Hytera

BORN FOR SAFETY

Intrinsically Safe DMR Portable Two-way Radio

HP71XEx IIA

DMR DIGITAL MOBILE RADIO ASSOCIATION IECEx Ex FM C US APPROVED



www.hytera.ca



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

The HP71XEx 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 HP71XEx IIA is the safest radio to keep the workers connected in hazardous environments without causing a fire or explosion. HP71XEx IIA has IS circuit, long-lasting explosion-proof battery, superior audio, extended radio coverage, and advanced ergonomics for easy operation.



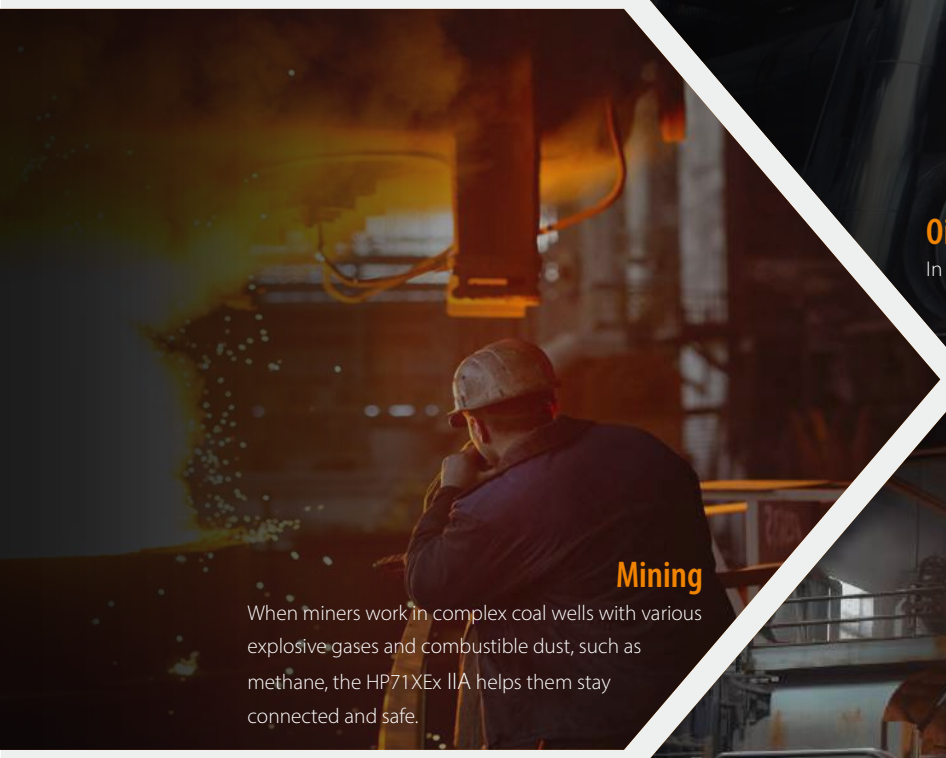
Fire and Rescue

When firefighters make efforts to protect lives and properties in a place full of smoke, dust, and even toxic gas, the HP71XEx IIA provides safe and effective communications for them.



Oil and Gas

In dangerous environments with flammable liquid and explosive gas, the HP71XEx IIA ensures stable communications for operators to ensure their safety.



Mining

When miners work in complex coal wells with various explosive gases and combustible dust, such as methane, the HP71XEx IIA helps them stay connected and safe.



Manufacturing

In pharmaceutical processing, steel plant, food processing, and more industries where the chances of massive dust explosions are high, the HP71XEx 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 HP71XEx IIA offers the 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 HP71XEx IIA ensures stable communications for safe production

ULTIMATE SAFETY

The HP71XEx 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 HP71XEx 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



GAS

II 2G Ex ib IIA T4 IP66/IP67/IP68

- II — Equipment group:
  I: Mining
  II: Other Environments (non-mining: chemical industrials, oil refineries, etc.)
- 2G — ExpLosive atmospheres
  G: Gases,vapors and mist
  D: Dusts
- Ex — Explosion-proof Standard:
  EU ATEX directive
  and IECEx standards
- ib — Level of Protection:
  ia: Intrinsically safe (Zone 0/1/2)
  ib: Intrinsically safe (Zone 1/2)
- IIA — Gas GRoup:
  I: Methane (Mining)
  IIA: Propane
  IIB: Ethylene
  IIC: Acetylene, hydrogen
  (Hazard Level: IIC>IIB>IIA)
- T4 — Temperature Class
  T1: 450℃
  T2: 300℃
  T3: 200℃
  T4: 135℃
  T5: 100℃
  T6: 85℃
- IP66/IP67/IP68 — Dust & Water Ingress Protection
- 2G — 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

DUST

II 2D Ex ib IIIC T120°C IP66/IP67/IP68

- II — Equipment group:
  I: Mining
  II: Other Environments (non-mining: chemical industrials, oil refineries,etc.)
- 2D — Explosive atmospheres
  G: Gases, vapors and mist
  D: Dusts
- ib — Level of Protection:
  ia: Intrinsically safe (Zone 20/21/22)
  ib: Intrinsically safe (Zone 21/22)
- Ex — Explosion-proof Standard:
  EU ATEX directive
  and IECEx standards
- IIIC — Dust Group:
  IIIA: combustible flyings
  IIIB: non-conductive dust
  IIIC: conductive dust
- T120°C — Temperature Class
- IP66/IP67/IP68 — Dust & Water Ingress Protection
- 2D — 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

MINING

I M2 Ex ib IP66/IP67/IP68

- I — Equipment group:
  I: Mining
  II: Other Environments (non-mining: chemical industrials, oil refineries, etc.)
- Ex — Explosion-proof Standard:
  EU ATEX directive
  and IECEx standards
- IP66/IP67/IP68 — Dust & Water Ingress Protection
- M2 — 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)
- ib — Level of Protection:
  ia: Intrinsically safe (Category M1/M2)
  ib: Intrinsically safe (Category M2)

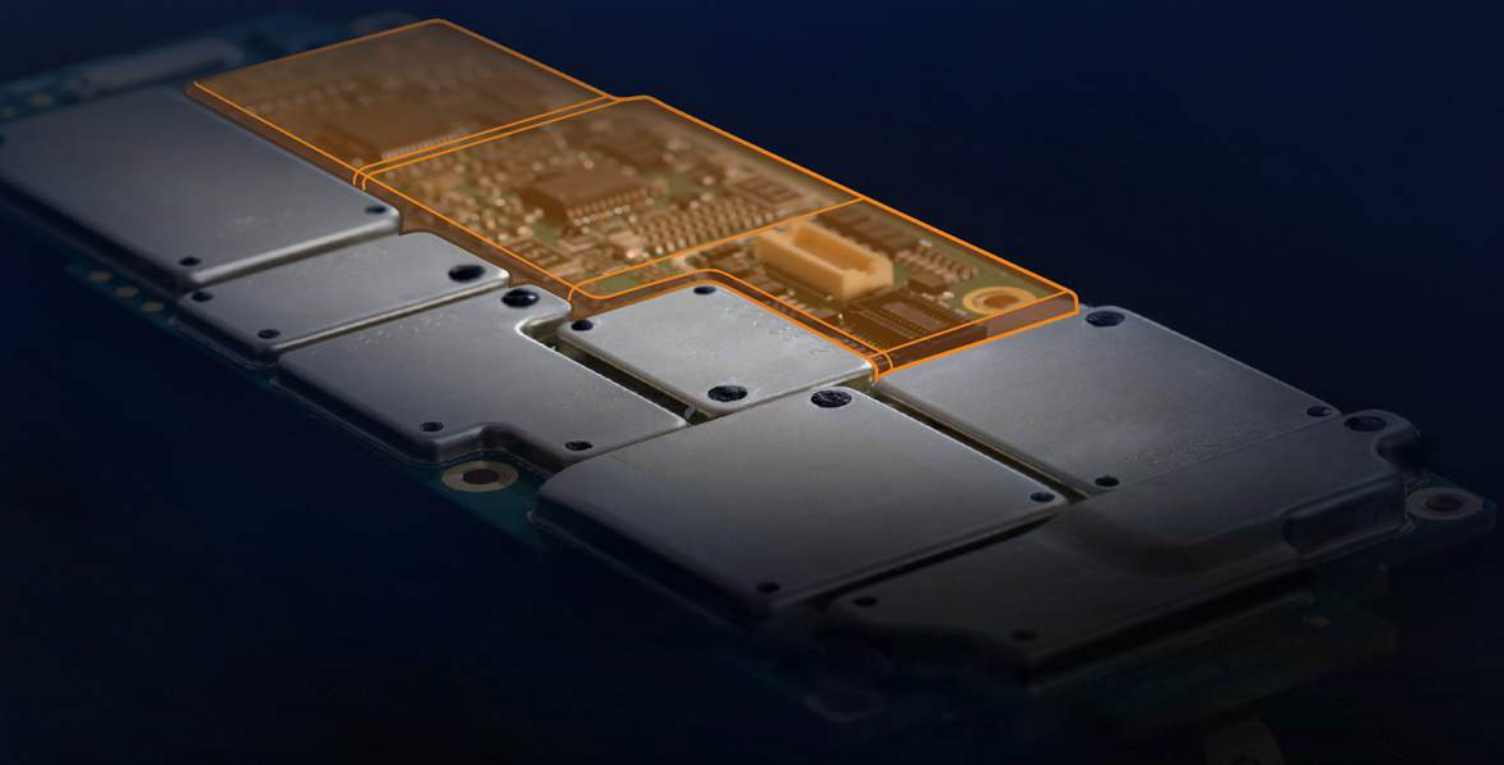
Born for Safety

Wider range of operation temperature (in Ex area)

Thanks to new explosion-proof materials and advanced mechanical design, the HP71XEx IIA is built to work under temperatures from –25°C to 60°C in explosion-prone areas. With stable and even heat dissipation, the HP71XEx IIA is engineered to work in the extreme conditions, bringing extra safety and efficiency to everyday work.

More powerful intrinsically safe circuit

The HP71XEx IIA adopts innovative silicone encapsulation technology to prevent liquid, inflammable dust, or explosive gas from intruding internal circuits. With multiple circuit protection mechanisms, the HP71XEx IIA strictly limits the electrical circuit's energy to a non-ignitable level during operation. Meanwhile, the circuit contributes to 2W TX power and 2-watt audio power, extending the communications distance and boosting the audio loudness.



More rock-solid IS battery

The IS battery is secured to the radio by battery protection plate and an anti-falling battery latch. Even if the HP71XEx IIA is dropped by accident, the battery will never become detached to avoid potential sparks in hazardous circumstances. In addition, the HP71XEx IIA is forbidden to be used with non-original battery with prompt on screen and flashing red LED indicator, as the safety of life and property cannot be endangered by any risks.

More professional anti-static technology

Electrostatic discharges are a source of ignition in explosive risk areas. Taking this in mind, the HP71XEx IIA first adopts high-strength, explosion-proof materials to prevent static electricity on the surface. Then the HP71XEx IIA uses a dual-material technology to resist the build-up of static electricity. So the workers can freely use the HP79XEx IIA without worrying the threats to lives and properties from the brisk fire or massive explosion.



Reliable to Use

Rugged-tested trust

The HP71XEx 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 whatever harsh environments they encounter.

Dual antimagnetic mechanism

In the area containing metallic compounds, the HP71XEx IIA resists magnetic metal dust and shavings from the environments to damage the speaker — ensuring more outstanding audio and longer service life. All lies in the dual antimagnetic mechanism.



Built for Personnel Safety

Lone worker

Lone Worker provides protection and reassurance for those who work alone especially in dangerous environments, such as oil pipeline walker. If the HP71XEx IIA senses that the worker does not make any operation within a preset time, this radio will automatically alarm and report the location to the companion or control center for help.

Man down

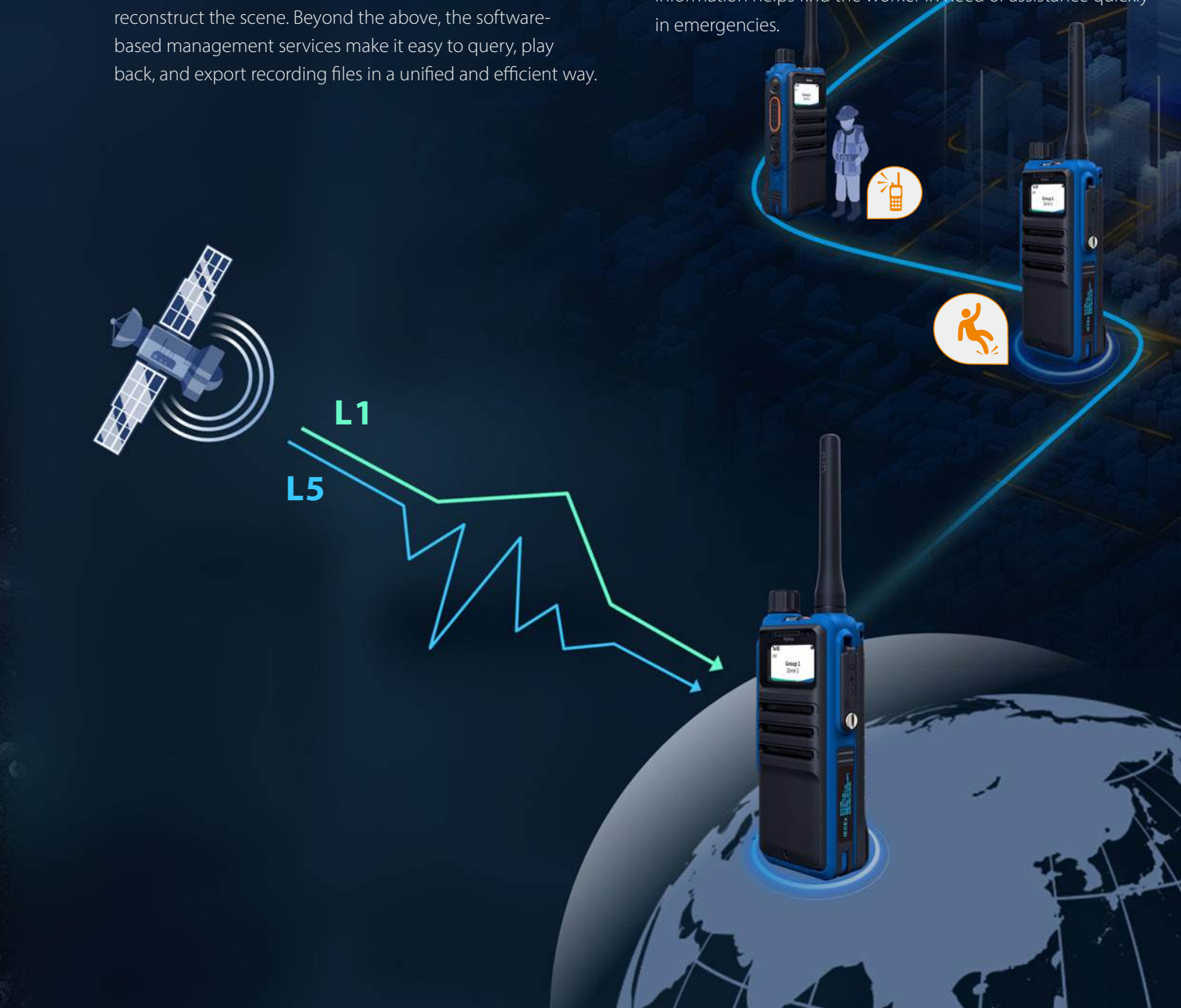
Man Down is ideal for emergency situation. If the worker has fallen or is unconscious, or is unable to move, the HP71XEx IIA automatically detects a sudden tilt towards the ground, and alarms and reports the location to the companion or control center for help. This is vital to prevent loss of life and dangers.

Voice calls, encrypted and recorded

HP71XEx IIA gives a perfect solution to protect the privacy and integrity of voice communications — TF card or GOB board. So the radio can encrypt critical voice to safeguard your conversation against eavesdropping during voice calls, bringing ultimate peace of mind. And the radio can record calls in real time, helping trace back history calls to reconstruct the scene. Beyond the above, the software-based management services make it easy to query, play back, and export recording files in a unified and efficient way.

Precise positioning

With the built-in positioning module, the HP71XEx IIA supports the flexible combination of GPS, BDS, GLONASS and Galileo satellite systems. Also, the HP71XEx IIA enhances positioning accuracy down to one meter, thanks to the dual-frequency positioning technology. Such reliable and accurate location information helps find the worker in need of assistance quickly in emergencies.





HIGH EFFICIENCY COMMUNICATIONS

The HP71XEx 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 HP71XEx IIA keeps the workers always connected, from superior audio quality to extended radio range. The HP79XEx IIA is always in uptime thanks to the long-lasting battery. Moreover, the HP71XEx IIA facilitates the usage and management in terms of versatile connectivity and easy-to-use design.

* Hytera Professional Lab.

Superior Audio Quality

Super loudness

Most explosion-prone environments are noisy, thus how to provide clear and loud audio is the key to ensure effective communication among team members. The HP71XEx 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 HP71XEx IIA delivers crisp, clear audio even in complex environments, ensuring more reliable mission-critical and business-critical communications.

AI-based noise cancellation

The HP71XEx IIA adopts the most advanced AI-based noise cancellation algorithm and gets machine learning behavior. After learning and training thousands of noise samples, the HP71XEx IIA can quickly separate the human voice from the noise, making the workers get the right commands from the first word.

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.

Water-porting design

The speaker has a unique water-porting design that can automatically expel water from the speaker's acoustic cavity fast. Even in heavy downpours, the HP71XEx IIA can still deliver clear audio.

Howling suppression

Using the innovative howling suppression algorithm, the HP71XEx IIA eliminates a screeching feedback sound when two radios are too close, even 30 cm away from each other.



Long-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, HP71XEx IIA features 2W 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

BT

BT 5.3

The HP71XEx IIA can connect to wireless IS accessories* more quickly and stably, without the hassle of wires and cables. Moreover, the HP79XEx IIC can run the BT-based applications developed by the third party to meet more scenarios.

WLAN

WLAN

The HP71XEx IIA facilitates remote management through the WLAN, 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.

* Coming soon.

NFC

NFC

The HP71XEx 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.

Easy to Use



About 390g (with standard battery and antenna)

- Comfortable for long-time grip

1.47-inch LCD screen

- Intuitive to operate the radio or view the info

Textured housing on the back

- Never slip down from your fingers

U-shaped groove

- Quick to attach and release the belt clip

Large LED indicator

- Easy to get the radio status

Vibration pattern

- Never miss any call and message

User-friendly UI

- Channel and User Group Visual Selection
- Status information clear at a glance

Purpose-built knob and keys

- Volume/channel selector knob
- Enlarged emergency key
- Three programmable keys

At a Glance


LED Indicator
Channel/Volume Knob
Microphone
1.47-Inch Display
Speaker
Battery Lock
Accessory Connector
Belt Clip Groove
Emergency Button
Strap Hole
Programmable Key
PTT Key
Programmable Keys
NFC Tag
Li-ion Battery
Group 1
Zone 1

SPECIFICATIONS

General	
Frequency Range	UHF: 400-480MHz 350-400MHz 330-400MHz; VHF: 136-174MHz
Channel Capacity	1024
Zone Capacity	64
Channel Spacing	12.5kHz/20kHz/25kHz
Operating Voltage	7.4V (rated)
Battery	2150 mAh IIC intrinsically safe Li battery (Typical)
Battery Life (5/5/90)	22h (GNSS OFF) 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	1.47 inch LCD, 172*320 pixel, 262000 colors
Connectivity	BT 5.3/WLAN 2.4G/NFC: ISO/IEC 15693
Receiver	
Sensitivity	Analog: 0.16μV(12dB SINAD) 0.14μV(Typical)(12dB SINAD)
	Digital: 0.16μV/BER5%
Adjacent Channel Selectivity	TIA-603: 60dB@12.5kHz; 70dB@20/25kHz ETSI: 60dB@12.5kHz; 70dB@20/25kHz
Intermodulation	TIA-603: 70dB@12.5/20/25kHz ETSI: 65dB@12.5/20/25kHz
Spurious Response Rejection	TIA-603: 70dB@12.5/20/25kHz 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 14K0F3E@20kHz 16K0F3E@25kHz
4FSK Digital Modulation	12.5kHz Data Only: 7K60FXD 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 Protocal	ETSI-TS102 361-1, -2, -3
Environmental	
Operating Temperature	–30°C to +60°C (in non-hazardous area) –25°C to +60°C (in hazardous area)
Storage Temperature	-40°C~ +85°C
ESD	IEC 61000-4-2 (Level 4) ±8kV (contact); ±15kV (air)
Dustproof & Waterproof	IP64/IP65/IP66/IP67/IP68 (2m, 4h) per IEC-60079-0:2017 & IEC-60529
Humidity	MIL-STD-810H
Shock and Vibration	MIL-STD-810H
Location Services	
GNSS	GPS, 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, -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

Hytera

Respond & Achieve

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