

Full-Featured Signals Intelligence Platform for Tactical Man-Portable Missions



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L-3's MD-405A is a compact, lightweight, low-power Signals Intelligence (SIGINT) receiver/processor that is used for intercept and direction finding (DF) of communications signals. Our MD-405A contains three receivers: one DF receiver and two monitor receivers. The DF receiver has the capability to intercept and DF communications signals from 0.1 MHz to 2000 MHz. The two independent monitor receivers will intercept signals from 2 MHz to 2000 MHz. The unit uses Linkabit's proprietary single-channel interferometer DF technique to achieve both high accuracy and sensitivity. The unit provides high-quality audio (listen-through) over the entire operational frequency range. In Manual mode the operator can independently monitor up to three signals at the same time. The MD-405A conducts three different types of search: Automatic, Semiautomatic, and New Energy. Automatic Band Sweep is used to characterize the RF environment without operator intervention. During Semiautomatic Band Sweep, the detected signal is tuned for an operator as a function of the dwell time. The MD-405A stores information in the Signal List to include: signal list number, individual signal bearing, center frequency, bandwidth, signal-to-noise ratio, signal presence statistics, and time statistics for all signals detected.

FEATURES

- Operates with a variety of Linkabit antennas to meet a range of SIGINT missions
- User-friendly interface allows operator to set numerous system preferences
 - Back light timeout, north offset, time, date, antenna direction, monitor receiver power, automatic frequency centering, audio settings, and synthesized voice settings, BIT and playback
- Audio and digital FSK data can be recorded and played back on the MD-405A using an optional digital recorder
- The DF display provides the operator with a line-of-bearing (LOB) displayed as a histogram plot with last computed bearing on a "compass rose" type display
- Can store 400 normal channels, 20 priority channels and nine scan bands

BENEFITS

- Capable of executing up to three functions simultaneously; scan, monitor and DF, providing the operator the highest level of flexibility
- Multi-mission capable; seamlessly transitioning from man-pack, ground vehicles, small patrol boats, or tactical fixed-site applications
- Rugged design provides for many years of superior performance in austere environments

MD-405A SIGINT RECEIVER/PROCESSOR



SPECIFICATIONS

RECEIVER SPECIFICATIONS		
	DF RECEIVER	MONITOR RECEIVERS
Quantity	1	2, independent power switched
Frequency coverage	0.1 MHz to 2000 MHz	2 MHz to 2000 MHz
Frequency resolution	10 Hz, full-frequency range	10 Hz, full-frequency range
Tuning speed	4 ms, 10 Hz resolution	5 ms, 10 Hz resolution
Preselection	VTF, 10% nominal tuned frequency	VTF, 10% nominal tuned frequency
Demodulators (IFBW)	FM 200 kHz, 50 kHz, 15 kHz AM 15 kHz, 6 kHz SSB 6 kHz, 3 kHz CW 3 kHz, 500 Hz	FM 15 kHz AM 15 kHz, 6 kHz SSB 6 kHz, 3 kHz CW 3 kHz, 500 Hz
Sensitivity ¹	FM 15 kHz, 12 dB SINAD 0.9 µV FM 50 kHz, 12 dB SINAD 1.9 µV FM 200 kHz, 12 dB SINAD 3.2 µV AM 6 kHz, 12 dB SINAD 1.5 µV SSB/CW 3 kHz, 10 dB SINAD 0.4 µV	FM 15 kHz, 12 dB SINAD 1.4 µV AM 6 kHz, 12 dB SINAD 2.4 µV SSB/CW 3 kHz, 10 dB SINAD 0.6 µV
Attenuation (in dB)	0, -6, -12, -18, -24, -30	0, -6, -12, -18, -24, -30
Intermodulation distortion	-5 dBm minimum	-5 dBm minimum
Rejection	Image: 80 dB minimum IF: 80 dB minimum	Image: 80 dB minimum IF: 70 dB minimum
SSB phase noise	-85 dBc/Hz at 10 kHz -100 dBc/Hz at 100 kHz	-85 dBc/Hz at 10 kHz -100 dBc/Hz at 100 kHz
LO re-radiation	-90 dBm < 500 MHz -80 dBm > 500 MHz	-80 dBm < 500 MHz -75 dBm > 500 MHz
Reference stability over temperature	± 1 ppm maximum	± 1 ppm maximum
DF coverage	2 MHz to 2000 MHz	
DF accuracy (MA-445C)	3° RMS typical (antenna and location-dependent)	
DF quality factor	Derived from 1 sigma value of raw data	
DF resolution	1°	
DF integration time (in seconds)	Selectable: Off, 0.25, 0.5, 1.0, 2.0, 4.0, 8.0	
North offset	Selectable: 0 to 359°	
PAN	50 kHz, 200 kHz, 900 kHz, 5 MHz spans	
OPERATING MODES		
General search	Automatic, semiautomatic, new energy modes	
Bands	Selectable, nine bands	
Signal list	Log up to 400: center frequency, BW, time statistics	
Pass list	Avoid up to 400	
Channel scan	400 normal channels, 20 priority channels	
Manual mode	Independent receiver control	
Setup	Channels, bands, system configuration	
Built-In-Test	End-to-end operation test and fault isolation to LRU	
Remote interface	RS-232	
Auxiliary I/O interfaces	Recorder (audio, digital FSK data); Triple receiver IF, COS, audio	
Headphone interface	Right, left, both, MUTE	
Power interface	External: Solar array, DC, external battery; Internal: NiCad with built-in charger (Li or Mg no charge)	
PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS		
Size	133 mm x 292 mm x 311 mm (5.25 in. x 11.5 in. x 12.25 in.)	
Weight	7.4 kg (16.5 lb.) without internal battery	
Power	9.5 watts typical, 10-28 VDC, all receivers active; BB-XX90 series of batteries: 10 hours of operation typical. Charger available as an accessory.	
Temperature	Operating: -20 °C to +50 °C; Storage: -20 °C to +70 °C	
Humidity	0 to 100% condensing	
Altitude/submersion	15,240 meter (50,000 feet)/1 meter (3 feet) for 1 minute	
Rain, salt fog, vibration	MIL-STD-810E modified	

1. DF: 0.5 MHz - 2000 MHz (1 kHz Tone) Monitor; 2 MHz - 2000 MHz (1 kHz Tone)

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