1826a Series

NEL FREQUENCY CONTROLS
Powered By ABRACON

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

ESD Sensitive

482.6 x 165 x 44.1 mm
Datasheet #1826A

Features

- **Locks to either 10 MHz reference or 1 PPS input**
- **Ultra- Low Phase Noise (ULPN) on all outputs**
- **10 MHz, 100 MHz, and 1 GHz outputs**
- **Excellent holdover in the absence of REF IN**
- **10 MHz and 100 MHz internal SC-cut OCXO**

Applications

- **5G device testing**
- **Significantly improves Phase Noise of incoming Reference signal**
- **COTS/Dual use**

Absolute Maximum Ratings

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Power supply	Vp		90		260	V AC	
Operating Temp.	To		10		45	°C	
Storage temper.	Ts		0		70	°C	

Electrical

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
Input	F10	10 MHz input		10.000		MHz	
	Fpps	1 PPS input		1		Hz	
10 MHz in	F10	CMOS	2			V pk-pk	Green LED
		Sine Wave	0		15	dBm	
1PPS in	1PPS	TTL		2.5		V pk-pk	Green LED, priority if both present
		Pulse Width		1		us	
Frequency Capture Range (APR)	ΔF/F	Over All	±100			ppb	Includes variation vs. temperature, load, aging 10 years
Allan Deviation		.01s to 1s		5E-12			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
Holdover	τ	8 hours		20		us	
Recommended MAX Input SSB Phase Noise	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-90 -120 -130 -140 -140	dBc/Hz	10 MHz reference
Output SSB Phase Noise Improvement Compared to Input Phase Noise adjusted to 10MHz	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		40 50 50 50 50		dBc/Hz	Cannot improve beyond listed below Output Phase Noise
Output Frequencies	F10			10.000		MHz	SMA
	F100			100.00			SMA
	F1000			1000.0			SMA

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Electrical (cont.)

Parameters	Symbol	Condition	Min	Typ	Max	Unit	Notes
SSB Phase Noise (achieved after 10 minutes warm-up) Noise floor	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-145 -157 -162 -170 -172		dBc/Hz	10 MHz output
		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-125 -132 -163 -177 -180		dBc/Hz	100 MHz output
		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-105 -112 -142 -158 -160		dBc/Hz	1,000 MHz output
Power Requirements	P	IEC320 on the back	100 to 250 V AC 50/60 Hz			V AC	
Spectral Purity		Subharmonics Spurious Harmonics		-50 -35	-40 -80 -30	dBc	At 1,000 MHz output Either output
Load	Internally AC-coupled 50Ohm						All Outputs
Output Waveform		Sinewave					
Output Power			+10 +12 +10	+13 +15 +13		dBm	10 MHz 100 MHz 1,000 MHz
Spectral Purity		Subharmonics Spurious Harmonics		-70 -35	-50 -80 -30	dBc	10 MHz and multiples
Load	Internally AC-coupled 50 Ohm (Sinewave) 10KOhm//15pF (CMOS/TTL)						
Warm-up time	τ	to lock on 100ppb input		3	5	minutes	
Lock Time after warm-up					20	minutes	
Lock Detect			Green LED				
Input Detect (either)			Green LED				
Holdover Mode			Green LED				

Environmental and Mechanical

Parameter	Description
Operating temp. range	+10°C to +45°C

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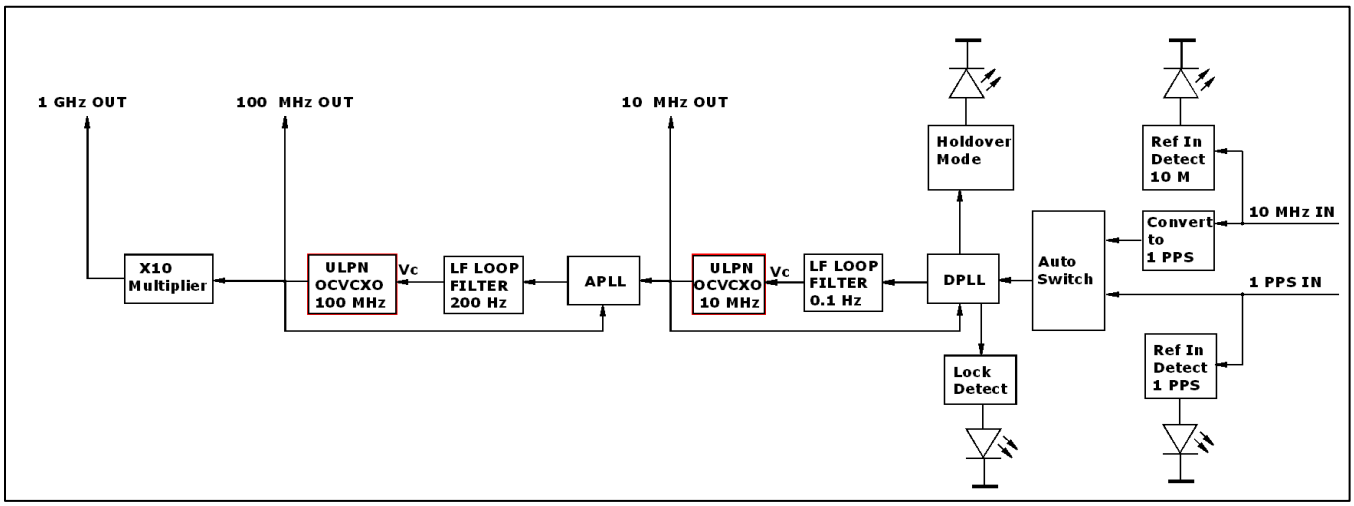
Inputs

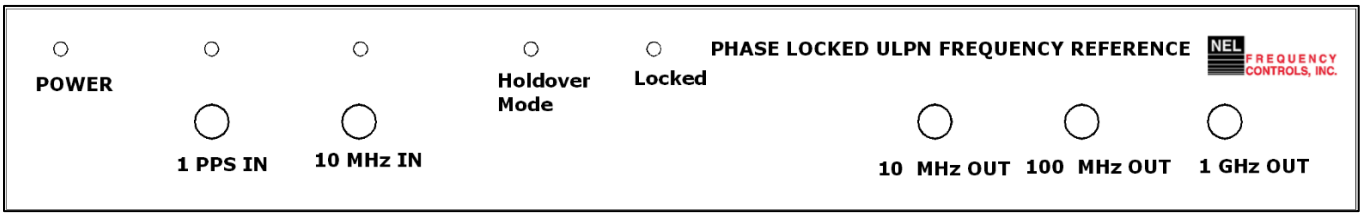
10 MHz IN SMA Female
1 PPS IN SMA Female

Outputs

10 MHz OUT SMA Female
100 MHz OUT SMA Female
1.0 GHz OUT SMA Female



Front Panel



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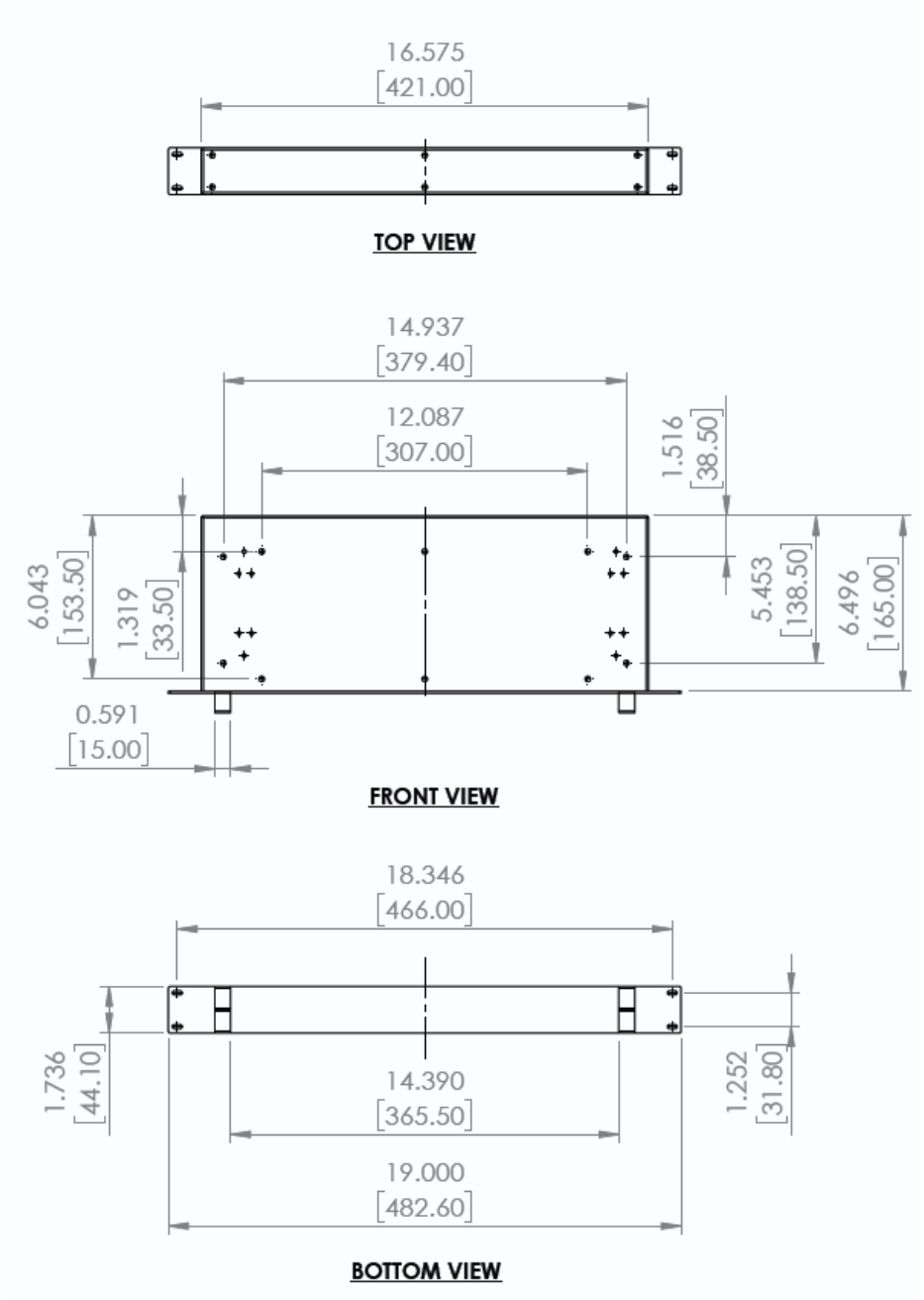
Mechanical Dimensions



Dimensions: inches [mm]

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Phase Noise Plot