Hytera



Hytera XPT Digital Trunking

Trunked Professional Mobile Radio Solution

- No dedicated control channel required
- Quick deployment with simple networking
- Large capacity with 24 voice and 16 data channels in each site
- Economical and practical digital solution



www.hytera.com



What is XPT

XPT (Extended Pseudo Trunk) system is an economical and practical digital solution to increase capacity of the conventional system by simply upgrading repeater and DMR radios. It supports high density voice and data communication of more users using only one single base station, and provides better dispatching services to secure fast respond to emergencies.

In conventional system, it is common that some repeaters are always busy while others remain unused. It is what XPT comes for. XPT system builds a XPT site by connecting multiple repeaters operating in the same area, and broadcasts the available channels of these repeaters. The radio can communicate via any of the repeaters in the site by sharing the logic channels of them.

In XPT system, a service is always initiated through Home Repeater first. When the home repeater is busy, the radio switches to other idle repeaters (Free Repeaters). In this way, the waiting time for accessing the system is shortened, and the communication capacity is extended to a maximum level. Moreover, XPT system can help the radio users to perform the communication efficiently. There is low probability that all logic channels are busy at the same time. The probability that a call is rejected in XPT system is much lower than in situation where only one convention channel is available.

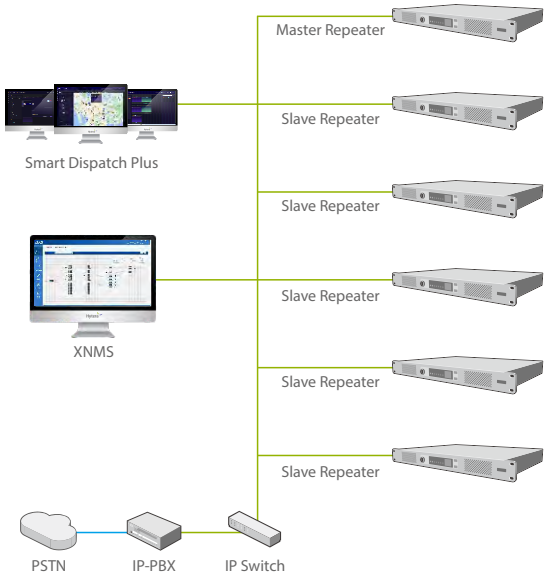
Functions of XPT Digital Trunking

Voice Services	Supplementary Services	General Features	Data Services	Dispatch Features
Private call	Alert call	Access limitation	TMS	GPS Tracking
Group call	Remote monitor	Dynamic authentication	RRS/GPS	IP-PBX
All call	Radio enable/disable	Interference detection	Quick GPS	Voice recording
Emergency call	Radio check	Fault tolerance	Dedicated data revert channel	Voice dispatch
Telephone call	Emergency alarm	XNMS		Short message
		Encryption		Crosspatch group
		Roaming		History report



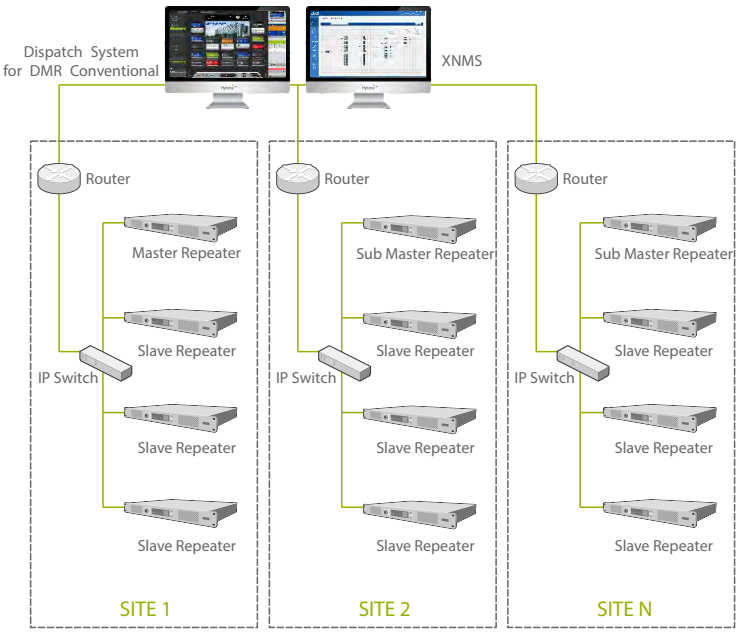
Single-site Trunking System

XPT single-site trunking system consists of one master repeater and multiple slave repeaters, which are connected to each other via IP switch. Radios in the system can share the idle channels of these repeaters and communicate on these channels.



Multi-sites Trunking System

XPT multi-sites trunking system is built by connecting multiple XPT single-site trunking systems via IP network. XPT multi-sites trunking system can share the channel resources of XPT single-site trunking systems and extend the communication coverage of XPT system at the same time.



Highlights

No dedicated control channel

XPT system builds a XPT site by connecting multiple repeaters operating in the same area. The system allows the radios to communicate through any of the idle repeaters in the site by sharing the logic channels of these repeaters. In such case, no dedicated control channel is required any more. XPT system combines the advantages of DMR Tier II and extends the communication capacity to a maximum level.

Simple expansion, flexible networking

All repeaters in the XPT system are connected with each other via an IP network. As a result, besides the XPT repeaters, you only need IP switches and an antenna connection suitable for your purpose in order to set up your mobile radio system. PC hardware is not required for the mobile radio system since calls are set up directly in the XPT system. No central system controller node is required.

If your requirements for your professional mobile radio should change, it enables you to quickly respond in order to increase your mobile radio capacity. To do so, you only have to expand your repeater site by additional repeaters and connect them to your IP network.

Simple migration from DMR Tier II to XPT

Are you already using conventional DMR radio from Hytera (DMR Tier II)? Then you are well prepared! Your existing DMR mobile stations and HR106X repeaters can be upgraded to XPT without any complications via a license upgrade. This keeps your investment safe and you do not have to purchase new radios.

Large capacity

One XPT site consists of up to 8 voice repeaters and 8 data repeaters, each repeater can provide 2 logical channels, thereby the system is able to provide up to 32 communication channels in each site.

Dedicated data revert channel

You can specify some channels for RRS/GPS or quick GPS only, so there will be no conflict between voice and data upload.

Improved system security

With Dynamic Authentication, radios use the authentication response code generated by the preset authentication key and the authentication random number sent by the repeater for the authentication.

Auto detect interference

To guarantee reliable communication, repeater in XPT system can detect the interference from the air interface and notify the radio to switch to another available channel.

System load balance

With home repeater concept, you can manually balance the load of each repeater to improve call setup time and lower conflict ratio.

Fault tolerance

IP Router Fails

XPT system become a single-site system, and radios in each site communicates with those in the same site.

LAN Switch Fails

Each repeater in the site operates on two channels only, and radios stay on their home repeaters to transmit or receive services.

Repeater Fails

XPT system still operates normally with less capacity, and the radios switch to a new repeater automatically.

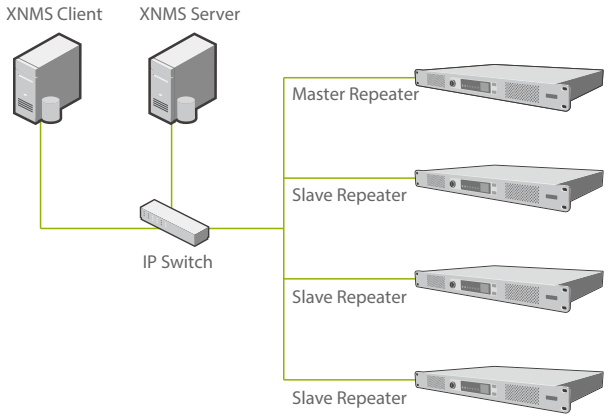


XPT Network Management System (XNMS)

XNMS (Extended Network Management System) software is used to remotely monitor and manage repeaters registered in XPT system. It enables you not only to diagnose the repeater remotely and take troubleshooting measures, but also to make statistics on and query the services conducted in the system for a certain period of time.

- **XNMS networking**

  XNMS includes Client and Server. Multiple clients connect with a centralized server via IP network to monitor all repeaters in the network.



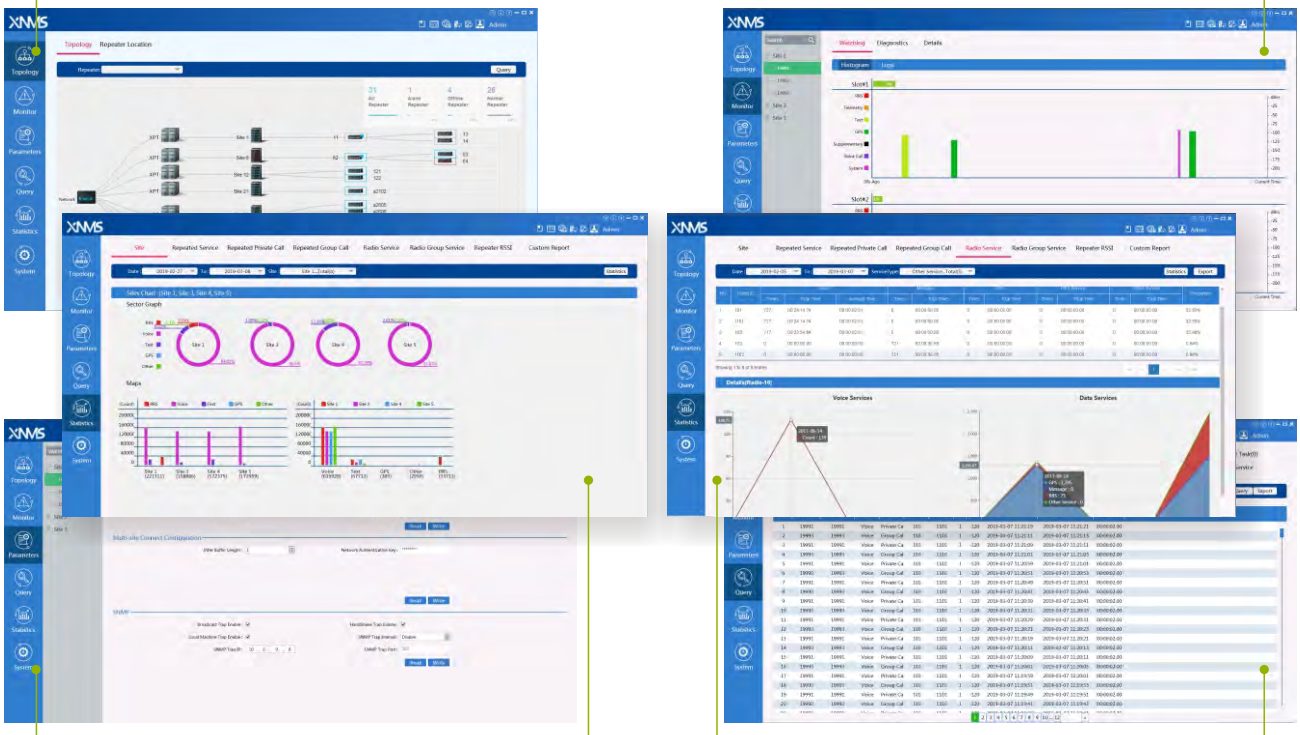
- **XNMS software features**

View Topology

Monitor all connected repeaters with operation status, basic info and parameters View repeater location on map

Monitor Repeater Activities

Activities and RSSI or recent 30s in each slot could be displayed in real-time.



Read & Write Parameters

Remotely read and write XPT repeaters

Query Operation Logs

Query and export the operation log of each site

View and Export XPT Site Services

Analyze XPT site services in a period to evaluate system capacity

View and Export Service Statistics

Analyze radio or repeater services in a period to optimize the network



Dispatch System for DMR Conventional

Dispatch System for DMR Conventional, a new designed dispatching platform based on IP network, realizes unified dispatching over DMR conventional system and XPT digital trunking system. With assistance of additional gateway DS-6610 MPUC and different types of mobile radios, it's much easier to start conversations across different platforms.

- **DS-6610 MPUC**

  DS-6610 MPUC is a mobile radio gateway in Dispatch System for DMR Conventional solution. It could be used in flexible modes as below:

  1. Work as a bridge for mobile radios in different system.
  2. Connect to the Dispatch System server with centralized dispatching features for mobile radios.



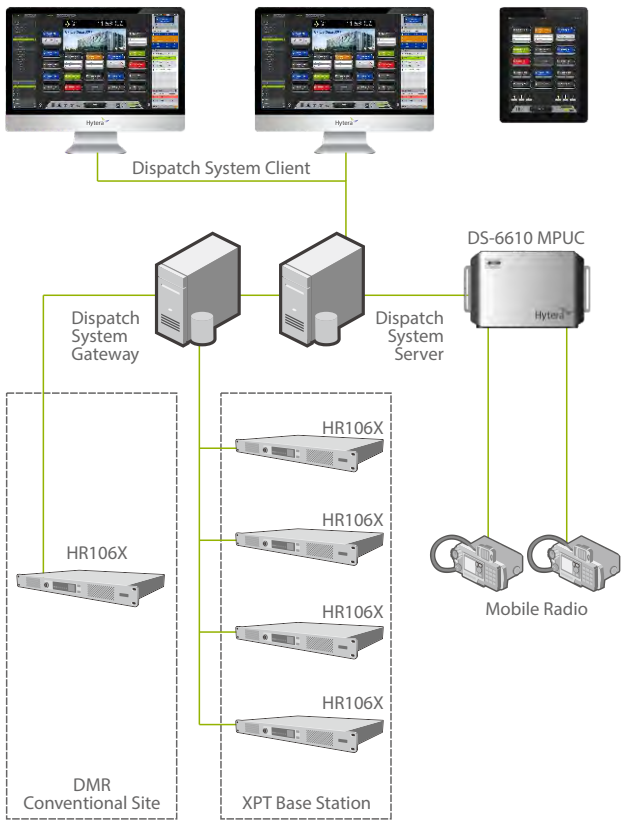
① Connect with Analog/DMR mobile radios
② Upgrade firmware
③ Ethernet network



• Dispatch System for DMR Conventional

Call features	Private call
	Group call
	Emergency call
	All call
	Remote monitor
	Call alert
	Crosspatch
	Simul-select
	Dispatcher intercom
Supplementary	Enable/Disable
Phone call	IP-PBX interconnection
Voice recording	Voice recording in all system channels
GIS features	GPS position
	Real-time track
	History track
	Google online/offline map
	MapX
Report features	Call record enquiry
	Message record enquiry
	Online/offline record enquiry
	Emergency alarm record enquiry
Message features	Text message
	Emergency alarm
	Message template

• Network Topology of Dispatch System for DMR Conventional



System Specifications

General	
Transceiver Model	HR106X
Operating Frequency	UHF: 400-470 MHz; VHF: 136-174 MHZ
Nominal Operating Voltage	AC 100-240 V / DC 13.6 V
Power Consumption	≤ 165 W @ 50 W Transmit / Carrier
Channel Spacing	≥ 250 kHz @ Cavity Combiner ≥ 250 kHz @ Hybrid Combiner (only for base station with 4 carriers or less)
Duty Cycle	100%
Operating Temperature	Normal temperature: +15℃ ~ +35℃ Extreme temperature: -30℃ ~ 60℃
Storage Temperature	-40℃ to +85℃
Dimensions (W x D x H)	2-carrier: 600 x 600 x 675 mm (13U Cabinet) 4-carrier: 600 x 600 x 1750 mm (37U Cabinet)
Humidity	Normal: 20%~75% RH, Extreme: 5%~95% RH
Weight	2 carriers: ≤ 100 kg; 4 carriers: ≤ 180 kg

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
Rated Audio Distortion		≤3%	
Response		+1 -3dB	

Transmitter			
RF Power Output	5-50W(adjustable)		
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	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™		
Digital Protocol	ETSI-TS102 361-1,-2,-3		

Radio Frequency	
HP60X / HP68X	VHF: 136-174 MHz; UHF: 400-527 MHz
HP70X / HP78X	VHF: 136-174 MHz; UHF: 350-470 MHz
HP70X UL913 / HP78X UL913	VHF: 136-174 MHz; UHF: 350-470 MHz
HM78X	VHF: 136-174 MHz; UHF: 350-470 MHz
HM68X	VHF: 136-174 MHz; UHF: 400-470 MHZ; 450-527 MHz
HM65X	UHF: 400-470 MHz

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

Hytera
Respond & Achieve

Hytera Communications Corporation Limited

Address: Hytera Tower, Hi-Tech Industrial Park North,Beihuan Rd., Nanshan District,Shenzhen,China

Tel: +86-755-2697 2999 **Fax:** +86-755-8613 7139 **Post:** 518057

Http: //www.hytera.com **Stock Code:** 002583.SZ

Hytera retains right to change the product design and specification. Should any printing mistake occur, Hytera doesn't bear relevant responsibility. Little difference between real product and product indicated by printing materials will occur by printing reason.

Hytera sepura teltronic Norsat SINCLAIR HYT are registered trademarks of Hytera