Hytera

SCAN RF Projects

PROFESSIONAL DMR MOBILE RADIO

HM78X

EMPOWER YOUR OPERATION

DMR
DIGITAL MOBILE RADIO ASSOCIATION

www.hytera.com

EMPOWER YOUR OPERATION

Leading the PMR industry, Hytera possesses comprehensive capabilities of software and hardware development and continually evolves for more than 30 years to provide solutions to tens of thousands of PMR users worldwide.

Hytera now presents the next generation of professional digital mobile radio, the flexible and scalable HM78X. The HM78X supports a standard single control head and remote control head (Single or dual) to suit different environments such as vehicles, motorcycles and fixed control rooms, ensuring efficient communication. Moreover, it provides various connections, through which rich applications can be integrated into existing services to improve work efficiency.

The HM78X adopts a new appearance while maintaining high quality. The new UI interaction facilitates faster operation. The AI-based noise cancellation technology guarantees clearer voice in noisy environments.

ENHANCED DESIGN

2.4-inch screen, simple UI interaction assists in operating quickly

Standard 1DIN size

Faster cooling with all-aluminum case design

Built-in speaker assures clear and loud voice even without an external speaker

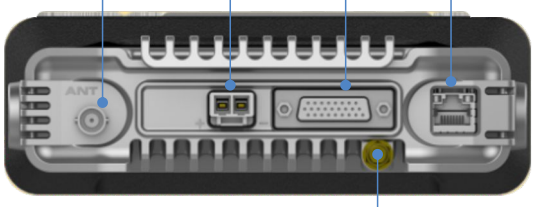
Built-in BT 5.0, allows wireless accessory (such as wireless remote speaker microphone) adaptation and data transmission.

RF Antenna Port BNC-F

Power Inlet DC 13.6V

Accessory Connector DB26

Ethernet Port RJ45



GPS Antenna

PRODUCT HIGHLIGHTS

MORE FLEXIBLE INSTALLATION

With the flexible control heads and accessories, the HM78X can be installed in various environments to satisfy different use requirements. The connection cable of the remote control head can be either 3m, 10m or 40m as standard. A connection cable of up to 120m is also available(Customisation required).

Form	 Standard control head	 Remote single/dual control head	 Fixed station
Application	Small vehicles, motorcycles	Ambulance, fire engine, truck, large bus, dispatching room	desktop office

AI-BASED NOISE CANCELLATION FOR CLEARER AUDIO

The HM78X adopts AI noise cancellation technology to filter out background noise (such as road noise), eliminate echoes, extract human voices from noise, and reduce howling and exhalation sounds at close proximity. With this technology, the mobile radio provides crisper and clearer audio for the other party.
The advantages of AI noise cancellation are as follows.

- Clearer
  Extremely high noise cancellation on steady and unsteady noise, up to 30dB
  Can reduce howling outside 30cm
- Faster
  Accurately extract human voices from noise in milliseconds or even without delay
- Flexible
  With deep learning ability, suitable for more noise
  10-level adjustable noise reduce level

MAIN FEATURES

Operating Modes

- Conventional(digital/analog)
- Digital trunking

Text Message

- Private message
- Group message
- Quick text
- Status Message

Solution

- IP Transit
- Back to back
- Wireless link
- Clarity Transmission

Voice Service

- Private call
- Group call
- All call

Security

- Emergency alarm
- Lone worker
- Authentication
- Over the air encryption
- E2EE
  - Basic encryption
  - Full encryption
  - Hardware encryption

GPIO Pins

- Public Address
- Horn & Lights
- Voice notify
- Ignition sense

Supplementary

- Alert call(conventional)
- Remote monitor
- Enable/Disable
- Radio check

Analog Mode

- 2-Tone signaling
- 5-Tone Signalling
- HDC1200

RICH SCALABLE APPLICATION

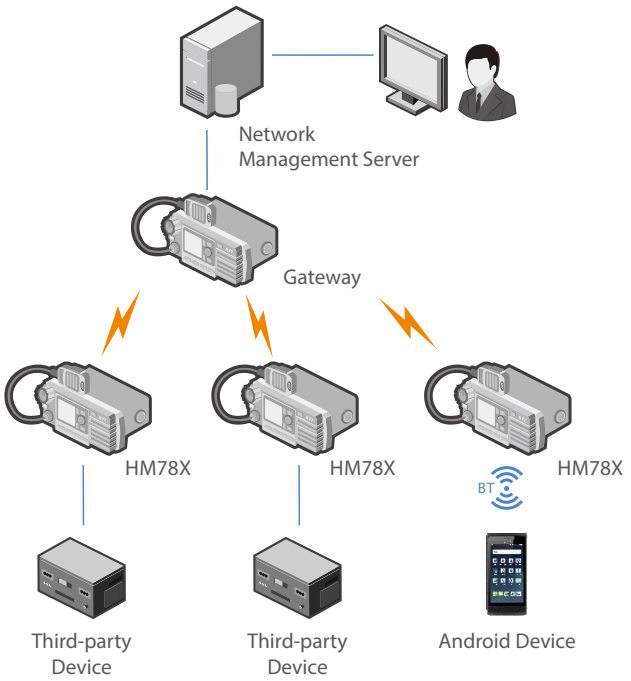
HM78X supports multiple connections through BT, and the accessory and network (Ethernet) ports. It also supports Clarity Transmission and back to back connections which will greatly facilitate your solutions. Examples include:

- Allow for collection of data from equipment (Wired or BT) and facilitate transmission of this data to the background platforms using either the IP or radio network.
- The coverage in conventional digital mode can be extended by IP Transit.
- Cross-band or cross-system communication can be achieved through Back-to-Back or IP Transit.
- For situations where repeaters cannot be connected via IP or the cost of doing so is too high, the repeaters can be connected via cable to HM78X to create a wireless link between regions. This could be useful in industries such as oil extraction where offshore oil rigs are used.

Application Solution

Clarity Transmission

The data Clarity Transmission feature provides a transparent channel for data transmission without any change. As a part of the data acquisition and monitoring control system, the HM78X provides customers with solutions for monitoring and controlling industrial production processes.



IP Transit Solution (Digital Mode)

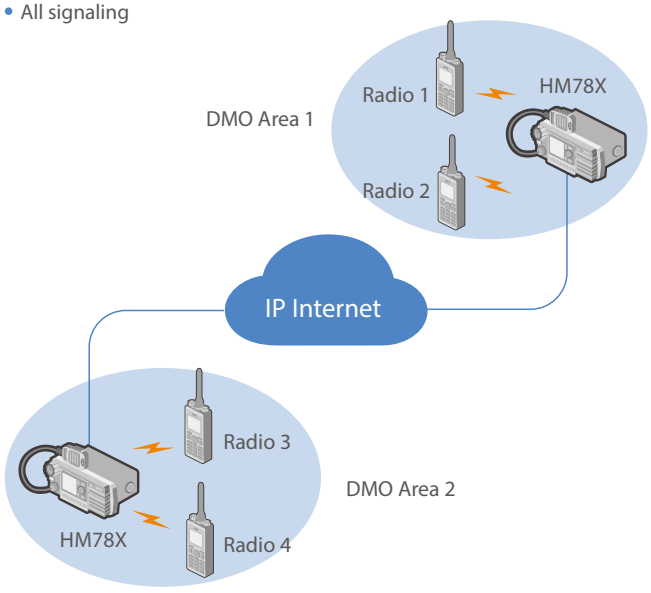
With the Ethernet interface of HM78X, IP Transit offers an economical and simple networking solution that complements the existing two-way radio system.

It can connect two or more conventional communication systems in different areas through IP network to solve the communication problems across regions, complex terrains, or in buildings where signals are difficult to penetrate .

It can connect mobile radios working with different frequency bands to solve the across-band communication problems, this greatly saves on cost due to only requiring one frequency and it moves the need for additional infrastructure and complex configuration.

The IP Transit solution supports the following services:

- All voice calls (including calls with acknowledgement)
- All data services
- All signaling



Police Car Application

Fire Engine Application

Conventional(digital/analog)
Digital trunking
Remote single/dual control head

SPECIFICATIONS

General			
Frequency Range		UHF: 350-470MHz , 806-941MHz VHF:136-174MHz	
Channel Capacity		1024	
Zone Capacity		64(each with a maximum of 256 channels)	
Channel Spacing		12.5kHz/20kHz/25kHz	
Operating Voltage		13.6 V ±15%	
Current Drain	Standby	< 0.5A	
	Receive	< 2.0A	
	Transmit	1W	<3A
		5W	<4A
		25W	<8A
		45W/50W	<12A
Frequency Stability		±0.5 ppm	
Antenna Impedance		50Ω	
Dimensions (H x W x D)		61.5 x 177 x 179 mm	
Weight		1520g	
LCD Display		2.4 inch	

Receiver			
Sensitivity	Analog	0.18μV(12dB SINAD) 0.16μV(Typical)(12dB SINAD)	
	Digital	0.18μV/BER5%	
Selectivity	TIA-603	65dB@12.5kHz / 75dB@20/25kHz	
	ETSI	60dB@12.5kHz / 70dB@20/25kHz	
Intermodulation	TIA-603	75dB@12.5/20/25kHz	
	ETSI	70dB@12.5/20/25kHz	
Spurious Response Rejection	TIA-603	75dB@12.5/20/25kHz	
	ETSI	70dB@12.5/20/25kHz	
Blocking	TIA-603	80dB	
	ETSI	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 : 136-174MHz:1-25W 350-470MHz:1-25W, 806-941MHz: 10W High power: 136-174MHz: 5-50W, 350-470MHz:1-45W, 806-941MHz: 35W
FM Modulation	11K0F3E@12.5kHz; 14K0F3E@20kHz; 16K0F3E@25kHz
4FSK Digital Modulation	12.5kHz Data Only: 7K60FXD 12.5kHz Data and 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+2™
Digital Protocol	ETSI-TS102 361-1,-2,-3

Environmental	
Operating Temperature	-30°C~+60°C
Storage Temperature	-40°C~+85°C
ESD	IEC 61000-4-2 (Level 4) ±8kV (Contact) ±15kV (Air)
Dustproof & Waterproof	IP54
Humidity	Per MIL-STD-810H Standard
Shock & Vibration	Per MIL-STD-810H Standard

Location Service	
GNSS	*GPS, GPS+GLONASS, GPS+BDS
TTFF (Time To First Fix) Cold Start	<1minute
TTFF (Time To First Fix) Hot Start	<10seconds
Horizontal Accuracy	<5meters

*Accuracy specs are for long-term tracking (95th percentile values>5 satellites visible at a nominal -130dBm signal strength)

ACCESSORIES

Standard


Conventional model: palm microphone without keypad


Trunking model: palm microphone with keypad


Mounting bracket


Power cord


Fuse


Model with GPS: GPS antenna

Optional


DB26 connector external speaker


10-pin connector desktop microphone


Power supply for mobile radio


Programming cable


DB26 Connector foot PTT

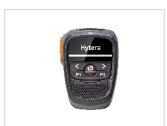

Ignition cable


Antenna


DB26M-DB9M cable connects mobile radio and repeater for wireless link solution


DB26-DB26 cable connects two repeater to realize cross-band(VHF_UHF) or cross mode(analog_digital) communication


Power supply of fixed station cabinet


BT Wireless remote speaker microphone


BT Wireless ring PTT

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