WORK
SAFER
PROTECT & ENABLE
ANYWHERE & ANYTIME

Hytera
Respond & Achieve

For more information on the PT790 Ex Series TETRA radios, please visit **www. hytera. co.uk**

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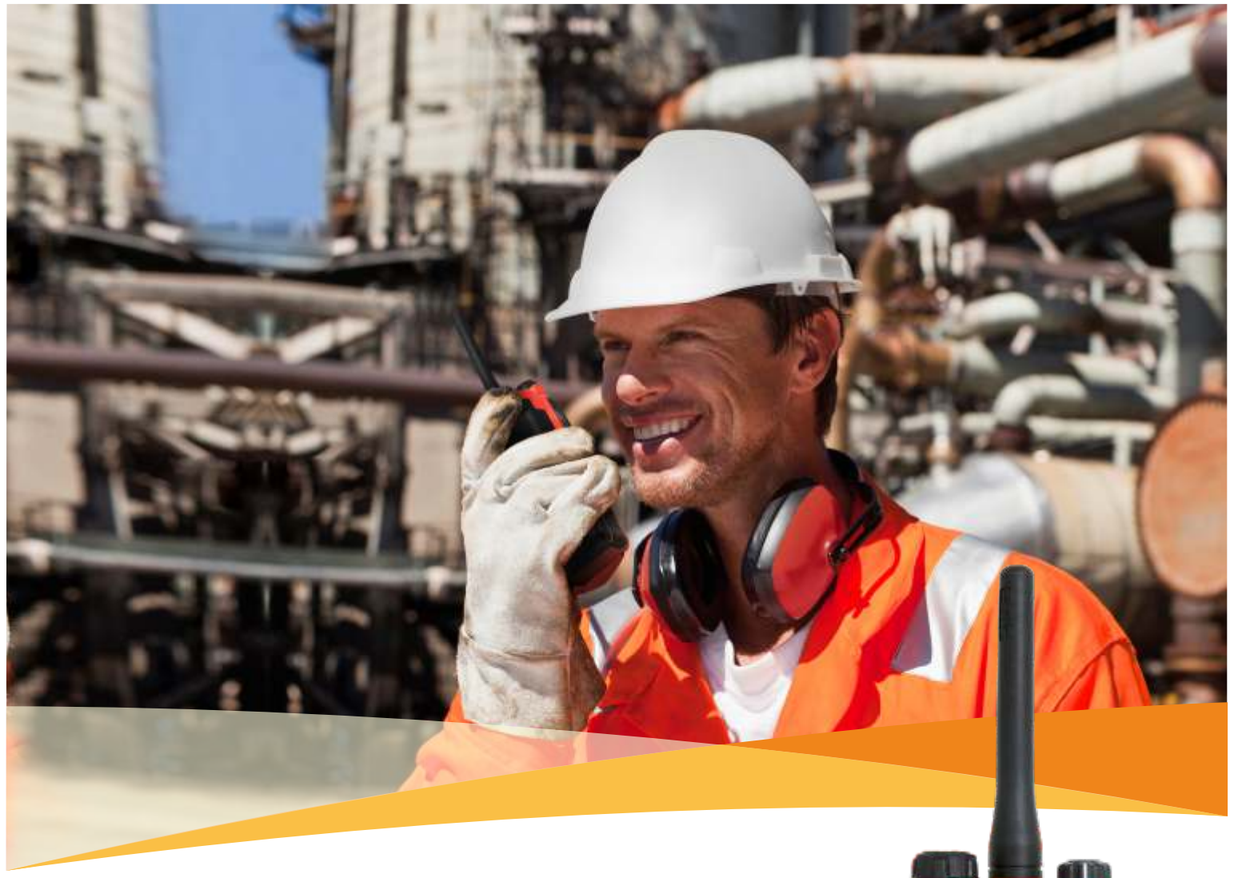
Hytera



PT790Ex

The World's First TETRA Intrinsically Safe Radio Of The Highest Explosion-proof Standard

TETRA Ex IECEx FM APPROVED C US

www.hytera.co.uk

PT790 Ex

TETRA INTRINSICALLY SAFE PORTABLE RADIO

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

In order to meet the increasing requirements for intrinsically safety and reliable communication, Hytera brings you PT790 Ex, the first ia explosion-proof TETRA radio in the world.

DESIGNED FOR THE CRITICAL MISSION

Hytera PT790Ex, TETRA Intrinsically Safe Portable, is designed to comply with the highest grade "ia."

PT790Ex works in places which contains a variety of explosive gas, even mine methane, for example, coal mine, gas stations, oil platforms, chemical plants, flour mills, airport and other inflammable or explosive conditions, etc.

Oil & Gas

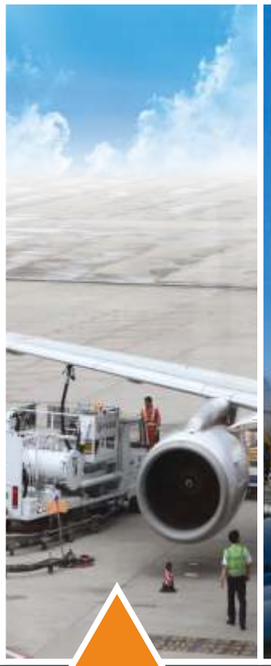
The working environment of the oil&gas industries often contains flammable and explosive gas and liquid, which puts the workers at a risk. Therefore, a safe, reliable and explosion-proof radio is necessary.

Mining

The working environment of mining industry is very complex, where there is always a variety of explosive gas and dust, especially methane in coal mine. The environment is very hazardous, therefore, good and safe communications is very necessary. Hytera PT790Ex ia explosion-proof radio can satisfy all your demands.

Fire & Rescue

The fire site often produces a lot of smoke, dust, even explosive and poisonous gas, which makes the communications during fire rescue a big risk. Hytera ATEX radios used here can provide effective and safe communications service to the firefighters .



Airport

Effective and reliable communications are important in airports with complex facilities. There is a risk of explosion in airports because of potential exposure to fuel. Obviously, Hytera ATEX radios can be used when workers and on-site fire crews are close to aviation fuel to keep them safe.

Chemical Plant

Flammable gas, liquid and solid is processed in many plants in the chemical industry. These processes may produce explosive mixtures.

ia M1

Intrinsic Safety (IS) is a protection technique for safe operation of electrical equipment in hazardous areas. It is realized by limiting the energy available for ignition. ia is the most strict explosion-proof standard of Intrinsic Safety, which allows PT790 Ex to work in various kinds of hazardous and harsh places, even those containing explosive mixed gas and dust.

In mining industry, methane and mine powder is the main risk. PT790Ex can achieve M1 protection level, which ensures security in mining environment.

ia

"ia" is the highest level of Intrinsic Safety, and "ia" level means the circuit has three protective measures. It can be used in zone 0/1/2 areas, and allows for two faults during operation.

M1

Methane and mine powder is the main risk in coal mines. PT790Ex has the highest level of protection. It is unlikely to become an ignition source in normal operation. Once malfunctions occur, and it can still provide you with safe and instant communications service even when gas explosion happens.

GAS

II 1G Ex ia IIC T4

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

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 1D Ex ia IIIC T120°C IP6X

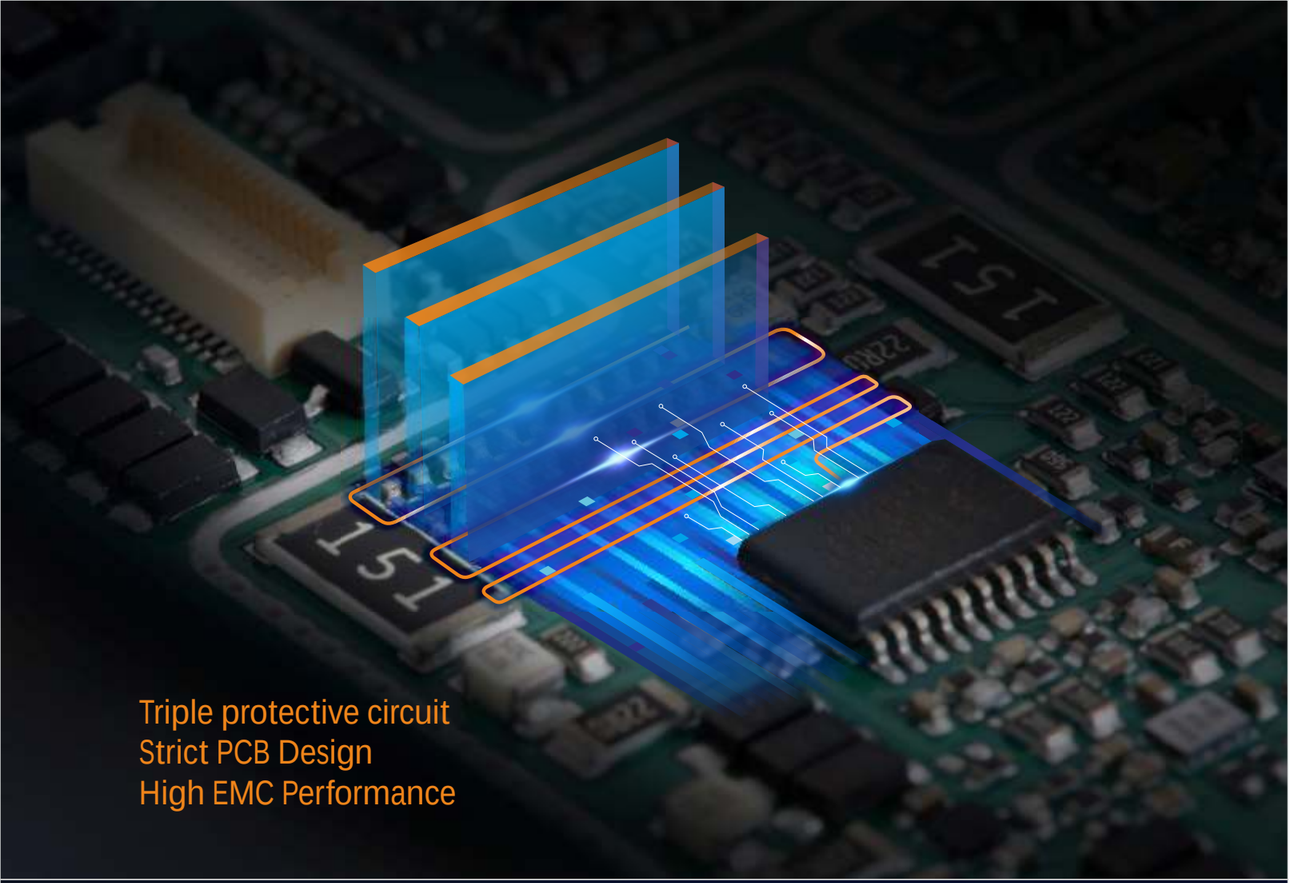
- II — Equipment group: I:Mining; II:Other Environments(non-mining: chemical industrials, oil refineries,etc.)
- 1D — Explosive atmospheres G:Gases,vapors and mist D:Dusts
- Ex — Explosion-proof Standard: EU ATEX directive and IECEx standards
- ia — Level of Protection: ia: Intrinsically safe(Zone 20/21/22); ib: Intrinsically safe(Zone 21/22)
- IIIC — Dust Group: IIIA: combustible flyings); IIIB: non-conductive dust; IIIC: conductive dust
- T120°C — Temperature Class
- IP6X — Dust & Water Ingress Protection

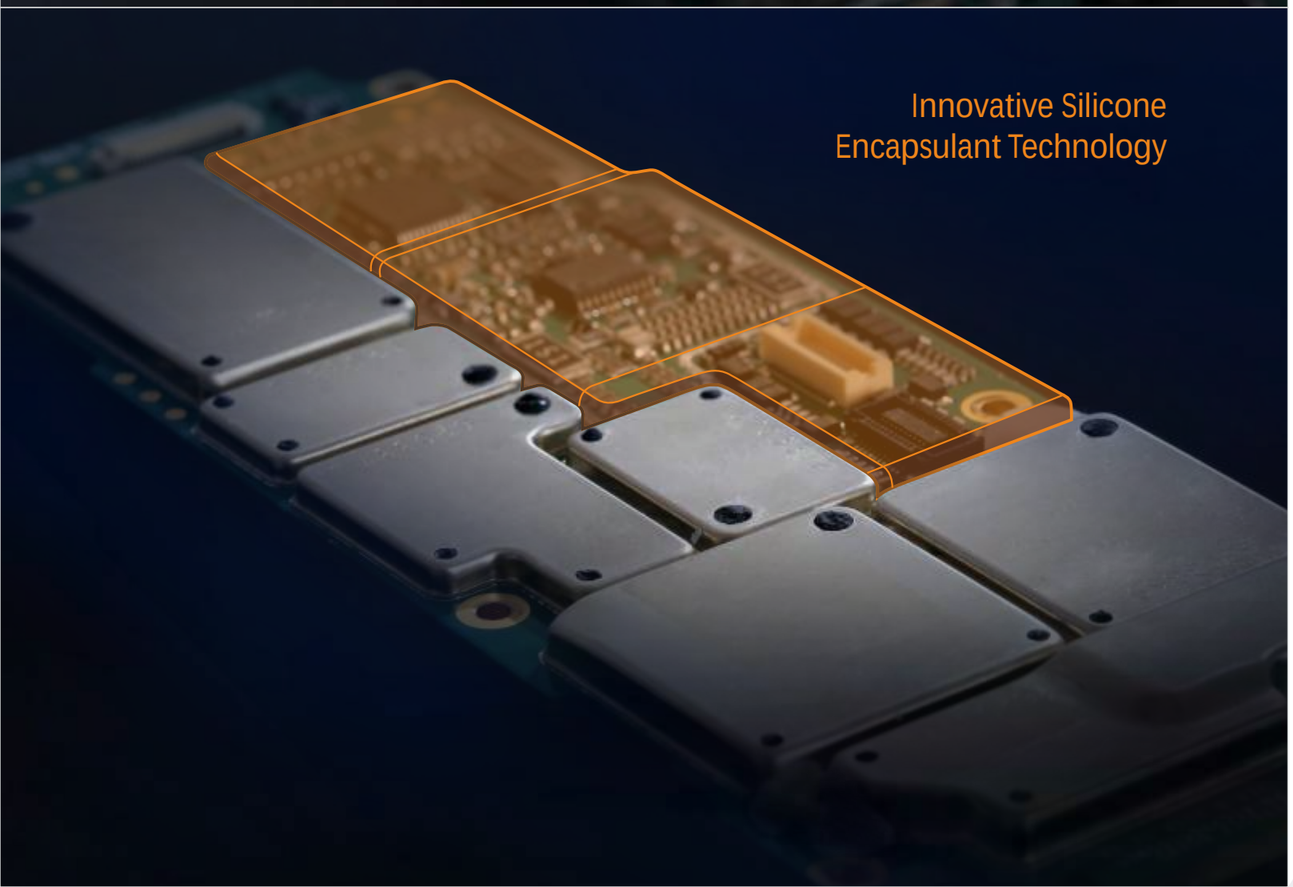
Classification for hazardous places
1:Very high level(zone 0 or zone 20)
2:High level(zone 1 or zone 21)
3:Normal level(zone 2 or zone 22)
Zone 0:present continuously
Zone 1:present intermittently
Zone 2:present abnormally

MINING

I M1 Ex ia

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





PT790 Ex
TETRA INTRINSICALLY SAFE PORTABLE RADIO

Patented antenna design

Dedicated orange Emergency key

Easily-accessible rotary volume knob and channel selection knob

New design of accessory connector, ensuring easy accessory connection /disconnection

Friendly UI, easy-to-use menu

II 1G Ex ia IIC T4
II 1D Ex ia IIIC T120°C IP6X
I M1 Ex ia

Screen & keypad protection

Unique covert speaker design, better audio quality

Double color PTT, noticeable & safe

WORK SAFER
WORK, PROTECT & ENABLE
WORK ANYWHERE & ANYTIME

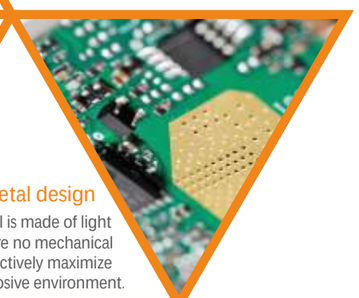
WORK SAFER

ia Protection Classification

The whole radio with battery is designed to comply with the highest grade 'ia'. It can work in the places which contains various explosive gas and dust. It has passed ATEX, FM, IECEX certification.

Strict PCB Design and High EMC Performance

To achieve high explosion-proof level, Hytera PT790Ex adopts optimal PCB layout design. All the key components of PCB are covered with shield which minimizes the circuit fault probability and has better performance of EMC.



Innovative Silicone Encapsulant Technology

Silicone encapsulant technology can prevent the internal circuits from interfacing with air and liquid, which effectively stops the intrusion of liquid, inflammable dust and explosive gas.

Light metal design

PT790Ex shell is made of light metal to ensure no mechanical spark, it can effectively maximize reliability in explosive environment.

Patented Battery Latch Design

To disengage the battery from the radio, you need to remove the lock and bolt of the latch along two different axes. Such a patented design ensures there is no disengagement of the battery pack from the main radio in case of dropping that might cause spark.

Innovative Antistatic Design

PT790Ex display adopts antistatic material, and its shell adopts patent antistatic design of dual material molding technology, which can reduce the possibility of static discharge on the radio.

Screen

PT790Ex screen is made of tough and crack-proof material.

Structure design of screw internal trapping

Screw of the belt clip is designed as internal trapping, which ensures no contact between the metal and the ground in case of dropping, and avoids discharge.

WORK, PROTECT & ENABLE

GNSS Positioning

The built-in GNSS module supports GPS, GLONASS, Beidou. Its tracking sensitivity is up to -164dBm, and its accuracy is within 2 meters.

Lone Worker

To ensure the safety of terminal users, the emergency function will be triggered automatically when there is no operation on the terminal within the predefined time period.

Man Down

When a user falls down, the radio can automatically alert others.

Innovative Ergonomic Design

Separated by the antenna, channel knob and volume knob stand apart from each other. The design of their different sizes enhances the accuracy of operation, and greatly reduces incorrect operation with gloves or in dark environment.

PT790EX's compact and large textured keys provide an excellent tactile feeling.

Friendly User Interface

Hytera PT790Ex provides 1.8-Inch, 65536-color, LCD screen, which can be clearly displayed under bright sunlight.

As many as 20 programmable keys are flexibly configurable for quick access through one button operation.

Long Cycle Life

Hytera PT790EX provides 1800mAh/2400mAh large capacity Li-ion battery, which can last for more than 20 hours under 5-5-90 duty cycle. Strict overcharge and over-discharge protection design ensure 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.

Ex Li-ion Battery (1800mAh)BL1813-Ex/ (2400mAh)BL2413-Ex

Anti-explosion adjustable earhook earbud EHN12-Ex

Anti-explosion Remote Speaker Microphone (IP67) SM18N8-Ex

Anti-static Leather case (standard battery) LCY005

Vehicle adapter for charger CHV09

Dual Pocket MCU Charger Kit CH10A06 (It should be charged in the safe area)

WORK ANYWHERE & ANYTIME

Rugged and Reliable

PT790Ex is designed to comply with MILSTD 810 C/D/E/ F/G and IP67 Dust &Water Protection Rating, which ensures its best performance even in the toughest conditions and environment.

Patented Antenna Design

PT790Ex has a globally patented industrial design with an antenna in the middle position, providing omnidirectional antenna pattern for better signal coverage. The antenna used in PT790Ex is a patented design which is short in length and having GPS integrated.

IOP

Hytera PT790Ex enables quick access to TETRA network and roaming, providing safe and efficient communication service. It also provides powerful interoperability with base stations and terminals of different manufacturers.

Skid-proof design

The rear part of the terminal battery and both sides of the shell are skid-proof designed to prevent dropping and to ensure easy grab.

Enhanced Speech Processing Technology

Hytera PT790Ex adopts state-of-the-art speech processing technology to remove environment noise (ambient noise) and echo (acoustic&echo), which provides users with clear voice communication even in a noisy environment. Meanwhile it has better performance in hands-free mode in full duplex call.

Bone Conduction Headset(RoHS) POA34-Ex*

Throat Conduction Headset(RoHS) POA61-Ex*

Noise cancellation headset(RoHS) POA62-Ex*

Explosion-proof PTT POA63-Ex*

Explosion-proof PTT SM24N1-Ex*

Explosion-proof PTT SM24N2-Ex*

*: ib grade

FEATURES & SPECIFICATION

GENERAL	
Frequency Bands	380-430MHz / 806-870MHz
Dimensions(HxWxD)	141 x 55 x 39mm
Weight	515 (with 1800mA battery antenna)
Battery	1800mAh Li-Ion (STD BATT)
Battery Life (5/5/90 Duty Cycle)	14hours
Operating Voltage	7.4V
Audio Power Output	>1.2W

RF	
RF Channel Bandwidth	25KHz
RF Power Output	1W
RF Power Level Accuracy	±2dB
Receiver Class	ETSI EN 392-2/396-2 Class A
RX Static Sensitivity	112dBm(typical-116dBm)
RX Dynamic Sensitivity	103dBm(typical-105dBm)

GNSS (GPS / GLONASS / BeiDou)	
Sensitivity	≤-144 dBm acquisition sensitivity
	≤-157dBm tracking sensitivity
Accuracy	≤10m
Cold Start (Time to First Fix)	< 50s
Hot Start (Time to First Fix)	< 1s

ENVIRONMENTAL	
Operating Temperature	-30°C ~ + 60°C (non-hazardous environment)
	-20°C ~ +55°C (hazardous environment)
Storage Temperature	-40°C ~ +85°C
Humidity	ETS 300 019 (95%)
Water and Dust Protection	IEC60529, IP67
Drop, Shock & Vibration	MIL-STD- 810 F/G

SECURITY SERVICE	
Authentication	MS Authentication by SwMI
	Mutual Authentication
Package Data User Authentication	
Air Interface Encryption	TEA1, TEA2, TEA3, TEA4
Security Class	Class 1: Clear
	Class 2: SCK
	Class 3: DCK and CCK (Via OTAR)
DMO SCK	
End to End Encryption	By Software (AES128, AES256*)
	By SIM card
	Voice Service / SDS Service
Temporarily Disable/Enable	
Permanently Disable	
PIN/PUK Code Access	

VOICE SERVICE	
Fallback Operation	
Energy Economy	
Seamless Cell Re-selection	
Half-Duplex	
Full-Duplex	
Emergency Call	DGNA
	Callout
	CAD(Call Authorized by Dispatcher)*

USER INTERFACE	
LCD Color Display	1.8inch, 160*128pixels, 65536colors
Talk Groups - TMO	3000
Talk Groups - DMO	2000
Phonebook	1000
Missed Calls	20
Received Calls	20
Dialed Calls	20
Inbox	400
Outbox	50
Drafts	50
Folder	TMO: 200 folders, 200 groups per folder
	DMO: 50 folders, 200 groups per folder
Multi-language	
Java Platform 2.0	

USER SECURITY
One-key Emergency Call
Man-down
Ambience Listening
Radio User Assignment(RUA)
Transmit Inhibit
Lone Worker
Protect User Configuration Data
Keypad Lock
Alert for out of Network Coverage
Alert for Low Battary

LOCATION SERVICE	
GPS	
Control Center Authentication by MS	
Lip Protocol Trigger Conditions (Configured via Air or CPS)	Emergency Call
	Interval
	Distance
	Power On/Off
	Status Message
	Positioning Loss/Regain
NMEA Location Reporting	

DATA SERVICE	
Short Data Service	SDS-1, 2, 3, 4, TL
	Status message
	Immediate text message (TMO)
	Long text message (TMO)
Package Data	
Peripheral Equipment Interface (PEI)	
AT command	
OTAP(Over The Air Programming)	
Status Solution	
WAP	
Circuit Mode Data	

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