



# MD78XG

Trunking duplex mobile radio

- Large-size HD Transflective Color Display
- Superior Digital Voice
- Full-duplex Communication

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## MD78XG

Trunking duplex  
mobile radio

As a product built to the DMR standard, MD78XG trunking duplex mobile radio is endowed with ergonomic design, all-round digital functions and remarkable quality to increase your management efficiency and enable you to be responsive to emergent situations.

## Applications

Public Safety  
Forestry

Public Utilities  
Business

Transportation  
Manufacturing



# Product Features

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## ● 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

MD78XG trunking duplex mobile radio 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, MD78XG trunking duplex mobile radio is capable of ensuring you 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, MD78XG trunking duplex mobile radio ensures clear and crisp voice communication.

## ● Higher Spectrum Efficiency & Channel Capacity

Benefiting from the TDMA technology, MD78XG trunking duplex mobile radio allows twice the channels based on the same spectrum resource. This is a big help to relieve the stress of increasing shortage in spectrum resource.

## ● Secure Communication

Besides the intrinsic encryption of the digital technology, MD78XG trunking duplex mobile radio provides enhanced encryption capability (such as 256-bit encryption algorithm).

## ● Versatile Services

In addition to trunking communication services, MD78XG trunking duplex mobile radio has rich data services and selectable functions such as text message, emergency call, broadcast call, DGNA, handover/roaming.

## ● Further Development Port

The reserved front and rear port in MD78XG trunking duplex mobile radio allows users or any third party partner to further develop other helpful applications to extend the radio functionalities!

## ● Option Board Interface

MD78XG trunking duplex mobile radio supports option board interfaces to radio, allowing third party partner to develop various applications to interconnect with radios to control the radio to expand its functionalities! Among the supported features are voice recording, encryption\* etc. Please refer to the API Partner Programmed for more information!

## ● Full-duplex Communication

Realize simultaneous two-way voice communication by utilizing TDMA two time-slot technology. And there is no need to push the PTT during calls. Full-duplex call can achieve the same quality as phone call with Hytera DMR trunking system.

# Main Functions

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## ● Four Modes

MD78XG trunking duplex mobile radio can operate in DMR Trunking mode, MPT mode, DMR conventional mode and Analog conventional mode. It can support full duplex call in DMR Trunking mode.

## ● Versatile Voice Calls

MD78XG trunking duplex mobile radio supports various voice call types, including private call, group call, emergency call, broadcast call, all call, dispatcher call, and PSTN call.

## ● GPS

MD78XG trunking duplex mobile radio supports viewing of GPS positioning information and sending of GPS text message.

## ● Data Services

MD78XG trunking duplex mobile radio supports data capabilities of sending Private, Group text message. It also supports third party 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

MD78XG trunking duplex mobile radio 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!)

## ● Advanced Services

Ambience listening, discreet listening, interrupt/override, dynamic group number assignment, include call\*, super group call, etc.

## ● Multiple Languages

MD78XG trunking duplex mobile radio supports up to 13 languages, including English, Simplified Chinese, Traditional Chinese, German, Spanish, French, Italian, Polish, Russian, Turkish, Greek and Portuguese, allowing users to select per their needs.

## ● One Touch

MD78XG trunking duplex mobile radio supports One Touch features that comprise of Text Message, Voice Calls and Supplementary Services.

## ● Security Services

ESN Check, authentication, stun/revive, kill, end-to-end encryption, etc.

## ● Handover

The communication carries on seamlessly when the mobile radio moves from one base station to another.

## ● Privacy of Voice and Data

MD78XG trunking duplex mobile radio supports analog scrambling, and digital encryption using Advanced Encryption Standard (AES) and ARCFOUR (ARC4) encryption methodology to both voice and data.

## ● PSTN Call

MD78XG trunking duplex mobile radio supports full-duplex voice communications between radio and telephone. It allows a radio user to make a telephone call; or a telephone user to make a private call to a radio user.

## ● Voice Communication

Individual call: Half-duplex/Full-duplex operation  
Phone call: Half-duplex/Full-duplex operation

# Specifications

General	Frequency Range	VHF: 136-174MHz UHF1*: 400-470MHz; UHF3*: 350-400MHz			
	Channel Capacity	1024			
	Zone Capacity	64(each with a maximum of 16 channels)			
	Channel Spacing	12.5 KHz / 20 KHz / 25 KHz			
	Operating Voltage	13.6V ± 15%			
	Current Drain	Standby	< 0.6A		
		Receive	< 2.0A		
			5W	< 5A	
			25W	< 8A	
	Transmit	45W/50W	< 12A		
	Frequency Stability	± 1.5ppm			
	Antenna Impedance	50			
	Dimensions (H x W x 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	0.3 μ V (12dB SINAD); 0.22 μ V (Typical) (12dB SINAD)		
		Digital	0.3 μ V /BER5%		
	Selectivity TIA-603 ETSI	65dB @ 12.5KHz / 75dB @ 20/25KHz			
		60dB @ 12.5KHz / 70dB @ 20/25KHz			
	Intermodulation TIA-603 ETSI	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			
	Blocking TIA-603 ETSI	90dB			
		84dB			
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 (400-470MHz)*: 5-25W UHF3 (350-400MHz)*: 5-25W VHF (136-174MHz): 5-25W
		High Power	UHF1 (400-470MHz)*: 5-45W UHF3 (350-400MHz)*: 5-45W VHF (136-174MHz): 5-50W
	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 ~ +60	
	Storage Temperature	-40 ~ +85	
	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	

GPS	Accuracy specs are for long-term tracking(95th percentile values>5 satellites visible at a nominal -130dBm signal strength)	
	TTFF (Time To First Fix) Cold Start	<1 minute
	TTFF (Time To First Fix) Hot Start	<10 seconds
	Horizontal Accuracy	<10 meters

\*Available in later version.

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

## Standard Accessories

Telephone Receiver With Keypad Power Cord	Mounting Bracket Fuse	Antenna
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## Optional Accessories

External Speaker SM09D1	Desktop Microphone SM10A1	320W External Power Supply PS22002	Programming Cable (USB Port) PC37	Data Cable PC40	Keypad Microphone SM19A1	Antenna	Antenna	1DIN vehicle mounting bracket	Adaptor cable for repeater accessory pin
Dispatch cable	Telephone Style Handset SM20A1								

Pictures above are for reference only and may vary from actual products.



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