# GENERAL SOLUTIONS

Hytera offers a wide range of solutions to enrich functionality for the HR106X series repeater. Dispatching system, a back-to-back solution for cross-band communication. Additionally the open API of HR106X can also be provided for third party development to realize customization requirements.

Flexible Interconnection

The HR106X series repeater is designed as an intelligent communication platform. It is flexible in its ability to connect with a variety of systems to provide seamless communication. The repeater can work as a gateway to connect the radio to VoIP phone, and dispatcher.
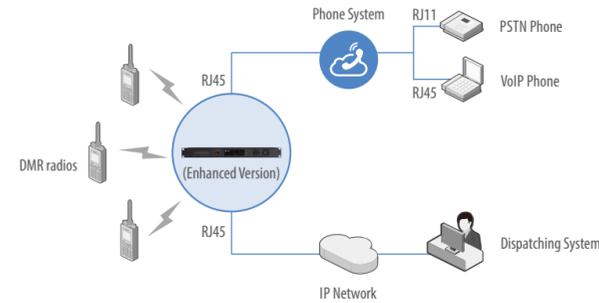
Dual-repeaters wireless link solution

The wireless link communication is a solution to establish wireless link for voice, data, and signaling transmission over the air, the repeater connects with corresponding mobile radio through the cable. The solution is applicable to the area where two repeaters at dispersed locations cannot be connected through IP Multi-site Connect due to the lack of IP link of optical fiber or microwave.

Users are suggested to deploy the directional antennas for Mobile radios and omnidirectional antennas for repeaters to ensure the communication quality.
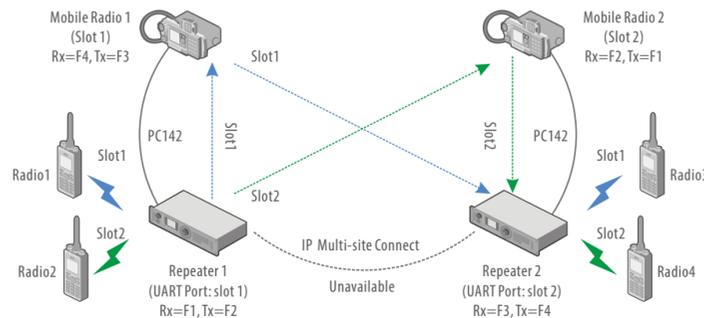
ACCESSORIES

Standard   **Optional**

AC power cable

Palm microphone

DB26-DB26 cable connects two repeater for backup function

DB26-DB9 cable connects mobile radio and repeater for wireless link solution

DB26-DB26 cable connects two repeter to realize cross-band (VHF-UHF)or cross mode(analog-digital) communication

Programming cable

External duplexer

Feeder connects external duplexer and repeater

1/2 RF feeder

1/2 RF connecter

Lightning arrester

Sinclair, Yagi directional SY203 series, VHF,7.6dBi,200W N-Connector, length<2m air transportation

Sinclair, Yagi directional SY350, UHF, 9.6dBi, 150W N-Connector, length<1.1m air transportation

Sinclair,EC245 series, VHF, 6.6dBi, 125W N-Connector, Length<5m, 2-sections, air transportation

Sinclair,SC366 series, UHF, 8.1dBi, 500W DIN-Connector, Length<5m, air transportation

DC power cable connects to battery or dc power supply

SPECIFICATIONS

General

General	
Frequency Range	UHF: 350-400MHz; 400-470MHz; 450-527MHz 851MHz~870MHz, 935MHz~941MHz (Transmit) 806MHz~825MHz, 896MHz~902MHz (Receiver) VHF: 136-174MHz
Channel Capacity	1024
Channel Spacing	12.5KHz/ 20KHz/ 25KHz
Operating Voltage	DC: 13.6V±15% AC: 100-240V
Current Consumption(DC)	Standby: ≤0.9A Transmitting: ≤12A
Current Consumption(AC)	Standby: ≤0.35A Transmitting: ≤1.2A
Frequency Stability	≤±0.5ppm
Antenna Impedance	50Ω
Duty Cycle	100%
Dimensions(H×W×D)	44×483×366 mm
Weight	5.8kg
Ethernet Port	1 x RJ45 Ethernet Port(Standard Version) 2 x RJ45 Ethernet Port(Enhanced Version)
USB Port	1 x USB Port(Enhanced Version)

Receiver

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
Inter-Modulation	TIA-603	75dB@12.5/20/25kHz
	ETSI	70dB@12.5/20/25kHz
Spurious Response Rejection	TIA-603	80dB@12.5/20/25kHz
	ETSI	80dB@12.5/20/25kHz
Blocking		90dB
Hum and Noise		40dB@12.5kHz; 43dB@20kHz, 45dB@25kHz
Conducted Spurious Emission	≤1GHz	≤-57dBm
	>1GHz	≤-47dBm
Audio Distortion		≤3%
Audio Response		+1 ~ -3dB

Transmitter

Transmitter		
RF Power Output		5-50W(adjustable) 5W~35W@851MHz~870MHz 5W~30W@935MHz~941MHz
FM Modulation		11K0F3E @12.5kHz; 14K0F3E @ 20kHz; 16K0F3E @ 25kHz
4F5K Digital Modulation		12.5kHz Data Only: 7K60FXD 12.5kHz Data and Voice: 7K60FXW
Conducted/ Radiated Emission	Operating	≤1GHz -36dBm
		>1GHz -30dBm
	Standby	≤1GHz -57dBm
		>1GHz -47dBm
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™/SELP
Digital Protocal		ETSI-TS102 361-1,-2,-3,-4

Environmental Specifications

Environmental Specifications	
Operating Temperature	-30℃~+60℃
Storage Temperature	-40℃~+85℃

20kHz and 25kHz channels not available in USA
All Specifications are tested according to applicable standards, and subject to change without notice due to continuous development.

PROFESSIONAL DMR REPEATER
HR106X
EMPOWER YOUR OPERATION

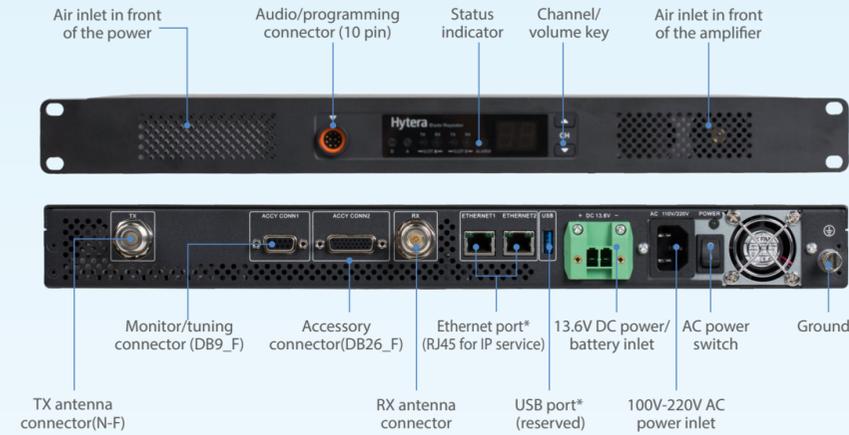www.hytera.com

EMPOWER YOUR OPERATION

In order to better meet the evolving needs of customers and bring greater value to customers, Hytera continuously evolves and upgrades its products and technologies.

HR106X improves its functionality and performance while simplifying its network structure and maintenance methods. Compact 1U height design, saving installation space, easy for mobile mounting in limited vehicle space. A built-in power adapter supports 220V AC power supply, providing low deployment cost and automatic DC/AC power supply switch, easy to achieve power backup . The enhanced version adds a coprocessor to improve system performance, integrates router and SIP gateway functions, and supports Web-based management method, simplifying the network structure and greatly reducing networking and O&M costs.

Air inlet in front of the power — Audio/programming connector (10 pin) — Status indicator — Channel/volume key — Air inlet in front of the amplifier

Monitor/tuning connector (DB9_F) — Accessory connector(DB26_F) — Ethernet port* (RJ45 for IP service) — 13.6V DC power/ battery inlet — AC power switch — Ground

TX antenna connector(N-F) — RX antenna connector — USB port* (reserved) — 100V-220V AC power inlet

Connectivity to more applications

*Ethernet 2nd port and USB port are only supported in Enhanced version.

GENERAL HIGHLIGHTS

Economical 1U Structure
The 1U height of HR106X makes it compact, reducing space requirements for installation which is quite helpful especially when deploying the repeater in vehicle with limit space such as SUV (Sport Utility Vehicle).

Analog & Digital Auto Switch
HR106X can support mixed channel mode to detect the receiving signal, then automatically switch between analog and digital mode. This feature offers the compatibility with analog terminals and an easy way to migrate to digital from analog to protect legacy investment of devices.

AC/DC Auto Switch
HR106X equipped built-in power adapter support 100-240V AC power supply that reduce the deployment cost and support also the backup battery which connected to DC input port. The repeater can charge the backup batteries during AC power supply works and switch automatically to backup batteries if AC power supply fails to keep repeater un-interrupt. Users don't have to use UPS power, just install a 12V battery that reduce the cost of investment by 90 percent.

Wide Coverage
The communication range of HR106X series is extended with enhanced Rx sensitivity. And the Ethernet port enables access to IP networks, which provides the capability for the HR106X to connect multiple repeaters to cover larger areas.

ENHANCED VERSION HIGHLIGHTS

HR106X series repeater offers standard version and an enhanced version. Both versions support all the general features , while the enhanced version bring more advanced features as below.

* The standard version can be upgraded to enhanced version with an add-on co-processor module board.

WEB-based Management
In the enhanced version a web-based back end platform has been designed to simplify repeater management. Configuration can be completed through a web browser, which is ideal for remote management.

Integrated SIP+Router Feature
The enhanced version of HR106X is integrated with router and SIP gateway features. Less devices and simplified management. It offers a cost-effective solution for your network construction.

High Security
The enhanced version supports SNMP V3 which used to manage the repeater from NMS. SNMPV3 use authentication and encryption algorithm to enhance communication security and protect all the data between the repeater and NMS.