SLCRO SERIES

Lowest Noise Phase-Locked Resonator Oscillator
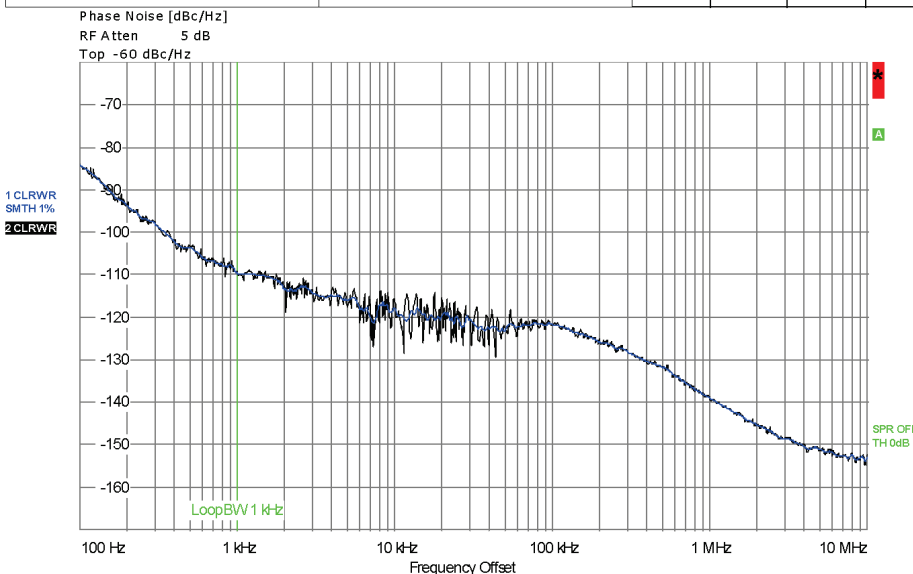
ELECTRICAL SPECIFICATIONS

Output Frequency Range	125 MHz to 22 GHz Fundamental Outline up to 44 GHz with external multiplier
Output Power	125 MHz to 18.5 GHz +13 dBm minimum 18.5 GHz to 22 GHz +10 dBm minimum Consult factory for multiplied frequencies
Output Harmonics	125 MHz to 4.5 GHz −20 dBc maximum 4.5 GHz to 22 GHz −50 dBc maximum
Output Spurious	−70 dBc maximum
Phase Noise	See plots for typical; Performance Maximum Level at 12 GHz with 100 MHz reference noise required. Output Reference 100 Hz −82 dBc/Hz −130 dBc/Hz 1 kHz −107 dBc/Hz −154 dBc/Hz 10 kHz −117 dBc/Hz −165 dBc/Hz 100 kHz −118 dBc/Hz −167 dBc/Hz 1 MHz −135 dBc/Hz −167 dBc/Hz 10 MHz −152 dBc/Hz Not Applicable
Input Reference Frequency Range	25 MHz to 200 MHz
Input Impedance	50 Ohms
Load VSWR	1.5 : 1 nominal
DC Power	Current in mA at 8 Vdc Max (Typ) 455 (405mA) Current in mA at 12 Vdc Max (Typ) 370 (320mA) Current in mA at 15 Vdc Max (Typ) 340 (300mA)
Phase Lock Alarm	Pin 2 TTL Low in lock, TTL High out of lock Pin 3 TTL High in lock, TTL Low out of lock

The **Narda-MITEQ** SLCRO Series Phase Locked source offers excellent phase noise and spurious performance in a 2.25" x 2.25" x 0.61" housing. The Single loop configuration provides near zero additive noise to very low noise reference inputs. Loop BW is generally set between 100 kHz to 200 kHz to utilize superior reference noise and the internal ultra-low noise oscillator. Available in fixed frequencies from 125 MHz to 22 GHz in fundamental outline and can operate to 44 GHz when assembled along with external multiplier (see outline information). The SLCRO can accept reference frequencies of 25 MHz up to 200 MHz and will operate on any DC input from +8 Vdc to +15 Vdc. Unlike the DLCRO the SLCRO output frequencies must be integer multiples of the reference frequency for output frequencies above 1 GHz.

### TYPICAL PHASE NOISE: 12.000 GHz 100 MHz EXTERNAL REFERENCE

R&S FSUP 50 Signal Source Analyzer		UNLOCKED
Settings	**Residual Noise [T2 w/o spurs]**	**Phase Detector +0 dB**
Signal Frequency: 11.999992 GHz	Int PHN (100.0 .. 10.0 M) -63.9 dBc	
Signal Level: 10.43 dBm	Residual PM 51.522 m°	
Cross Corr Mode Harmonic 1	Residual FM 661.671 Hz	
Internal Ref Tuned Internal Phase Det	RMS Jitter 0.0119 ps	

Measurement Aborted
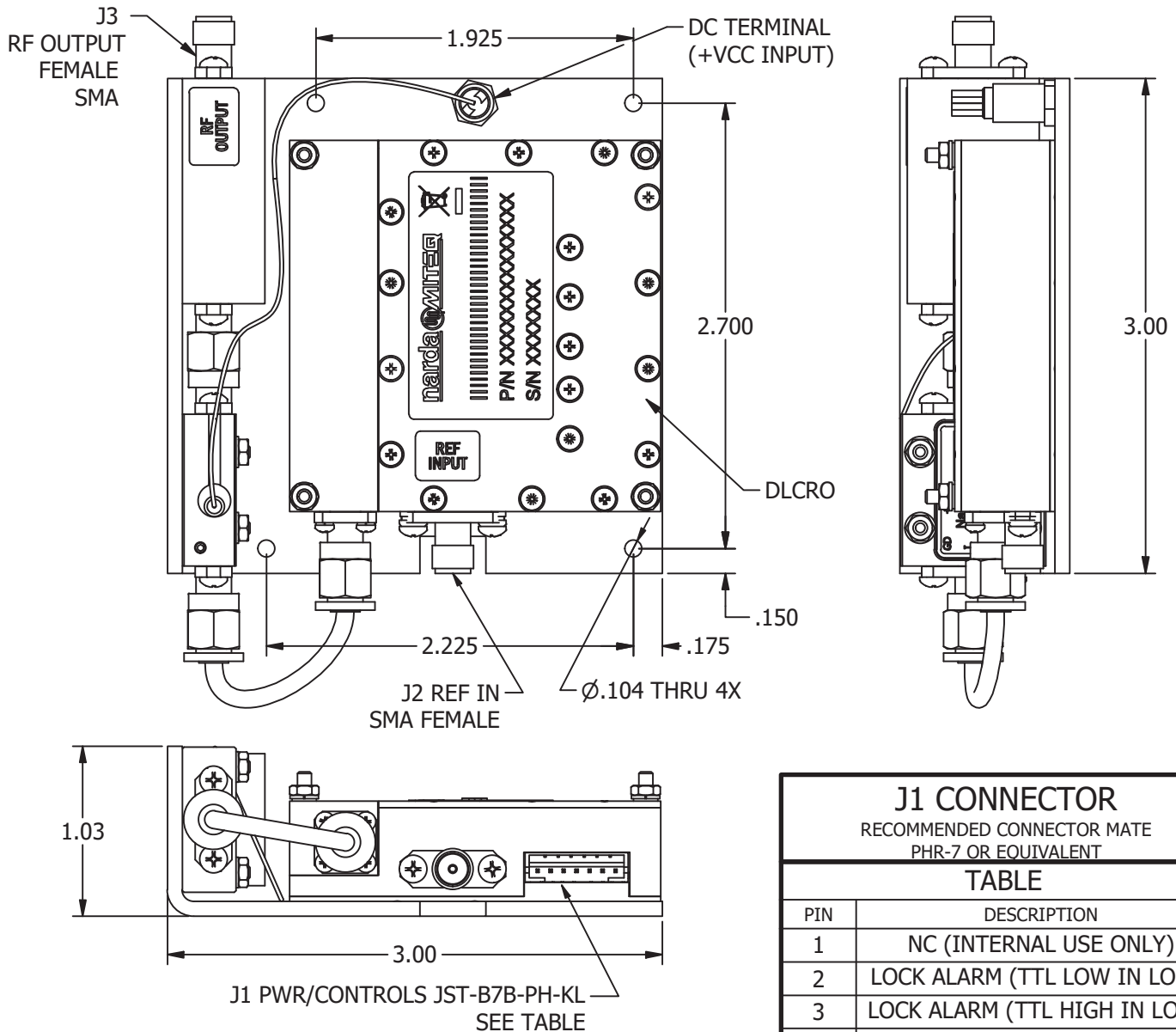SLCRO-100-12000-12P NGC SN 2176196
Date: 17.SEPT.2020 14:59:04

MECHANICAL SPECIFICATIONS

	FUNDAMENTAL	MULTIPLIED
Outline Drawings	214799	227311
Mechanical Size	2.25" x 2.25" x 0.610"	3.00" x 3.00" x 1.03"
Weight	<100 Grams	<300 Grams
RF Connectors	SMA Female	SMA or K Female
DC Interface Connectors	7 Pin JST	7 Pin JST and Post
Mating Connectors	JST PHR-7	JST PHR-7 and Wire

SLCRO WITH EXTERNAL REFERENCE
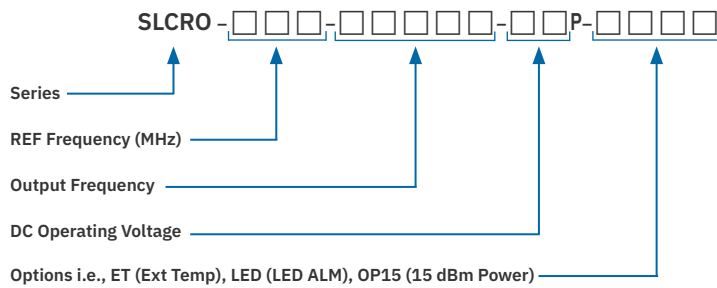## OUTLINE DRAWING 214799
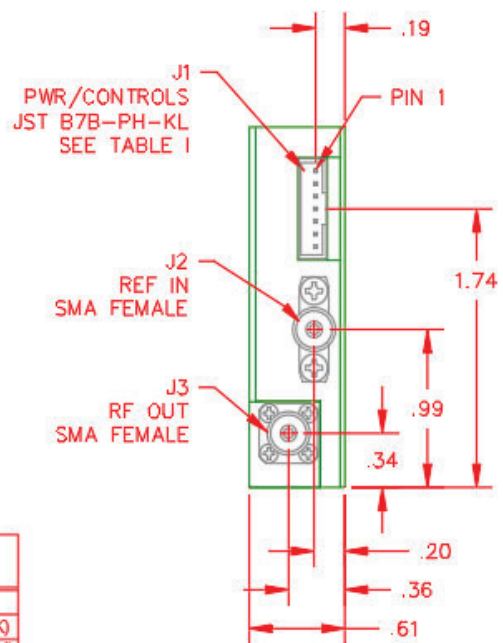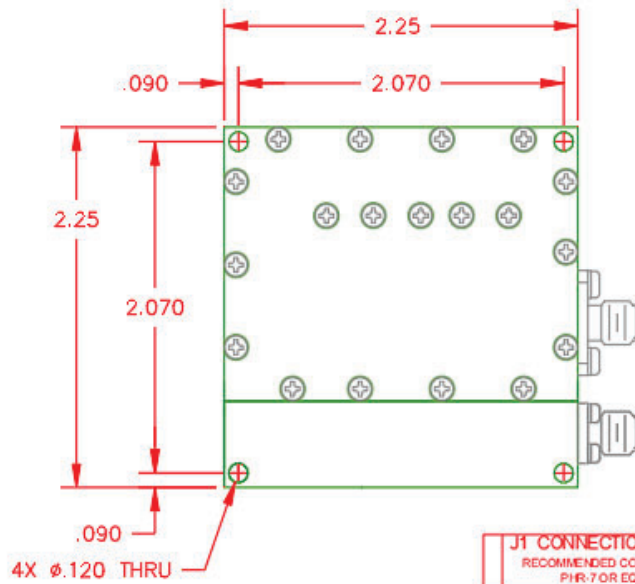
J1 CONNECTIONS (TABLE 1) RECOMMENDED CONNECTOR MATE: PHR-7 OR EQUIVALENT	
1	NC (INTERNAL USE ONLY)
2	LOCK ALARM (TTL LOW IN LOCK)
3	LOCK ALARM (TTL HIGH IN LOCK)
4	PHASE VOLTAGE
5	NC (INTERNAL USE ONLY)
6	GROUND
7	+VCC INPUT

**DLCRO WITH EXTERNAL MULTIPLER AND EXTERNAL REFERENCE
OUTLINE DRAWING 227311-1**

J3
RF OUTPUT
FEMALE
SMA

RF OUTPUT

1.925

DC TERMINAL
(+VCC INPUT)

2.700

DLCRO

.150

2.225

.175

J2 REF IN
SMA FEMALE

∅.104 THRU 4X

3.00

1.03

3.00

J1 PWR/CONTROLS JST-B7B-PH-KL
SEE TABLE

J1 CONNECTOR	
RECOMMENDED CONNECTOR MATE PHR-7 OR EQUIVALENT	
TABLE	
PIN	DESCRIPTION
1	NC (INTERNAL USE ONLY)
2	LOCK ALARM (TTL LOW IN LOCK)
3	LOCK ALARM (TTL HIGH IN LOCK)
4	PHASE VOLTAGE
5	NC (INTERNAL USE ONLY)
6	GND
7	+VCC INPUT

ORDERING INFORMATION

SLCRO –☐☐☐–☐☐☐☐☐–☐☐P–☐☐☐☐

Series

REF Frequency (MHz)

Output Frequency

DC Operating Voltage

Options i.e., ET (Ext Temp), LED (LED ALM), OP15 (15 dBm Power)

Example Part Numbers:
• SLCRO-100-12000-8P Standard SLCRO, 100 MHz External Reference 12.0 GHz Out, 8 Volts DC
• SLCRO-100-12000-8P-ET External Temp SLCRO, 100 MHz Reference 12.0 GHz Out, 8 Volts DC, −40ºC to 75ºC
• SLCRO-100-12000-8P-LED Standard SLCRO with LED Alarm (Vcc in lock 0 Volts No Lock)
• SLCRO-100-12000-8P-OP15, Minimum output power +15dBm

Final options can be combined with extra dash No's, i.e., SLCRO-100-12000-8P-ET-OP15

KEY FEATURES

> High Performance in small outline
> Industry Leading Phase Noise
> Excellent Spurious
> Superior Performance to Cost Ratio
> 100% Burn-In, Temperature and Phase Pop Tested
> Three Year Warranty

ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating	−10°C to +60°C (see Note 1)
Storage	−50°C to +100°C
Humidity	95% at 40°C non-condensing
Shock (survival)	30g's, 10 mS pulse (see Note 2)
Vibration (survival)	20 Hz to 2000 Hz to 4g's rms (see Note 2)

Notes:
1) Extended temperature ranges available, please consult sales engineering.
2) Very low G sensitivity models available, please consult sales engineering for performance and outlines.

narda ((M)) MITEQ

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