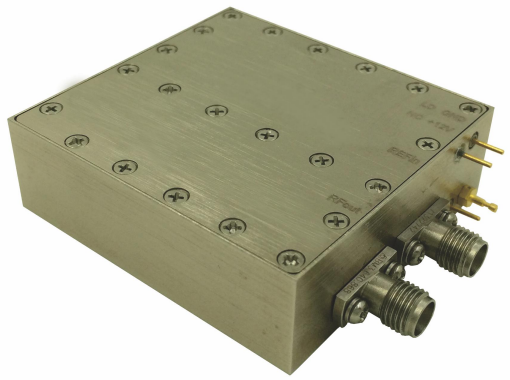
Phase Locked Coaxial & Dielectric Resonator Oscillator

SERIES PLCRO&PLDRO



Features

- Frequencies from 1GHz to 32GHz
- Operating temperature from -55℃ to +85℃
- Ultra Low Phase Noise
- Low spurious
- Low power consumption
- Phase lockable to references from 1 MHz to 300MHz
- Small Size

Description

The Sampling Master series of phase locked coaxial resonator oscillators have been designed for use in commercialand military systems where demanding performance, high reliability and cost are critical. This family of products take advantage of the small size, low phase noise and high efficiency offered by fundamental BJT CROs when they are phase locked to an external crystal in the 1 MHz to 300 MHz range. The single loop model when phase locked to an external 100 MHz (PN:-158dBc/Hz@1KHz) crystal provides exceptionally low phase noise,typically **-126 dBc/Hz at 1KHz offset at 9 GHz**.

In addition, two reference options are available.The first option offers an integrated, high stability internal crystaloscillator in the 100 MHz range in a slim line package.

The second option offers a dual loop design, also in a slim line package. This internal crystal source is phase locked to an external frequency standard between 1 and 300 MHz using digital synthesis techniques and allows the output frequency to be phase locked to an integer or fractional multiple of the reference frequency used.

Typical Performance Specifications

Output Frequency (GHz)	1~32
External Reference (MHz/Phase Noise)	100/≤-157dBc/Hz@1KHz
External REF Input Power Level (dBm)	0±5
Output Power (dBm)	13±1
Spurious (dBc)	≤-80
Harmonics (dBc)	≤-20
Power Supply (V/mA)	+12/300
Phase Noise	See The Table
Frequency Stability	The same as the crystal reference source
Alarm	TTL Lock in high
Operating Temperature (℃)	-55~+85
Dimensions L(mm)×W(mm)×H(mm)	57.2×57.2×15.7 & 50.8×47.8×15.7

Part Number	SM1000-M-N-L-1	SM2000-M-N-L-1	SM4000-M-N-L-1	SM6000-M-N-L-1
	Output Frequency (GHz)			
Phase Noise in dBc/Hz@	1	2	4	6
100Hz	-117	-111	-105	-104
1KHz	-138	-132	-126	-122
10KHz	-145	-138	-132	-129
100KHz	-145	-138	-132	-129
1MHz	-150	-150	-145	-143
Part Number	SM8000-M-N-L-1	SM10000-M-N-L-1	SM12000-M-N-L-1	SM14000-M-N-L-1
	Output Frequency (GHz)			
Phase Noise in dBc/Hz@	8	10	12	14
100Hz	-102	-97	-95	-94
1KHz	-120	-115	-113	-112
10KHz	-127	-123	-120	-119
100KHz	-127	-123	-120	-119
1MHz	-140	-140	-140	-140

Note: 1. Phase noise floor is lower than -163dBc/Hz;
2.We can provide the anti-vibration products;
3.We provide the internal reference products.

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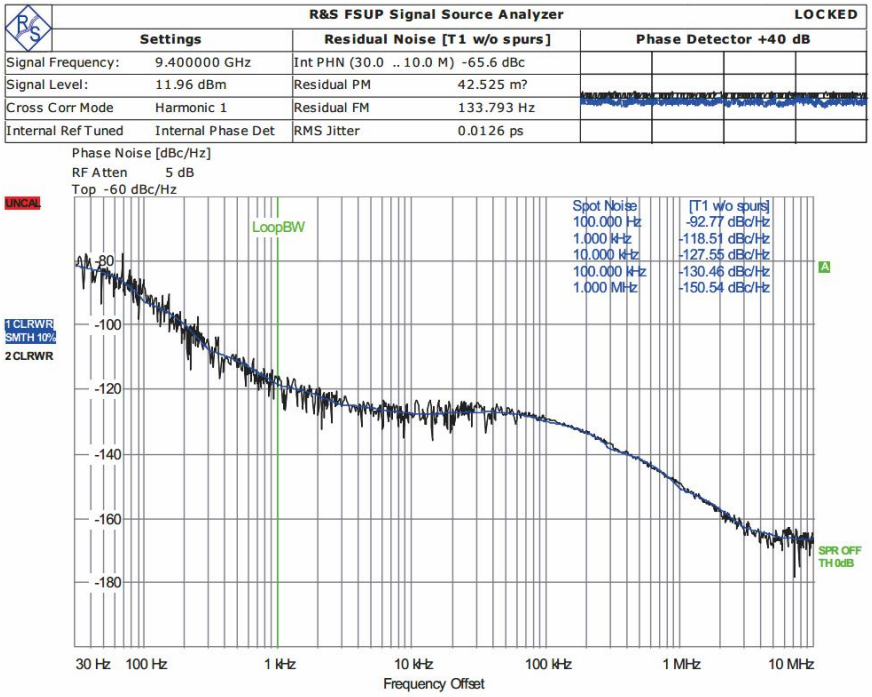
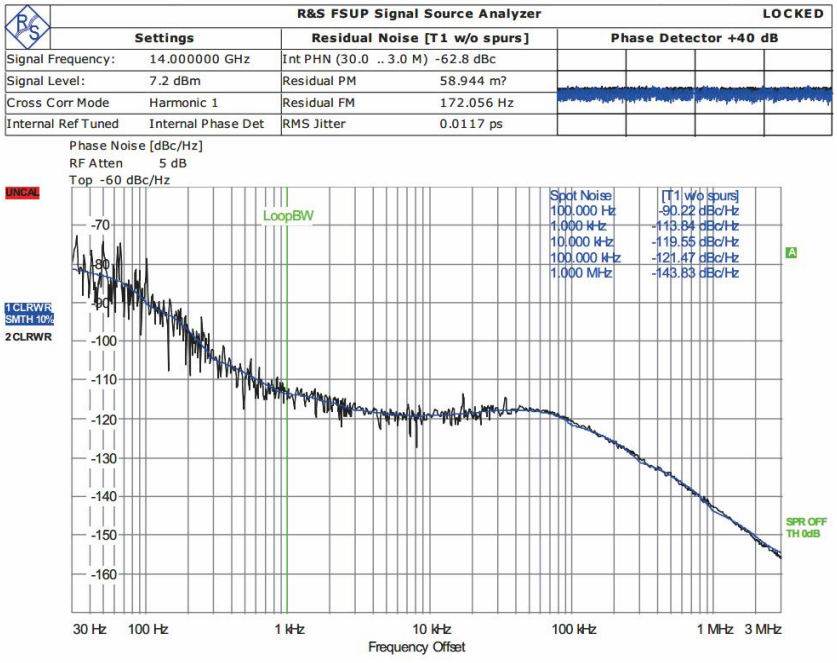
Phase Noise @9.4GHz

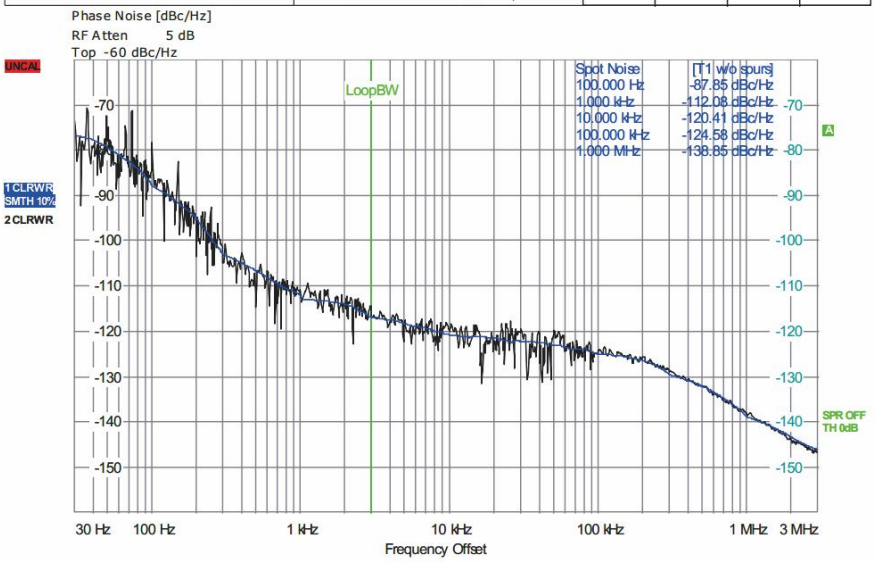


Phase Noise @14GHz



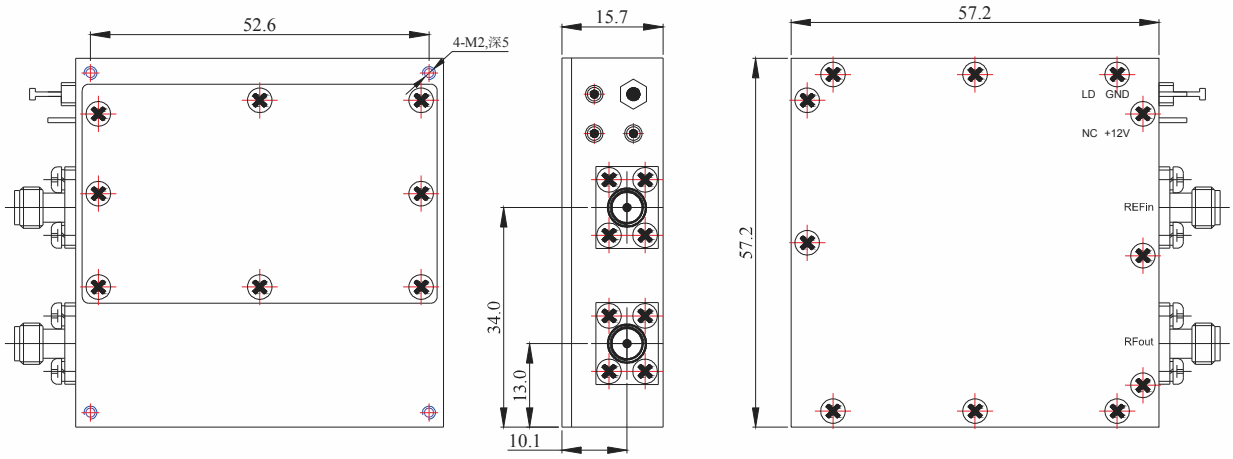
Phase Noise @17GHz

R&S FSUP Signal Source Analyzer			LOCKED
Settings		Residual Noise [T1 w/o spurs]	Phase Detector +20 dB
Signal Frequency:	17.000001 GHz	Int PHN (30.0 .. 3.0 M)	-60.8 dBc
Signal Level:	4.25 dBm	Residual PM	74.191 m?
Cross Corr Mode	Harmonic 1	Residual FM	309.589 Hz
Internal Ref Tuned	Internal Phase Det	RMS Jitter	0.0121 ps



Outline drawing

External Reference:



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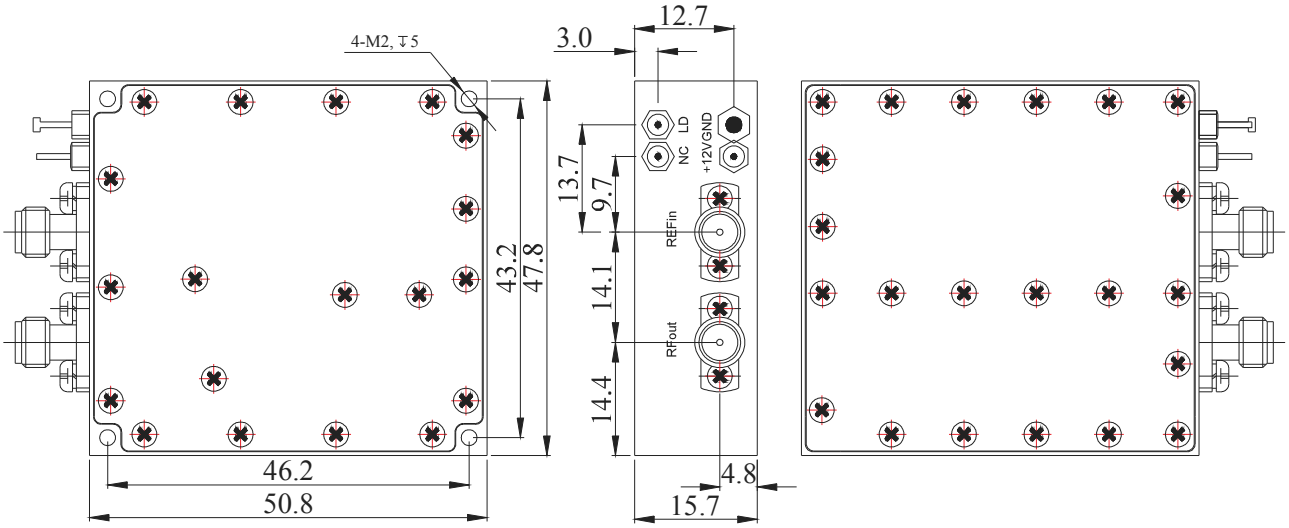
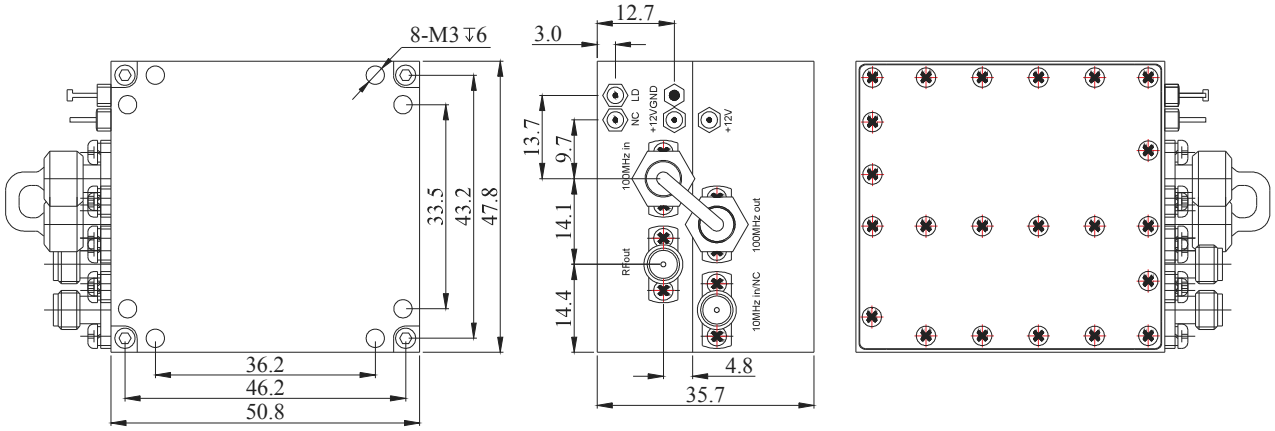


Internal Reference:



Dimensions shown in millimeters

1) ALL dimensions of above are the maximum size;
2) The SMA connectors' position will be rectified on the basis of operating frequency;
3) We will show you the full dimensions for the frequency you wanted;
4) Weight : 120g (MAX).
5) Product surface: Electroless Nickel

Ordering Guide

SM10000-S-U-U-1

- SM10000 — Sampling Master
- S — Operating Frequency
- U — Outline dimension
- U — Phase Noise
- 1 — Spurious
- Operating Temperature

1、SM: the first letters of the corporation name- Sampling Master;

2、10000: operating frequency, unit:MHz;

3、Outline dimension:

S (standard)	57.2×57.2×15.7 （mm）
M (minisize)	50.8×47.8×15.7 （mm）
C (customized)	

4、Phase Noise(in +25℃ test):

N (normal phase noise)	20lgN+3 (@1KHz &10KHz)
U (ultra low phase noise)	20lgN (@1KHz &10KHz)

5、Spurious(in +25℃ test):

S (standard)	-70 (full span)
L (low spurious)	-75 (full span)
U (ultra low spurious)	-80 (full span)

6、Operating Temperature:

1 (normal)	-40~+70℃
2 (military)	-55~+85℃