

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

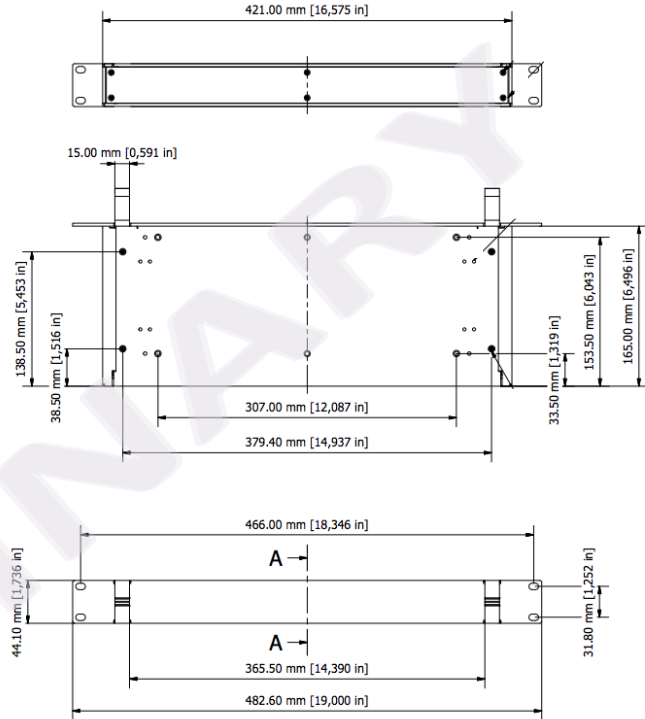
Product Data Sheet

Features

- Locks to 1 PPS or 10 MHz inputs
- Ultra-Low Phase Noise (ULPN)
- 10 MHz, 100 MHz, and 1 PPS Outputs
- 10 MHz and 100 MHz internal SC-cut OCXO
- PPS OUT Edge Aligned with 100 MHz Output

Applications

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



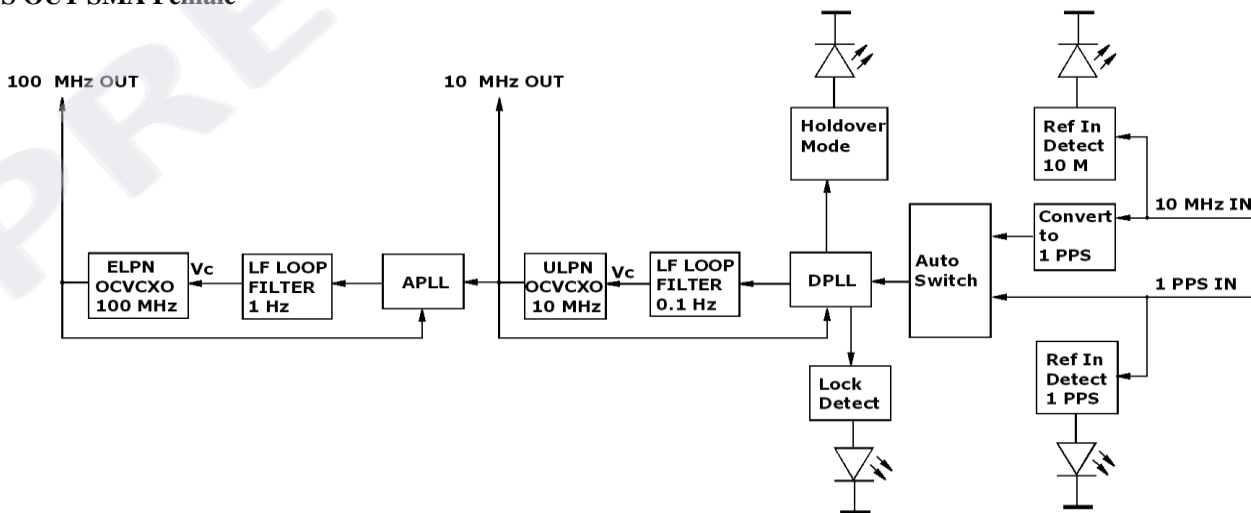
Mechanical Dimensions

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



Ultra Low Phase Noise Phase-Locked Frequency Reference

Data Sheet 2030B

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) | $\Delta F/F$ | Over All | ± 100 | | | ppb | Includes variation vs. temperature, load, aging 10 years |
| Allan Deviation | | .01s to 1s | | 1E-12 | | | |
| Frequency stability | $\Delta F/F$ | Locked Holdover | Equal to incoming signal ± 5 | | | ppb | Over temperature |
| Holdover | τ | 8 hours | | 20 | | us | |
| Recommended MAX Input SSB Phase Noise | $\mathcal{L}(\Delta f)$ | 10 Hz | | | -90 | dBc/Hz | 10 MHz reference |
| | | 100 Hz | | | -120 | | |
| | | 1 KHz | | | -130 | | |
| | | 10 KHz | | | -140 | | |
| | | 100 KHz | | | -140 | | |
| Output SSB Phase Noise Improvement Compared to Input Phase Noise adjusted to 10 MHz | $\mathcal{L}(\Delta f)$ | 10 Hz | | 40 | | dBc/Hz | Cannot improve beyond listed below Output Phase Noise |
| | | 100 Hz | | 50 | | | |
| | | 1 KHz | | 50 | | | |
| | | 10 KHz | | 50 | | | |
| | | 100 KHz | | 50 | | | |
| Output Frequencies | F10 | | | 10.000 | | MHz | SMA |
| | F100 | | | 100.00 | | | SMA |
| | PPS | | | 1 | | Hz | SMA |
| Misalignment rising edge PPS with rising edge 100 MHz | | | | | 2 | ns | |
| SSB Phase Noise (achieved after 10 minutes warm-up) Noise floor | $\mathcal{L}(\Delta f)$ | 1Hz | | -115 | | dBc/Hz | 10 MHz output |
| | | 10 Hz | | -145 | | | |
| | | 100 Hz | | -157 | | | |
| | | 1 KHz | | -162 | | | |
| | | 10 KHz | | -170 | | | |
| | | 100 KHz | | -172 | | | |

Ultra Low Phase Noise Phase-Locked Frequency Reference

Data Sheet 2030B

| | | | | | | | |
|--------------------------------|---|---|--|--------------------------------------|-------------------|------|--|
| | | 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz | | -125 -132 -163 -177 -180 | | | 100 MHz output |
| Output | F100 | | | 100.00 | | MHz | SMA |
| | F10 | | | 10.000 | | | |
| | 1 PPS | | Buffered internally | | | | |
| 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 | | | +13 | +15 | | dBm | 100 MHz |
| | | | +12 | +14 | | | 10 MHz |
| Spectral Purity | | Subharmonics Spurious Harmonics | | -70 -35 | -50 -80 -30 | dBc | 10 MHz and 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 |

