



# Hytera DMR Series Product Introduction

Hytera, complying with ETSI DMR open standard, brings you versatile DMR series products, including portable radio, mobile radio, repeater, multi-site IP connection, simulcast system and trunking system. Hytera responds to your demands for smoother communication and higher management efficiency with the most valuable solution of leading digital technologies, innovative user-oriented product design, and complete product portfolio.





## Digital Value Is Here

Today, the migration from analogue to digital is transforming the industry of professional mobile communications.

With edges that analog system has no way to achieve, digital technologies enable you to communicate smoothly, respond instantly, and operate efficiently with superior performance and versatile applications.

A complete and scalable digital communication solution is what you expect. Who can deliver the best one?

Hytera, a leading provider of PMR terminal and system, keeps turning mature and advanced technologies into solutions that you can rely on in challenging times. With insights of end user demands, Hytera has launched its innovative DMR portfolio, fully compliant to ETSI DMR open standard. Find all you need for your digitization and, thus, organizational efficiency improvement with Hytera DMR Series: portable radio, mobile radio, repeater, multi-site IP connection, simulcast system and trunking system\*.

To achieve more with Hytera, digital value is right here for you.



\* More products and solutions to be launched soon. For more information please visit our website or contact our local sales representatives.



Digital Mobile Radio (DMR) is an open digital radio standard produced by European Telecommunication Standards Institute (ETSI). Being capable of voice, data and a range of other features and applications in conventional and trunking mode, DMR has received global recognitions\*.

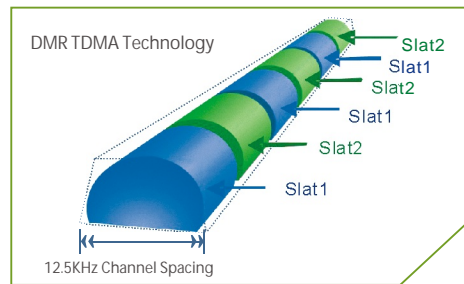
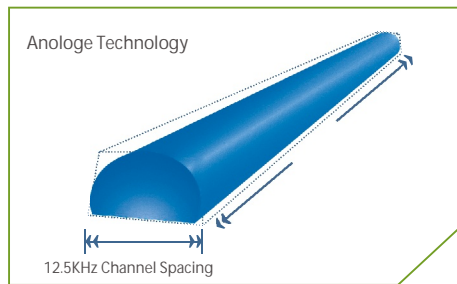
As a premium member of DMR Association, Hytera has mastered this technology. All our DMR products fully meet ETSI DMR requirements and feature innovative applications.



## Advanced Digital Technology »

### 1 Higher Spectrum Efficiency

Benefiting from the TDMA technology, our DMR products allow twice the channels based on the same bandwidth. This is a big help to relieve the stress of increasing shortage in spectrum resource.

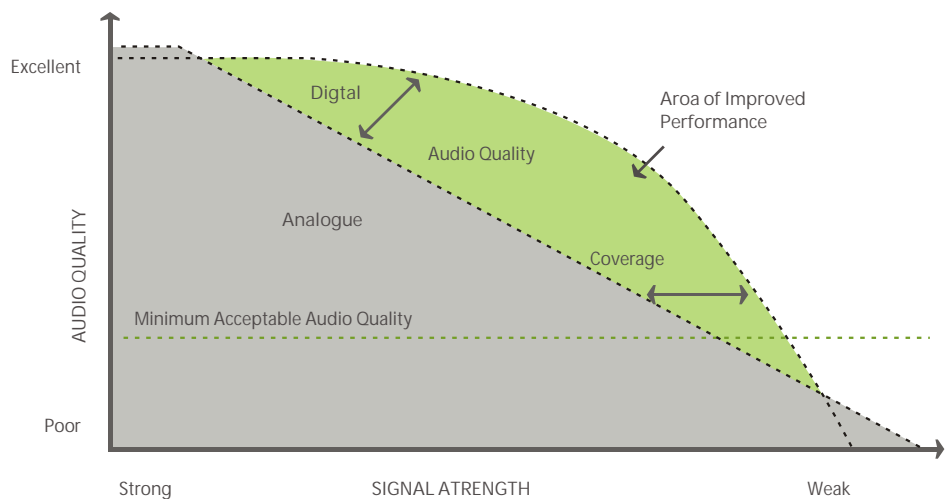


### 2 Compatible with Analog Mode

Our DMR products can operate in either analog or digital mode. It is compatible with the prevalent analog system, ensuring a smooth analog-to-digital transition.

### 3 Superior Voice

With the combined application of narrowband codec and digital error-correction technologies, our DMR products can ensure you superior voice even in noisy environments or at the edge of the coverage area.



\* For more information about DMR technology, please visit the official site of DMR Association: [www.dmrassociation.org](http://www.dmrassociation.org) or visit our website for the DMR Technical Whitepaper.

#### 4 Affordable Networking

With TDMA technology, you just need a repeater, an antenna and a duplexer to build a system with two logic channels. Compared with FDMA, the two-slot TDMA provides remarkable bandwidth efficiency equivalent to that of 6.25kHz, minimizing your costs.

#### 5 Secure Communication

Communication on analog channels is eavesdropped on easily. But now with DMR technology, your communication can be secured by either signaling or ID (up to 16776415 IDs), and what's more, our DMR products are equipped with a multi-level privacy mechanism comprising analog scrambler<sup>\*1</sup>, digital software and hardware encryption (256-bit encryption algorithm), offering enhanced protection for your communication.

#### 6 Durable Battery

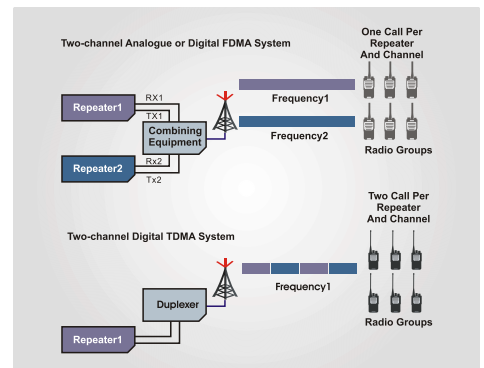
Compared with analog and FDMA technology, TDMA can enhance the battery's duty time by about 40%.

#### 7 Rich Data Services

In addition to conventional communication services, our DMR products are also known for rich data services such as Message, GPS and Telemetry.

#### 8 Versatile Voice Calls

The DMR intelligent signaling can realize various voice calls, including PTT ID, Private Call, Group Call, All Call, Emergency Call and Remote Monitor.



Affordable Networking



## Pioneer Services & Functions »



Trunking System

#### 1 Dual-slot Pseudo Trunk

With this Hytera innovated feature, the free slot can be dynamically allocated to a member who needs to communicate, enhancing frequency efficiency.

#### 2 Advanced Encryption

Our DMR products provide the 128-bit AES encryption with enhanced key management to secure your communication.



Advanced Encryption

#### 3 Multi-site IP Connection<sup>\*2</sup>

The scattered repeaters, in despite of the frequency band, can be connected via IP to create a wide communication network.



Multi-site IP Connection

<sup>\*1</sup> Indicates functions compatible with HYT analog two-way radios

<sup>\*2</sup> available in later version



## Ergonomic Design »

### 1 Large-size Color Display & Multilingual UI

The large-size TFT LCD display with multilingual UI delivers you favorable accessibility.

### 2 User-friendly Menu

The menu gives you quick access to all services and functions. Our DMR products employ the same UI style so that you can learn to operate different models easily.

### 3 Innovative Antenna

The radio antenna and GPS antenna are integrated to ensure more convenience and better performance.

### 4 Distinctive Knob Design

Separated by the antenna, the two knobs of portable radio stand apart from each other. This design can reduce your misoperation with gloves or under dim light.

### 5 Ergonomic Key

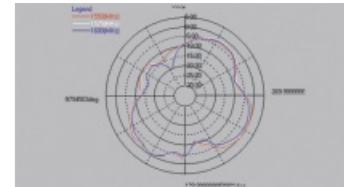
The smart body incorporates big keys for your comfort and convenience.

### 6 2-in-1 Knob

The mobile radio employs a 2-in-1 large knob for you to adjust the channel and volume quickly.



Large-size Color Display & User-friendly Menu



Innovative Antenna antenna are integrated to ensure better performance



Distinctive Knob Design



Ergonomic Key



## Prominent Expansibility »



Further Development Port

### 1 Further Development Port

Our DMR products reserve port for you or any third party to further develop desired functions such as GPS, Call Control and Telemetry.

### 2 Upgradable Software

With our software upgrade pack, you can upgrade your products to enjoy the latest functions. Such pack is available for your dealer to download at our website\*.

### 3 Optional Interface

A standard interface is reserved for you or any third party to further develop desired functions (such as Record, Bluetooth, RFID and Encryption Algorithm) with the optional board.



Optional Interface

\*contact our local sales representative for details.

# Portable Radio

## PD785/785G PD705/705G

### Professional Digital Portable Two-way Radio

Powered by compact body, IP57 compliance, superior voice, rich applications and A/D compatibility, the portable radio family will refresh your communication experience.











PD705/705G\*\*

PD785/785G\*\*

## Ergonomic Design

- ① Large-size color display  
PD780/PD780G is equipped with a 1.8" TFT LCD display (65535 colors), enabling you to access your desired information with ease.
- ② Ergonomic Key  
The smart body incorporates big keys for your comfort and convenience.
- ③ Distinctive Knob Design  
Separated by the antenna, the two knobs of portable radio stand apart from each other. This design can reduce your misoperation with gloves or under dim light.
- ④ Innovative Antenna  
The radio antenna and GPS antenna are integrated to ensure more convenience and better performance.
- ⑤ Rugged and reliable  
Compliant with MIL-STD-810 C/D/E/F and passing of HALT.
- ⑥ IP57 compliance  
All portable radios comply with IP57 requirements, withstanding immersion testing (1m for 30 min).

## Additional Feature

-  **Messaging**  
PD785/PD785G is capable of messaging up to 256 characters.
-  **GPS**  
A GPS module is built in PD785G/PD705G to help you enjoy more.
-  **Durable battery**  
The supplied 2000mAh Li-Ion battery enables your radio to continuously work for 14\*1 hours at least under the duty cycle of 5-5-90\*2.
-  **Vibration Alert**  
Quite useful when you are in meeting or in noisy environments.
-  **Channel Announcement**  
The radio can automatically announce the current channel during power-on or channel change.
-  **Man Down**  
An alarm will be triggered when the radio is down or positioned aslant for a preset time period, improving user safety.
-  **Rich signaling**  
HDC1200, DTMF\*3, 2-Tone\*3 and 5-Tone\*3 offers strong expandability.
-  **Multilingual interface**  
The radio supports up to 10 languages, including English, Simplified Chinese, Traditional Chinese, German, Spanish, French, Italian, Polish, Russian and Turkish.

\*15-5-90: 5% for transmitting, 5% for receiving and 90% for standby.

\*2 Above 14 hours in digital mode; Above 10.5 hours in analog mode.

\*3available in later version.

\*\*PD705G/785G are the model with GPS.



All portable radios comply with IP57 requirements,  
withstanding immersion testing (1m for 30 min).

# Mobile Radio

## MD785/785G

### Professional Digital Mobile Two-way Radio

Characterized by superb performance, high reliability and strong expandability, the mobile radio family will enrich your communication experience.



MD785/785G\*\*






### Ergonomic Design

- ① Large-size color display  
2.0" TFT LCD display (260,000 colors).
- ② 2-in-1 knob  
Easy channel selection and volume control with one knob operation.
- ③ Rugged and reliable  
Compliant with MIL-STD-810 C/D/E/F & IP54 requirements, and passing of HALT.
- ④ Innovative LED  
The LED is integrated around the knob to give you clear indication about the radio status.
- ⑤ Secure MIC jack  
Working with a palm microphone to ensure audio quality.
- ⑥ Powerful speaker  
7W speaker contributes to sonorous voice.
- ⑦ 7 programmable keys
- ⑧ Tasteful and durable front panel
- ⑨ Standard DB26 connector reserved for further development



Large-size color display

### Additional Feature

-  Rich analog signaling  
HDC1200, DTMF\*, 2-Tone\* and 5-Tone\* for more applications.
-  Switchable power  
50W/25W for VHF and 45W/25W for UHF.
-  Messaging  
MD780/MD780G is capable of messaging up to 256 characters.
-  GPS  
A GPS module is built in MD785G to help you enjoy more.
-  Multilingual interface  
The radio supports up to 10 languages, including English, Simplified Chinese, Traditional Chinese, German, Spanish, French, Italian, Polish, Russian and Turkish.

\*1available in later version.

\*\*MD785G is the model with GPS.



# Repeater

## RD985








### Professional Digital Repeater

Distinguished by modularized design, excellent heat dissipation and handy management, the repeater delivers you more than reliability.

### Ergonomic Design

- ① Modularized design  
Helpful to enhance reliability and performance.
- ② Large-size color display  
The 2.0" TFT LCD display enables you to access and manage the repeater easily.
- ③ Big navigation knob  
Easy access to the repeater with the user-friendly knob.
- ④ Outstanding Heat Dissipation  
The unique cooling design combining a built-in heat pipe and a temperature-controlled fan ensures quick heat dissipation, enabling the repeater to work normally even with full load.
- ⑤ Innovative LED  
The innovative LED enables you to identify the repeater status clearly.
- ⑥ Compact body  
The 2RU/19" rack offers you more installation flexibility while requiring less space.
- ⑦ Built-in duplexer  
Enough space is reserved for duplexer inside the repeater, saving your installation space.
- ⑧ 6 programmable keys
- ⑨ Built-in speaker (applicable to analog BS/repeater mode)
- ⑩ Simple housing design for easy installation and maintenance

### Additional Feature

-  Remote diagnosis\*  
The handy management software enables you to monitor and diagnose a repeater remotely.
-  Dual-slot audio output  
Capable of seamless recording and monitoring of your communication.
-  Smart Analog- Digital Switch  
This repeater supports digital and analog modes. It can smartly select the right one based on the type of received signal.
-  Flexible networking  
You can network multiple dispersed repeaters via IP, and then the portable radios can roam automatically within the network coverage to achieve free communication.
-  Power up to 50W
-  16 channels
-  Capable of analog BS mode

\*available in later version.



Accessories

Hytera also provides a full line of professional accessories (such as audio accessory, battery, charger and carrying accessory\*) to deliver an optimal communication experience.

## For Portable Radio»»

### High-capacity Battery

BL2006 Li-Ion Battery (2000mAh) (Standard)

### Power Supply

CH10A04 MCU Rapid-rate Charger (for Li-Ion/Ni-MH batteries) (Standard)

CHV09 Vehicle Power Adapter (Output: 12V 1A)

PS1026 Switching Power Adapter (with a rapid-rate charger) (Output: 12V 1A) (Standard)

MCA06 MCU Multi-unit Rapid-rate Charger (for Li-Ion/Ni-MH batteries)

MCA05 Battery Optimizing System (with LCD)

### Carrying Accessories

LCY003 Carrying Case (for thick battery) (leather) (swivel)

RO04 Leather Strap (Standard)

BC19 Spring Belt Clip (Standard)

### Antenna

GPS Antenna



MCU Multi-unit Rapid-rate Charger(MCA06)



Carrying Case(LCY003)



Battery Optimizing System (MCA05)



EAN18



EAN16



ESN10

### Audio Accessories

- ESN10 Earbud with on-MIC PTT
- EHN12 D-earset with on-MIC PTT
- EAN16 Earpiece with on-MIC PTT & Transparent Acoustic Tube
- EAN17 3-wire Surveillance Earpiece with Transparent Acoustic Tube (Beige)
- EAN18 3-wire Surveillance Earpiece with Transparent Acoustic Tube (Black)
- SM18N2 Waterproof Remote Speaker Microphone (IP57)
- ESS07 Receive-Only Earbud (for use with remote speaker microphone)
- ESS08 Receive-Only Earpiece with Transparent Acoustic Tube (for use with remote speaker microphone)



EAN17



EHN12



SM18N2

## For Mobile Radio »

### Audio Accessories

- SM16A1 Palm Microphone
- SM10A1 Desktop Microphone
- SM09D1 External Speaker
- SM19A1 Palm Microphone with Keypad



GPS Antenna



Palm Microphone with Keypad (SM19A1)

### Power Supply

- PS22002 External Power Supply (300W, applicable to backup batteries. If AC power malfunctions, backup battery will operate as a substitute automatically.)

### Power Cord

- PWC10 Vehicle Power Cord 12#
- POA33 ATO Fuse (0257015 32V 15A)



External Speaker (SM09D1)



Palm Microphone (SM16A1)

### Installation Accessories

- BRK08 Mounting Bracket for Mobile Radio (Standard)

## For Repeater »

### Power Supply

- PS22002 External Power Supply (300W, applicable to backup batteries. If AC power malfunctions, backup battery will operate as a substitute automatically.)

### Duplexer

- DT11 Duplexer SGQ-450D  
380-470MHz ±400kHz 50W ≤1.0dB

### Power Cord

- PWC11 DC Power Cord for Repeater

### Installation Accessories

- BRK12 Installation Accessory for Rack-mounted Power Supply (for use with PS22002)



External Power Supply (PS22002)



Desktop Microphone (SM10A1)



Installation Kit (BRK12)



Duplexer Installation Kit (For DT11)

# Specifications »

	Portable Radio		Mobile Radio	Repeater	
	PD705/705G	PD785/785G	MD785/785G	Rd985	
General	Frequency Range(MHz)	VHF: 136-174 UHF1: 400-470 UHF3: 350-400		UHF:400-470 VHF:136-174	
	Channel Capacity	32	1024	16	
	Zone Capacity	3 (each with a maximum of 16 channels)		64 (each with a maximum of 16 channels)	
	Channel Spacing	25/20/12.5 KHz			
	Operating Voltage	7.4V(rated)		13.6 V ±15%	
	Current Drain	Standby	-	-	< 0.6A
		Receive	-	-	< 2.0A
		Transmit	-	-	< 12A (45W/50W) < 8A (25W)
	Battery	2000mAh (Li-Ion)		-	
	Battery Life(5-5-90 Duty Cycle, High TX Power)High-capacity 2000mAh Li-Ion Battery	Analog: Above 10.5 hours Digital: Above 14 hours		-	-
	Frequency Stability	±1.5ppm		±1ppm	
	Antenna Impedance	50 Ω			
	Duty Cycle	-			
	Dimensions (H×W×D)	125 X 55 X 35mm ( with standard battery, without antenna )	125 X 55 X 37mm ( with standard battery, without antenna )	60 X 174 X 200 (mm)	483 X 88 X 366 mm
Weight	335g ( with antenna & standard battery )	355g ( with antenna & standard battery )	1.7 Kg	8.5 Kg	
Front Case	PC		PC+ABS	-	
LCD Display	-	160 × 128 pixels, 65535 colors 1.8 inch, 4 rows	220 × 176 pixels, 262000 colors 2.0 inch, 4 rows		
Transmitter	RF Power Output	VHF High Power: 5W VHF Low Power: 1W UHF1/UHF3 High Power: 4W UHF1/UHF3 Low Power: 1W		VHF High Power: 50W VHF Low Power: 25W UHF1 High Power: 45W UHF1 Low Power: 25W UHF3: 25W	
	FM Modulation	11K ΦF3E @ 12.5 kHz ; 14K ΦF3E @ 20 kHz ; 16K ΦF3E @ 25 kHz			
	4FSK Digital Modulation	12.5kHz Data Only: 7K6 ΦFXD ; 12.5kHz Data & Voice: 7K6 ΦFXW			
	Conducted/Radiated Emission	-36dBm<1GHz ; -30dBm>1GHz			
	Modulation Limiting	±2.5kHz @ 12.5 kHz ; ±4.0kHz @ 20 kHz ; ±5.0kHz @ 25 kHz			
	FM Noise	40dB @ 12.5 kHz ; 43dB @ 20kHz ; 45dB @ 25 kHz			
	Adjacent Channel Power	60dB @ 12.5 kHz ; 70dB @ 20/25 kHz			
	Audio Response	+1 ~ -3dB			
	Audio Distortion	≤3%			
	Digital Vocoder Type	AMBE++ or SELP			
	Digital Protocol	ETSI-TS102 361-1, 2&3			
Receiver	Sensitivity	Analog	0.3 μ V (12dB SINAD) ; 0.22 μ V (Typical) (12dB SINAD) ; 0.4 μ V (20dB SINAD)		
		Digital	0.3 μ V /BER5%		
	Blocking	-			
	Selectivity	100dB			
	TIA-603	60dB @ 12.5 kHz / 70dB @ 20/25 kHz	65dB@12.5kHz /75dB@20/25kHz	65dB@12.5kHz/ 75dB@20/25kHz	
	ETSI	60dB @ 12.5 kHz / 70dB @ 20/25 kHz	60dB@12.5kHz /70dB@25/20kHz	65dB@12.5kHz/ 75dB@20/25kHz	
	Intermodulation				
	TIA-603	70dB @ 12.5/20/25 kHz	75dB@12.5/20/25kHz	75dB@12.5/20/25kHz	
	ETSI	65dB @ 12.5/20/25 kHz	70dB@12.5/20/25kHz	70dB@12.5/20/25kHz	
	Spurious Response Rejection				
	TIA-603	70dB @ 12.5/20/25 kHz	75dB@12.5/20/25kHz	85dB@12.5/20/25kHz	
ETSI	70dB @ 12.5/20/25 kHz	70dB@12.5/20/25kHz	80dB@12.5/20/25kHz		
S/N	40dB @ 12.5 kHz ; 43dB @ 20kHz ; 45dB @ 25 kHz				
Rated Audio Power Output	0.5W	3W	0.5W		
Rated Audio Distortion	≤3%				
Audio Response	+1 ~ -3dB				
Conducted Spurious Emission	< -57 dBm				
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			
	Dust & Water Intrusion	IP57 Standard			
	Humidity	Per MIL-STD-810 C/D/E/F Standard			
Shock & Vibration	Per MIL-STD-810 C/D/E/F Standard				
GPS	TTFF (Time To First Fix) Cold Start	<1 minute			
	TTFF (Time To First Fix) Hot Start	<10 seconds			
	Horizontal Accuracy	<10 meters			

All Specifications are subject to change without notice due to continuous development.

For more information, Please visit [Digital.hytera.cn](http://Digital.hytera.cn)

To purchase , become a dealer or application partner, please contact us [dmmarketing@hytera.cn](mailto:dmmarketing@hytera.cn)



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