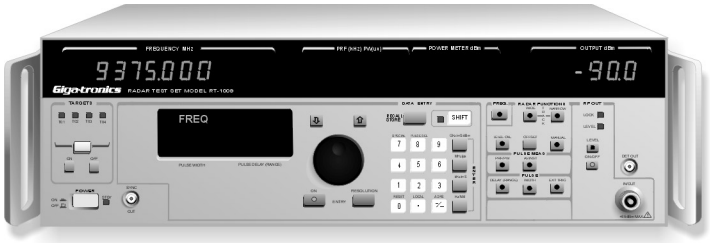
RT-1009 RADAR TEST SET



MODEL RT-1009, X-BAND RADAR TEST SET

The RT-1009 Radar Test Set is designed to test and calibrate advanced radar operating over the X-band frequency range (8.5 to 9.6 GHz), which is the most widely used frequency band for both airborne and marine radar. This system is excellent for test and calibration of, "Weather Radar, Search Radar, Navigation Radar, Missile Control Radar, and Gun Fire Control Radar".

The Giga-tronics RT1009 combines an RF signal generator, programmable pulse generator, peak power meter, and frequency counter into a single test instrument. Each component is simultaneously triggered from a single pulse. The design of the RT1009 utilizes a precision digital counter and an indirect synthesis phase-lock system to provide a superior radar test set.

The push-button keypad and menu driven front panel allows for easy access of all the RT-1009 Test Sets functions and features, while control via IEEE-488 bus gives you the ATE capability you desire. The RT-1009 also provides for automatic compensation of cable and coupler loss to make for a precision Radar Test Set.

Key Features at a Glance

- Provides up to four targets simultaneously with individually controls of pulse width, delay and amplitude (simulates targets from 0.1 NM to 500 NM).
- Built-in scintillation-fast pulse amplitude modulation for simulating turbulence, GCR (ground clutter return) and STC (sensitivity time curve).
- Displays PRF and RF frequencies simultaneously.
- Instantaneous and average PRF and PW measurement.
- Store up to 10 front complete front panel set-ups for system recall.
- Sythesized RF output frequency.
- Built-in amplitude, frequency and pulse modulation.
- Compensation of cable and coupler loss via front panel.
- Easy menu prompts guide you through initial set-up.
- IEEE-488 interface standard for ATE applications.
- MTBF of greater than 10,000 hours.
- Giga-tronics Standard Warranty.

TRACKING COUNTER/ GENERATOR CHARACTERISTICS:

Frequency Range: 8.500 - 9.600 GHz
Frequency Resolution (RF out): 1 MHz
Frequency Resolution (Counter): 1 kHz
Frequency Tracking Accuracy: ± 2 MHz

NOTE: accuracy is independent of pulse rate

Frequency Offset: ± 50 MHz (must be within Frequency Range)
Frequency Offset Resolution: 1 MHz
PRF Tracking Rates: 100 pps to 20,000 pps
PRF Resolution: 1 Hz
Pulse Width: .1 µs to 30 µs
Pulse Width Resolution: 10 ns

SPECTRAL PURITY:

Harmonics: <-40 dBc
Spurious: <-45dbc

OUTPUT POWER CHARACTERISTICS

Output Amplitude Range: 0 dBM to -110 dBM
Output Amplitude Resolution: 0.1 dB
Output Amplitude Accuracy: ± 2 dB

INPUT POWER MEASUREMENT

Power Range (Peak Pulse): 0 to +65 dBm;
maximum average power +40 dBm (10 watts).

NOTE: Average power (watts) = PPS (Hz) x PW (sec) x peak power (watts)

Power Range: (CW) 0 to +40 dB
Pulse Width: .1 µs to 30 µs
Input Power Accuracy: ± 2 dB
Power Measurement Resolution: 0.1 dB

TARGET #1

Modes: External Trigger, Radar Trigger
Internal Pulse Width: 0.1 µs to 100 ms; 0.1 NM to 300 NM
Internal Radar Range: 0.1 µs to 100 ms; 0.1 NM to 500 NM, Referenced to the 50% point of the leading edge of the detected radar transmitting pulse.

PM TRIG IN: TTL compatible, 10 Hz - 1 MHz rate, ≥ 0.1 µs wide, positive level for "RF on". Input impedance is 50 ohms, nominal.

Radar Trigger: 100 pps to 20,000 pps; ≥ 0.1 µs width
Output Pulse Rise/Fall Time: <50 ns
On/Off ratio: >70 dB

Attenuation Range 0 to 64 dBc attenuation, referenced to the highest amplitude of any of the four targets. Minimum RF signal level is -110 dBm.

MULTIPLE TARGETS

Target #2 (NOTE: Targets must be set sequentially.)

Internal Pulse Width: 0.1 µs to 100 ms; 0.1 NM to 300 NM
Internal Radar Range: 0.3 µs to 100 ms; 0.3 NM to 500 NM, Referenced to the 50% point of the leading edge of the detected radar transmitter pulse.

Attenuation Range 0 to 64 dBc attenuation, referenced to the highest amplitude of any of the four targets. Minimum RF signal level is -110 dbM.

Target #3 (NOTE: Targets must be set sequentially.)

Internal Pulse Width: 0.1 µs to 100 ms; 0.1 NM to 300 NM
Internal Radar Range: 0.5 µs to 100 ms; 0.5 NM to 500 NM, Referenced to 50% point of the leading edge of the detected radar transmitter pulse.

Attenuation Range 0 to 64 dBc attenuation, referenced to the highest amplitude of any of the four targets. Minimum RF signal level is -110 dBm.

Target #4 (Note: Targets must be set sequentially.)

Internal Pulse Width: 0.1 µs to 100 ms; 0.1 NM to 300 NM
Internal Radar Range: 0.7 µs to 100 ms; 0.7 NM to 500 NM, Referenced to the 50% point of the leading edge of the detected radar transmitter pulse.

Attenuation Range 0 to 64 dBc attenuation, referenced to the highest amplitude of any of the four targets. Minimum RF signal level is -110 dBm.

INPUTS

PRF/PW SYNC IN: TTL pulse, gates, internal PRF counter to read the pulse rate and width within a radar burst transmission.

REF IN: 10 MHz $\pm 1X10^{-6}$ or better, 1.5 Vpp automatically overrides internal time base.

PM TRIG IN: TTL pulse (into 50Ω) to trigger pulse modulation for test and calibration purposes.

OUTPUTS

DET OUT: Detected radar transmitter signal, 0 to +1.5V into a 50Ω load.

SNYC OUT: Positive pulse simultaneous with radar transmitter in track mode, or external trigger in external mode.

PM Video OUT: TTL pulse having the same width as the RF output pulse.

REF OUT: Buffered 10 MHz, 2 Vpp into 50Ω, derived from internal or external time base.

ENVIRONMENTAL

Operating Temperature Range: 0 to 50°C
Amplitude Calibration Valid: 25 ± 10°C
Relative Humidity: 0 to 90%, non-condensing
Primary Power Source: 100/115/230 VAC, 50-400 Hz, <200W

GENERAL SPECIFICATIONS

Net Weight: 41 lb. (18.6)
Net Width: 16.75 in. (42.5 cm)
Net Depth: 20.00 in. (50.7 cm)
Net Height: 5.25 in. (13.3 cm)

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