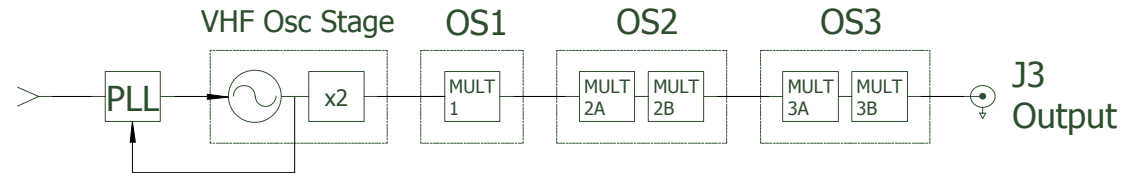
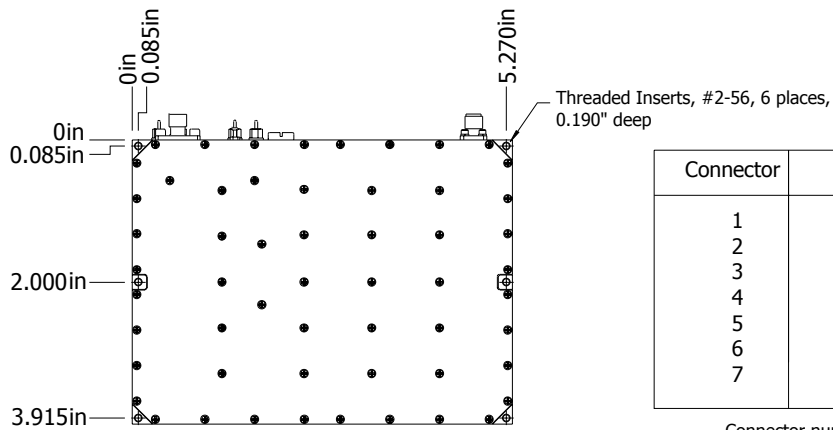
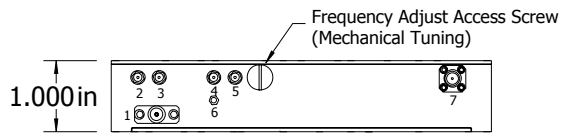
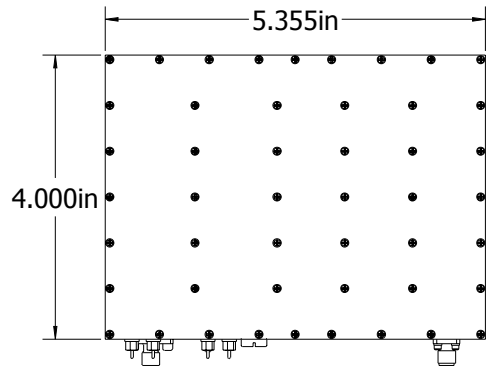
Connector	Function
1	External Reference Input
2	Phase Lock Voltage
3	Phase Lock Alarm
4	Supply Voltage
5	N/C
6	Ground, Case
7	RF Output

Connector numbers are for reference only, and are not marked on unit.





J3P



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

Connector numbers are for reference only, and are not marked on unit.

