

# BORN FOR SAFETY

## PT890Ex

Intrinsically Safe TETRA Portable Radio



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 PT890Ex intrinsically safe TETRA portable 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 environment.

Certified with IECEx/ATEX, the PT890Ex is the safest radio to keep the workers connected in hazardous environments without causing a fire or explosion. PT890Ex 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 PT890Ex provides safe and effective communications for them.



### Oil and Gas

In dangerous environments with flammable liquid and explosive gas, the PT890Ex 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 PT890Ex 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 PT890Ex 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 PT890Ex 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 PT890Ex ensures stable communications for safe production.



## ULTIMATE SAFETY

The PT890Ex 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 PT890Ex prepares for the unexpected before it really happens, thanks to lone worker, man down, and precise positioning.

### IECEX

Ex ib I Mb  
Ex ib IIC T4 Gb  
Ex ib IIIC T90°C Db  
IP66/IP67/IP68, -25°C≤Ta≤+60°C

### ATEX

I M2 Ex ib I Mb  
II 2G Ex ib IIC T4 Gb  
II 2D Ex ib IIIC T90°C Db  
IP66/IP67/IP68, -25°C≤Ta≤+60°C

### US

Class I, Zone 1, AEx ib IIC T4 Gb  
Zone 21, AEx ib IIIC T90°C Db  
IP66/IP67/IP68, -25°C≤Ta≤+60°C

### CA

Ex ib IIC T4 Gb  
Ex ib IIIC T90°C Db  
IP66/IP67/IP68, -25°C≤Ta≤+60°C



Equipment group:  
I: Mining  
II: Other environments (non-mining: chemical industrials, oil refineries, etc.)

Explosive atmospheres  
G: Gases, vapors and mist  
D: Dusts

Level of protection:  
ia: Intrinsically safe (zone 0/1/2)  
ib: Intrinsically safe (zone 1/2)

Temperature class  
T1: 450°C  
T2: 300°C  
T3: 200°C  
T4: 135°C  
T5: 100°C  
T6: 85°C

Dust & Water  
Ingress protection

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

**GAS**

Explosion-proof standard:  
EU ATEX directive  
and IECEx standards

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

Gas group:  
I: Methane (mining)  
IIA: Propane  
IIB: Ethylene  
IIC: Acetylene, hydrogen  
(hazard level: IIC > IIB > IIA)

**DUST**

Equipment group:  
I: Mining  
II: Other environments (non-mining: chemical industrials, oil refineries, etc.)

Explosive atmospheres  
G: Gases, vapors and mist  
D: Dusts

Level of protection:  
ia: Intrinsically safe (zone 20/21/22)  
ib: Intrinsically safe (zone 21/22)

II 2D Ex ib IIIC T90°C IP66/IP67/IP68

Explosion-proof standard:  
EU ATEX directive  
and IECEx standards

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 group:  
IIIA: combustible flyings  
IIIB: non-conductive dust  
IIIC: conductive dust

Temperature  
class

Dust & Water  
Ingress protection

Equipment group:  
I: Mining  
II: Other environments (non-mining: chemical industrials, oil refineries, etc.)

Explosion-proof standard:  
EU ATEX directive  
and IECEx standards

Dust & Water  
Ingress protection

I M2 Ex ib IP66/IP67/IP68

**MINING**

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)



## Born for Safety



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

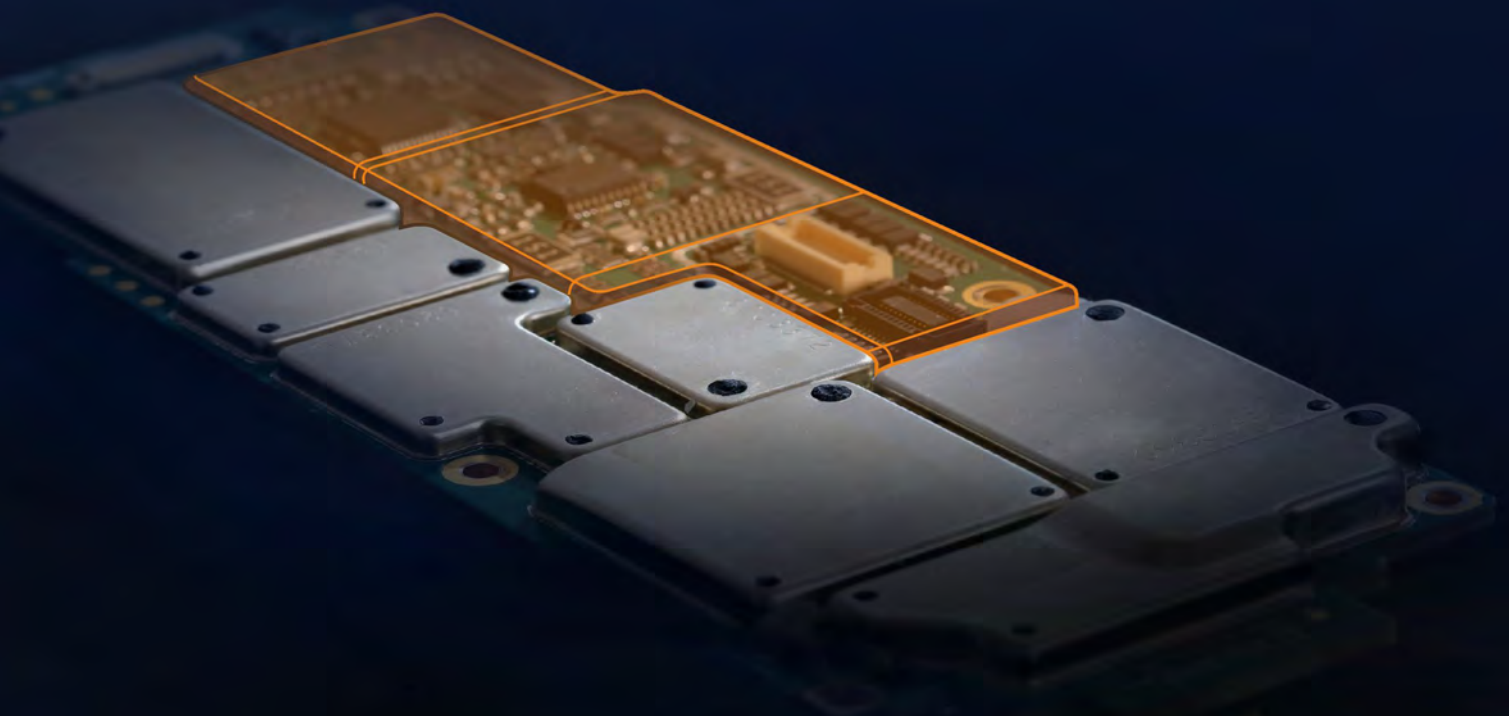
Thanks to new explosion-proof materials and advanced mechanical design, the PT890Ex is built to work under the temperature from  $-25^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ \* in explosion-prone areas. With stable and even heat dissipation, the PT890Ex is engineered to work in the extreme conditions, bringing extra safety and efficiency to everyday work.

\*Performance may be degraded at extreme temperatures.  
ATEX/CEEx certification only valid when operated within  $-25^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ .



### More powerful intrinsically safe circuit

The PT890Ex adopts the innovative silicone encapsulation technology to prevent liquid, inflammable dust, or explosive gas from intruding internal circuits. With multiple circuit protection mechanisms, the PT890Ex strictly limits the amount of energy in the electrical circuit to a non-ignitable level during operation.



### More rock-solid IS battery

The IS battery is secured to the radio by a novel battery protection plate and an anti-falling battery latch. Even if the PT890Ex is dropped by accident, the battery will never become detached to avoid potential sparks in hazardous circumstances. In addition, the PT890Ex 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 PT890Ex first adopts high-strength, explosion-proof materials to prevent static electricity on the surface. Then the PT890Ex uses a dual-material technology to resist the build-up of static electricity. So the workers can freely use the PT890Ex without worrying the threats to lives and properties from the brisk fire or massive explosion.





## Reliable to Use



### Dual antimagnetic mechanism

In the area containing metallic compounds, the PT890Ex 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.



### Rugged-tested trust

The PT890Ex 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.





## 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 PT890Ex 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 PT890Ex 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.



### Precise positioning

With the built-in positioning module, the PT890Ex supports the flexible combination of GPS, BDS, GLONASS and Galileo satellite systems. Also, the PT890Ex enhances positioning accuracy down to 1 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 PT890Ex takes the critical communications to a new level, with the efforts of Hytera Audio Lab, RF & Antenna Lab, Energy-efficient Lab, and UX Design Lab\*. The PT890Ex keeps the workers always connected, from superior audio quality to extended radio range. The PT890Ex is always in uptime thanks to the long-lasting battery. Moreover, the PT890Ex 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 PT890Ex, 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 PT890Ex delivers crisp, clear audio even in complex environments, ensuring more reliable and business-critical communications.

### AI-based noise cancellation

The PT890Ex adopts the most advanced AI-based noise cancellation algorithm and gets machine learning behavior. After learning and training thousands of noise samples, the PT890Ex can quickly separate the human voice from the noise, making the workers get the right commands from the first word.

### Water-porting design

The speaker has a unique water-porting design, which can automatically expel water from the speaker acoustic cavity fast. Even in heavy downpours, the PT890Ex can 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.

### Howling suppression

Using the innovative howling suppression algorithm, the PT890Ex eliminates a screeching feedback sound when two radios are too close, even 30 cm away from each other.





## Extended Radio Range

Thanks to the new-designed powerful IS circuits and RF optimization solution, PT890Ex features Class 3L transmitting power and industry-leading receiving sensitivity (-120 dBm), providing more smooth communications even at a distance or in the edge area, further enhancing personal safety and work efficiency.



## 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.



## Versatile Connectivity



### BT 5.3

The PT890Ex can connect to wireless IS accessories\* more quickly and stably, without the hassle of wires and cables. Moreover, the PT890Ex can run the BT-based applications developed by the third party to meet more scenarios.



### WLAN

The PT890Ex 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.



### NFC

The PT890Ex can be easily recognized and managed via NFC tag as per actual requirements.

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

\* Coming soon.

# Easy to Use

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

- Comfortable for long-time carry

## 2.4-inch LCD screen

- Intuitive to operate the radio or view the info

## 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 groove

- 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



Parameter	Description	
General	Frequency Range	320-380 MHz; 380-475 MHz; 806-825 MHz,851-870MHz
	Dimensions (H x W x D)	130 mm x 55 mm x 37 mm
	Weight	About 390 g (with standard battery and antenna)
	Battery	2,150mAh IIC intrinsically safe Li battery(Typical)
	Operating Voltage	7.4V DC
	Operating Time	TMO(5-5-90): 26H; DMO(5-5-90): 20H
Audio	Output Power	1.5 W (rated), 2 W (max.)
User Interface	Display	2.4 inches,320x240 pixels
	Talkgroup	TMO: 12000 DMO: 6000
	Talkgroup Folder	TMO: 200 DMO: 50
	Phone Book	2,000
	Inbox	≤550 entries
	Outbox	
	Draft	
Status Message	200	
RF	Channel Bandwidth	25 kHz
	Power Class	Class 3L (max)
	Power Level Accuracy	± 2 dB
	Power Control	5 dB per step
	Receiver Class	ETSI EN 392-2/396-2 Class A and Class B
	RX Static Sensitivity	≤-118 dBm (typical: -120 dBm) (for 380-475 MHz) ≤-117 dBm (typical: -119 dBm) (for 806-870 MHz)
	RX Dynamic Sensitivity	≤-108 dBm (typical: -110 dBm) (for 380-475 MHz) ≤-107 dBm (typical: -109 dBm) (for 806-870 MHz)
Location	Satellite System	GPS, BDS, GLONASS, Galileo
	Sensitivity	Acquisition ≤ -149 dBm
		Tracking ≤ -165 dBm
	Accuracy	1 m (dual-frequency GNSS, 95% probable, -130 dBm, ≥ 22 operational satellites)
	Cold Start (Time to First Fix)	<35 seconds
	Hot Start (Time to First Fix)	<1 second
Environment	Operating Temperature	-30°C to +60°C (in non-hazardous area) -25°C to +60°C (in hazardous area)
	Storage Temperature	-40°C to +85°C
	Humidity	95%
	Waterproof and Dustproof	IP64/IP65/IP66/IP67/IP68 per IEC-60079-0:2017 & IEC-60529
	Vibration, Drop and Shock	MIL-STD-810H GJB150A
Connectivity	WLAN	2.4 GHz
	BT	BT 5.3
	NFC	ISO/IEC 15693

## 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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