



FEATURES

- 20-500 MHz Frequency Coverage
- Exceptionally High Dynamic Range
- AM, FM, (CW and SSB Optional)
- Up to 4 Selectable IF Bandwidths
- Very Fast Tuning Synthesizer
- Sensitive and Fast Carrier to Noise-Operated Squelch
- Up to 400 Channels/sec Scan Rate
- High Sensitivity
- High NPR and Low BER
- Lock-On Capability
- Excellent Spurious Response
- Fast AGC Attack and Release
- Signal Strength Measurement
- Local or Remote Control
- Built-in WB Signal Monitor

DESCRIPTION

The Model R/E-125 VHF/UHF COMINT Receiver is a synthesized receiver, designed to fill the need for a general purpose digitally controlled COMINT Receiver. The receiver section, which is a Model EL/K-1250CC manufactured by Elta Electronics Industries, is combined with Reaction Instruments' IF display and digital controller to form a single chassis receiver system.

The Model R/E-125 Receiver covers the 20-500 MHz frequency range with a 1 kHz resolution. It can demodulate AM, FM, and optionally CW and SSB, signals, employing four selectable IF filters. RF preselection by voltage tracking filters provides improved intermodulation protection as well as rejection of spurious signals. A fast-tunable synthesizer is employed with a capability switch and settles between any two selected channels in less than 500 μ sec.

Integrating the decision and control power of an internal microprocessor unit, the R/E-125 Receiver is available with either local, manual control or with remote control as a basic building block in a larger EW system. The microprocessor enables sophisticated operation modes, combined with a built-in memory of 100 preset tasks or 20 frequency scan ranges.

A built-in signal monitor provides a visual spectrum display of signal activity around the tuned frequency. The sweep width of the signal monitor is continually adjustable up to 4 MHz.

OPERATING MODES

In the LOCAL Mode, the operator has full control of all receiving functions, through the front panel controls:

Tuned Frequency	Squelch Control
Frequency Scan Rate	IF Bandwidth
Detection Mode	Video Gain
AGC ON/OFF	Audio Gain
AFC ON/OFF	RF Gain

Frequency and signal strength are presented.

The LOCAL control mode provides three automatic operating functions:

SINGLE CHANNEL-SEARCH-	Preset task receiving through the 20 preset frequency ranges
SCAN-	the 100 preset tasks, by automatic scan
RS-232C INTERFACE-	REMOTE mode

SPECIFICATIONS

Frequency Range	20-500 MHz 20-1000 MHz - Optional, uses external converter
Frequency Resolution	1 kHz (10 Hz in SSB option)
Detection Modes	AM, FM (CW, SSB optional)
Noise Figure	11 dB, maximum
Preselection	VTF, 8% BW
Input Impedance	50 ohm, 1:3 VSWR, maximum
IF Bandwidths	4 max, select from 10, 20, 50, 100, 200, 300, 350*, 700*, 1000, 1400* kHz
Synthesizer Settling Time	500 μ sec, maximum for any frequency step.
Frequency Accuracy and Stability	+/- 1 ppm maximum
Third Order Input Intercept Point	+15 dBm for two signals +/- 10% from control frequency, +5 dBm for two signals in the WB IF
Image Rejection	90 dB (20-180 MHz), 75 dB (180-500 MHz)
IF Rejection	80 dB, minimum
Phase Noise	
f_0 +/- 25 kHz	-95 dBc/Hz
f_0 +/- 200 kHz	-115 dBc/Hz
f_0 +/- 450 kHz	-125 dBc/Hz
LO to Antenna Radiation	-90 dBm, maximum
Spurious Rejection	80 dB
Desensitization	-45 dBm out of band signal, removed at least 200 kHz, will not degrade receiver's sensitivity by more than 3 dB

*NPR optimized

Specifications are subject to change without notice

Squelch	Noise riding, carrier to noise operated
Squelch Sensitivity	10 dB C/N, at 350 kHz IF, 2 msec dwell time, 99% probability of interception and 10^{-5} false alarm rate
AFC Range	+/- 0.5 IF BW
AGC Range	100 dB
BER	within 2 dB of optimum theoretical curve
NPR	30 dB at IF BW of 350 and 700 kHz
Computer Interface	RS-232C
Output	
WB IF to SDU	
Ctr. Freq.	21.4 MHz
Bandwidth	3 MHz, minimum
Gain	10 dB, minimum
NB IF	
Ctr. Freq.	21.4 MHz
Output Level	-3 dB, minimum
Video	1 Vrms into 75 ohms
Audio	
BW	300-3400 Hz
Signal Level	0 dBm, minimum, into 600 ohms, fixed output on rear panel, 6 dBm, minimum, variable output on front panel
Distortion	5% maximum -100 to -70 dBm 10% maximum -70 to -10 dBm
Power	115/220 Vac, 48-420 Hz, 80 W
Temperature	
Operating	0°C to 50°C
Storage	-10°C to 65°C
Size	3.5 inches high by 22.5 inches deep, suitable for 19 inch rack mount

ORDERING INFORMATION

The standard Model R/E-125 Receiver has a frequency range of 20-500 MHz, provides four IF bandwidths, a frequency resolution of 1 kHz, AM/FM demodulation, signal display unit, and RS-232C computer interface. CW and SSB demodulation and frequency resolution of 10 Hz (only available with CW/SSB Demodulator) are optional. When ordering, please specify:

R/E-125	VHF/UHF COMINT Receiver	Option B25	200 kHz IF Bandwidth
Option M03	CW/SSB Demodulator	Option B35	300 kHz IF Bandwidth
Option R02	10 Hz Tuning Resolution (only available with Option M03)	Option B01	350 kHz IF Bandwidth
Option B14	10 kHz IF Bandwidth	Option B45	400 kHz IF Bandwidth
Option B24	20 kHz IF Bandwidth	Option B75	700 kHz IF Bandwidth
Option B54	50 kHz IF Bandwidth	Option B16	1 MHz IF Bandwidth
Option B15	100 kHz IF Bandwidth	Option B02	1.4 MHz IF Bandwidth

WARRANTY

All of Reaction Instruments' 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 Herndon, VA

 **IAI ELTA Electronics Industries Ltd**
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