

High-level IIC intrinsically safe Digital Radio

# PH910Ex / PH990Ex



- intrinsically safe with ATEX & IECEx
- Slim & Portable Design, Industry Leading
- 0.18uV Sensitivity, Expand Communication Distance
- Built-in Bluetooth, More Functions Expansion
- Support GPS, High-precision Location
- Local Recording, Secure and Reliable
- IP67 Protection, Robust and Reliable
- Rich Accessories, Suitable for Various Scenarios



**IECEx**

# Application Scenarios



# Accessories

## Standard



Antenna



Intrinsically safe  
2000mAh Li-ion Battery



Power Adapter



Charger



Belt Clip



Strap

# Specifications

## General

Protocol	ETSI TS 102 361-1,-2,-3,-4
Explosion-proof Certification	<b>ATEX</b> Gas Rating: II 2G Ex ib II C T4 Gb Dust Rating: II 2D Ex ib IIIC T120°C Db Mines Rating: I M2 Ex ib I Mb <b>IECEX</b> Gas Rating: Ex ib II C T4 Gb Dust Rating: Ex ib IIIC T120°C Db Mines Rating: Ex ib I Mb
Frequency	UHF1: 400-470 MHz UHF3: 350-400 MHz VHF: 136-174 MHz
Channel Capacity	1024 (PH990Ex) 64(PH910Ex)
Zone Capacity	64 (PH990Ex) 4 (PH910Ex)
Channel Spacing	12.5KHz/20KHz/25KHz
Operating Voltage	7.4V
Battery Capacity	2000mAh (Standard)
Battery Life	Analog: 17hours Digital: 19hours (PH990Ex)/19.5hours (PH910Ex) (5:5:90 work cycle)
Size (H x W x D, with battery, without antenna)	129.7x55.6x37.6mm (PH990Ex) 129.7x55.6x36.8mm (PH910Ex)
Weight(with battery and antenna)	About 415g (PH990Ex) About 400g (PH910Ex)
Screen	1.8" transfective color screen 240x180, 4 lines (PH990Ex)
Vocoder	AMBE++
Man Down	Support
Bluetooth	Support
Positioning	GPS
Encryption	ARC4(40bit) / AES128/256 (Optional)
Recording	Optional
Interface	18 pin accessory interface, support audio/programming

## Environmental

Operating Temperature	-30°C ~ +55°C
Storage Temperature	-40°C ~ +85°C
ESD	IEC 61000-4-2(level 4) ±8kV (Contact) ±15kV (Air)
Dust and Water Protection	IP67
Reliability	Comply with MIL-STD-810 H

## Receiver

Sensitivity (Analog)	0.18uV (12dB SINAD)
Sensitivity (Digital)	0.18uV (5% BER)
Adjacent Channel Selectivity	60 dB@12.5KHz/70 dB@20/25KHz (TIA603A) 60dB@12.5KHz /70 dB@20/25KHz ( ETSI )
Intermodulation	70 dB (TIA603D) 65 dB (ETSI)
Spurious Rejection	70 dB (TIA603D) 70 dB (ETSI)
Blocking or Desensitization	80dB (TIA603D) 84dB (ETSI)
Co-channel Rejection	-12~0dB @12.5KHz/-8~0dB @20/25KHz
Hum and Noise	-40dB@12.5KHz /-43dB@20KHz /-45dB@25KHz
Rated Audio Power	0.5W
Conducted Spurious Emission	-57dBm (TIA603D)
Audio Response	+1 ~ -3dB (TIA603D)
Audio Distortion	≤3%

## Transmitter

Output	1W (Rated) < 2W (Maximum)
FM Modulation	12.5KHz:11K0F3E / 20KHz:14K0F3E / 25KHz:16K0F3E
4FSK Digital Modulation	12.5KHz Data Only:7K60F1D&7K60FXD 12.5KHz Voice Only:7K60F1E&7K60FXE 12.5KHz Voice And Data:7K60F1W
Conducted/ Radiated Emission	-36dBm ≤1GHz -30dBm >1GHz
Modulation Limiting	±2.5KHz @12.5KHz /±4KHz @20KHz /±5.0KHz @25KHz
FM Hum and Noise	-40dB@12.5KHz /-43dB@20KHz /-45dB@25KHz
Adjacent Channel Power	60dB@12.5KHz /70dB @20/25KHz
Audio Response	+1 ~ -3dB(TIA603D)
Audio Distortion	≤3%

## GPS

Accuracy specs for long-term tracking (95th percentile values>5 satellites visible at nominal -130 dBm signal strength)	
TTF (Time To First Fix) - Cold Start	<60s
TTF (Time To First Fix) - Hot Start	<10s
Horizontal Accuracy	<10m

General Disclaimer: the specifications in this document are in accordance with the applicable standard test. Due to the continuous technology development, Caltta may change the specifications without timely notice.

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