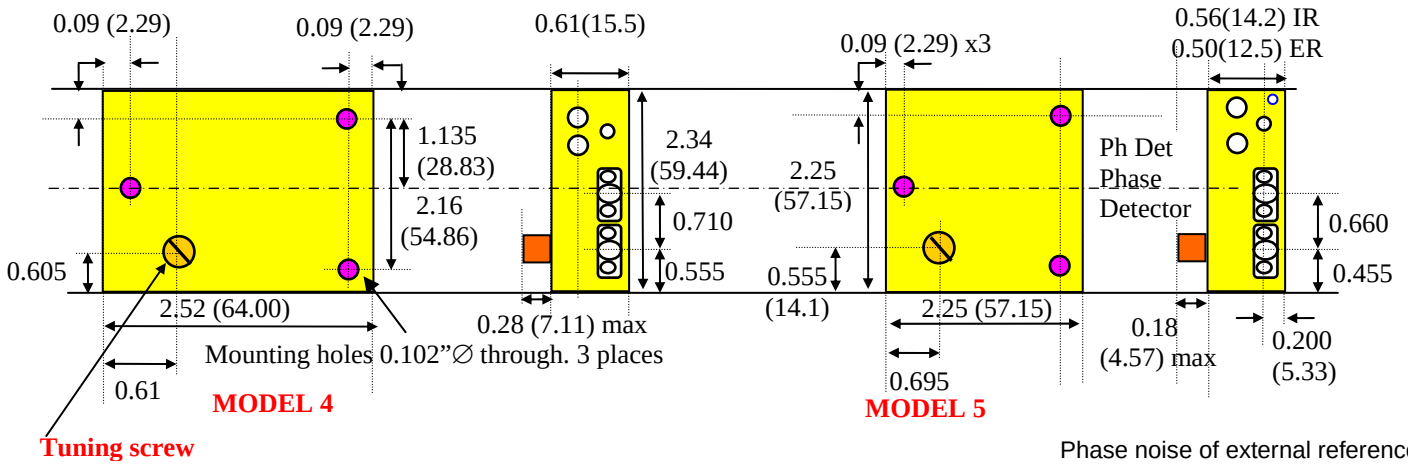
RADITEK Phase Locked Oscillators

RoHS COMPLIANT

RADITEK Phase Locked Oscillators (PLO's) use dielectric resonators for improved stability and phase noise.
The oscillator is phase locked to a crystal oscillator reference (external or internal TCXO). See also Raditek PLO M6-M7.
(see other data sheets for frequencies <4 GHz, >10GHz.



PART#: RPLO-A-Model-FREQ-POWER-VCC-Reference –Alarm
Isolator at output is standard
Example: RPLO-A-M4-6.95-15d-15v-ER50M

Not to scale. UNITS: inch (mm). Temperature range: -30 to +70°C.

MODEL:	Model 4	Model 4	Model 5	Model 5	Units
Frequency	4.4-7.9	4.4-7.9	8.0-10.0	8.0-10.0	GHz
Reference	Internal	External	Internal	External	
		ER 48-130M		ER 48-110M	
Reference		0±3		0±3	dBm
Fr. Stability					
15 to 35 ºC std	±5 ppm TCXO	as ext. ref.	±5 ppm TCXO	as ext. ref.	ppm
POWER out	+15	+15	+14	+14	dBm min
Output VSWR	1.5	1.5	1.5	1.5	:1
Load VSWR (will Tolerate)	3.0	3.0	3.0	3.0	:1
Spurious	>-80	>-80	-75	-75	dBc typ
Harmonics	-20	-20	-20	-20	dBc typ
DC power(Vcc) ±1Volt	+5 (opt) or +15 100	+12 or +15 75	+15 100	+15 75	V@ mA typ
Humidity: non condensing to 35C	95	95	95	95	%
Alarm (optional)	TTL H =Lock TTL L =UnLock	TTL H =Lock TTL L =UnLock	TTL H =Lock TTL L =UnLock	TTL H =Lock TTL L =UnLock	optional
Additional Specs					
Mechanical Tuning range	100	100	100	100	MHz
Impedance	50	50	50	50	Ohms
Operating Temperature	-30 to 70	-30 to 70	-30 to 70	-30 to 70	°C
Storage Temperature	-40 to 80	-40 to 80	-40 to 80	-40 to 80	°C
Finish	Nickel	Nickel	Nickel	Nickel	

Phase noise of external reference must be better than –120 dBc/Hz at 100KHz.
It degrades by 20LOG N +3 dB of reference.

Options include:
- ❑ 12V, 15V, Vcc
- ❑ **Phase lock alarm: Open Collector**

1. (AL1, standard) Locked High (customer supplied 5-16V, Unlocked Low 0.2V Typical ,
2. (AL2 special) Locked Low 0.2V Typical , Unlocked High (customer supplied 5-16V, 20dBm power out @ 8GHz (Check availability by frequency)

Installation details:
1. Mechanical DRO adjustment is not advised. Monitor the Phase voltage during adjustment (to be mid way), wait 5 minutes (warm up) before any adjustment.
2. Crystal adjustment. Screw adjustment under cover, (on internal reference models). Monitor frequency Adjust after 5 minutes warm up. Monitor the Ref. Monitor port for mid Vcc voltage.

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(see other data sheets for frequencies <4 GHz, >10GHz.

MODEL:	Model 4			Units
Frequency	6.6			GHz
Reference	Internal 100MHz TCXO			
Reference				dBm
Fr. Stability				
15 to 35 ºC std	±5			ppm
POWER out	+15 min. +16 typ.			dBm
Output VSWR	1.5			:1
Load VSWR (will Tolerate)	3.0			:1
Phase Noise	-112 @ 1kHz -115 @ 10kHz -115 @ 100kHz			dBc typ
Spurious	>-80			dBc typ
Harmonics	-20			dBc typ
DC power(Vcc) ±1Volt	+5 120			V@ mA typ
Humidity: non condensing to 35C	95			%
Alarm (optional)	TTL H =Lock TTL L =UnLock			optional
Additional Specs				
Mechanical Tuning range	100			MHz
Impedance	50			Ohms
Operating Temperature	-30 to 70			^{o}C
Storage Temperature	-40 to 80			^{o}C
Finish	Nickel			

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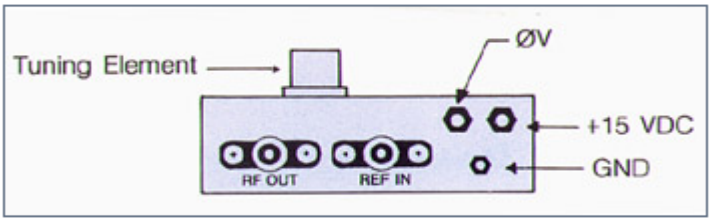
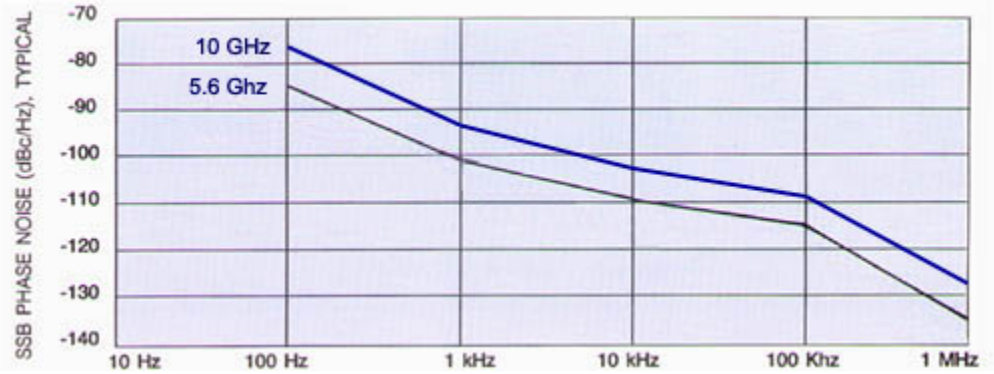
Typical Phase noise, in dBc/Hz, per offset: +/-4dB			
AT:→	3G	5G	12G
100Hz	20log(N)+3	20log(N)+3	20log(N)+3
1KHz	20log(N)+3	20log(N)+3	20log(N)+3
10KHz	20log(N)+3	20log(N)+3	20log(N)+3
100KHz	20log(N)+3	20log(N)+3	20log(N)+3
1MHz	-140	-140	-135



(Option +12VDC)

External reference as shown
Internal reference (RF in connector Omitted)

Phase Noise



Offset Frequency From Carrier

Note:
Phase noise less than 100 kHz from the carrier is essentially determined by the external crystal reference oscillator according to the equation

External Ref. Noise (dBc/Hz) + 20logN
where N is the output frequency ÷ reference, or the multiplication factor.

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