PROFESSIONAL DMR MOBILE RADIO
HM78X

EMPOWER YOUR OPERATION

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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.
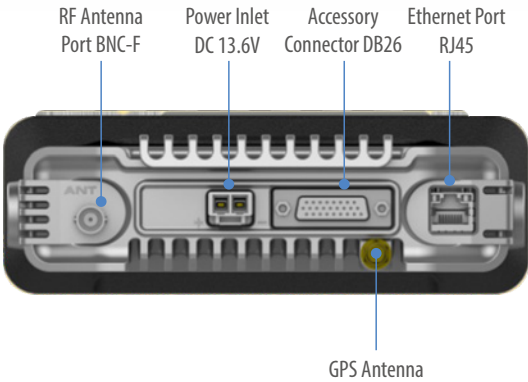
ENHANCED DESIGN

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
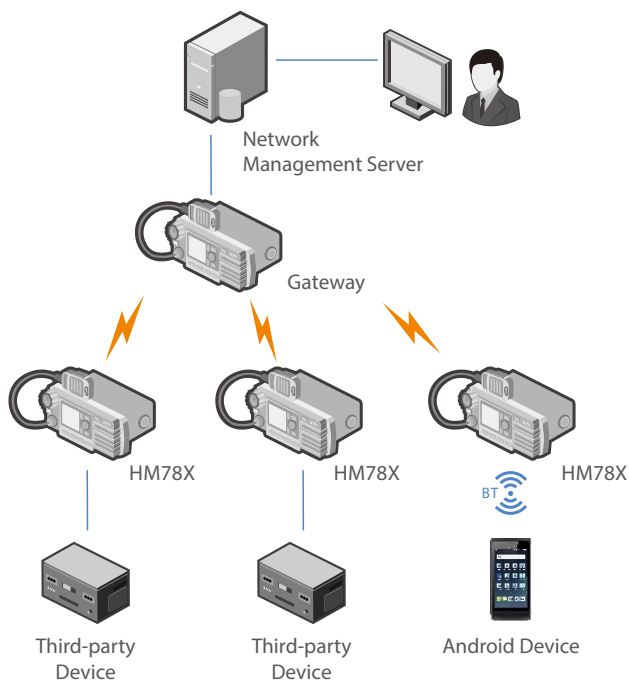- HDC1200

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.

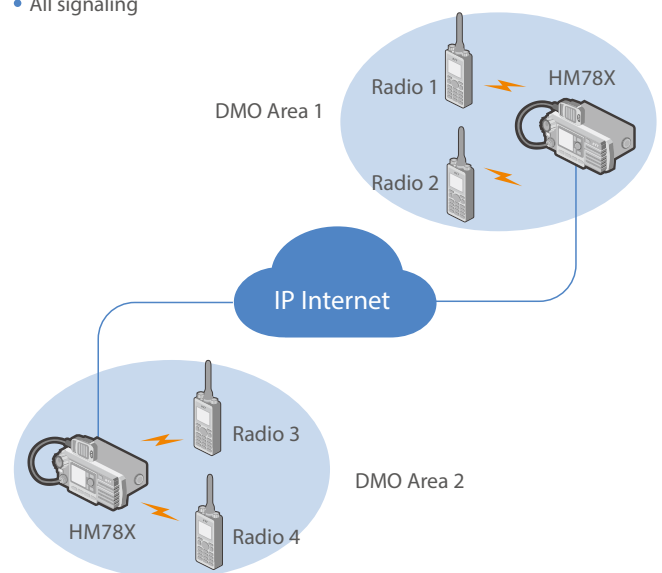### IP Transit Solution (Digital Mode)

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

Network Management Server

Gateway

HM78X HM78X BT HM78X

Third-party Device Third-party Device Android Device

DMO Area 1

Radio 1 HM78X

Radio 2

IP Internet

Radio 3

DMO Area 2

HM78X Radio 4

Police Car Application

HM78X Mobile Radio

External Speaker

Antenna

GPS Antenna

Fire Engine Application

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

Palm Microphone

PTT
Foot PTT

GPS Antenna

Antenna

HM78X Host

Palm or Desktop
Microphone

Control Head1

Control Head2

External Speaker

SPECIFICATIONS

General

Frequency Range		UHF: 350-470MHz , 450-520MHz, 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	136-174MHz:1-25W 350-470MHz/350-520MHz:1-25W 806-941MHz:10W
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

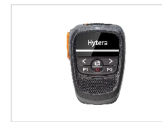|					
DB26 connector external speaker	10-pin connector desktop microphone	Power supply for mobile radio	Programming cable	DB26 Connector foot PTT	Ignition cable
Antenna	DB26M-DB9M cable connects mobile radio and repeater for wireless link solution	DB26-DB26 cable connects two repeater to realize cross-band(VHF_UHF) or cross mode(analog_digital) communication	Power supply of fixed station cabinet	BT Wireless remote speaker microphone	BT Wireless ring PTT

CAELUS

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