The M5300 mobile is a digital two-way radio that provides

- *Multi-Mode operation*
- *Over-the-Air programming*
- *Optional GPS capability*

Designed to meet the critical demands of utility and public service users, the M5300 mobile provides the latest in digital radio technology for the 800 and 900 MHz frequency bands.

Multiple Operating Modes
The M5300 mobile supports multiple operating modes, including OpenSky® digital operation, Enhanced Digital Access Communications System (EDACS®) or ProVoice™ trunked modes, P25 digital trunked mode (800 MHz), P25 digital conventional mode (800 MHz), and conventional analog mode.

GPS Capability
The optional Global Positioning System (GPS) receiver module can provide standard GPS formatted data over the air for vehicle tracking systems.

Secure Communications
The optional Advanced Encryption Standard (AES) is available for maximum communications security.

Over-the-Air Programming
OpenSky radios benefit from a flexible, software-based digital radio design. Features and user profiles are software-defined and can be reprogrammed over the air. The optional over-the-air programming feature allows communications protocols to be changed easily and added at any time.

CH-721 and HHC-731 Control Units
The M5300 radio uses the CH-721 Control Unit which provides additional features while maintaining a user interface similar to the popular Orion™ Control Unit. A key improvement is the display that provides 3 lines of 12 characters. The alphanumeric display with large buttons, volume knob, and channel knob provides a user-friendly interface.

The HHC-731 is a rugged hand held controller providing an interface similar to the CH-721 in a compact, easy-to-use design. This compact design makes the HHC-731 ideal for special applications such as covert operations. The HHC-731 was also designed for special applications such as motorcycle, marine, and ATV mountings where space is at a premium.

About OpenSky
OpenSky is a secure integrated digital voice and data communication system. OpenSky leverages the power of Internet Protocol (IP) and packet technology for reliability and scalability to bring open data applications to the user. OpenSky uses a 19.2-kbps (800 MHz) or 9.6-kbps (900 MHz) physical bit rate 4-slot Time Division Multiple Access (TDMA) airlink to achieve 6.25-kHz voice channel spectral efficiency and dynamic bandwidth allocation.

General Specifications

Dimensions (H x W x D):
Radio Only (30W):
2.0 x 6.9 x 9.2 in.
(50 x 175 x 233 mm)
RU and CU (Includes Knobs):
2.4 x 6.9 x 12.3 in.
(60 x 175 x 311 mm)
CU (Remote):
2.4 x 7.0 x 4.0 in.
(60 x 175 x 100 mm)

Weight:
Front Mount:
5.9 lb (2.68 kg)
Remote Mount:
Transceiver only: 5.25 lb (2.38 kg)
CH-721 CU: 1.25 lb (0.57 kg)

System Voltage:
10.8 to 16.6* VDC Negative
Ground
*Not to exceed 14.3V above
+50°C for motorcycle applications.

DC Supply Current:
Receive (Includes CH-721 CU):
4.0 amps maximum (with 15-Watt
speaker output power)
Transmit (at 35/30 Watts RF):
15 amps maximum, 12 amps
typical
Standby:
1.1 amps maximum

Ambient Temperature Range:
-22 to +140°F
(-30 to +60°C)

Relative Humidity:
90% @ 122°F (50°C)

Altitude:
15,000 ft (4572 m)

Duty Cycle:
TIA/EIA-603

Programming:
Field PC Programmable
Over-the-Air Programmable (OpenSky)

Microphone:
Weatherproof microphone with
hookswitch

Mounting:
Front or Remote Mount available

Construction:
Control Unit: High Impact Plastic
Transceiver: Cast Metal

Speaker:
External, 15W

Operation:
12 VDC Negative Ground

Signaling:
OpenSky TDMA
EDACS Digital Control
P25 Trunking (800 MHz)
P25 Conventional (800 MHz)
Conventional
Type 99
Channel Guard (CTCSS)
Digital Channel Guard
G-STAR™ Emergency/ID Encode
Two-Tone Individual Call Decode

Options and Accessories

Remote mount kit, system and scan control units, mobile mic, DTMF mic, noise canceling mic, desk mic, and motorcycle kit.

Transmitter

	800	900
Frequency Range (MHz):	806-825, 851-870	896-902, 935-941
Rated Power Output EDACS and P25 (800 MHz) (W):	35	30
Rated Power Output OpenSky (W):	30	30
RF Output Impedance (ohm):	50	50
Frequency Stability (ppm):	±1.5	±1.5
Modulation/Deviation (kHz):	±5 (±4 NPSPAC)	±2.5
FM Hum and Noise (dBc):	-45 @ 25 kHz	-45 @ 25 kHz
Audio Response:	+1/-3.0 dB from 6 dB/octave pre-emphasis; 300-2500 Hz	+1/-3.0 dB from 6 dB/octave pre-emphasis; 300-2500 Hz
Audio Distortion (typical):	2.5% @ 1000 Hz	2.5% @ 1000 Hz
Conducted Spurious and Harmonics (dBc):	-65	-70

Receiver

	800	900
Frequency Range (MHz):	851-870	935-944
RF Input Impedance (ohm):	50	50
Channel Spacing (kHz):	12.5, 25	12.5
Frequency Stability (ppm):	±1.5	±1.5
Sensitivity		
@ EIA 12 dB SINAD (EIA):	0.25 µV/-119 dBm	0.25 µV/-116 dBm
@ 5% BER (EIA):	0.35 µV/-116 dBm	0.35 µV/-115 dBm
Selectivity (dB)		
@ 12.5 kHz:	-60	-70 analog
@ 25 kHz:	-80	NA
Intermodulation @ 25 kHz (dB):	-77	-70
Spurious Rejection (except 2nd image) (dBc):	-90	-90
FM Hum and Noise (dB):	47	-40
Audio Output (W):	15	15

Note: Numbers are per TIA-EIA-603 Methods.

Environmental Specifications

Standard	Parameter	Methods & Procedures
MIL-STD-810F	Low Pressure	500.4, Proc. I, II
	High Temperature	501.4, Proc. I, II
	Low Temperature	502.4, Proc. I, II
	Temperature Shock	503.4, Proc. I
	Solar Radiation	505.4, Proc. II
	Blowing Rain	506.4, Proc. I
	Humidity	507.4
	Salt Fog	509.4, Proc. I
	Blowing Dust	510.4, Proc. I
	Min Integrity Vibration	514.5, Proc. I, Category 24
	Functional/Basic Shock	516.5, Proc. I
	Transit Drop	516.5, Proc. IV
TIA/EIA-603	Vibration Stability	Par. 2.3.4 & 4.3.4
	Shock Stability	Par. 2.3.5 & 3.3.5
U.S. Forest Service	Vibration Stability	Par. 7.15

Digital Operation

Protocol:	OpenSky	ProVoice	Project 25	TIA/EIA-603
Vocoding Method:	AMBE+2™ Half Rate & Enhanced Half Rate	AMBE+2 Enhanced Full Rate	AMBE+2 Enhanced Full Rate & Enhanced Half Rate	Not Applicable
Signaling Rate (kbps):	19.2 & 9.6	9.6	9.6	Analog
Modulation:	4-Level GFSK & M4FM	GFSK	WCQPSK & C4FM	FM
Data Communication Mode:	Half Duplex	Half Duplex	Half Duplex	Half Duplex

Encryption

Encryption Technique:	Non-Linear Product/Block Transformation
Algorithm Types:	Data Encryption Standard (DES)/Advanced Encryption Standard (AES) (P25)

Regulatory Data

Frequency Range (MHz)	RF Output (W)	Frequency Stability (ppm)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules
935-941, 896-902	30	1.5	OWDTR-0049-E	90	3636B-0049	RSS-119
851-870, 808-825	30	1.5	OWDTR-0051-E	90	3636B-0051	RSS-119