Hytera PD5 i Series UL913 Intrinsically Safe DMR Radio Owner's Manual

Contents

Hytera PD5 i Series UL913 Intrinsically Safe DMR Radio

Product Information

- **Product Name:** Digital Migration Radio PD5 Series
- **Product Type**: DMR Standard Radio
- **Features:**
  - Dual Modes: Analog & Digital
  - Intrinsically Safe
  - UL913 Certified
  - Compact Design
  - Long Battery Life (up to 20 hours)
  - Rugged & Reliable (MIL-STD-810 G standards & IP54 compliant)
  - One Touch Call/Text Support
  - Supplementary Features: Radio Enable/Disable, Remote Monitor, Priority Interrupt (optional)
  - Radio Registration Service (RRS)
  - A&D Mixed Scan
  - Secure Communication: Basic Digital Encryption, Scrambler feature in analog mode
  - Advanced Signaling: HDC1200, 2-Tone, 5-Tone
  - Emergency Alarm
  - Single-site XPT Trunking (optional)
  - Pseudo Trunk

Today, safety is the most important thing we pursue in every aspect of life and work. Hytera understands the challenges in hazardous environments and is dedicated to designing and developing safer radios for more and

more customers. Hytera believes it is rather urgent to provide an intrinsic safe radio to commercial market. Build a radio with classic housing to provide a small and light product. Design a radio to pass UL913 certification for most dangerous areas with explosive gas and combustible dusts. Introduce a cost-effective radio with much more features for enterprises and commercial users.

Product Usage Instructions

1. **Power On/Off:**
    - Press and hold the Power button to turn on/off the radio.
2. **Volume Control:**
    - Use the Volume Up/Down buttons to adjust the audio volume.
3. **Channel Selection:**
    - Rotate the Limitless Channel Selector to choose the desired channel.
4. **Call/Text Support:**
    - Use the One Touch feature to send preprogrammed text messages or make voice calls.
5. **Emergency Alarm:**
    - In case of an emergency, press the programmable button to send an emergency alarm to other radios in a specific group.
6. **Analog & Digital Modes:**
    - To switch between analog and digital modes, use the Dual Mode operation feature.
7. **Radio Registration Service (RRS):**
    - Enable RRS to work with Smart Dispatch and SmartOne Dispatch systems for radio status monitoring.
8. **A&D Mixed Scan:**
    - Add analog and digital channels to the scan list for convenient migration from analog to digital radios.
9. **Secure Communication:**
    - Activate basic digital encryption or Scrambler feature for secure communication in analog mode.
10. **Advanced Signaling:**
    - Utilize advanced analog signaling modes such as HDC1200, 2-Tone, and 5-Tone for better integration with existing analog radio fleets.
11. **Single-site XPT Trunking (optional):**
    - If supported, configure the radio to work with the Hytera XPT Trunking system for dynamic assignment of voice and data services.
12. **Pseudo Trunk:**
    - Enable the pseudo trunking feature to allocate a free timeslot for urgent communications, enhancing frequency efficiency in emergency situations.

UL913 Certificate

Class I II III-Division 1, Group C-G, -30℃ to 55℃, T4
Class I- Division 2, Group A-D

Atmosphere:
Class I-Gas, vapors;
Class II-Dust;
Class III-Fibers, Flyings

Operating Temperature

Temperature Class
(Maximum device surface temperature)

T1-450℃	T3C-160℃
T2-300℃	T4-135℃
T3-200℃	T5-100℃
T3A-180℃	T6-85℃
T3B-165℃	

Class I II III Division 1 Group C-G -30℃ to 55℃ T4

Area Classification: (Flammable material present time) NEC 500
Division 1: Gas/Dust normally present in explosive amounts
Division 2: Gas/Dust not normally present in explosive amounts

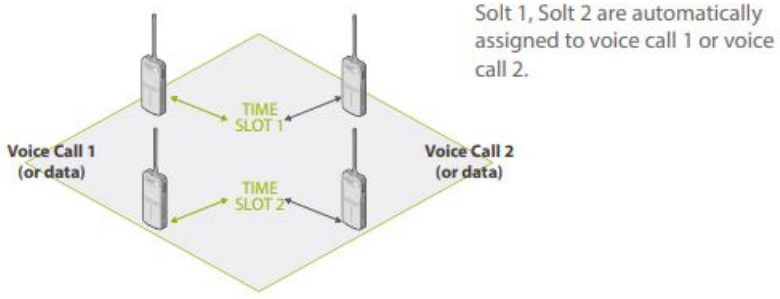
Gas Types by Group:
A-Acetyene
B-Hydrogen
C-Ethylene and related products
D-Propane and alcohol products

Dust Types by Group:
E-Metal dust
F-Coal dust
G-Grain and non-metallic dust

OVERVIEW

Features

- **Small, Sleek, Light**
  The size is 115 X 54 X 35mm (PD502i UL913)/115 X 54 X 37mm (PD562i UL913), dual-color injection, weight is 298g PD502i UL913)/ 311g(PD562i UL913).
- **Long Battery Life**
  In digital mode, PD5i UL913 Series operate upto 20 hours under a duty cycle of 5-5-90.
- **Rugged & Reliable**
  It is compliant with MIL-STD-810 G standards & IP54.
- **One Touch Call/Text**
  Support One Touch features that comprise Preprogrammed Text Messages, Voice Calls and Supplementary Features.
- **Supplementary Features (optional)**
  PD5i UL913 Series support radio enable, radio disable, and remote monitor, as well as priority interrupt.
- **Dual Mode (Analog & Digital)**
  Dual modes (analog & digital) operation ensures a smooth analog to digital migration.
- **Radio Registration Service**
  RRS allows PD5i Series to work in Smart Dispatch and SmartOne Dispatch system, so that the dispatcher can check if the radio is on line or off line.
- **A&D Mixed Scan**
  PD5i supports to have analog channel and digital channels added in one scan list. This is more convenient for customers to have a smooth migration from analog radios to digital radios.
- **Secure Communication**
  Provide basic digital encryption and Scrambler feature in analog mode.
- **Advanced Signaling**
  Support multiple advanced analog signaling modes, including HDC1200, 2-Tone and 5-Tone, providing better integration into existing analog radio fleets.
- **Emergency Alarm**
  Emergency Alarm can be sent to other radios via one touch of programmable button, then establish an emergency call in a specific group. Make your response for big event more quickly.
- **Single-site XPT Trunking (optional)**
  PD5i UL913 supports working in Hytera XPT Trunking system, which is a cost-effective trunking system and provides dynamic assignment of voice and data service for a large number of subscribers.
- **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.



Highlights

- UL Certified DMR radio
- Ergonomic User-Friendly Design
- Light & Durable
- Compact Size & Clear Voice
- Cost-effective

Target Markets

- **Manufacturing**

  Some flammable metal, mineral, or other dusts, existing in the factory’s air, may give rise to explosion.

- **Chemical Industry**

  Flammable substances are converted and processed. These processes may give rise to explosive mixtures.

- **Food and feedstuffs industry**

  Explosive dusts may arise during transport and storage of grain, sugar, etc.

- **Refinery**

  The hydrocarbons handled in refineries are all flammable and may give rise to explosive atmospheres depending on their flash point.

- **Pharmaceutical industry**

  Alcohols are often used as solvents in the production of pharmaceuticals. Agents and auxiliary materials may give rise to dust explosions

- **Firefighting**

  Fire environment often comes with strong smoke, flammable matter and high temperature.

Accessories

Versatile UL certified
Accessories for Specific Tasks

Adapter PS1026(for non-hazardous area only) Strap Ro03 PC63 Data Cable (USB Port) NCN011 Nylon Carrying Case (half-folded) (non-swivel) (black)

Specifications

General	
Frequency Range	UHF: 350-400MHz 400-470MHz VHF: 136-174MHz
Channel Capacity	256(PD502i)/512 (PD562i)
Zone Capacity	16 (PD502i)/32 (PD562i)
Channel Spacing	25/20/12.5KHz
Operating Voltage	7.4V
Battery	2000mAh (Li-Ion)

Battery Life (5/5/90)		Analog/Digital: about 15.3 Hours/20 Hours
Weight		298g(PD502i UL913)/311g(PD562i UL913)
Dimensions		115 X 54 X 35mm (PD502i UL913) 115 X 54 X 37mm
Frequency Stability		±0.5ppm(PD562i UL913)
Antenna Impedance		50Ω
Receiver		
Sensitivity (Digital)		0.22μV / BER 5%
Sensitivity (Analog)		0.22μV (Typical) (12dB SIN AD) 0.4μV (20dB SIN AD) 0.22μV (12dB SIN AD)
Adjacent Selectivity	TIA-603	60dB @ 12.5KHz/70dB @ 20 & 25KHz
	ETSI	60dB @ 12.5KHz/70dB @ 20 & 25KHz
Spurious Response Rejection	TIA-603	70dB @ 12.5/20/25KHz
	ETSI	70dB @ 12.5/20/25KHz
Inter-modulation	TIA-603	70dB @ 12.5/20/25KHz
	ETSI	65dB @ 12.5/20/25KHz
Hum & Noise		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

Transmitter	
RF Power Output	VHF High power: 5W VHF Low power: 1W UHF High power: 4W UHF Low power: 1W
FM Modulation	11K0F3E @ 12.5KHz 14K0F3E @ 20KHz 16K0F3E @ 25KHz
4FSK Digital Modulation	12.5KHz Data Only: 7K60FXD 12.5KHz Data & 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 TM
Digital Protocol	ETSI-TS102 361-1,-2,-3
Environmental	
Operating Temperature	-30℃~ +60℃
Storage Temperature	-40℃~ +85℃
ESD	IEC 61000-4-2 (Level 4) ±8kV (Contact) ±15kV (Air)
Dustproof & Waterproof	IP54 Standard

Humidity	Per MIL-STD-810 G Standard
Shock & Vibration	Per MIL-STD-810 G Standard

Hytera America

3315 Commerce Parkway, Miramar, FL 33025, United States
Telephone: +1(954)846-1011
8 Whatney, Suite 200, Irvine, CA 92618, United States
Telephone: +1(949)326-57 0
1916 Wright Boulevard, Schaumburg, IL 60193, United States
Telephone: +1 (213) 262-3578

Documents / Resources

	Hytera PD5 i Series UL913 Intrinsically Safe DMR Radio [pdf] Owner's Manual PD502i, PD562i, PD5 i Series UL913 Intrinsically Safe DMR Radio, PD5 i Series, UL913 Intrinsically Safe DMR Radio, Intrinsically Safe DMR Radio, DMR Radio, Radio

References

- Hytera US Inc - The Leader in Two-Way Radio - Official USA Site