

# DESIGNED FOR SAFETY

Intrinsically Safe DMR Portable Two-way Radio

HP79XEx IIA



For workers in the Oil and Gas industry or firefighters in the Fire and Rescue, they operate in extreme conditions and exposed to risks from explosive gas, combustible dusts, or chemical vapors. In the dangerous environments, safe, reliable, and high-efficient communication is paramount.

The HP79XEx IIA intrinsically safe DMR portable two-way radio leverages Hytera's 20 years of experience and expertise in explosion protection to take personal safety and mission-critical communications to a new level for the workers in oil and gas, mining, chemical, pharmaceuticals, and other industries with hazardous environments.

Certified with IECEx/ATEX, the HP79XEx IIA is the safest radio to maintain communication when personal are faced with hazardous working environments, without causing a fire or explosion. HP79XEx IIA has IS circuit, long-lasting explosion-proof battery, superior audio, extended radio coverage, and advanced ergonomics for easy operation.





### Fire and Rescue

When firefighters make efforts to protect lives and properties in a place full of smoke, dust, and even toxic or explosive gases, the HP79XEx IIA provides safe and effective communications for them.



### Oil and Gas

In dangerous environments with flammable liquid and explosive gas, the HP79XEx IIA provides safe & stable communication for operators to ensure their safety.



### Mining

When miners work in complex coal mines with various explosive gases and combustible dust, such as methane, the HP79XEx IIA is available to provide personal with safe communications.



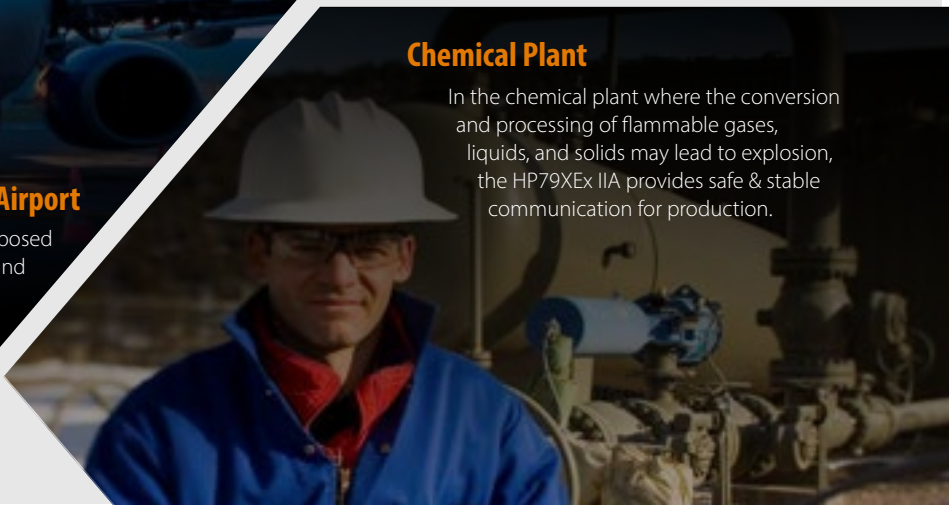
### Manufacturing

In pharmaceutical processing, steel plant, food processing, and more industries where the chances of massive dust explosions are high, the HP79XEx IIA with a higher IS level can keep the workers safe by reliable communications.



### Airport

In the airport with complex facilities that are exposed to fuels, the HP79XEx IIA offers all ground staff and on-site fire crew with instant and efficient communications



### Chemical Plant

In the chemical plant where the conversion and processing of flammable gases, liquids, and solids may lead to explosion, the HP79XEx IIA provides safe & stable communication for production.



## ULTIMATE SAFETY

The HP79XEx IIA intrinsically safe radio is certified to standards listed by IECEx. It has been developed to provide safe and reliable communication in hazardous environments by adopting the new materials, brand-new structural design and innovative IS circuit. With optimized RF solution and pioneering audio solution, it extends communication range and provides better audio. Moreover, the HP79XEx IIA prepares for the unexpected before it really happens, thanks to lone worker, man down, and precise positioning.

### IECEx

Ex ib I Mb  
Ex ib IIA T4 Gb  
Ex ib IIIC T120°C Db  
IP66/IP67/IP68, -25°C ≤ Ta ≤ +50°C

### ATEX

I M2 Ex ib I Mb  
II 2G Ex ib IIA T4 Gb  
II 2D Ex ib IIIC T120°C Db  
IP66/IP67/IP68, -25°C ≤ Ta ≤ +50°C

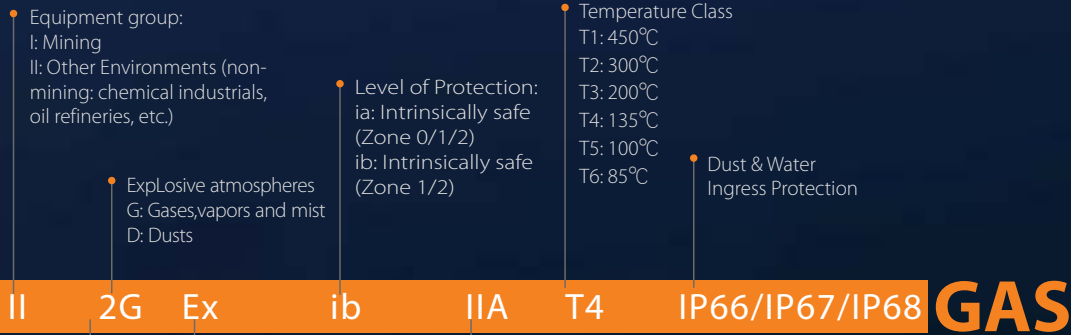
### US

Class I, Zone 1, AEx ib IIA T4 Gb  
Zone 21, AEx ib IIIC T120°C Db  
IP66/IP67/IP68, -25°C ≤ Ta ≤ +50°C

### CA

Ex ib IIA T4 Gb  
Ex ib IIIC T120°C Db  
IP66/IP67/IP68, -25°C ≤ Ta ≤ +50°C

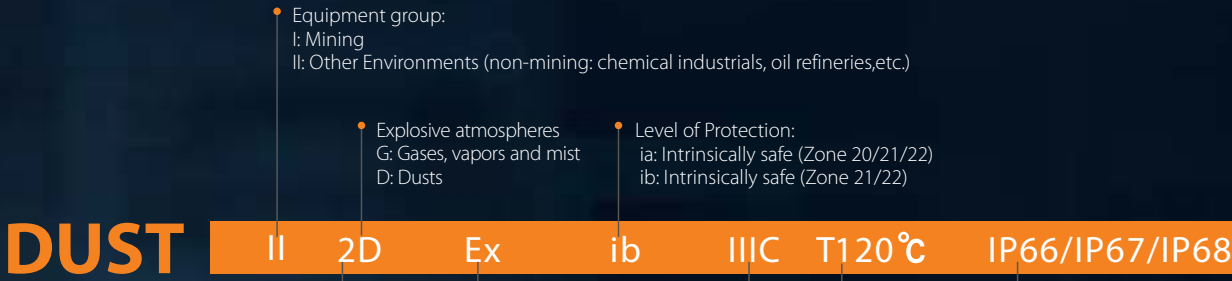




Explosion-proof Standard:  
EU ATEX directive  
and IECEx standards

Gas Group:  
I: Methane (Mining)  
IIA: Propane  
IIB: Ethylene  
IIC: Acetylene, hydrogen  
(Hazard Level: IIC>IIB>IIA)

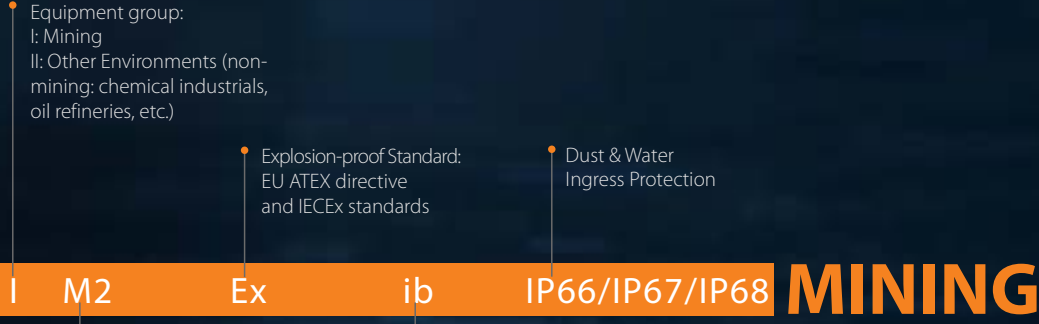
Classification for hazardous places  
1: Very high level (zone 0 or zone 20)  
2: High level (zone 1 or zone 21)  
3: Normal level (zone 2 or zone 22)  
Zone 0: present continuously  
Zone 1: present intermittently  
Zone 2: present abnormally



Explosion-proof Standard:  
EU ATEX directive  
and IECEx standards

Dust Group:  
IIIA: combustible flyings  
IIIB: non-conductive dust  
IIIC: conductive dust

Classification for hazardous places  
1: Very high level (zone 0 or zone 20)  
2: High level (zone 1 or zone 21)  
3: Normal level (zone 2 or zone 22)  
Zone 0: present continuously  
Zone 1: present intermittently  
Zone 2: present abnormally



M1: Equipment must continue to operate in a potentially explosive environment.  
M2: Equipment does not operate in a potentially explosive environment. (Hazard Level: M1>M2)

Level of Protection:  
ia: Intrinsically safe (Category M1/M2)  
ib: Intrinsically safe (Category M2)



## Built for Safety



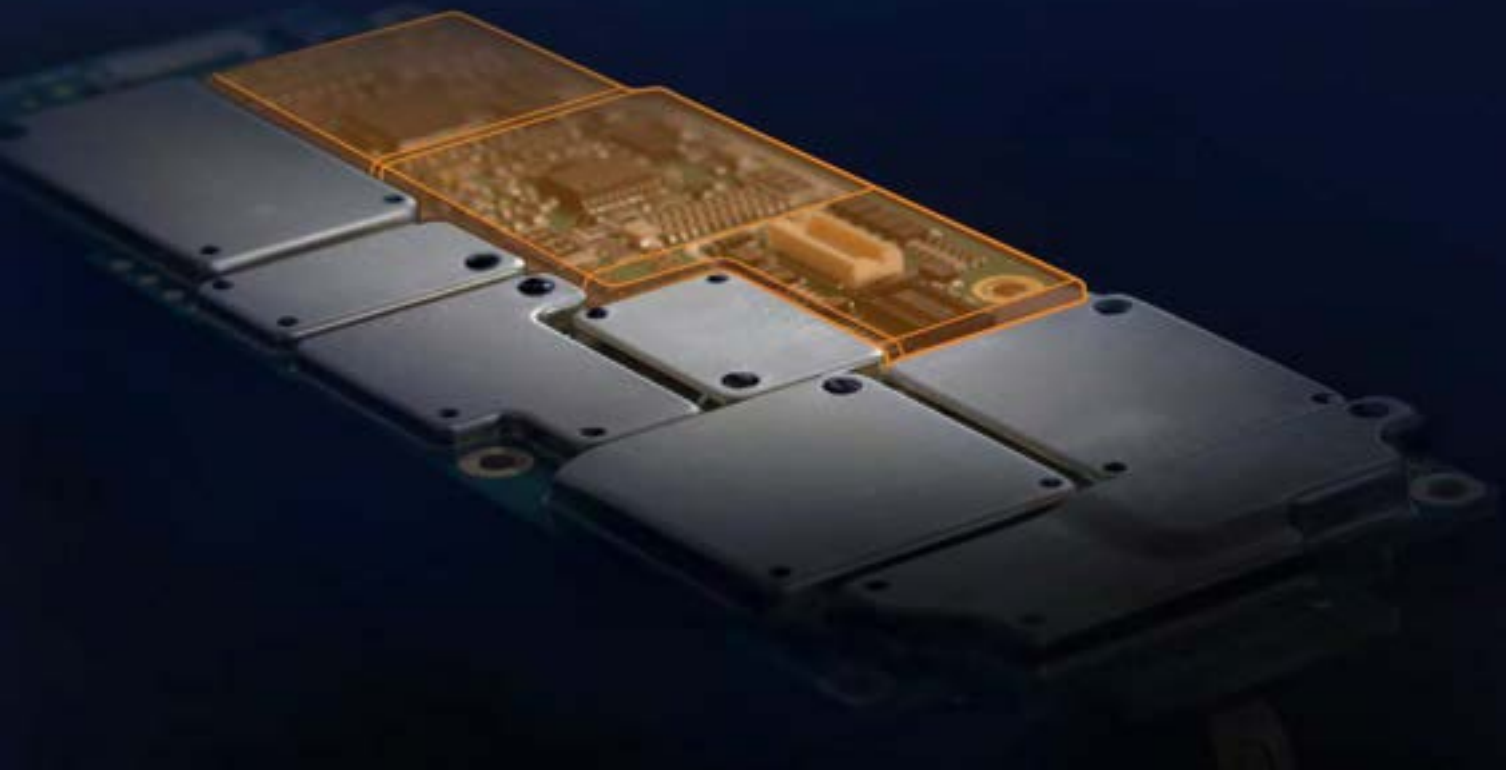
### Wider range of operation temperature (in Ex area)

Thanks to new explosion-proof materials and advanced mechanical design, the HP79XEx IIA is built to work under temperatures from  $-25^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  in explosion-prone areas. With stable and even heat dissipation, the HP79XEx IIA is engineered to work in the extreme conditions, bringing extra safety and efficiency to everyday work.



### More powerful intrinsically safe circuit

The HP79XEx IIA adopts innovative silicone encapsulation technology to prevent liquid, inflammable dust, or explosive gas from intruding internal circuits. With multiple circuit protection mechanisms, the HP79XEx IIA strictly limits the electrical circuit's energy to a non-ignitable level during operation. Meanwhile, the circuit contributes to 5W(VHF) TX power and 2-watt audio power, extending the communications distance and boosting the audio loudness.



### **Rugged Intrinsically safe Battery.**

The IS battery is secured to the radio by battery protection plate and an anti-falling battery latch. Even if the HP79XEx IIA is dropped by accident, the battery will never become detached to avoid potential sparks in hazardous circumstances. In addition, the HP79XEx IIA prohibits the user to use a non original "IS" battery which alerts the user when it identifies a non-original battery has been detected with prompts on screen and flashing red LED indicator, as the safety of life and property cannot be endangered by any risks.

### **Latest anti-static technology**

Electrostatic discharges are a source of ignition in explosive risk areas. Taking this in mind, the HP79XEx IIA first adopts high-strength, explosion-proof materials to prevent static electricity on the surface. Then the HP79XEx IIA uses a dual-material technology to resist the build-up of static electricity. So the workers can freely use the HP79XEx IIA removing the threat to lives and properties from the potential risk of spontaneous combustion or explosion.





## Reliable to Use



## Rugged and Certified

The HP79XEx IIA is certificated with IP6X and MIL-STD-810H after a whole list of reliability tests such as accelerated life testing, impact test for the radio with 2.4-inch screen, and drop test. It is rugged enough to withstand dust, shock, or sudden drop. The workers can use the radio Where-ever they encounter harsh environments.



## Dual antimagnetic mechanism

In the area containing metallic compounds, the HP79XEx IIA resists magnetic metal dust and shavings from the environments to damage the speaker — maintaining outstanding audio clarity and longer service life. All lies in the dual antimagnetic mechanism.





## Built for Individuals safety



### Lone worker

Provides Lone Worker Protection and reassurance for those who work alone especially in dangerous environments, such as oil pipeline worker. If the HP79XEx IIA senses that the worker does not make any operation within a preset time, due to a worker becoming incapacitated and unable to move, this radio will automatically alarm and reports the location to the companion or control center for a welfare check.



### Man down

Operative Down is ideal for emergency situation. If the worker has fallen and as a result has become unconscious or not able to move, the HP79XEx IIA automatically detects a sudden tilt towards the ground, and alarms and reports the location to the companion or control center for a welfare check, this is vital to identifying dangers and preventing the loss of life.



### Precise positioning

With the built-in positioning module, the HP79XEx IIA supports the flexible combination of GNSS, BDS, GLONASS and Galileo satellite systems. Also, the HP79XEx IIA enhances positioning accuracy down to one meter, thanks to the dual-frequency positioning technology. Such reliable and accurate location information helps locate the individual that may need assistance during an emergency event.





## HIGH EFFICIENCY COMMUNICATIONS

The HP79XEx IIA takes critical communications to a new level, with the efforts of Hytera Audio Lab, RF & Antenna Lab, Energy-efficient Lab, and UX Design Lab\*. The HP79XEx IIA keeps the workers always connected, from superior audio quality to extended radio range. The HP79XEx IIA performs longer thanks to the longlasting battery. Moreover, the HP79XEx IIA facilitates the usage and management in terms of versatile connectivity and easy-to-use design.

\* Hytera Professional Lab.



## Superior Audio Quality

### Improved Speaker performance

Most explosion-prone environments are noisy, this radio provides clear and loud audio is the key to ensure effective communication among team members. The HP79XEx IIA, with a lighter and slimmer body, has a 2W speaker to deliver louder audio to improve team collaboration and work efficiency.

## Ultra Clarity

With cutting-edge audio processing technology adopted, the HP79XEx IIA delivers crisp, clear audio even in complex environments, ensuring clearer audio for Mission-critical and business-critical communications.

### AI-based noise cancellation

The HP79XEx IIA adopts the most advanced AI-based noise cancellation algorithm and gets machine learning behavior. After learning and training thousands of noise samples, the HP79XEx IIA can quickly separate the human voice from the noise, allowing the workers to receive clear commands.

### Water-porting design

The speaker has a unique water-porting design that can automatically expel water from the speaker's acoustic cavity quickly. Even in heavy downpours, the HP79XEx IIA will still deliver clear audio.

### Automatic gain control

Automatic gain control (AGC) automatically increases or decreases microphone gain to ensure consistently loud and clear audio output, regardless of how softly or loudly the workers are talking into the microphone.

### Feedback suppression

Using the innovative feedback suppression algorithm, the HP79XEx IIA eliminates a feedback sound when two radios are too close, even 30 cm away from each other.





## Longer lasting Battery

The standard 2150 mAh battery, together with the cutting-edge low power consumption technology, can outlast the shift. The workers can check the remaining battery and battery health on the radio and extend the battery life using the smart charger.



## Extended Radio Range

Thanks to the new-designed powerful IS circuits and RF optimization solution, HP79XEx IIA features 5W(VHF) transmitting power and industry-leading receiving sensitivity (0.16μV), providing more smooth communications even at a distance or in the edge area, further enhancing personal safety and work efficiency.



## Versatile Connectivity



### Bluetooth 5.3

The HP79XEx IIA can connect to wireless IS accessories\* Fast and stable, without the hassle of wires and cables. Moreover, the HP79XEx IIA can run the BT-based applications developed by the third party that covers more scenarios.



### Wireless Lan

The HP79XEx IIA facilitates remote management through the WiFi, such as programming, upgrading\*, and log management\*. It is a smarter way to manage radios in batch without getting them back and forth between the field and the office, greatly reducing operational expenses.



### NFC

The HP79XEx IIA can be easily recognized and managed via NFC tag as per actual requirements.

\* Not provided by Hytera.  
The radio adapts the third-party wireless IS accessories.

\* Coming soon.

# Easy to Use

## About 390g (with standard battery and antenna)

- Comfortable for prolonged usage

## 2.4-inch LCD screen

- Intuitive to operate and a clear display

## Textured housing on the back

- Never slip down from your fingers



## Large LED indicator

- Easy to get the radio status

## Vibration pattern

- Never miss any call and message



## U-shaped Slot

- Quick to attach and release the belt clip



## User-friendly UI

- 9-grid menu
- Conversational SMS interface
- Pop-up notification on home screen

## Purpose-built knob and keys

- Volume/channel selector knob
- Enlarged emergency key
- Three programmable keys
- Tactile and textured keys
- Four navigation keys



# At a Glance



# SPECIFICATIONS

| General                         |   |
|---------------------------------|---|
| Frequency Range                 | 400-480MHz 136-174MHz                                 |
| Channel Capacity                | 1024  |
| Zone Capacity                   | 64  |
| Channel Spacing                 | 12.5kHz/20kHz/25kHz                                   |
| Operating Voltage               | 7.4V (rated)  |
| Battery                         | 2,150 mAh IIC intrinsically safe Li battery (Typical) |
| Battery Life (5/5/90)           | 22h (GNSS OFF)<br>19h (GNSS ON)                       |
| Frequency Stability             | ±0.5ppm   |
| Antenna Impedance               | 50Ω   |
| Dimensions (H x W x D)          | 130 x 55 x 37mm                                       |
| Weight (with antenna & battery) | about 390g  |
| Display                         | 2.4 inch LCD, 320 x240 pixel, 262000 colors           |
| Connectivity                    | BT 5.3 BLE+EDR/WiFi 2.4G/NFC: ISO/IEC 15693           |

| Receiver                     |  |
|------------------------------|--|
| Sensitivity                  | Analog: 0.16uV(12dB SINAD)<br>0.14uV(Typical)(12dB SINAD)<br>Digital: 0.16uV/BER5% |
| Adjacent Channel Selectivity | TIA-603: 60dB@12.5kHz; 70dB@20/25kHz<br>ETSI: 60dB@12.5kHz; 70dB@20/25kHz          |
| Intermodulation              | TIA-603: 70dB@12.5/20/25kHz<br>ETSI: 65dB@12.5/20/25kHz                            |
| Spurious Response Rejection  | TIA-603: 70dB@12.5/20/25kHz<br>ETSI: 70dB@12.5/20/25kHz                            |
| Blocking                     | TIA-603: 80dB ETSI: 84dB   |
| Hum and 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             | UHF: 4W/1W; VHF: 5W/1W  |
| FM Modulation               | 11K0F3E@12.5kHz<br>14K0F3E@20kHz<br>16K0F3E@25kHz             |
| 4FSK Digital Modulation     | 12.5kHz Data Only: 7K60FXD<br>12.5kHz Data and 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 to -3dB  |
| Audio Distortion            | ≤3%   |
| Digital Vocoder Type        | AMBE+2™   |
| Digital Protoca             | ETSI TS102 361-1, -2, -3, -4                                  |

| Environmental          |  |
|------------------------|--|
| Operating Temperature  | -30°C to +60°C (in non-hazardous area)<br>-25°C to +50°C (in hazardous area) |
| Storage Temperature    | -40°C~ +85°C   |
| ESD                    | IEC 61000-4-2 (Level 4)<br>±8kV (contact);<br>±15kV (air)                    |
| Dustproof & Waterproof | IP64/IP65/IP66/IP67/IP68 per IEC-60079-0:2017 & IEC-60529                    |
| Humidity               | MIL-STD-810H   |
| Shock and Vibration    | MIL-STD-810H   |

| Location Services                  |   |
|------------------------------------|---|
| GNSS                               | BDS, GLONASS, Galileo   |
| TTFF(Time To First Fix) Cold Start | <35 seconds   |
| TTFF(Time To First Fix) Hot Start  | <1 second   |
| Horizontal Accuracy                | 1 m (dual-frequency GNSS, 95% probable,<br>-130 dBm, ≥ 22 operational satellites) |

Accuracy specs are for long-term tracking (95th percentile values>5 satellites visible at a nominal -130dBm signal strength)

# Standard Accessories



Battery (Standard Capacity)



Charger



Power Adapter



Antenna



Belt Clip



Strap

# Optional Accessories



Remote speaker Microphone



Earpiece



Carry Case



Intrinsically Safe Hamlet Heavy Duty Noise-cancelling Headset kit



Intrinsically Safe and Adjustable Earset



Intrinsically Safe Large PTT



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