

Phase-Locked Ultra Low Phase Noise 100 MHz Frequency Reference in 19" Rack Mountable Appliance 1U Form Factor

Product Data Sheet

Features

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

Applications

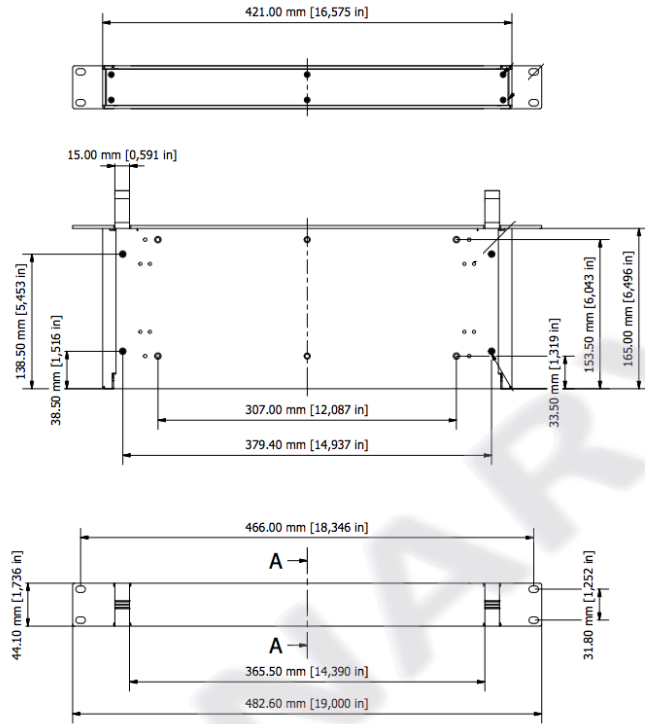
- Radar
- Significantly improves Phase Noise of incoming Reference signal
- COTS/Dual use

Inputs

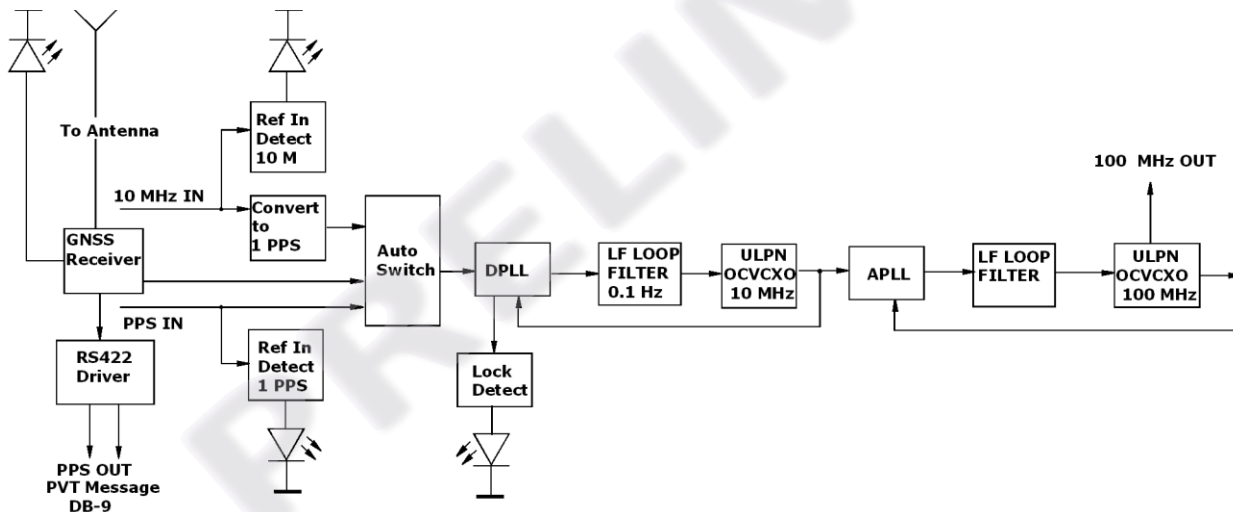
- 10 MHz IN SMA Female front panel
- 1 PPS IN SMA Female front panel
- GNSS antenna TNC back panel

Outputs

- 100 MHz OUT SMA Female front panel
- PPS RS422 and PVT message on DB-9 connector female, front panel



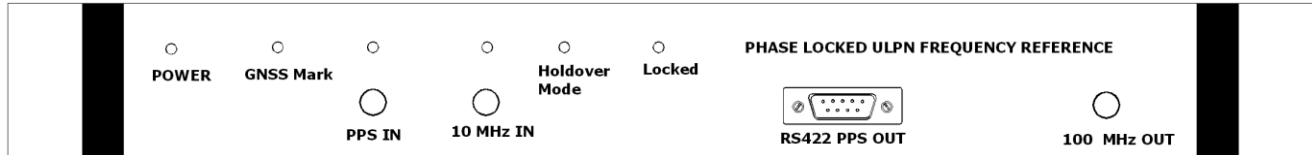
Mechanical Dimensions, inches



Ultra Low Phase Noise Phase-Locked Frequency Reference

Data Sheet 2138A

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								
Input	F10	10 MHz input		10.000		MHz	Automatically detects input, Priority – Front Panel Input	
	Fpps	1 PPS input		1		Hz		
	GNSS	PPS		1				
10 MHz in	F10	CMOS	2			V pk-pk	Green LED	
		Sine Wave	0		15	dBm		
1PPS in	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)	$\Delta F/F$	Over All	± 100			ppb	Includes variation vs. temperature, load, aging 10 years	
Allan Deviation		.01s to 1s		3E-13				
Frequency stability	$\Delta F/F$	Locked	Equal to incoming signal					
Holdover	τ	8 hours		20		us		
Recommended MAX Input SSB Phase Noise with 10 MHz input	$\xi(\Delta f)$	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 RS422, DB-9	
	PPS	Only when PPS IN present		1		Hz		
PVT Message		Generated by UBLOX default to be specified in a separate document						RS422, DB-9
SSB Phase Noise (achieved after 10 minutes warm-up) Noise floor	$\xi(\Delta f)$	10 Hz			-125	dBc/Hz	2*	
		100 Hz			-135			
		1 KHz			-160			
		10 KHz			-180			
		100 KHz			-185			
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		-70		dBc		
		Spurious			-80			
		Harmonics		-35	-30			



FREQUENCY CONTROLS, INC.

Ultra Low Phase Noise Phase-Locked Frequency Reference

Data Sheet 2138A

Load	Internally AC coupled 50 Ohm (Sinewave)					
Warm-up time	τ	to lock on 100 ppb input		5	8	minutes
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
-----------------------	----------------

Notes:

PRELIMINARY



**FREQUENCY
CONTROLS, INC.**