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Ultra Low Cost Rubidium (LCR-900)

High Precision Source

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Specifications are subject to change without prior notice

An Orolia Group Business

1) SPECIFICATIONS

ELECTRICAL	PERFORMANCE
Type	**LCR-900**
Frequency	10 MHz
Frequency change within operating temperature range	<3x10^{-10} over -5°C to +60°C **0°C to +65°C typical with radiator and air flow > 20 m/min (option code RAD)**
Long term stability *(a) When measured after 6 months of continuous operation*	< 2x10^{-11} / day Typical: 5x10^{-11} / month(a) first year < 2x10^{-9}
Short term stability	Standard 3 x 10^{-11} / 1 s 1 x 10 $^{-11}$ / 10 s 3 x 10^{-12} / 100 s
Phase noise (10 MHz)	Standard -70 dBc/Hz at 1 Hz -80 dBc/Hz at 10 Hz -115 dBc/Hz at 100 Hz -135 dBc/Hz at 1kHz -140 dBc/Hz at 10 kHz
Frequency retrace *(In stable temperature, gravity, pressure and magnetic field conditions)*	1 x 10^{-10} within 1 h after 24 h off
Warm-up time [minutes]	5 x 10^{-10} after 15' at +25° C
Analog frequency adjustment For stable operation, an external voltage adjust. value shall be applied (DC voltage of 0 to 5V on pin 4) Typically: the cursor pin of a 10kΩ variable resistor connected between pins 2 and 3 (Vref & GND) can provide this adjustment voltage. (refer to Op. Manual)	> 4 x 10^{-9} for 2V to 4V > -4 x 10^{-9} for 2V to 0V
Digital frequency adjustment *(Through serial RS-232 port)*	±1.2 x 10^{-7} (resolution: 2x10^{-9}) 2.5x10^{-9} (resolution: 1x10^{-11}) ±20%
Output level	0.5Vrms ±20%, into 50 ohms
Harmonics / Sub-harmonics	< -25 dBc / <-60dBc
Spurious $f_0 \pm 100$kHz	< -80dBc
Supply voltage Max Power Supply Ripple	15V : 11.2V to 16V < 50 mV peak to peak (from 1Hz to 1 MHz frequency band)
Supply voltage sensitivity	< 2 x 10 $^{-11}$ / V
Input power	-5° C: <13 W +25° C: <10 W +60° C: <7 W **+55° C : <8 W RAD**
Typical warm-up power	35W typical
Electrical Protection power pin RF output TxD output 5V ref/lock output RxD input Frequency adjust input	An internal diode protects against reverse polarity connection ESD and short-cut protected ESD and short-cut protected

ENVIRONMENTAL *(Consult factory for other parameters)*	PERFORMANCE
Magnetic field sensitivity	< 4 x 10^{-11} all directions
Storage temperature	- 55°C to + 90°C
Operating case temperature or temp. of the thermal chamber with strong airflow	-5°C to +60°C
Overall environment effects *(Altitude, Vibration & Shocks)*	Meets or exceeds MIL-T-28800B for Type III, class 5 equipment
Humidity	RTCA/DO-160C hot humidity, 35°C, 95% relative humidity
Helium concentration sensitivity	< 1 x 10^{-10} per ppm of Helium concentration changes
g-tip-over test	< 2 x 10^{-10} / g all axis

PHYSICAL	LCR-900
Size	74 x 77 x 40 mm. (2.91” x 3.03” x 1.6”)
Weight	290 g max. (0.64 Lbs. max)
Volume	¼ liter (14 inches cube)
Connector	Pin arrangement according to standard OCXO + RxD/TxD
Warranty	Electronics : 1 year; Lamp & cell : 20 years

2) SIZE *(all dimensions in millimeters)*

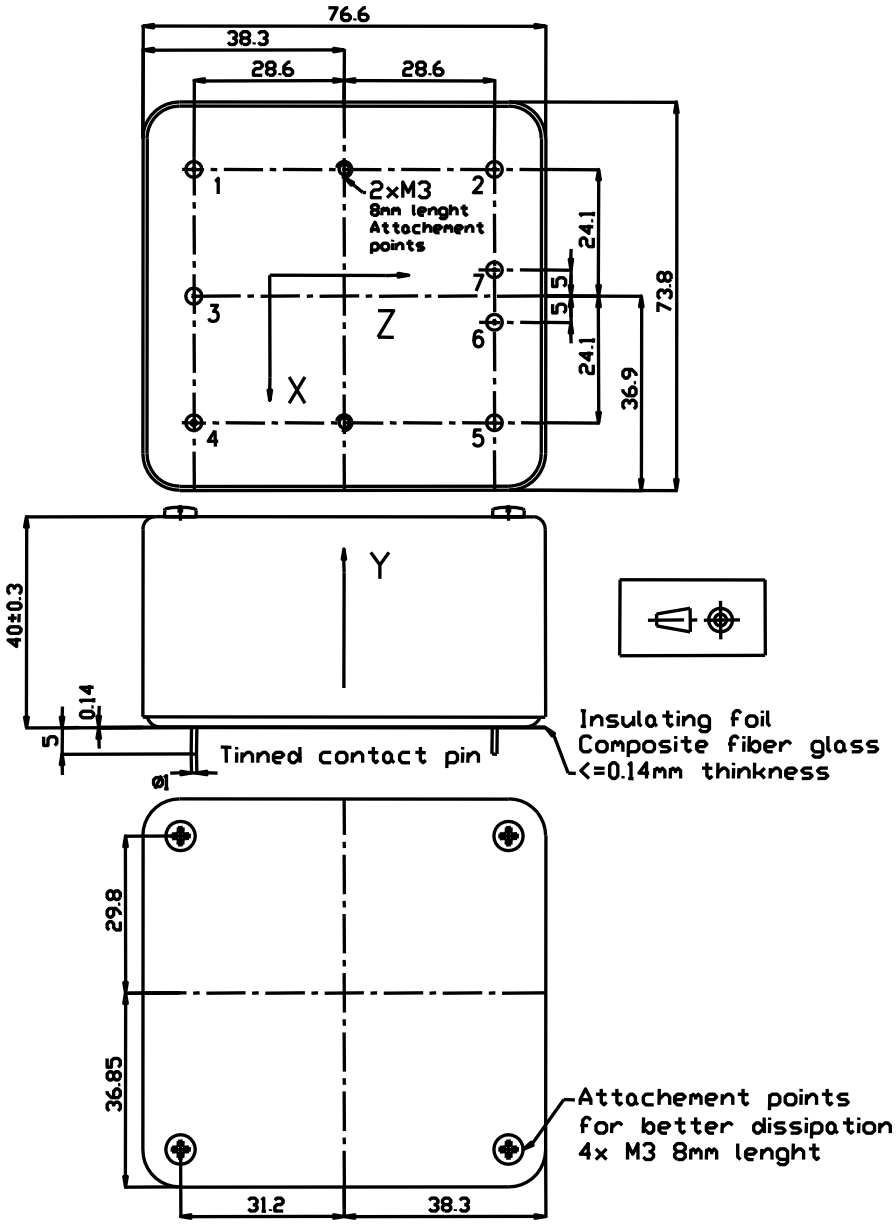

Fig. 1 - LCR-900 Size

Fig 2. is showing the RMO / RAD with radiator option.

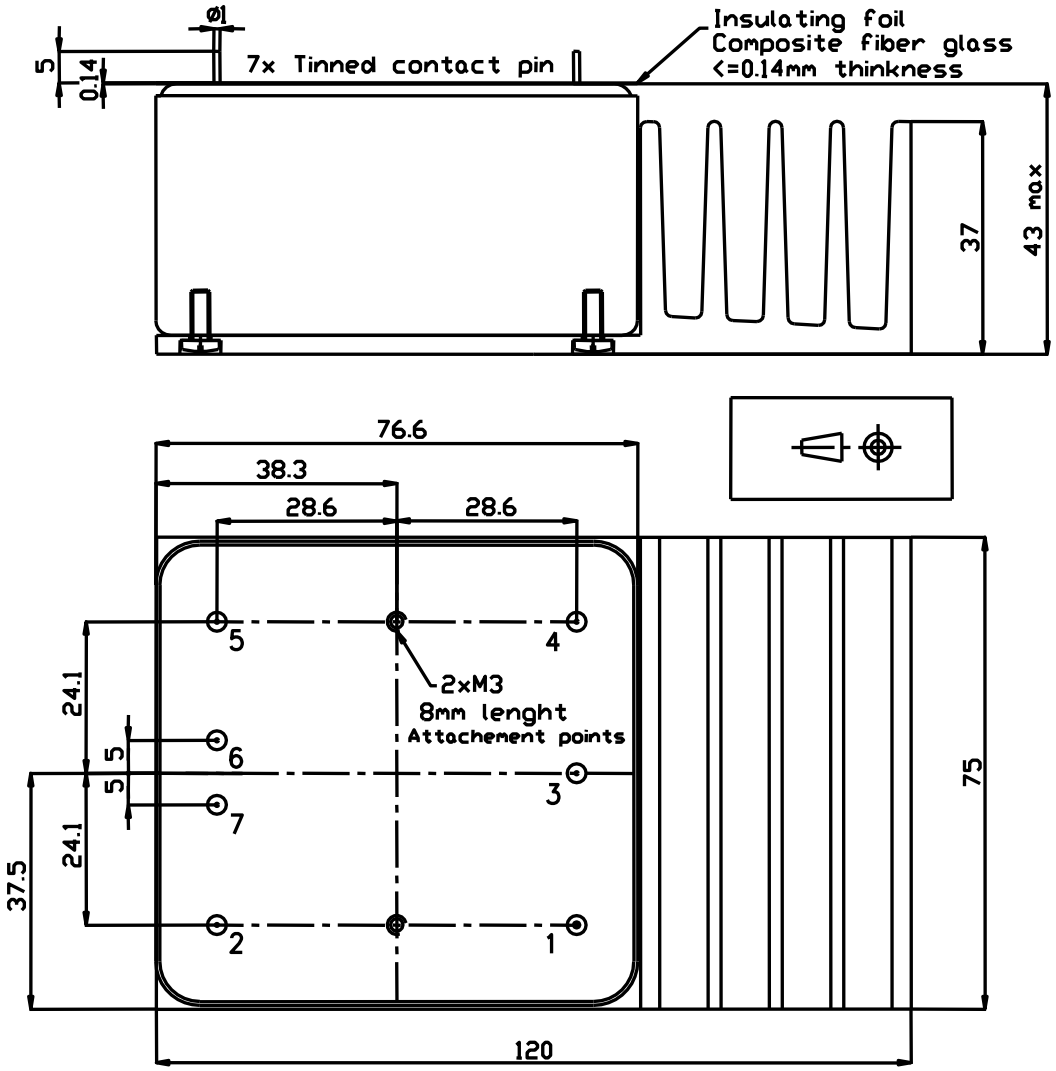

Fig. 2 - LCR-900 Size with Heat Sink Radiator

3) PIN LAYOUT:

PIN	FUNCTION
1	RF output
2	Vref / lock indicator
3	ground
4	Frequency control input
5	Power supply
6	RxD (TTL)
7	TxD (TTL)

4) ORDERING MODEL

LCR / 10 M / 15 V

Frequency — Supply voltage