Ultra Low Phase Noise Phase-Locked Frequency Reference

Data Sheet 2030A

Rev. -

Phase-Locked Ultra Low Phase Noise Multioutput Frequency Reference in 19” Rack Mountable Appliance 1U Form Factor

Product Data Sheet

Features

- **Locks to 1 PPS or 10 MHz inputs**
- **Extraordinary-Low Phase Noise (ELPN)**
- **10 MHz, 100 MHz, and 1 PPS Outputs**
- **10 MHz and 100 MHz internal SC-cut OCXO**
- **Other Frequencies Available. Consult NEL**
- **Optional PPS OUT Edge Alignment with RF Output**

Applications

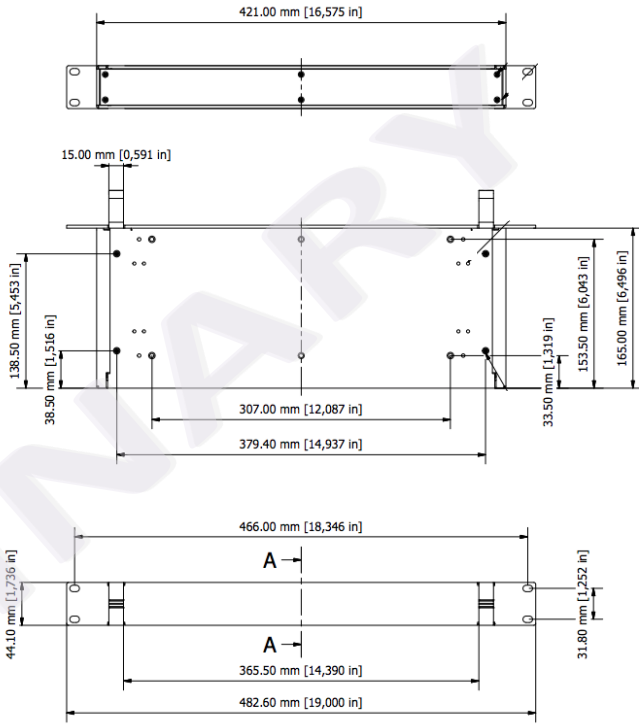
- **Radar**
- **5G device testing**
- **Instrumentation, Test and Measurement**
- **Mixed Signal System Reference**
- **COTS/Dual use**

Inputs

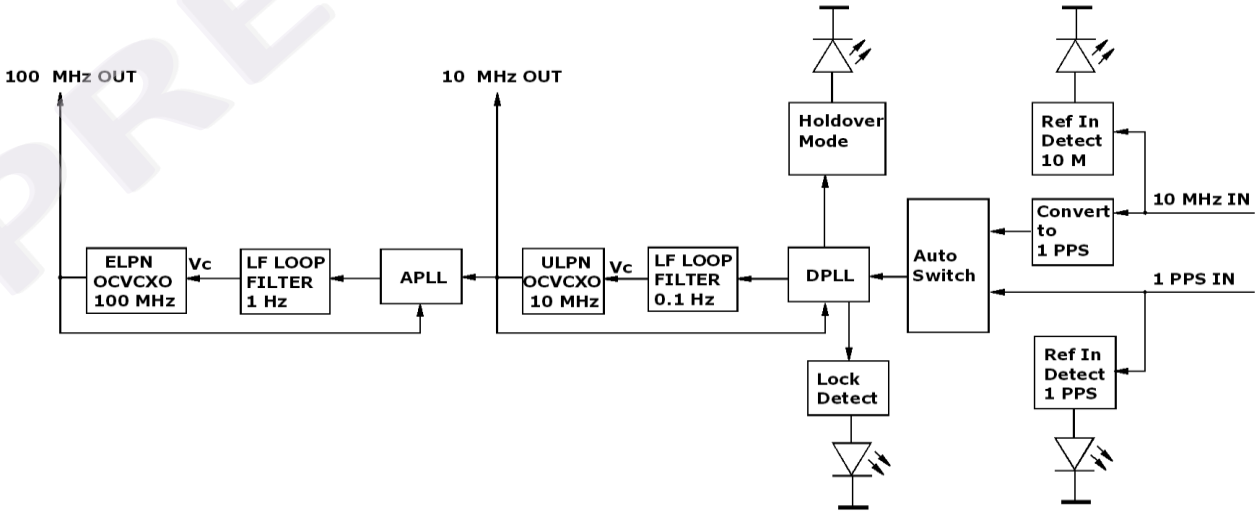
1 PPS IN on SMA Female
10 MHz on SMA Female

Outputs

100 MHz OUT SMA Female
10 MHz OUT SMA Female
1 PPS OUT SMA Female



Mechanical Dimensions



NEL FREQUENCY CONTROLS, INC.

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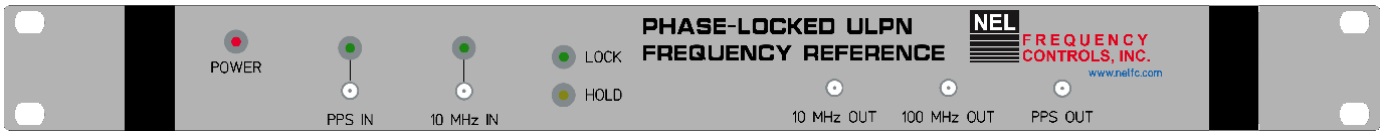
Front Panel



Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Power supply	Vp		90		260	V AC	
Operating Temp.	To		10		45	°C	
Storage temper.	Ts		0		70	°C	
Electrical							
	Fpps	1 PPS input		1		Hz	
1PPS in	1 PPS	TTL		2.5		V pk-pk	Green LED,
		Pulse Width		1		us	
		Load		50		Ohm	AC coupled
Frequency Capture Range (APR)	ΔF/F	Over All	±100			ppb	Includes variation vs. temperature, load, aging 10 years
Allan Deviation		.01s to 1s		1E-12			
Frequency stability	ΔF/F	Locked Holdover	Equal to incoming signal ±5			ppb	Over temperature
Output	F100			100.00		MHz	SMA
	F10			10.000			
	1 PPS		Buffered internally				
SSB Phase Noise (achieved after 10 minutes warm-up) Noise floor							
	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-115 -145 -173 -185 -190		dBc/Hz	100 MHz output
		1 Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-120 -150 -165 -170 -172 -172			10 MHz output
Power Requirements	P	IEC320 on the back	100 to 250 V AC 50/60 Hz Consumption 20 Watts			V AC	
Output Waveform		Sinewave					RF output
Output Power			+18	+20		dBm	100 MHz
			+14	+15			10 MHz
Spectral Purity		Subharmonics		-70	-50	dBc	10 MHz and

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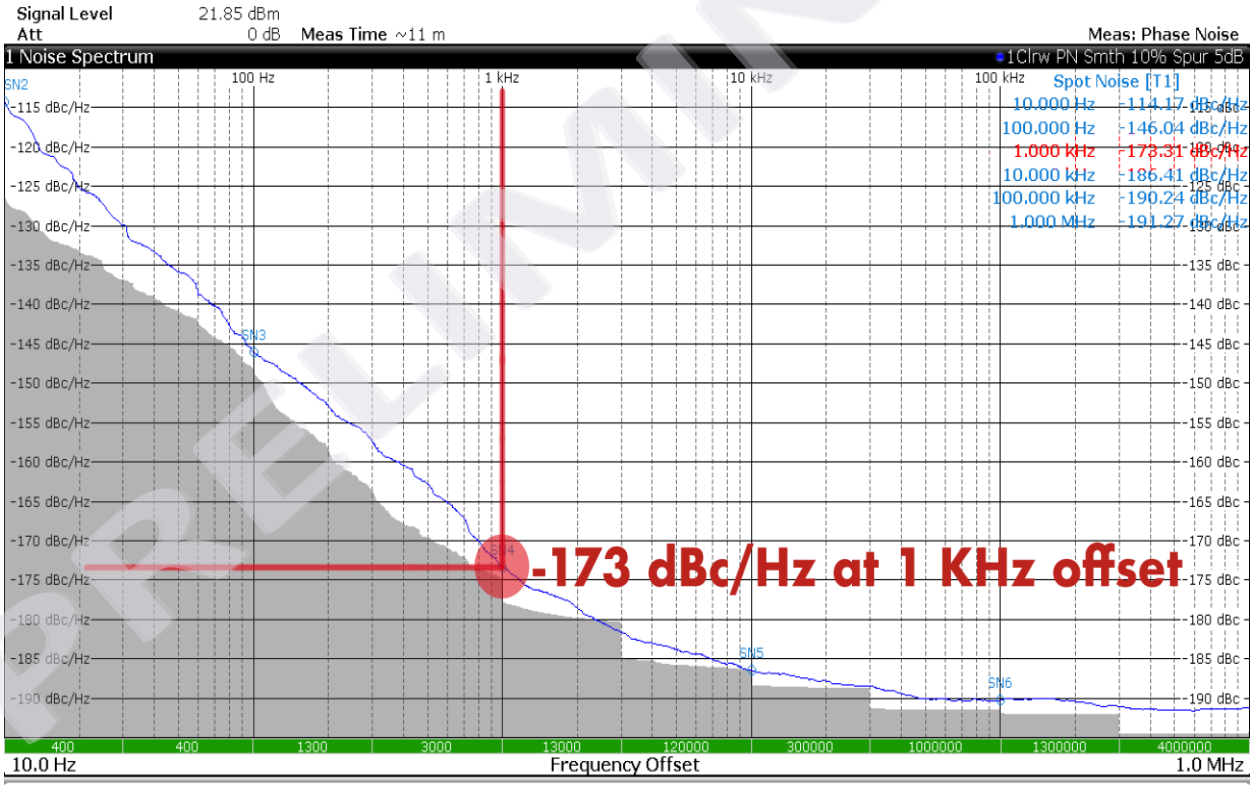
		Spurious Harmonics		-35	-80 -30		multiples on 100 MHz Output
Load	Internally AC coupled 50 Ohm (Sinewave)					RF output	
Warm-up time	τ	to lock on 100 ppb input		3	5	minutes	
Lock Time after warm-up					20	minutes	
Lock Detect			Green LED				
Holdover Mode			Green LED				

Environmental and Mechanical

Operating temp. range	+10°C to +45°C
Storage Temp. Range	0°C to +70°C

100 MHz Output Phase Noise Example



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