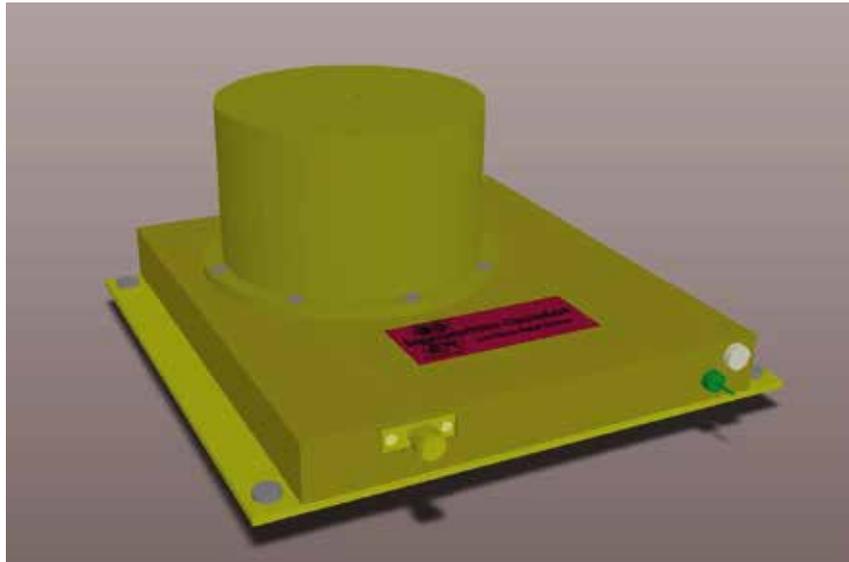


# DATA SHEET

## Ultra Low Noise 5.000 GHz C-Band DRO



### Oven-Stabilized Ultra Low Noise

### C-Band DRO for 5.000 GHz

Developed for extremely jitter sensitive applications, this voltage-controlled Dielectric-Resonator Oscillator delivers ultimate phase noise performance at 5.000 GHz, comparable to quartz crystal oscillators. With a high performance dielectric resonator at its heart, phase noise is expected to typically reach  $-120\text{dBc/Hz}$  at 1kHz,  $-145\text{dBc/Hz}$  at 10kHz offset and  $-180\text{dBc/Hz}$  in the noise floor, yielding attosecond jitter performance when integrated from 10kHz to 30MHz. Double buffering on the output keeps pulling below 1ppm (typically) and a two tier voltage stabilization scheme virtually eliminates pushing. The tuning port accepts 0..10V for a  $\pm 150\text{kHz}$  tuning range and easy integration into phase-locked loops. The DRO runs off a single +5,7V supply voltage. In addition a +15V supply, drawing a maximum current of 1100mA, is required to keep the unit at a stable temperature of  $+35^\circ\text{C}$ , ensuring frequency accuracy.

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## Ultra Low Noise 5.000 GHz C-Band DRO

### Available option

**HP:** Higher output power level of +17dBm.  
**ALC:** Amplitude stabilization to  $\pm 0.1$ dB

### Technical Data

<b>Operating Frequency:</b>	5.000 GHz ( $\pm 1$ MHz mechanical tuning)		
<b>Output Power:</b>	+13 dBm		
<b>Output Power Variation:</b>	< $\pm 1.5$ dB	(typ. < $\pm 0.75$ dB)	
<b>Return Loss:</b>	> 20 dB, VSWR < 1.22	(typ. < 25 dB, VSWR < 1.12)	
<b>Harmonic Distortion:</b>	< - 40 dBc	(typ. < - 50dBc)	
<b>Discrete Spurious Tones:</b>	< - 20 dBc - 20log(fm) dBc for Offsets < 100kHz < - 120 dBc for Offsets > 100kHz		
<b>Phase Noise:</b>		Guaranteed	Expected
	@ 100Hz:	< - 85 dBc/Hz	- 90 dBc/Hz
	@ 1kHz:	< - 115 dBc/Hz	- 120 dBc/Hz
	@ 10kHz:	< - 140 dBc/Hz	- 145 dBc/Hz
	@ 100kHz:	< - 165 dBc/Hz	- 170 dBc/Hz
	@ 1MHz:	< - 175 dBc/Hz	- 180 dBc/Hz
	@ 10MHz:	< - 175 dBc/Hz	- 180 dBc/Hz
<b>Electronic Tuning:</b>	0 .. +10V (-150kHz .. +150kHz)		
<b>Tuning Slope:</b>	30kHz/V		
<b>Power Supply:</b>	+5.7V/450mA	+15V/1100mA max. (Heater)	
<b>Dimensions:</b>	Milled Aluminum Case 125mm x 130mm x 56mm		
<b>Connectors:</b>	2 x SMA (RF-Output, VCO-Tuning Port), Feed-Through for +5.7V and +15V, 2 x Ground Solder Pins		
<b>Temperature Range:</b>	5°C/+40°C operating (-40°C/+71°C storage), non Condensing)		
<b>Oven warm-up Time:</b>	< 5min for <70kHz frequency error		

**Option HP:**

<b>Output Power:</b>	+17dBm
<b>Output Power Variation:</b>	< $\pm 1.5$ dB (typ. < $\pm 0.75$ dB)

**Option ALC:**

<b>Output Power:</b>	+13dBm / +17dBm (w. Opt. HP)
<b>Output Power Variation:</b>	< $\pm 0.1$ dB