



TU-3950 ULTRA WIDEBAND TUNER

DEVELOPMENTAL

FEATURES

- 2 to 20 GHz Extendable to 40 GHz
- Fixed Frequency/Set-on Tuner
- 250 MHz Tuning Resolution
- Front-end Filters to Reject Strong Out-of-Band Signals
- IF Output Center Frequency at 3 GHz, Bandwidth is 2 GHz
- Controlled from Remote Workstation
- Built-in Test Functions
- Ethernet 100BaseT control
- RF Blanking (Optional)
- RF Attenuation (Optional)



DESCRIPTION

The TU-3950 Ultra Wideband Microwave Tuner, a member of the SMR-3000 family of high-performance synthesized microwave receivers, covers 2 to 20 GHz. Frequency extension to millimeter wave frequencies is possible using a frequency extender, FE-3820-02. The tuner provides a wideband IF outputs at 3 GHz (2 GHz bandwidth).

Remote Control by Laptop or Workstation

Remote control of the tuner is via the Ethernet 100BaseT LAN or RS-232/422 port.

RF Inputs

Key RF parameters include low noise figure, high intercept point, and high dynamic range. Excellent LO phase noise performance ensures clean down-conversion and low distortion of signal modulation characteristics.

To adequately reject the strong out-of-band signals, a bank of switched filters designed as a combination of high-pass and low-pass filters are integrated into the RF front-end.

An (optional) RF blanking input for front-end protection in a strong signal environment is available on the rear panel. RF step attenuation (optional) that is digitally controlled via Ethernet or RS-232 input commands is also available.

IF Outputs

The internal 3 GHz IF from the RF front end is preamplified and power divided.

The TU-3950 Microwave Tuner is powered from the ac mains by an internal autosensing power supply. Built-In-Test (BIT) status of receiver phase lock, power supply voltages, and operating temperature limits are provided. Extensive mechanical and environmental testing ensures that the TU-3950 will perform in the most demanding environments.

Courtesy of <http://BlackRadios.terryo.org>

RF SPECIFICATIONS AT 25° C

Frequency Range	2.0 to 20 GHz	Image Rejection	>65 dB
RF Input Connector	Single SMA connector, 50 Ω input impedance	LO Reradiation	< -85 dBm at the RF input
RF Input Power (Maximum Levels)	+20 dBm CW +30 dBm peak, 30 usec max, pulse width, 10% duty cycle	Noise Figure	\leq 16 dB, max
Long Term Frequency Stability	<1 ppm/Yr	With Attenuator	\leq 12 dB, max., (<10 dB, typ.)*
Frequency Accuracy vs. Temperature	<1x10 ⁻⁶ over 0° to 50° C	Without Attenuator	
External Frequency Standard	10 MHz at 0 dBm \pm 3 dB, autoswitching	RF to IF Linear Differential Group Delay	<3.5 ns, p-p over 80% of IF bandwidth
Reference Output	10 MHz, 0 dBm \pm 3 dB, min.	Phase Noise (approximately)	Offset dBc/Hz
Tuning Resolution	250 MHz		100 Hz -75
Linear Dynamic Range	>60 dB, RF to IF, 2 GHz BW	Integrated Phase Noise	1 kHz -85
Single Tone Spurious Free Dynamic Range	>50 dB, RF to IF, 1 MHz BW		10 kHz -90
Third Order Intercept Point	0 dBm, typ.; -3 dBm, min.		100 kHz -100
			1 MHz -130
			10 MHz -140
		Tuner RF to IF Gain	20 dB to -50 dB \pm 1.5 dB

*Applies to 80% of the 2-18 GHz tuning range at 3 GHz IF.

IF OUTPUT SPECIFICATIONS

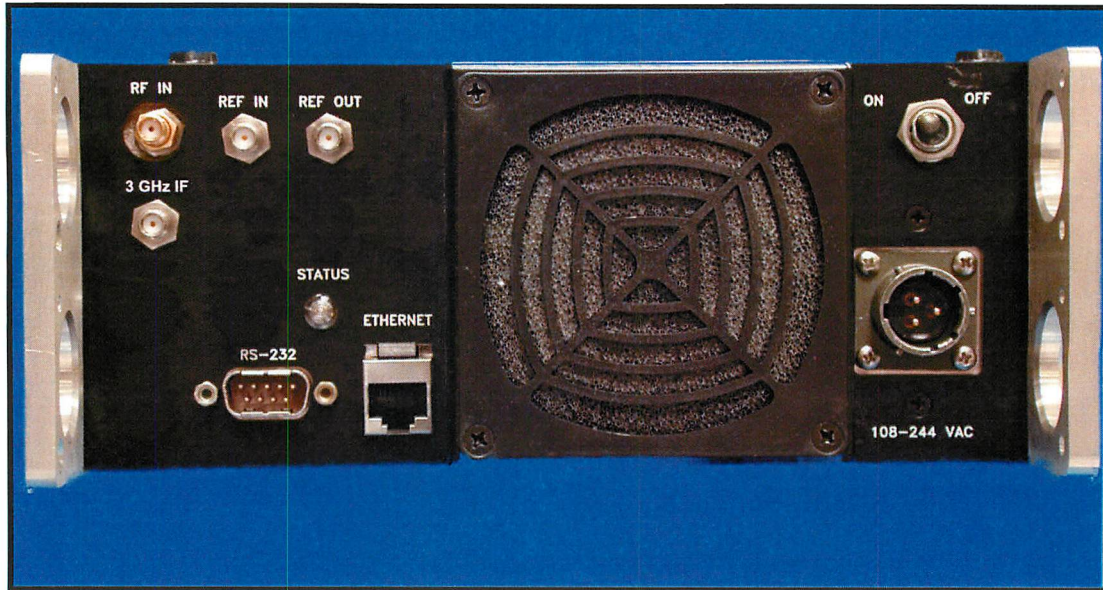
IF OUTPUT PORT	GAIN	NOISE FIGURE (No Attenuation)	BANDWIDTH
3 GHz	20 dB, nominal \pm 1.5 dB (FIXED)	<12 dB	2 GHz

SYSTEM SPECIFICATIONS

OPTIONS

Built In Test	Activated during power up and on command. Monitors power supply voltages, temperature, and phase lock.	Extended Tuning Range to 40 GHz	Compatible with FE-3820 Frequency Extender
Operating Power	100-240 Vac, 47 - 400 Hz	RF Input Blanking	60 dB attenuation, 10 usec switch time, logic interface
Power Consumption	110 Watts nominal	RF Input Attenuator	0-70 dB, 10 dB steps
RFI/EMI	Designed to meet MIL-STD-461E; CE102 & RE102		
Enclosure Size	3.5 x 8.5 x 15 inches (8.6 x 24.1 x 38.1 centimeters)		
Weight	<20 pounds (9 kg) maximum.		
Operating Temperature	0 ^o to +60 ^o C		
Storage Temperature	-30 ^o to +70 ^o C		
Control	RS-232/422 & Ethernet 100BaseT		
Preselect Control Output	Logic level		

Specifications subject to change without notice.



TU-3950 Connector Panel

WARRANTY

All M/A-COM SIGINT Products equipment is warranted for one year, except for damage caused by accident or misuse, provided the equipment is returned for repair to the plant in Hunt Valley, Maryland, U.S.A.



M/A-COM SIGINT PRODUCTS
10713 Gilroy Road, P.O. Box 868
Hunt Valley, MD 21030 U.S.A.
Phone 410-329-7900
FAX 410-329-7990
e-mail: sigintsales@tycoelectronics.com
www.macom.com/sigint

tyco / Electronics

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