

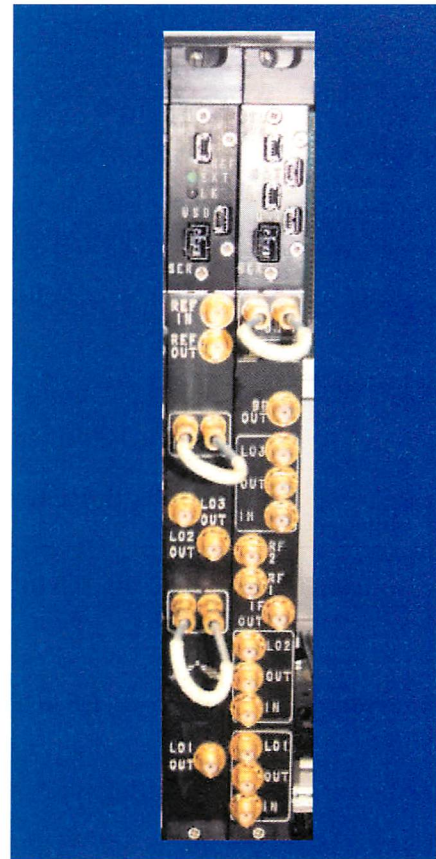


TU-6400 MICROWAVE VME TUNER

DEVELOPMENTAL

FEATURES

- Tunable Input 0.5 GHz to 18 GHz
- IF Outputs:
 - 1 GHz (500 MHz BW)
 - 160 MHz (100 MHz BW)
- High Dynamic Range
- Excellent Phase Noise
- Fast Tuning
- Wide Bandwidth
- Single or Multi-Channel Frequency & Amplitude Coherent Operation
- 6U-VME Configurations
- Ethernet Control



DESCRIPTION

The TU-6400 Microwave Tuner is an ultra high performance wideband microwave receiver. The RF down converter used in conjunction with the dual DDS synthesizer module creates a microwave tuner featuring low phase noise and extremely fast tuning speed. These critical characteristics are accomplished by being the first microwave tuner incorporating a complete direct digital synthesizer. This technology uncouples tuning speed from phase noise creating the fastest and highest performance tuner on the market. All of these features are compressed into a two slot 6U VME design.

The TU-6400 is capable of tuning over the entire 0.5 to 20 GHz range providing both a narrowband and wideband outputs. The simultaneous analog outputs of 100 MHz and 500 MHz are centered at 160 MHz and 1GHz, respectively. The analog outputs are suitable for direct input into an external A/D converter for

special signal processing, spectral analysis and pulse parameterization.

The TU-6400 functions for both single channel and multi-channel (frequency and amplitude coherent) systems and this is accomplished using an internal LO distribution system. This feature makes the TU-6400 the tuner of choice for beamforming and direction finding systems, and for a wide range of scanning/acquisition ELINT and/or EW applications.

RF SPECIFICATIONS AT 25° C

RF Input	Single SMA connector, 50 Ω input impedance	Image Rejection	>70 dB
Frequency Range	0.5 to 18 GHz	LO Reradiation	< -95 dBm at the RF input
RF Blanking Level (Optional)	TTL, BNC input	Noise Figure With Attenuator	\leq 18 dB, max
RF Attenuation (Optional)	0-70 dB in 10 dB steps	Noise Figure Without Attenuator	\leq 15 dB, max., (<10 dB, typ.)*
Long Term Frequency Stability	<1 ppm/Yr	RF to IF Linear Differential Group Delay	\leq 5 ns, max. (\leq 3.5 ns, typ.) over 80% of IF bandwidth @ 1 GHz & 160 MHz
Frequency Accuracy vs. Temperature	<1x10 ⁻⁶ over 0° to 50° C	Step Tune Speed	<300 usec, typical*
External Frequency Standard	100 MHz at 0 dBm \pm 3 dB, autoswitching	Integrated Phase Noise	\leq 0.8°, typical 100 Hz to 100 MHz*
Reference Output	100 MHz, 0 dBm \pm 3 dB, min.	Tuner RF to IF Gain	20 dB \pm 1.5 dB
Tuning Resolution	1 kHz	*Applies to 80% of the 0.5-18 GHz tuning range at 1 GHz and 160 MHz IF's only.	
Pre-selection	Switched filter bank		
Linear Dynamic Range	>90 dB, RF to IF, 1 MHz BW		
Single Tone Spurious Free Dynamic Range	>60 dB, RF to IF, 1 MHz BW		
Two Tone Spurious Free Dynamic Range	>65 dB, RF to IF, 1 MHz BW		
Third Order Intercept Point	-5 dBm, typ.*		
Input 1dB Compression	-10 dBm, min.		

IF OUTPUT SPECIFICATIONS

IF OUTPUT PORT	GAIN	NOISE FIGURE (No Attenuation)	BANDWIDTH
1 GHz	20 dB, nominal (FIXED)	<15 dB	500 MHz
160 MHz Wideband	20 dB, nominal (FIXED)	<15 dB	100 MHz

SYSTEM SPECIFICATIONS

Built In Test	Activated during power up and on command. Monitors dc voltages, temperature, and phase lock.
Operating Power	VME bus power
Power Consumption	65 Watts nominal (single channel)
RFI/EMI	Designed to meet MIL-STD-461E; CE102 & RE102
Enclosure Size	VME 2 wide 6U high
Weight	<7 lbs (3.2 kg) (2 slots)
Operating Temperature	0° to +50° C
Control	Ethernet 100BaseT and/or RS-232/422

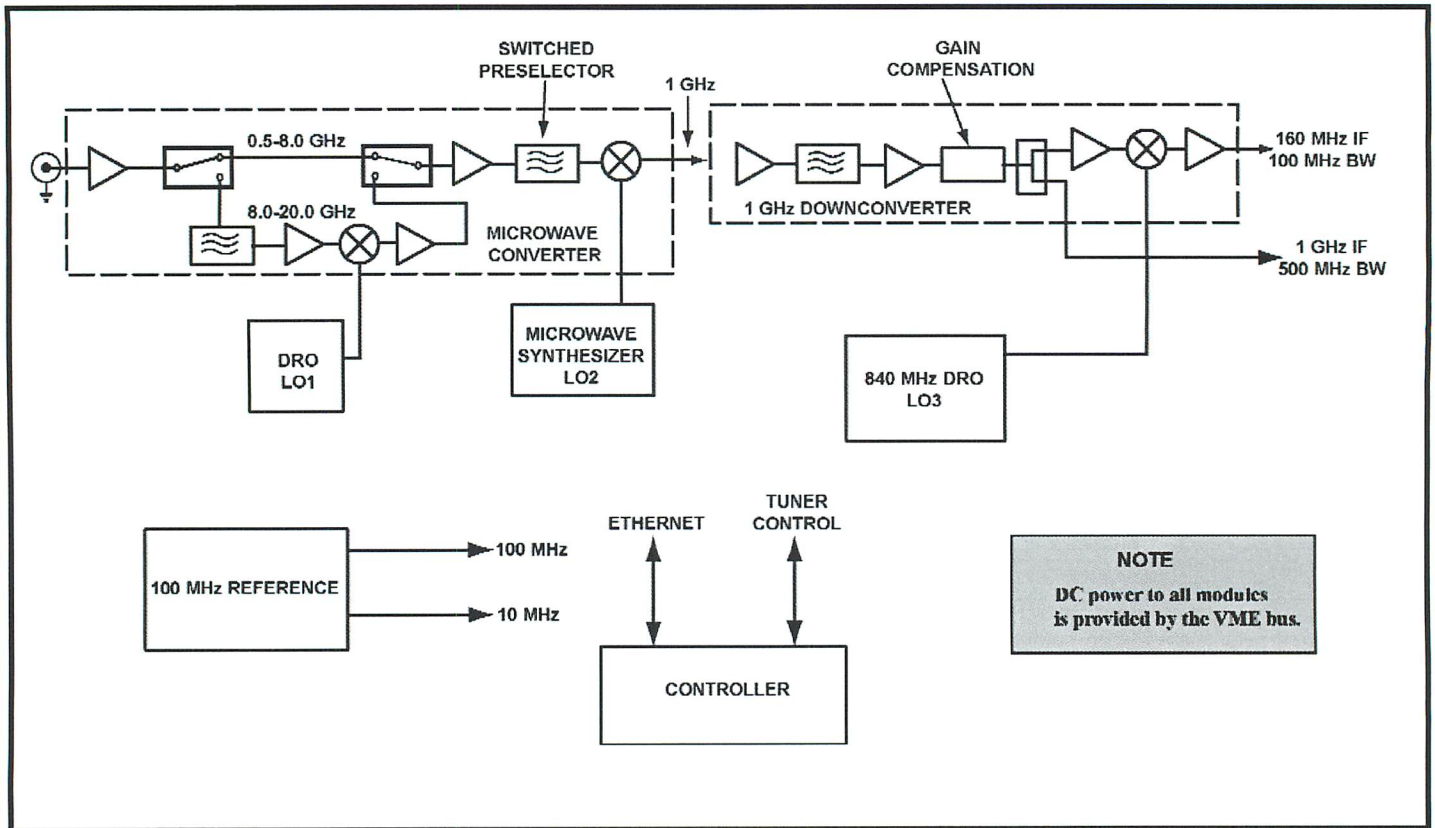
Specifications subject to change without notice.

OPTIONS

- **RF Blanking**
- **Digitally Controlled RF Input Attenuator**
- **Auxiliary Control Output (for external preselector and antenna control)**
- **Custom Control Interfaces**
- **Low End Frequency Coverage to 100 MHz (limited bandwidth)**

NOTE

The above options require a separate 6U high VME slot.



TU-6400 BLOCK DIAGRAM

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.

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