

IS Series Portfolio

Intrinsically Safe DMR Radios



















IS Series

Two-way radios have been a productivity tool for many professionals. For those who work in environments with explosive gas and combustible dusts using standard radios could be unsafe. Understanding the challenges faced by professionals working in hazardous environments. Hytera launched our intrinsically safe series of DMR Portable Radios PD792 Ex, PD782 UL913 and PD702 UL913. These IS portable DMR radios comply with some of the world's strictest safety standards.

Applications

Oil & Gas

Utilities Mining Manufacturing Firefighters Refineries Pharmaceutical

Innovative Design & Convenient Operation



Patented antenna

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



Separated knobs

Separated by the antenna, the two knobs of portable radio stand apart from each other, which reduces mis-operation when with gloves on or under dim light.





Patented Battery Latch

The PD792 Ex is designed with a battery latch that keeps the battery in place even when the radio is dropped.



4 Large-size color display & multilingual UI
The large-size TFT LCD display with

multilingual UI delivers you favorable accessibility.



5 Ergonomic key

The smart body incorporates big keys for ease of use and precise operation.



Rugged & Reliable

All IS Radios comply with the IP67 requirements, withstanding immersion testing (1meter up to 30 minutes). Compliance with MIL-STD-810 C/D/E/F/G requirements, ensure outstanding performance even under harsh environments.





UL:

These requirements apply to apparatus or parts of apparatus for installation and use in Class I, II, or III, Division 1 hazardous (classified) locations in accordance with the requirements of the National Electrical Code, NFPA 70.

Class I II III DIV I Group C-G -22°F to 131°F T4



IECEx :

Scheme is the future route to global compliance certification. Its aim is to harmonize standards to allow free movement of goods by establishing a world-wide accepted standard.

Ex ib IIC T4
Ex ib IIIC T240°F IP5X
Ex ib I



FM:

FM Approvals LLC is a member of Nationally Recognized Testing Laboratories of U.S.A. It strives to offer global services with unsurpassed technical integrity and exceptional customer satisfaction. Class I, Zone 1, Aex, ib, IIC, T4, Gb Class II III, Div 1, Group E F G T248°F -4°F ≤ TA ≤ 122°F



ATEX:

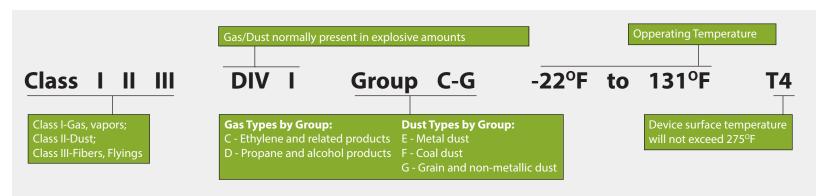
is the European Union directive to which all two-way radios must conform if used in potentially explosive environments. It replaces the Cenelec classification in all European Union member states and EFTA countries. II 2G Ex ib IIC T4
II 2D Ex ib IIIC T248°F IP5X
I M2 Ex ib



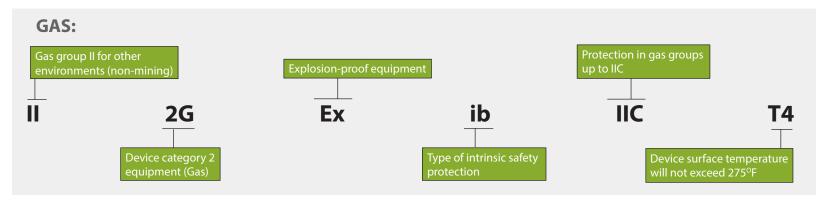


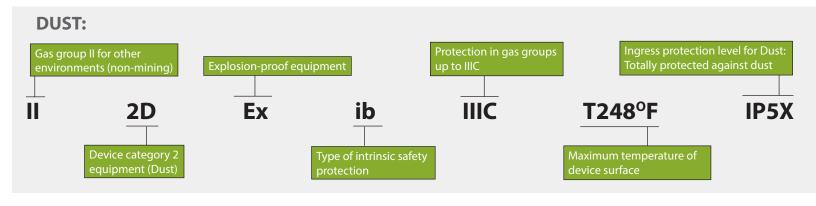


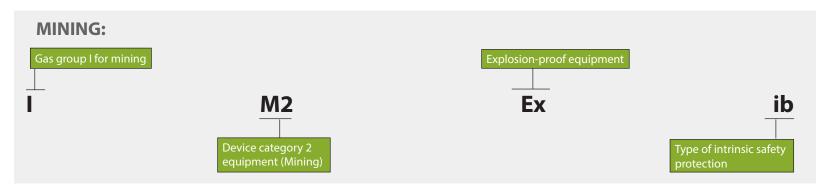




ATEX Protection









Innovative Design

Ease of Use

The PD792 Ex is very easy to use. It has a tough and highly readable LCD screen and an intuitive user interface. The large PPT button and channel knobs are useful for users wearing gloves. The ergonomic design and channel annunciation enhance the user experience.

Patent Battery Latch

To disengage the battery from Hytera digital portables, the lock and bolt of the latch need to be moved along two different axes. This patented design ensures no movement of the battery pack in case of dropping to prevent sparks.

Innovative Silicone Encapsulating

Silicone encapsulant technology prevents the internal circuits from interface with air and liquid which effectively stops the intrusion of liquid, dust and harmful gas. The silicone encapsulating process is delicate and complicated. As a result, every single PD792 Ex radio spends eight hours in the manufacture line.

Innovative Electrostatic Free Design

Hytera has a patent on the electrostatic free design and dual-material molding technology in this intrinsically safe portable. The static dispersive material (blue) minimizes static accumulation on the surface, thus reducing the probability of static discharge on the radio. Meanwhile the robust material (black) maximizes the ruggedness of the enclosure.

Enhanced Safety

The PD792 Ex provides a dedicated emergency button. In case of any accident, a press on the button will trigger an alarm and initiate a pre-programmed voice call. Built-in Mandown, GPS and Lone Worker functions are also available with the digital portable.

Features

The PD792 Ex is designed upon the strict requirements of European ATEX and North American FM standards. With certifications for ATEX, IECEX, the latest FM and CSA specifications, the radio works safely in most hazardous environments, even with the presence of hydrogen and dust particles. The overall design complies with the latest American Military Standard-MIL-STD-810G, which means it can bear the harshest

environments like High/Low Temperature, High

Humidity, Vibration, and Shock.

Environmentally Safe and High Reliability

- High-capacity and Secure Li-lon Battery
 The PD792 Ex has a high-capacity Li-lon
 battery of 1800mAh with long shelf life
 of 17 hours under 5-5-90 duty cycle. The
 battery charging and discharging circuits are
 stringently designed to prevent overcharging
 or discharging causing high heat, which leads
 to unstable battery environments. In addition
 the battery cells are also encapsulated to
 redistribute single point heat buildup and also
 prevent air discharge.
- High Audio Quality and Assured
 Communication Based on DMR Technology
 Using DMR digital technology, the PD792
 Ex provides higher audio quality and stable communication clarity with 40% less battery consumption than analog radios. It provides better communication quality and enhanced privacy, and moreover reduces overall equipment costs.

GPS Positioning

The built-in GPS module in the PD792 Ex supports GIS applications.



IP67 Protection

The Ingress Protection reaches IP67 (6: Totally protected against dust; 7: Protected against the effects of immersion up to 1m for 30 minutes). It's the highest IP level for land-based wireless radio application.

• Improved PCB Circuit Layout & EMC Shielding
To achieve such a high safety standard,
Hytera PD792 Ex has an optimized distributed
line design on PCB, minimizing the odds of
circuit fault. All the key components on the
PCB are covered with a shield, and the space
between lines, between components, between
component and shield are properly separated
which translates to better EMC performance
and less internal interference.



General	Frequency Range	VHF: 136 - 174MHz UHF1: 400 - 470MHz	
	Channel Capacity	1024	
	Zone Capacity	64 (each with max of 16 channels)	
	Channel Spacing	12.5 / 20 / 25KHz	
	Operating Voltage	7.4V (rated)	
	Battery	1800mAh (Li-lon)	
	Battery Life (5-5-90 Duty Cycle)	Analog	Approx. 14.5hrs
Ğ		Digital	Approx. 17hrs
	Frequency Stability	1.5ppm	
	Antenna Impedance	50 Ω	
	LCD Display	160 x 128 Pixels, 65,536 Color, 1 inches, 4 rows	
	Dimensions (HxWxD)	5.55 x	2.16 x 1.53 inches
	Weight		1.1 lbs

	Operating Temperature		-4°F ~ +122°F
	Operating remperature		-4 F~+122 F
	Storage Temperature		-40° F∼ +185° F
	Dust & Water Intrusion		IP67 (non-explosive-proof)
Environmental	Humidity		MIL-STD-810 C/D/E/F/G
	Shock & Vibration		MIL-STD-810 C/D/E/F/G
viro	ESD		IEC 61000 - 4 - 2 (level 4) ± 8kV(contact) ± 15kV (air)
ᇤ		ATEX	II 2G Ex ib IIC T4 ; II 2D Ex ib IIIC T248°F IP5X ; I M2 Ex ib
		IECEx	Ex ib IIC T4 ; Ex ib IIIC T248°F IP5X ; Ex ib I
	FM		Class I, Zone 1 Aex ib IIC T4 Gb Class II, III Div 1; Group E, F, G T248°F; -4°F Ta 122°F

GPS	TTFF Cold Start (Time To First Fix)	<1 minute
	TTFF Hot Start (Time To First Fix)	<10 seconds
	Horizontal Accuracy	<10 meters

ansmitter	RF Power Output	1W (adjustable)
	FM Modulation	11К фF3E @ 12.5KHz ; 14КфF3E @ 20KHz ; 16КфF3E @ 25KHz
	4FSK Digital Modu- lation	12.5KHz Data Only: 7К6фFXD 12.5KHz Data & Voice: 7К6фFXW
	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
Ta	Adjacent Channel Power	60dB @ 12.5KHz 70dB @ 20/25KHz
	Audio Response	+1 ~ -3dB
	Audio Distortion	3%
	Digital Vocoder Type	AMBE++ or SELP
	Digital Protocol	ETSI-TS102 361-1, 2&3

	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%	
	Selectivity TIA-603 ETSI	60dB @ 12.5KHz / 70dB @ 20/25KHz ; 60dB @ 12.5KHz / 70dI @ 20/25KHz		
	Intermodulation TIA-603 ETSI	70dB @ 12.5/20/25KHz 65dB @ 12.5/20/25KHz		
	Spurious Response Rejection TIA-603 ETSI	80dB @ 12.5/20/25KHz 84dB @ 12.5/20/25KHz		
	Hum & Noise	40dB @ 1	12.5KHz ; 43dB @ 20KHz ; 45dB @ 25KHz	
	Rated Audio Power Output	0.5W		
	Rated Audio Distortion	3%		
	Audio Response	+1 ~ -3dB		
	Conducted Spurious Emission		< -57dBm	

Accessories

Included

- Li-Ion Battery (IS Certified)
- MCU Rapid-rate Charger
- Power Adapter
- Antenna
- Belt Clip
- Leather Strap











Innovative Design

Features

User Friendly Design

The large-size color display allows good visibility even under extremely strong light. The globally patented industrial design and antenna design ensure convenient operation and remarkable GPS performance. The large PTT, volume, channel knobs and programmable buttons are easy to operate even when wearing gloves.

Rugged & Reliable

Complies with MIL-STD-810 C/D/E/F/G standards. The Ingress Protection reaches IP67 (6: Totally protected against dust; 7: Protected against the effects of immersion up to 1m for 30 minutes). It's the highest IP level for land-based wireless radio application.

• Superior Voice

With the adoption of the AGC technology in combination with the application of narrowband codec and digital error correction technologies, The PD782 UL913 radio is capable of ensuring your voice is clear and crisp even in noisy environments or at the edge of the coverage area.

Higher Spectrum Efficiency, Higher Channel Capacity

The TDMA technology allows twice the channels based on the same spectrum resource. This relieves the stress of increasing shortage in spectrum resource.

Larger Li-lon Battery

Equipped with 2400mAh and UL913 / CSA certificated Li-lon battery, lasting approximately 21 hours under 5-5-90 duty cycle. The battery life-span is also longer as the charge/discharge cycles reduced. To ensure intrinsically safe certification the IS Battery must be used.

• Secure Communication

Besides the encryption inherent to digital technology, The PD82 UL913 radio provides enhanced encryption capabilities (such as 256-bit encryption algorithm). It has analog scrambling, and digital encryption using Advanced Encryption Standard (AES) and ARCFOUR (ARC4) encryption methodology to both voice and data.).

Roaming

Automatic roaming of all sites in an IP Multisite Connect system.

Vibration

Vibration alerts the user of voice calls and text messages.

Scan

Capable of scanning of pure analog voice and signaling, pure Digital voice and data, and also mix mode scan that comprise of Analog and Digital activities.

Versatile Voice Calls

The intelligent signaling of the PD782 UL913 supports various voice call types, including Private Call, Group Call , All Call and Emergency Call.

Multifaceted Features

In addition to conventional communication services, it is capable of Text Message, Scan, Emergency, Man Down (optional), vibration Auto Registration, High-speed Data Transmission, Lone Worker, Radio Check, Remote Monitor, Call Alert, Radio Enable, and Radio Disable.

One Touch Call/Text

Supports One Touch features that comprise of Preprogrammed Text Messages, Voice Calls and Supplementary Features.





GPS Positioning

Supports viewing of GPS positioning information and sending of GPS text message.

• Software Upgradeable

Upgradeable software enables new features without buying a new radio; The PD82 UL913 radios can also be switched into DMR trunking modes with corresponding trunking license applied in the same hardware.

Pseudo Trunk

This virtual trunking feature allocates a free timeslot for urgent communications. This effectively enhances frequency efficiency and allows you to communicate in a timely manner in emergency situations.

Data Features

The PD782 UL913 supports data capabilities of sending Private and Group text messages. It also supports a Third Party to control the radio via Third party API (GPS, Radio Registration Services, Radio Call Control, Telemetry, Data Transfer), via Telemetry control to radio.

Expansion Ports

This allows third parties to develop accessory and applications via front and rear port of the mobile. (Features such as voice recording, encryption).

Accessories

Included

- Li-lon Battery (IS Certified)
- MCU Rapid-rate Charger
- Power Adapter
- Antenna
- · Belt Clip
- · Leather Strap

	Frequency Range	VHF: 136 - 174MHz; UHF1: 400 - 470MHz; UHF2: 450-520MHz ; UHF5: 806-941MHz (only DMR Trunking)	
	Channel Capacity	1024	
	Zone Capacity (max of 16 channels)	64	
	Channel Spacing	25	5 / 20 / 12.5KHz
	Operating Voltage		7.4V (rated)
ral	Battery	2400mAh (Li-lon)	
General	Battery Life (5-5-90 Duty Cycle, High TX Power)	Analog	Approx. 8 - 12hrs
		Digital	Approx. 11 - 15hrs
	Frequency Stability	± 0.5ppm	
	Antenna Impedance	50 Ω	
	Dimensions (HxWxD)	4.9 x 2.17 x 1.46 inches	
	Weight	12.52 oz	
	LCD Display (PD782 / PD762)	160 128 pixels, 65535 colors 1. inch, 4 rows	

	Operating Temperature		-22°F ~ +140°F
	Storage Temperature		-40° F~ +185° F
tal	ESD		IEC 61000 - 4 - 2 (level 4) ±8kV(contact) ; ±15kV (air)
Environmental	American Military Standard		MIL-STD-810 C/D/E/F/G
/iron	Dust & Water Intrusion		IP67 Standard
Env	Humidity		MIL-STD-810 C/D/E/F/G
	Shock & Vibration		MIL-STD-810 C/D/E/F/G
	Certifications	UL913	Class DIV Group C-G -22°F to 131°F T4

GPS	TTFF (Time To First Fix) Cold Start	<1 minute
	TTFF (Time To First Fix) Hot Start	<10 seconds
	Horizontal Accuracy	<10 meters

	RF Power Output	VHF: High 5W - Low 1W UHF: High 4W - Low: 1W
	FM Modulation	11К фF3E @ 12.5KHz ; 14КфF3E @ 20KHz ; 16КфF3E @ 25KHz
	4FSK Digital Modu- lation	12.5KHz Data Only: 7K6 FXD 12.5KHz Data & Voice: 7K6 FXW
	Conducted/Radiated Emission	-36dBm<1GHz -30dBm>1GHz
tter	Modulation Limiting	± 2.5KHz @ 12.5KHz ; ± 4.0KHz @ 20KHz ; ± 5.0KHz @ 25KHz
ransmitter	FM Hum & Noise	40dB @ 12.5KHz ; 43dB @ 20KHz 45dB @ 25KHz
Trai	Adjacent Channel Power	60dB @ 12.5KHz 70dB @ 20/25KHz
	Audio Response	+1 ~ -3dB
	Audio Distortion	≤ 3%
	Digital Vocoder Type	AMBE++ or SELP
	Digital Protocol	ETSI-TS102 361-1, 2&3

Sensitivity		0.22 μ V (12dB SINAD) ; 0.22 μ V (Typical) (12dB SINAD); 0.4 μ V (20dB SINAD)
	Digital	0.22 μ V/BER5%
	20/25KH	@ 12.5KHz / 75dB @ Hz ; 60dB @ 12.5KHz / IdB @ 20/25KHz
	70dB @ 12.5/20/25KHz 65dB @ 12.5/20/25KHz	
	70dB @ 12.5/20/25KHz 70dB @ 12.5/20/25KHz	
	80dB 84dB	
	40dB @ 12.5KHz ; 43dB @ 20KHz ; 45dB @ 25KHz	
/er		0.5W
ortion	≤ 3%	
	+1 ~ -3dB	
ious	< -57dBm	
	se 3 ETSI /er ortion	60dB (20/25kt) 700 70dE 65dE 8 ETSI 70dE 40dB @ 12 40dB





Innovative Design

Features

User Friendly Design

The globally patented industrial design and antenna design ensure convenient operation and remarkable GPS performance. The large PTT, volume, channel knobs and programmable buttons are easy to operate even when wearing gloves.

Rugged & Reliable

Complies with MIL-STD-810 C/D/E/F/G standards. The Ingress Protection reaches IP67 (6: Totally protected against dust; 7: Protected against the effects of immersion up to 1m for 30 minutes). It's the highest IP level for land-based wireless radio application.

Superior Voice

With the adoption of the AGC technology in combination with the application of narrowband codec and digital error correction technologies, The PD702 UL913 radio is capable of ensuring your voice is clear and crisp even in noisy environments or at the edge of the coverage area.

Higher Spectrum Efficiency, Higher Channel Capacity

The TDMA technology allows twice the channels based on the same spectrum resource. This relieves the stress of increasing shortage in spectrum resource.

Larger Li-lon Battery

Equipped with 2400mAh and UL913 / CSA certificated Li-lon battery, lasting approximately 21 hours under 5-5-90 duty cycle. The battery life-span is also longer as the charge/discharge cycles reduced. To ensure intrinsically safe certification the IS Battery must be used.

• Secure Communication

Besides the encryption inherent to digital technology, and provides enhanced encryption capabilities (such as 256-bit encryption algorithm). It has analog scrambling, and digital encryption using Advanced Encryption Standard (AES) and ARCFOUR (ARC4) encryption methodology to both voice and data.).

Roaming

Automatic roaming of all sites in an IP Multisite Connect system.

Vibration

Vibration alerts the user of voice calls and text messages.

Versatile Voice Calls

The intelligent signaling of the PD702 UL913 radio supports various voice call types, including Private Call, Group Call, All Call and Emergency Call.

Multifaceted Features

In addition to conventional communication services, and is capable of Scan, Emergency, Man Down (optional), vibration Auto Registration, Lone Worker, Radio Check, Remote Monitor, Call Alert, Radio Enable, and Radio Disable.

Scan

Capable of scanning of pure analog voice and signaling, pure Digital voice and data, and also mix mode scan that comprise of Analog and Digital activities.

One Touch Call/Text

Supports One Touch features that comprise of Preprogrammed Text Messages, Voice Calls and Supplementary Features.





Specifications

Software Upgradeable

Upgradeable software enables new features without buying a new radio; Can also be switched into DMR trunking modes with corresponding trunking license applied in the same hardware.

Expansion Ports

This allows third parties to develop accessory and applications via front and rear port of the mobile. (Features such as voice recording, encryption).

Pseudo Trunk

This virtual trunking feature allocates a free timeslot for urgent communications. This effectively enhances frequency efficiency and allows you to communicate in a timely manner in emergency situations.

GPS Positioning

Supports viewing of GPS positioning information and sending of GPS text message.

	Frequency Range	- 470MH:	- 174MHz ; UHF1: 400 z ; UHF2: 450-520MHz 06-941MHz (only DMR Trunking)
	Channel Capacity	1024	
	Zone Capacity (max of 16 channels)	64	
	Channel Spacing	25	5 / 20 / 12.5KHz
=	Operating Voltage	7.4V (rated)	
General	Battery	24	l00mAh (Li-lon)
Ğ	Battery Life	Analog	Approx. 8 - 12hrs
	(5-5-90 Duty Cycle, High TX Power)	Digital	Approx. 11 - 15hrs
	Frequency Stability	± 0.5ppm	
	Antenna Impedance	50 Ω	
	Dimensions (HxWxD)	4.9 x 2.17 x 1.38 inches	
	Weight		11.82 oz

	Operating Temperature		-22°F ~ +140°F
	Storage Temperature		-40° F∼ +185° F
tal	ESD		IEC 61000 - 4 - 2 (level 4) ±8kV(contact) ; ±15kV (air)
Environmenta	American Military Standard		MIL-STD-810 C/D/E/F/G
iron	Dust & Water Intrusion		IP67 Standard
En	Humidity		MIL-STD-810 C/D/E/F/G
	Shock & Vibration		MIL-STD-810 C/D/E/F/G
	Certifications	UL913	Class I II III DIV I Group C-G -22°F to 131°F T4

GPS	TTFF (Time To First Fix) Cold Start	<1 minute
	TTFF (Time To First Fix) Hot Start	<10 seconds
	Horizontal Accuracy	<10 meters

Transmitter	FM Modulation	11K φF3E @ 12.5KHz ; 14KφF3E @ 20KHz ; 16KφF3E @ 25KHz	
	4FSK Digital Modulation	12.5KHz Data Only: 7K6 FXD 12.5KHz Data & Voice: 7K6 FXW	
	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++ or SELP	

RF Power Output

Digital Protocol

VHF: High 5W - Low 1W UHF: High 4W - Low: 1W

ETSI-TS102 361-1, 2&3

	Sensitivity	Analog	0.22 μ V (12dB SINAD) ; 0.22 μ V (Typical) (12dB SINAD); 0.4 μ V (20dB SINAD)	
		Digital	0.22 μ V/BER5%	
	Selectivity TIA-603 ETSI	60dB @ 12.5KHz / 75dB @ 20/25KHz ; 60dB @ 12.5KHz / 70dB @ 20/25KHz		
	Intermodulation TIA-603 ETSI	70dB @ 12.5/20/25KHz 65dB @ 12.5/20/25KHz		
į	Spurious Response Rejection TIA-603 ETSI	70dB @ 12.5/20/25KHz 70dB @ 12.5/20/25KHz		
	Blocking TIA-603 ETSI	80dB 84dB		
	S/N	40dB @ 12.5KHz ; 43dB @ 20KHz ; 45dB @ 25KHz		
	Rated Audio Power Output	0.5W		
	Rated Audio Distortion	≤ 3%		
	Audio Response	+1 ~ -3dB		
	Conducted Spurious Emission	< -57dBm		

Accessories

Included

- Li-Ion Battery (IS Certified)
- MCU Rapid-rate Charger
- Power Adapter
- Antenna
- Belt Clip
- Leather Strap



Your Local Dealer

For more information, please contact

USAlert, LLC

164 West Royal Palm Road Boca Raton, FL 33432 Sales: (866) 896-8663 Fax: (561) 394-9986

Web: www.usalertllc.com Email: info@usalertllc.com



20 KHz / 25 KHz will not be available on new equipment in the U.S. after January 1st , 2011

Hytera reserves the right to change product designs or specifications at any time. If you have any questions regarding the accuracy of this information please contact your local sales representative or Hytera directly.

HYT. Hytera are registered trademarks of Hytera Co., Ltd. © 2013 Hytera Co., Ltd. All rights reserved.













Address: 3315 Commerce Parkway Miramar, Florida 33025, USA **Tel:** 800-845-1230 **Fax:** 954-846-1672 http://www.hytera.us

