

## Phase-Locked Ultra Low Phase Noise 100 MHz Frequency Reference in 19" Rack Mountable Appliance 2U Form Factor

### Product Data Sheet

#### Features

- Locks to either 10 MHz reference or 1 PPS input
- Built-in Internal GNSS receiver is optional
- Ultra-Low Phase Noise (ULPN)
- Excellent Holdover in the Absence of REF IN
- SC-cut OCXOs Based Internal REF Module

#### Applications

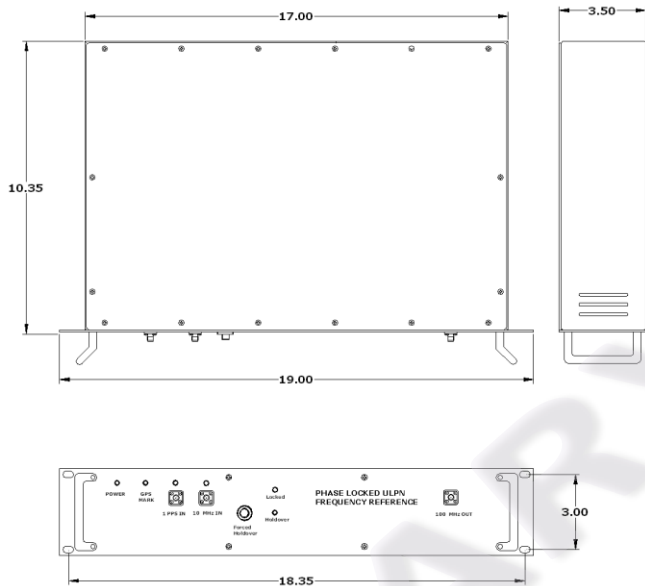
- Radar
- Significantly improves Phase Noise of incoming Reference signal
- COTS/Dual use

#### Inputs

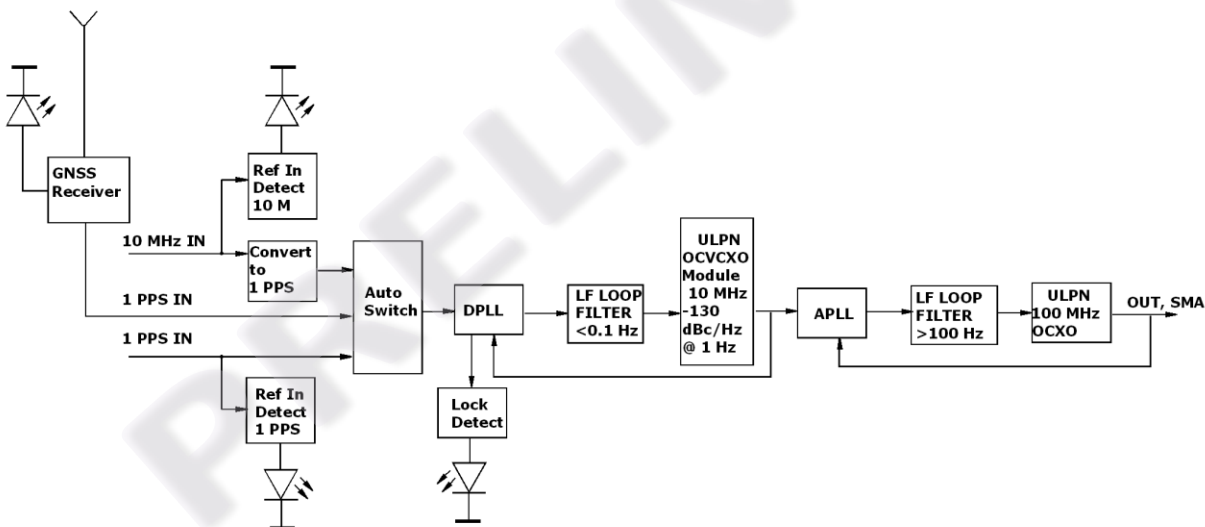
- 10 MHz IN SMA Female front panel
- 1 PPS IN SMA Female front panel
- GNSS antenna TNC back panel

#### Outputs

- 100 MHz OUT SMA Female front panel



Mechanical Dimensions, inches



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# Ultra Low Phase Noise Phase-Locked Frequency Reference

Data Sheet 1947A

## Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
<b>Absolute Maximum Ratings</b>							
Power supply	V <sub>p</sub>		90		260	V AC	
Operating Temp.	T <sub>o</sub>		10		45	°C	
Storage temper.	T <sub>s</sub>		0		70	°C	
<b>Electrical</b>							
Input	F10	10 MHz input		10.000		MHz	Automatically detects input, Priority – Front Panel Input
	Fpps	1 PPS input		1		Hz	
	GNSS	1 PPS		1			
10 MHz in	F10	CMOS	2			V pk-pk	Green LED
		Sine Wave	0		15	dBm	
1PPS in	1 PPS	TTL		2.5		V pk-pk	Green LED, priority if both present
		Pulse Width		1		us	
GNSS antenna			Internal receiver				
Frequency Capture Range (APR)	ΔF/F	Over All	±100			ppb	Includes variation vs. temperature, load, aging 10 years
Allan Deviation		.01s to 1s		3E-13			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
Holdover	τ	8 hours		20		us	
Recommended MAX Input SSB Phase Noise with 10 MHz input	£(Δf)	10 Hz			-90	dBc/Hz	10 MHz reference
		100 Hz			-120		
		1 KHz			-130		
		10 KHz			-140		
		100 KHz			-140		
Output Frequency	F100			100.00		MHz	SMA
SSB Phase Noise (achieved after 10 minutes warm-up) Noise floor	£(Δf)	1 Hz*		-110		dBc/Hz	2*
		10 Hz		-138			
		100 Hz		-145			
		1 KHz		-158			
		10 KHz		-170			
100 KHz		-172					
Power Requirements	P	IEC320 on the back	100 to 250 V AC 50/60 Hz			V AC	
Load	Internally AC-coupled 50 Ohm						
Output Waveform	Sinewave						
Output Power			+17	+19		dBm	
Spectral Purity		Subharmonics Spurious Harmonics		none	-80 -30	dBc	
Load	Internally AC coupled 50 Ohm (Sinewave)						
Warm-up time	τ	to lock on 100 ppb input		5	8	minutes	



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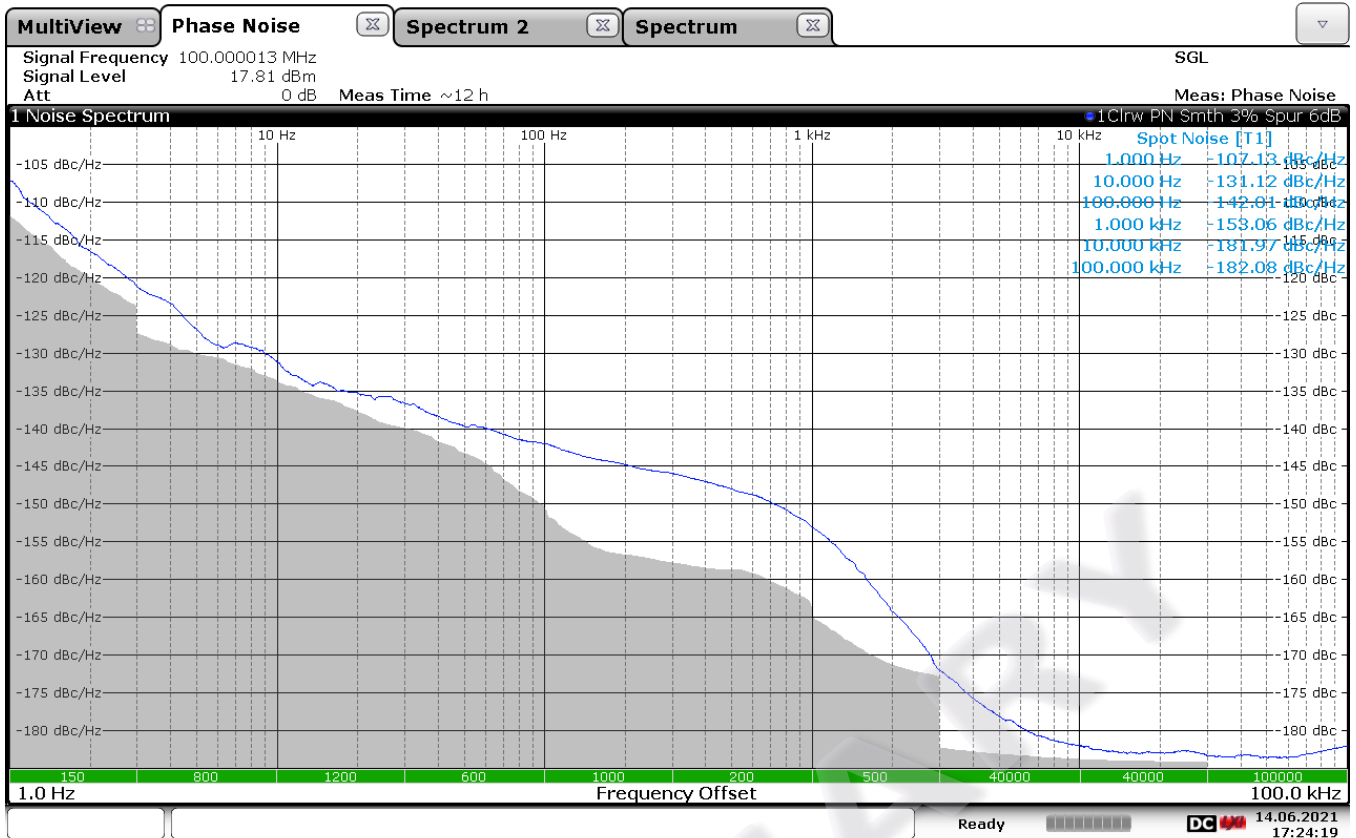
Lock Time after warm-up			10	minutes
Lock Detect			Green LED	
Input Detect (either)			Green LED	
GNSS detect			Green LED	
Holdover Mode			Yellow LED	

**Environmental and Mechanical**

Operating temp. range	+10°C to +45°C
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**Notes:**

- 1\* The value at 1 Hz offset is achieved in Holdover mode only, degrades in Locked mode
- 2\* The values are the goal, to be finalized upon first article completion.



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