



MD78X/78XG

Versatile Digital Mobile Two-Way Radio

- Large-size HD Transflective Color Display
- Superior Digital Voice





MD78X/78XG

Higher Efficiency,
Richer Experience

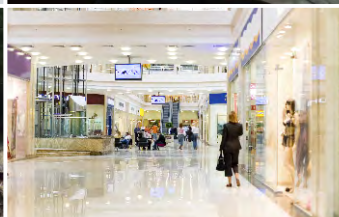
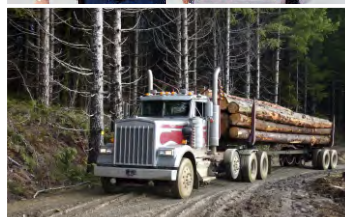
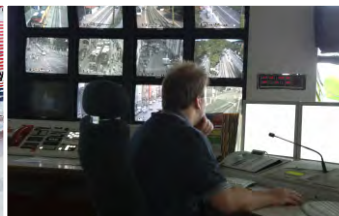
As a product built to the DMR standard, MD78X/78XG (MD78XG is the model with GPS) is endowed with ergonomic design, all-round digital functions and remarkable quality. These features improves your management efficiency and enable you to be responsive to emergent situations.

Applications

Public Safety
Forest Industry

Public Utilities
Business

Transportation (port, airport, railway, etc.)
Manufacturing



Product Features

● User-centered Design

The large-size color display allows good visibility even under extremely strong light. And the seven programmable keys facilitate your communication in various conditions.

● Reliable Quality

MD78X/78XG is strictly compliant with MIL-STD-810 C/D/E/F/G and IP54 standards, ensuring outstanding performance even under harsh environments.

● Superior Voice

With the combined application of narrowband codec and digital error-correction technologies, MD78X/78XG is capable of ensuring you of superior voice under noisy environments or at the edge of the coverage area. In addition, the adoption of the AGC technology also optimizes your voice. With a built-in 4W speaker, MD78X/78XG ensures clear and crisp voice communication.

● Higher Spectrum Efficiency, Higher Channel Capacity

Benefiting from the TDMA technology, MD78X/78XG allows twice the channels based on the same spectrum resource. This is a big help to relieve the stress of increasing shortage in of spectrum resources.

● Dual-slot Pseudo Trunk

With this feature, the free slot can be allocated to a member that needs to communicate, effectively enhancing frequency efficiency and allowing you to communicate timely under emergency situations.

● Secure Communication

Besides the intrinsic encryption of the digital technology, MD78X/78XG provides enhanced encryption capability (such as 256-bit encryption algorithm) and the Scrambler feature (selectable).

● Versatile Services

In addition to conventional communication services, MD78X/78XG features rich data services and selectable functions such as Text Message, Scan, Emergency, Channel Steering, Auto Registration and Lone Worker.

● Further Development Port

The reserved front and rear port in MD78X/78XG allows users or any third party partner to further develop other helpful applications to extend the radio functionalities!

● Option Board Interface

MD78X/78XG supports option board interfaces to the radio, This allows third party partners to develop various applications to interconnect with the radio. They could control the radio to expand its functionality! Among the supported features are voice recording, encryption etc. Please refer to the API Partner Programmed for more information!

Main Functions

● Dual Modes (Analog+Digital)

MD78X/78XG can operate in either analog or digital mode. It is compatible with the prevalent analog system, ensuring a smooth analog-to-digital transition.

● Versatile Voice Calls

Intelligent signaling of MD78X/78XG supports various voice call types, including Private Call, Group Call , All Call and Emergency Call.

● GPS

MD78XG supports viewing of GPS positioning information and sending of GPS text message.

● Data Services

MD78X/78XG supports data capabilities of sending Private and Group text messages. It also supports Third Party applications to control the radio via Third party API (GPS, Radio Registration Services, Radio Call Control, Telemetry, Data Transfer), via Telemetry control to radio.

● Accessory Expansion

MD78X/78XG supports third party to develop accessories expansion via front and rear port of the mobile. (Check out that features as channel steering, emergency footswitch has been supported via the back port!)

● Various Analog Signaling Types

MD78X/78XG supports various analog signaling types (HDC1200, DTMF phone , 2-Tone and 5-Tone), various squelch control types (CTCSS/CDCSS), thus providing higher function expansion capacity to the analog world.

● Supplementary Services

MD78X/78XG supports supplementary services of Radio Check, Remote Monitor, Call Alert, Radio Enable and Radio Disable.

● Multiple Languages

MD78X/78XG supports up to 15 languages, including English, Simplified Chinese, Traditional Chinese, Thai, Arabic, Farsi, Korean, Portuguese, Italian, Russian, Polish, Turkish, French, Spanish and German, allowing users to select it per their needs.

● One Touch

MD78X/78XG supports One Touch features that comprise of Text Message, Voice Calls and Supplementary Services.

● Scan

MD78X/78XG supports scanning of pure analog voice and signaling, pure Digital voice and data, and also mix mode scan that comprise of Analog and Digital activities.

● Roaming

MD78X/78XG supports automatic roaming of all sites in a IP Multi-site Connect system.

● Privacy of Voice and Data

MD78X/78XG supports analog scrambling, and digital encryption using Advanced Encryption Standard (AES) and ARCFOUR (ARC4) encryption methodology to both voice and data.

● Analog/Digital Telephone Interconnect (via DTMF signaling)

MD78X/78XG supports simplex voice communications between radio and telephone users. It allows a radio user to make a telephone call; or a telephone user to make either a Group or Private call to radio users. This feature utilizes the Commercial Off The Shelf (COTS) Analog Phone Patch boxes and a Plain Old Telephone Service (POTS) line to connect the radio users to the Corporate Office Phone System (PBX) or Public Switched Telephone Network (PSTN).

● Software Upgradeable

Upgrade of software enables new features without buying a new radio. MD78X(G) can also be switched into MPT and DMR trunking modes with corresponding trunking license applied to the same hardware.

Standard Accessories

Palm Microphone
Power Cord

Microphone Hanger
Fuse

Microphone Hanger Screws
GPS Antenna (for MD78XG only)

Mounting Bracket

Specifications

General	Frequency Range	UHF1: 400-470MHz; UHF2: 450-520MHz UHF3: 350-400MHz; UHF5: 806-941MHz VHF1: 136-174MHz; VHF3: 210-270MHz		
	Channel Capacity	1024		
	Zone Capacity	64(each with a maximum of 256 channels)		
	Channel Spacing	Analog: 25/20/12.5kHz Digital: 12.5kHz		
	Operating Voltage	13.6 V ± 15%		
	Current Drain	Standby	< 0.6A	
		Receive	< 2.0A	
			5W	< 5A
		Transmit	25W	< 8A
	UHF1/UHF2/UHF3: 45W; VHF1: 50W UHF5: 35W(806-900MHz), 30W(900-941MHz)			
	Frequency Stability	±1.5ppm		
	Antenna Impedance	50Ω		
	Dimensions (H×W×D)	60 x 174 x 200 mm		
	Weight	1.7Kg		
LCD Display	220 x 176 pixels, 262000 colors, 2.0 inch, 4 rows			
Receiver	Sensitivity	Analog	0.3μV (12dB SINAD); 0.22μV (Typical) (12dB SINAD) 0.4μV (20dB SINAD)	
		Digital	0.3μV /BER5%	
	Selectivity TIA-603 ETSI	65dB @ 12.5kHz / 75dB @ 20/25kHz 60dB @ 12.5kHz / 70dB @ 20/25kHz		
		75dB @ 12.5/20/25kHz 70dB @ 12.5/20/25kHz		
	Spurious Response Rejection TIA-603 ETSI	75dB @ 12.5/20/25kHz 70dB @ 12.5/20/25kHz		
		40dB @ 12.5kHz; 43dB @ 20kHz; 45dB @ 25kHz		
	Hum and Noise	40dB @ 12.5kHz; 43dB @ 20kHz; 45dB @ 25kHz		
	Rated Audio Power Output	Internal (@20 ohm load)	3W	
		External (@8 ohm load)	7.5W	
	Max Audio Power Output	Internal (@20 ohm load)	8W	
External (@8 ohm load)		20W		
Rated Audio Distortion	≤3%			
Audio Response	+1 ~ -3dB			
Conducted Spurious Emission	< -57dBm			

Transmitter	RF Power Output	Low Power UHF1/UHF2/UHF3: 5-25W; UHF5: 10-25W VHF1/VHF3: 5-25W	
		High Power VHF1: 5-50W; UHF1/UHF2/UHF3: 5-45W; UHF5: 10-35W(806-900MHz), 10-30W(900-941MHz)	
	FM Modulation	11K0F3E @ 12.5kHz; 14K0F3E @ 20kHz 16K0F3E @ 25kHz	
	4FSK Digital Modulation	12.5kHz Data Only: 7K60FXD 12.5kHz Data & Voice: 7K60FXW	
	Conducted/Radiated Emission	-36dBm<1GHz; -30dBm>1GHz	
	Modulation Limiting	±2.5kHz @ 12.5kHz; ±4.0kHz @ 20kHz; ±5.0kHz @ 25kHz	
	FM Hum & Noise	40dB @ 12.5kHz; 43dB @ 20kHz; 45dB @ 25kHz	
	Adjacent Channel Power	60dB @ 12.5kHz; 70dB @ 20/25kHz	
	Audio Response	+1 ~ -3dB	
	Audio Distortion	≤3%	
Digital Vocoder Type	AMBE++ or SELP		
Digital Protocol	ETSI-TS102 361-1,-2,-3		
Environmental Specifications	Operating Temperature	-30°C ~ +60°C	
	Storage Temperature	-40°C ~ +85°C	
	ESD	IEC 61000-4-2 (level 4) ±8kV (contact) ±15kV (air)	
	American Military Standard	MIL-STD-810 C/D/E/F/G	
	Dust & Water Intrusion	IP54 Standard	
	Humidity	Per MIL-STD-810 C/D/E/F/G Standard	
	Shock & Vibration	Per MIL-STD-810 C/D/E/F/G Standard	
	Accuracy specs are for long-term tracking(95th percentile values>5 satellites visible at a nominal -130dBm signal strength)		
	GPS (for MD78X6 only)	TTF (Time To First Fix) Cold Start	<1 minute
		TTF (Time To First Fix) Hot Start	<10 seconds
Horizontal Accuracy		<10 meters	

All Specifications are tested according to applicable standards, and subject to change without notice due to continuous development.

Optional Accessories



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