



PD79XIS

Intrinsically Safe Digital Portable Two-Way Radio

- Most Completely Certified DMR IS Radio
- ATEX/IECEX/FM/CSA/CQST IIC Certificated
- Designed for Hazardous Working Environments



IECEX



Whether on an oil rig, in a coal-mine, gas station or any other potentially explosive environments, safe and reliable communications are on top of everything. Hytera deeply understands the challenges for users in hazardous and harsh environments.

In order to meet these increasing requirements of intrinsically safe and reliable communications, Hytera brings you PD79XIS, the ia explosion-proof DMR radio.



PD79XIS

DESIGNED FOR THE MISSION

Hytera PD79XIS Intrinsically Safe Digital Portable Two-Way Radio
Designed to comply with the highest grade "ia"

PD79XIS works in the places which contain various long-standing explosive mixed gases, even coal mine methane. Such places include but not limited to coal mine, gas stations, oil platforms, chemical plants, flour mills, airport and other inflammable or explosive conditions.



Oil & Gas



Mining



Fire & Rescue



Airport



Chemical Plant

The working environment of the oil & gas industries often contains flammable and explosive gas and liquid, which makes the workers at risk. Therefore, reliable and high explosion-proof radio is required.

Mining industry environment is very complex. It always contains various long-standing explosive gases and dusts. Especially the methane in coal mine makes the environment very hazardous. Therefore, good and safe communications are in urgent need. Hytera PD79XIS ia explosion-proof radio can satisfy all your demands.

A fire accident produces smokes, dusts, and even explosive and toxic gases, which bring high risks for communications of fire rescue. Hytera ATEX radios can provide effective and safe communication services to the firefighters.

Airports are complex facilities where effective and reliable communications are of great importance. And there is a risk of explosion because of the potential exposure to fuel. Hytera ATEX radios are used in areas where workers and on-site fire crews are in close proximity to aviation fuel to keep them safe.

Flammable gases, liquids and solids are converted and processed in many different processes in the chemical industry. These processes may give rise to explosive mixtures.

ia M1

Intrinsic safety (IS) is a protection technique for safe operation of electrical equipment in hazardous areas by limiting the energy, electrical and thermal, available for ignition. "ia" is the strictest explosion-proof standard of intrinsic safety; it lets PD79XIS work in all hazardous and harsh places which contain various long-standing explosive mixed gases and dusts.



"ia" is the highest level of intrinsic safety, which means the circuit has three protective measures. An "ia" radio be used in zone 0/1/2 areas, allowing for the occurrence of two faults during operation.



Methane and mine powder is the main risk in coal mines. PD79XIS has the highest level of protection. It is unlikely to become an ignition source in normal operation. During expected malfunctions or during rare malfunctions, it provides safe instant communication services even in the presence of an outbreak of gas.



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

II 1G Ex ia IIC T3

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)

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)

DUST

II 1D Ex ia IIIC T160 IP5X

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 fiber
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.)

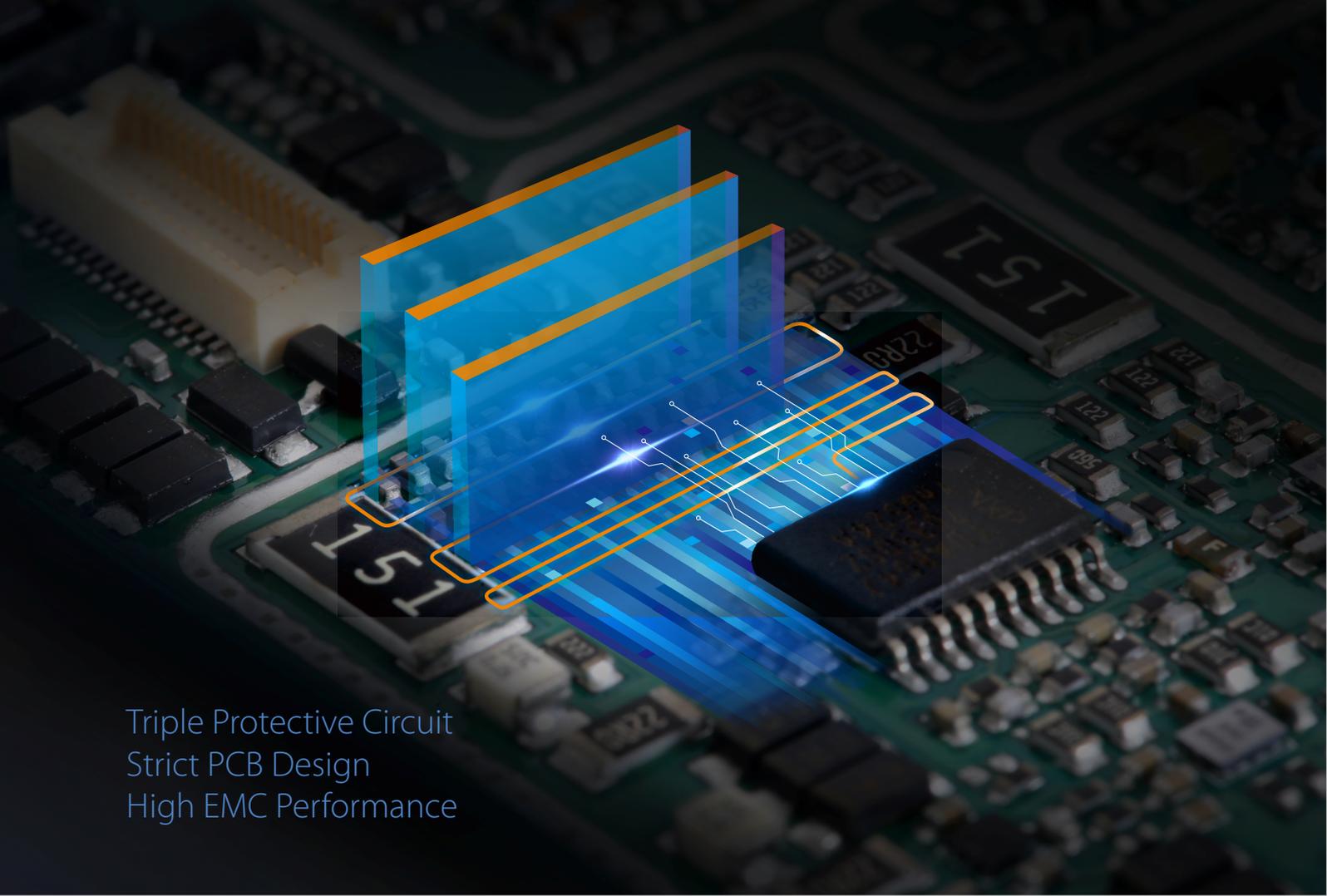
Explosion-proof Standard:
EU ATEX directive and IECEx standards

I M1 Ex ia

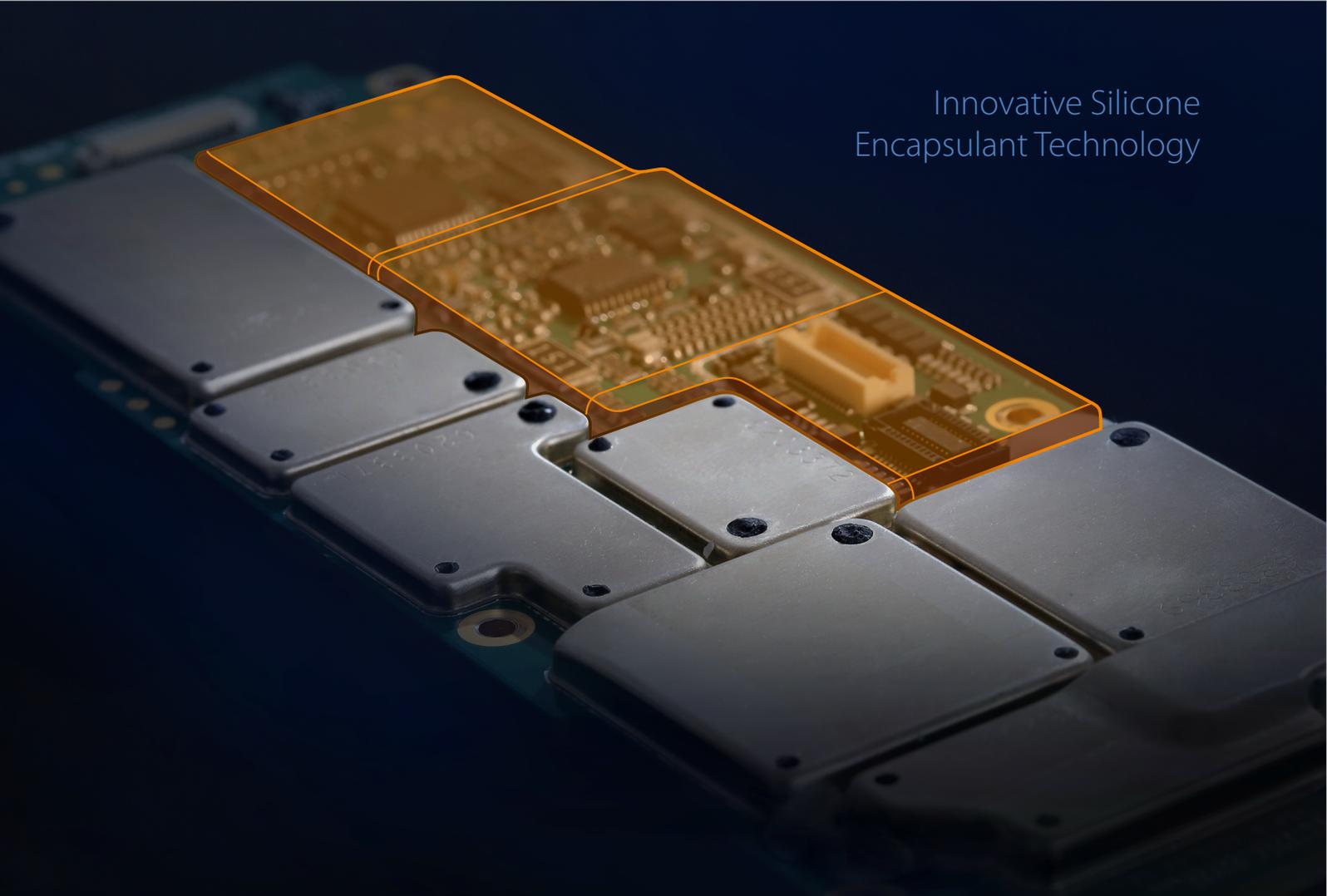
MINING

M1: Equipment must continue to operate when a potentially explosive atmosphere is present.
M2: Equipment does not operate when a potentially explosive atmosphere is present.
(Hazard Level: M1>M2)

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



Triple Protective Circuit
Strict PCB Design
High EMC Performance



Innovative Silicone
Encapsulant Technology

PD79XIS

Intrinsically Safe Digital Portable Two-Way Radio



WORK, PROTECT & ENABLE

GNSS Positioning

The built-in GNSS module supports GPS, GLONASS, and Beidou (*GLONASS and Beidou supported on R8.5).

Man Down

The radio automatically alerts other team members if it tilts over the specified gradient and is not placed upright within the time, or stays motionless within the specified gradient.



Lone Worker

The radio automatically triggers the emergency feature if there is no operation on the radio during the preset time.



Innovative Ergonomic Design

Separated by the antenna, channel knob and volume knob stand apart from each other. They are designed in different sizes to enhance the operation accuracy, which greatly reduces accidental operation with gloves or in dark environments. Compact and large textured keys provide an excellent tactile feeling.



Friendly User Interface

Hytera PD79XIS has a 1.8 inch and 65536 color LCD screen, which clearly displays under bright sunlight.

Up to 20 programmable keys are flexibly configurable for quick access through one-button operations.



Long Cycle Life

Hytera PD79XIS provides large capacity Li-ion battery, which can last more than 20 hours under 5-5-90 duty cycle. The overcharge and over-discharge design protects the battery against instability caused by overheating. In addition, the battery cells are also encapsulated to redistribute single point heat buildup and prevent air discharge as well.

Standard



Li-Ion Battery



Power Adapter



MCU Charger CH10A07



Belt Clip



Leather Strap



Antenna

WORK SAFER WORK, PROTECT & ENABLE WORK ANYWHERE & ANYTIME

WORK SAFER

ia Protection Classification

The radio with battery is designed to comply with the highest grade "ia". It can work in the places which contain various long-standing explosive mixed gases and dusts, and has passed ATEX, FM, and IECEx certification.

Innovative Silicone Encapsulation Technology

Silicone encapsulation technology prevents the internal circuits from interface with air and liquid, which effectively stops the intrusion of liquid, inflammable dust and explosive gas.

Innovative Antistatic Design

PD79XIS adopts antistatic materials and patent design to reduce electrostatic discharge.

Structure Design of Screw Internal Trapping

The screw of the belt clip is designed as internal trapping. It ensures no contact between the metal and the ground in case of drop, and avoids discharge.



Strict PCB Design and High EMC Performance

To achieve a higher explosion-proof safety level, Hytera PD79XIS adopts optimal PCB layout design. All the key components of PCB are covered with shield, which minimizes circuit fault and features better EMC performance.

Light Metal Design

PD79XIS shell is made of light metal to ensure no mechanical spark; it can effectively maximize the reliability in explosive environments.

Patented Battery Latch Design

To disengage the battery from the radio, you need to move the lock and bolt of the latch along two different axes. Such patented design locks the battery in case of dropping which might cause a spark.

Screen

The PD79XIS screen is made of tough and crack-proof material.

WORK ANYWHERE & ANYTIME

IOP

The radio can access to DMR network quickly and supports roaming for safe and efficient communication. It also provides powerful interoperability with base stations and radios of different manufacturers.

Rugged and Reliable

The radio complies with MILSTD-810G C/D/E/F/G and IP67 dust & water protection, which ensures the best performances even in the toughest conditions.



IOP



MIL-STD
810G
IP67

Skid-proof Design

The rear part and both sides of the radio are in skid-proof design to prevent dropping and ensure easy grab.

Patented Antenna Design

The radio has a globally patented industrial design with antenna in the middle. The antenna is short and build-in with GPS. Such omnidirectional antenna pattern ensures better coverage.



Optional



Intrinsically Safe
Remote Speaker
Microphone (Ip67)



Carrying Case
LCY009



Programming
Cable (USB Port)
PC38



Anti-explosion
adjustable earhook
earbulb EHN12-Ex



MCU 6-unit
charger MCA08



Dual pocket
MCU charger
CH10A06

SPECIFICATIONS

GENERAL	
Frequency Range	UHF: 1 400-470 MHz; VHF: 136-174 MHz
Channel Capacity	1024
Zone Capacity	64 (each with a maximum of 16 channels)
Channel Spacing	12.5 kHz / 20 kHz / 25 kHz
Operating Voltage	7.4V (rated)
Battery	1800 mAh (Li-Ion)
Battery Life (5-5-90 Duty Cycle, High TX Power) High-capacity 1800mAh Li-Ion Battery	Analog: about 14.5 H / 13 H (GPS) Digital: about 17 H / 15 H (GPS)
Frequency Stability	±1.5 ppm
Antenna Impedance	50Ω
Dimensions (HxWxD) (with standard battery, without antenna)	141 x 55 x 39 mm
Weight (with antenna & standard battery)	505 g
LCD display	160 x 128 pixels, 65536 color, 1.8-inch
Explosion-proof level	ATEX II 1G Ex ia IIC T3 II 1D Ex ia IIIC T160°C I M1 Ex ia I
	IECEX Ex ia IIC T3Ga Ex ia IIIC T160°C Ex ia I
	FM/CSA Class I, Division 1, Groups A, B, C, D; T3B Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T3C

ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature	-30°C to +60°C (non-hazardous environment) -20°C to +50°C (hazardous environment)
Storage Temperature	-40°C to +85°C
ESD	IEC 61000-4-2 (level 4) ±8 kV (contact) ±15 kV (air)
American Military Standard	MIL-STD-810 C/D/E/F/G (5 satellites visible at nominal -130dBm)
Dust & Water Protection	IP67 (non-explosion-proof)
Humidity	Per MIL-STD-810 C/D/E/F/G
Shock & Vibration	Per MIL-STD-810 C/D/E/F/G

GPS	
TTFF (Time To First Fix) Cold Start	< 1 minute
TTFF (Time To First Fix) Hot Start	< 10 seconds
Horizontal Accuracy (5 satellites visible at nominal -130dBm)	<5m (50% probable) <10m (95% probable)

Transmitter	
RF Power Output	UHF: 1/4W VHF: 1/5W
FM Modulation	11K0F3E @ 12.5 kHz 14K0F3E @ 20 kHz 16K0F3E @ 25 kHz
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXW
Conducted/Radiated Emission	-36 dBm≤1GHz -30 dBm>1GHz
Modulation Limiting	2.5kHz @ 12.5 kHz 4.0kHz @ 20 kHz 5.0kHz @ 25 kHz
FM Noise	40 dB @ 12.5 kHz 43 dB @ 20 kHz 45 dB @ 25 kHz
Adjacent Channel Power	60 dB @ 12.5 kHz; 70 dB @ 20/25 kHz
Audio Response	+1 to -3 dB
Audio Distortion	3%
Digital Vocoder Type	AMBE+2™ or SELP
Digital Protocol	ETSI-TS102 361-1,-2,-3

Receiver		
Sensitivity	Analog	0.3 μV (12 dB SINAD) 0.22 μV (typical) (12 dB SINAD) 0.4 μV (20 dB SINAD)
	Digital	0.3 μV /BER5%
Selectivity TIA-603 ETSI		60 dB @ 12.5 kHz/70 dB @ 20 & 25 kHz 60 dB @ 12.5 kHz/70 dB @ 20 & 25 kHz
Intermodulation TIA-603 ETSI		70 dB @ 12.5/20/25 kHz 65 dB @ 12.5/20/25 kHz
Spurious Response Rejection TIA-603 ETSI		70 dB @ 12.5/20/25 kHz 70 dB @ 12.5/20/25 kHz
Hum and Noise		40 dB @ 12.5 kHz 43 dB @ 20 kHz 45 dB @ 25 kHz
Rated Audio Power Output		0.5W
Rated Audio Distortion		≤ 3%
Audio Response		+1 to -3 dB
Conducted Spurious Emission		< -57dBm

All specifications are subject to change without notice due to continuous development.

**WORK
SAFER
PROTECT & ENABLE
ANYWHERE & ANYTIME**

Hytera
Respond & Achieve



For more information on PD79XIS series radios,
please visit www.hytera.com

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