



## PD78X/78XG

Versatile Digital Portable Two-Way Radio

- Large-size HD Transflective Color Display
- Superior Digital Voice





## PD78X/78XG

Higher Efficiency,  
Richer Experience

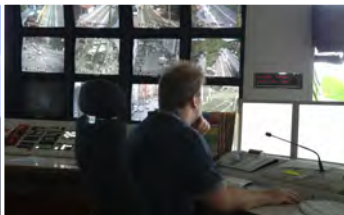
As a product built to the DMR standard, PD78X/78XG (PD78XG is the model with GPS) is endowed with ergonomic design, all-round digital functions and remarkable quality to increase your management efficiency and enable you to be responsive to emergent situations.

## Applications

Public Safety  
Forest Industry

Public Utilities  
Business

Transportation (port, airport, railway, etc.)  
Manufacturing



## Product Features

### ● Ergonomic Design

The large-size color display allows good visibility even under extremely strong light. The globally patented industrial and antenna design ensure convenient operation and remarkable GPS performance.

### ● Reliable Quality

PD78X/78XG is strictly compliant with MIL-STD-810 C/D/E/F/G and IP67 standards, ensuring outstanding performance even in harsh environments.

### ● Superior Voice

With the combined application of narrow-band codec and digital error-correction technologies, PD78X/78XG is capable of ensuring you superior voice in noisy environments or at the edge of the coverage area. In addition, the adoption of the AGC technology also optimizes your voice. With a built-in 1W speaker, PD78X/78XG ensures clear and crisp voice communication.

### ● Durable Battery

Compared with an analog radio, PD78X/78XG can obtain an extra 40% operation time.

### ● Higher Spectrum Efficiency, Higher Channel Capacity

Benefiting from the TDMA technology, PD78X/78XG allows twice the channels based on the same spectrum resource. This is a big help to relieve the stress of increasing shortage in spectrum resource.

### ● Dual-slot Pseudo Trunk

With this feature, the free slot can be allocated to a member that needs to communicate, effectively enhancing frequency efficiency and allowing you to communicate timely under emergency situations.

### ● Secure Communication

Besides the intrinsic encryption of the digital technology, PD78X/78XG provides enhanced encryption capability (such as 256-bit encryption algorithm) and the Scrambler feature (selectable).

### ● Versatile Services

In addition to conventional communication services, PD78X/78XG features rich data services and selectable functions such as Text Message, Scan, Emergency, Man Down (optional), vibration Auto Registration, High-speed Data Transmission and Lone Worker.

### ● Further Development Port

The reserved side port in PD78X/78XG allows users or any third party partner to further develop other helpful applications to extend the radio functionalities!

### ● Option Board Interface

PD78X/78XG supports option board interfaces to the radio. This allow third party partner to develop various applications to interconnect with the radio. They could control the radio to expand its functionalities! Among the supported features are voice recording, encryption etc.. Please refer to the API Partner Programmed for more information!

## Main Functions

### ● Dual Modes (Analog+Digital)

PD78X/78XG can operate in either analog or digital mode. It is compatible with the prevalent analog system, ensuring a smooth analog-to-digital transition.

### ● Versatile Voice Calls

Intelligent signaling of PD78X/78XG supports various voice call types, including Private Call, Group Call, All Call and Emergency Call.

### ● GPS

PD78XG supports viewing of GPS positioning information and sending of GPS text message.

### ● Data Services

PD78X/78XG supports data capabilities of sending Private and Group text message. It also supports Third Party applications to control the radio via Third party API (GPS, Radio Registration Services, Radio and Call Control, Telemetry, Data Transfer), via Telemetry control to radio.

### ● Various Analog Signaling Types

PD78X/78XG supports various analog signaling types (HDC1200, DTMF phone, 2-Tone and 5-Tone), various squelch control types (CTCSS/CDCSS), thus providing higher function expansion capacity to the analog world.

### ● Supplementary Services

PD78X/78XG supports supplementary services of Radio Check, Remote Monitor, Call Alert, Radio Enable and Radio Disable.

### ● Multiple Languages

PD78X/78XG supports 15 languages, including English, English, Simplified Chinese, Traditional Chinese, Thai, Arabic, Farsi, Korean, Portuguese, Italian, Russian, Polish, Turkish, French, Spanish and German, allowing users to select it per their needs.

### ● One Touch

PD78X/78XG supports One Touch features that comprise of Text Message, Voice Calls and Supplementary Services.

### ● Scan

PD78X/78XG supports scanning of pure analog voice and signaling, pure Digital voice and data, and also mix mode scan that comprise of Analog and Digital activities.

### ● Roaming

PD78X/78XG supports automatic roaming of all sites in a IP Multi-site Connect system.

### ● Privacy of Voice and Data

PD78X/78XG supports Analog scrambling, and digital encryption using Advanced Encryption Standard (AES) and ARCFour (ARC4) encryption methodology to both voice and data.

### ● Analog/Digital Telephone Interconnect (via DTMF signaling)

PD78X/78XG supports simplex voice communications between radio and telephone users. It allows a radio user to make a telephone call; or a telephone user to make either a Group or Private call to radio users. This feature utilizes the Commercial Off The Shelf (COTS) Analog Phone Patch boxes and a Plain Old Telephone Service (POTS) line to connect the radio users to the Corporate Office Phone System (PBX) or Public Switched Telephone Network (PSTN).

### ● Software Upgradeable

Upgrade of software enables new features without buying a new radio. PD78X/78XG can also be switched into MPT and DMR trunking modes with corresponding license applied to the same hardware.

## Standard Accessories

Li-Ion Battery  
Power Adapter

MCU Rapid-rate Charger  
Belt Clip

Leather Strap  
Antenna

# Specifications

|                             |   |  |  |
|-----------------------------|---|--|--|
| General                     | Frequency Range   | UHF1: 400-470MHz; UHF2: 450-520MHz<br>UHF3: 350-400MHz; UHF5: 806-941MHz<br>VHF1: 136-174MHz; VHF3: 210-270MHz<br>VHF4: 66-88MHz |  |
|                             | Channel Capacity  | 1024   |  |
|                             | Zone Capacity   | 64 (each with a maximum of 256 channels)   |  |
|                             | Channel Spacing   | 12.5kHz / 20kHz / 25kHz  |  |
|                             | Operating Voltage   | 7.4V (rated)   |  |
|                             | Battery   | 2000mAh (Li-Ion) 2500mAh (Li-Ion) 3000mAh (Li-Ion)   |  |
|                             | Battery Life<br>(5-5-90 Duty Cycle, High TX Power)                | Digital:<br>16.5 Hours @2000mAh<br>20.5 Hours @2500mAh<br>24.5 Hours @3000mAh  | Analog:<br>13 Hours @2000mAh<br>16 Hours @2500mAh<br>19.5 Hours @3000mAh |
|                             | Frequency Stability   | ± 1.5ppm   |  |
|                             | Antenna Impedance   | 50Ω  |  |
|                             | Dimensions (H×W×D)<br>(with standard battery,<br>without antenna) | 125 x 55 x 37 mm (2000mAh)<br>125 x 55 x 42 mm (2500mAh)<br>125 x 55 x 42 mm (3000mAh)   |  |
|                             | Weight<br>(with antenna & standard battery)                       | 355g (2000mAh) 380g (2500mAh) 385g(3000mAh)  |  |
|                             | LCD Display   | 160 x128 pixels, 65536 colors, 1.8 inch, 6 rows  |  |
| Receiver                    | Sensitivity   | Analog   | 0.28μV (12dB SINAD); 0.22μV (Typical) (12dB SINAD)<br>0.4μV (20dB SINAD) |
|                             |   | Digital  | 0.3μV /BER5% 0.22μV (Typical) /BER5%                                     |
|                             | Selectivity<br>TIA-603<br>ETSI                                    | 60dB @ 12.5kHz / 70dB @ 20/25kHz<br>60dB @ 12.5kHz / 70dB @ 20/25kHz   |  |
|                             |   | Intermodulation<br>TIA-603<br>ETSI   | 70dB @ 12.5/20/25kHz<br>65dB @ 12.5/20/25kHz                             |
|                             | Spurious Response Rejection<br>TIA-603<br>ETSI                    | 70dB @ 12.5/20/25kHz   |  |
|                             |   | 70dB @ 12.5/20/25kHz   |  |
|                             | Hum and Noise   | 40dB @ 12.5kHz; 43dB @ 20kHz;<br>45dB @ 25kHz  |  |
|                             | Rated Audio Power Output  | 0.5W   |  |
|                             | Rated Audio Distortion  | ≤3%  |  |
|                             | Audio Response  | +1 ~ -3dB  |  |
| Conducted Spurious Emission | < -57dBm  |  |  |

|                                    |   |  |
|------------------------------------|---|--|
| Transmitter                        | RF Power Output   | UHF1/UHF2/UHF3: 1W/ 4W<br>VHF1/VHF3/VHF4: 1W/ 5W<br>UHF5: 1W/ 3W (806-870MHz)<br>UHF5: 1W/ 2.5W (896-941MHz) |
|                                    | FM Modulation   | 11K0F3E @ 12.5kHz; 14K0F3E @ 20kHz<br>16K0F3E @ 25kHz  |
|                                    | 4FSK Digital Modulation   | 12.5kHz Data Only; 7K60FXD<br>12.5kHz Data & Voice: 7K60FXW  |
|                                    | Conducted/Radiated Emission   | -36dBm<1GHz; -30dBm>1GHz   |
|                                    | Modulation Limiting   | ± 2.5kHz @ 12.5kHz; ± 4.0kHz @ 20kHz;<br>± 5.0kHz @ 25kHz  |
|                                    | FM Hum & Noise  | 40dB @ 12.5kHz; 43dB @ 20kHz;<br>45dB @ 25kHz  |
|                                    | Adjacent Channel Power  | 60dB @ 12.5kHz; 70dB @ 20/25kHz  |
|                                    | Audio Response  | +1 ~ -3dB  |
|                                    | Audio Distortion  | ≤3%  |
|                                    | Digital Vocoder Type  | AMBE++ or SELP   |
| Environmental Specifications       | Digital Protocol  | ETSI-TS102 361-1,-2,-3   |
|                                    | Operating Temperature   | -30°C ~ +60°C  |
|                                    | Storage Temperature   | -40°C ~ +85°C  |
|                                    | ESD   | IEC 61000-4-2 (level 4)<br>± 8kV (contact) ± 15kV (air)  |
|                                    | American Military Standard  | MIL-STD-810 C/D/E/F/G  |
|                                    | Dust & Water Intrusion  | IP67 Standard  |
|                                    | Humidity  | Per MIL-STD-810 C/D/E/F/G Standard   |
|                                    | Shock & Vibration   | Per MIL-STD-810 C/D/E/F/G Standard   |
|                                    | Accuracy specs are for long-term tracking(95th percentile values>5 satellites visible at a nominal -130dBm signal strength) |  |
|                                    | GPS<br>(For PD78G only)   | TTFF (Time To First Fix) Cold Start  |
| TTFF (Time To First Fix) Hot Start |   | < 10 seconds   |
| Horizontal Accuracy                |   | < 10 meters  |

All Specifications are tested according to applicable standards, and subject to change without notice due to continuous development.

# Optional Accessories

|  |   |   |                                |  |  |  |                                      |                                  |
|--|---|---|--------------------------------|--|--|--|--------------------------------------|----------------------------------|
|  |   |   |                                |  |  |  |                                      |                                  |
| Remote Speaker Microphone (IP57)<br>SM18N2 | C-Earset<br>EHN16                                   | Swivel Earset<br>EHN17  | Earbud<br>ESN12                | 3-Wire Surveillance Earpiece with Transparent Acoustic Tube (beige)<br>EAN17 | Six-Unit Switching Power<br>PS7002                                   | Carrying Case (for thick battery) (leather) (swivel)<br>LCY003 | Programming Cable (USB Port)<br>PC38 | 2500mAh Li-Ion Battery<br>BL2503 |
|  |   |   |                                |  |  |  |                                      |                                  |
| Battery Optimizing System<br>MCA05         | MCU Multi-unit Charger (for Thick Battery)<br>MCA08 | 3-wire Surveillance Earpiece with Transparent Acoustic Tube(Black)<br>EAN18 | Receive-only Earpiece<br>ESS10 | Receive-only Earpiece<br>EAS03   | 2-wire Earpiece with Wireless Earphone and Neck Loop(Beige)<br>EWN09 |  |                                      |                                  |

Pictures above are for reference only and may vary from actual products.

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