

Hytera 

TETRA RADIO EVOLVED

PT590 Ready for Mission
Simple to Use



www.hytera-europe.com

In critical moments, every second counts. Your personnel in the field rely on effective voice communications to connect and collaborate instantly and easily, ensuring their safety and efficiency. The PT590 Mission Critical TETRA Portable Radio ensures your personnel are always prepared for the next moment.

The PT590 Mission Critical TETRA Portable Radio inherits all the functionalities from Hytera's first-generation TETRA radio and adds numerous new features. With innovative audio technology, best-in-class RF performance, and dual-frequency GNSS, PT590 offers superior voice quality, wider communication coverage, and more accurate positioning, ensuring mission-critical communications at all times.

PT590 also ensures incredible ease of use for your workers in the field thanks to its ergonomic design, professional USB Type-C port, remote radio management capability, interoperability with accessories, and voice control.

The **PT590Adv is the Advanced Hardware Version**, featuring several innovative functions (*) to enhance your communication experience.





In a crowded street, busy port, or factory in full swing, the PT590 keeps your personnel connected with loud and clear audio to ensure perfect collaboration.

MISSION READY



SUPERIOR AUDIO QUALITY

Increased Volume Super Loudness

106 phons
Loudness

To ensure your personnel can hear and be heard clearly in highly noisy environments, the PT590 is equipped with a powerful speaker featuring an innovative acoustic cavity design and large acoustic apertures, delivering 106 phons of audio loudness.

Ultra Clarity

30 dB **20 ms**
Noise Cancellation Fast Separation

The PT590 utilizes the most advanced AI-based noise cancellation algorithm, incorporating machine learning capabilities. After training on thousands of noise samples, this radio achieves an exceptional noise elimination effect of up to 30 dB in both steady and complex noisy environments.

Designed to ensure your personnel receive clear commands from the first word spoken, the PT590 with AI can separate human voice from noise within just 20 milliseconds.

High Adjustment

30 cm
Feedback Suppression

When officers or workers engage in team activities, they often need to communicate on the move. The PT590 employs advanced feedback suppression technology to effectively eliminate feedback when two radios are in close proximity. Even when two radios are just 30 cm apart, there is no annoying screeching feedback.



STAY CONNECTED

Extended Radio Range

3 W

Continuous Transmission

-120 dBm

Receiving Sensitivity

The PT590 is a reliable companion for your personnel in the field. With sustained and stable Class 3 (3W) transmitting power and industry-leading receiving sensitivity (-120 dBm), it ensures stable communications without losing any information, even at a distance or in edge areas. Your personnel will benefit from improved transmission power capabilities and enhanced reception.

Enhanced Signal Correction Capability

Anti-multipath

Algorithm

Utilizing an anti-multipath interference algorithm, the PT590 ensures smooth and stable voice transmission and reception, even in complex metallic environments like ports and chemical plants.



SECURED COMMUNICATION

Air Interface Encryption (AIE)

1/2/3

Class

Designed for mission-critical communications, the PT590 supports all levels of AIE including Class 1, Class 2, and Class 3 secure signaling, voice, and data transferred between the radio and the base station.

End-to-End Encryption (E2EE)

TETRA

Standard*

Hytera

Private

SIM Card

Customized*

Using end-to-end encryption algorithms, the TETRA radio supports 128-bit AES or 256-bit AES encryption keys to secure voice and data in situations with stringent communication security requirements.

The PT590 supports TETRA E2EE in compliance with the TCCA SFPG standard, ensuring encrypted voice and data communication between different radios and manufacturers that adhere to the standard. Additionally, the PT590 supports customized encryption and communication with all other TETRA products in the Hytera portfolio. For special customer needs, it also provides a hard encryption interface for the SIM card, allowing for customized encryption function development.





Positioning is crucial for personal safety, especially in emergency situations. The PT590 ultra-high precision positioning helps the command center or teammate find workers as soon as possible and handle emergencies in a safer and more efficient manner.



ACCURATE POSITIONING

4

GNSS

7

Frequencies

1 m

Location Accuracy



LONG-LASTING PARTNER

22 h

Battery Life

Type-C

Fast Charging



RUGGED FOR THE REAL WORLD

IP68

2m, 4h

-30°C

Low Temperature

Positioning and location sharing can improve response times and increase safety. The PT590 unprecedentedly applies dual-frequency positioning technology. By receiving and processing satellite signals in two frequency bands at the same time, it effectively compensates and corrects the signal distortion that occurs after the satellite signal passes through the atmosphere. As a result, the PT590 positioning accuracy is improved to an industry-leading level – within 1 meter.

The 2,000 mAh Li-polymer battery, together with the innovative low power consumption technology, can last up to 22 hours on the 5-5-90 duty cycle.

In addition to the traditional charging contacts, the PT590 has an extra USB Type-C port which allows the radio to be charged with mains power or even the power bank anywhere and anytime. The 18 W fast charging can fully charge the PT590 in only 1.5 hours. Even just a 30-minute quick charge can give the PT590 at least 10 hours power for unexpected long shift.

Combining purpose-built design and stringent testing, the durable PT590 can withstand the elements of field work in the real world. It meets the harshest test standard MIL-STD-810 H to survive 1.5-meter drops. With the optional low-temperature battery, it operates in extreme temperatures ranging from -30°C to 70°C. The PT590 is rated IP65, IP66, IP67, and IP68 (2m, 4h).

The PT590 is equipped with an anti-magnetic speaker which prevents the accumulation of magnetic metal dust, and can effectively stabilize the communication quality.





EASY TO USE



LIGHT FOR ALL-DAY COMFORT

285 g
Weight

31 mm
Depth

Delightfully light and surprisingly slim, this radio weighs just 285 grams and is 31 mm in depth. It is easy to carry all day long and comfortable to operate with one hand. The anti-slip case, made of plastic and liquid silicone rubber, allows the PT590 to be securely held in wet environments.

Moreover, the keys are re-engineered for better user experience. The large, textured PTT button and the independent four navigation keys are more finger-friendly. The three programmable buttons can be optionally set for quick access to frequently used features with a single press.



PROFESSIONAL USB TYPE-C PORT

One-fits-all
Function

Reliability
Nanostructure Coating

The PT590 is the first TETRA radio outfitted with a USB Type-C port. Besides the charging function, this USB Type-C port also provides programming and upgrading functions.

This unique design brings you unprecedented convenience, especially when no programming cable is available. To ensure the reliability of this port, advanced nanostructure coating technology is used to protect the internal structure from corrosion and oxidation, ensuring a stable connection after repeated use.





VIEW MORE, DO MORE

2.4-inch
Colour Screen

9-grid
Menu

Conversational
SMS Interface

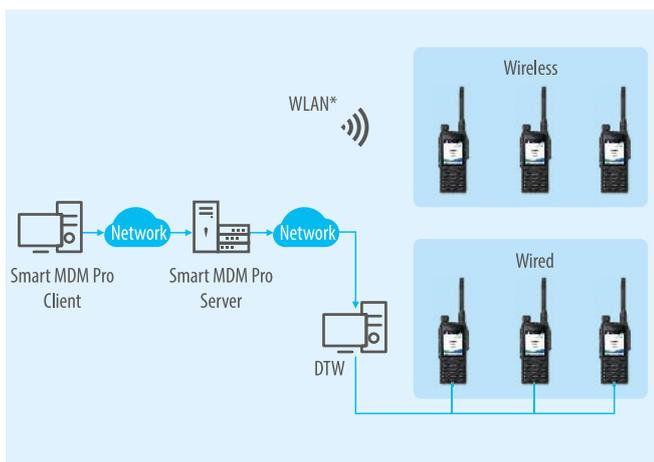
The 2.4-inch LCD screen of the PT590 is semi-transparent and semi-reflective, ensuring clear readability in direct sunlight and reducing eye strain. The PT590 abandons the traditional list-style menu in favor of a new, user-friendly interface design. The 9-grid menu provides fast and simple visual access, allowing your personnel to quickly access functions. The shallow menu structure reduces the number of menu levels and operation steps, ensuring quick and accurate access to settings. Moreover, the conversational short message interface allows your personnel to view all historical messages at once, improving efficiency.



MINIMIZE DOWNTIME, MAXIMIZE EFFICIENCY

45%
Faster in Programming

With Hytera Smart MDM software and wireless connectivity, the PT590 with the WLAN feature activated can be remotely programmed or upgraded anywhere and anytime. There's no need to spend time and effort collecting the terminal, as the PT590 stays with your personnel, ensuring uninterrupted operations in the field. The Smart MDM also offers high-efficiency capabilities such as batch programming, log diagnosis, and device management, helping to reduce costs and complexity in management and maintenance.



CONTROL YOUR RADIO BY VOICE*

Wake-up
by Voice

>100
Voice Commands in English

In an emergency or critical moment, your personnel may need to initiate a call but are unable to reach the terminal or have their hands occupied. Is it still possible for them to make a call successfully? With the PT590, the answer is yes. Your personnel can control and operate the PT590 using voice commands.

We introduced the voice command function in the PT590 for the first time. This function supports group calls, changing talk groups, and activating Bluetooth and GNSS. When it is impossible to make a call by hand, the PT590's voice command provides extra reassurance for information transfer. In life-threatening situations where personnel are pinned down, trapped, or have fallen, they can call out commands to the PT590 terminal, ensuring their calls for assistance are still heard.



SPECIFICATIONS

General	
Frequency Range	Fv: 380-475 MHz
Dimensions (H x W x D)	125 x 55 x 31 mm
Weight (with battery and antenna)	285 g
Battery	2000 mAh
Battery Life (on the 5-5-90 duty cycle)	>22 h
Operating Voltage	7.7 V
User Interface	
LCD Color Display	2.4 inch, 320*240 pixels
Talk group-TMO	12000
Talk group-DMO	6000
Phone Book	2000
Inbox	
Outbox	≤550 entries
Drafts	
Talk group Folders-TMO	200
Talk group Folders-DMO	50
Status Messages	200
RF	
RF Channel Bandwidth	25 kHz
RF Power Output	3 W
RF Power Level Accuracy	± 2 dB
RF Power Control	5 dB per step
Receiver Class	ETSI EN 392-2/396-2 Class A and Class B
RX Static Sensitivity	-118 dBm (Min); -120 dBm (Typical)
RX Dynamic Sensitivity	-108 dBm (Min); -110 dBm (Typical)
Audio	
Audio Power Output	2 W (Peak 3 W)
Max Loudness	100 Phons (Standard Profile) & 106 Phons (Outdoor Profile)
Location Services	
Constellations	GPS: L1/L5 BeiDou: B1I/B2a GLONASS: L1 Galileo: E1/E5a
Tracking Sensitivity	≤-165 dBm
Acquisition Sensitivity	≤-149 dBm
Accuracy	<1.0 m (95% Probable, -130 dBm)
Cold Start (Time to First Fix)	<35 seconds
Hot Start (Time to First Fix)	<1 second
Environment	
Operating Temperature	-20°C to + 60°C
Storage Temperature	-30°C to + 70°C (Performance Limited)
Water and Dust Protection	IP65, IP66, IP67, IP68 (2 m, 4 h)
Drop, Shock & Vibration	MIL-STD-810 H EN300 019-1-7 5M3 GJB150A
Connectivity	
Bluetooth Version	BT 5.2
NFC Tag Type	ISO/IEC 15693
USB Type-C Port	USB2.0

STANDARD ACCESSORIES



Smart Battery



Antenna



Belt Clip



Strap



Smart Charger



Power Adapter

VERSION

	Standard	Advanced*
3W TX Power	Y	Y
USB Type-C Port	Y	Y
BT 5.2	Y	Y
GNSS	Y	Y
Dual-frequency Positioning	Y	Y
Voice Command	-	Y
WLAN	-	Y
SIM Card E2EE	Optional	Optional

* For future release

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