

NOVATECH INSTRUMENTS, INC.

RUBIDIUM FREQUENCY STANDARD Model 2950AR



The Model 2950AR Rubidium Frequency Standard provides three simultaneous sinewave outputs of 10MHz, 1MHz and 100kHz (standard version). Containing an Atomic Resonance Rubidium Oscillator, the 2950AR provides long term stability of better than $\pm 5 \times 10^{-11}$ per month and short term stability of $< 0.8 \times 10^{-11}$ in 10 seconds. The 2950AR is ideal for use as a master oscillator in laboratories and ground stations, as well as for test and calibration applications. Three options are available: the 2950AR/01 provides three 10MHz outputs; the /02 has 10MHz, 5MHz and 100kHz; the /03 has customer specified outputs.

Specifications:

FREQUENCY STABILITY

Short Term:	$\tau=1s$	$< 2.5 \times 10^{-11}$
	$\tau=10s$	$< 0.8 \times 10^{-11}$
	$\tau=100s$	$< 0.3 \times 10^{-11}$
Aging:	Monthly	$< \pm 5 \times 10^{-11}$ after 1 month
	Yearly	$< \pm 5 \times 10^{-10}$ after 1 month
Temperature:	+5 to +40°C	$< \pm 4 \times 10^{-10}$
Line Voltage:	+/-10%	$< \pm 0.4 \times 10^{-11}$

FREQUENCY ACCURACY

At shipment: $< \pm 5 \times 10^{-11}$ at 25°C internal baseplate temperature.
Retrace: $< \pm 4 \times 10^{-11}$ from previous frequency after 24 hours ON and up to 48 hours OFF (constant temperature).

SINEWAVE OUTPUTS

2950AR:	10MHz, 1MHz and 100kHz
2950AR/01:	Three 10MHz
2950AR/02:	10MHz, 5MHz, 100kHz
2950AR/03:	Customer Specified

OUTPUT AMPLITUDE

1V_{RMS} +/-0.25V_{RMS} into 50Ω.

OUTPUT IMPEDANCE

50Ω, +/-10%

SPECTRAL PURITY (Typical)

All outputs: Harmonic < -40 dBc, Non-Harmonic < -70 dBc.

PHASE NOISE (Typical)

Frequency Offset	dBc
1 Hz	-75
10 Hz	-89
100 Hz	-128
1 kHz	-140
10 kHz	-147

ENVIRONMENTAL

Temperature: +5°C to +40°C operating
Humidity: 80% to 31°C, decreasing linearly to 50% at 40°C.

SIZE

2.5" H, 7.3"W, 9.5" L, excluding bail and feet.

CONNECTORS

BNCs for all outputs.

LINE POWER

120/240VAC +/-10%, 50/60Hz. 35 VA (65 VA max during warm up <10minutes).

FRONT PANEL INDICATORS

POWER OK Indicates that AC power is applied and on.
RUBIDIUM LOCK Indicates that the Oscillator is locked.

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