MD78X/78XG
Versatile Digital Mobile Two-Way Radio

- Large-size HD Transflective Color Display
- Superior Digital Voice
As a product built to the DMR standard, MD78X/78XG (MD78XG 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
- Public Utilities
- Transportation (port, airport, railway, etc.)
- Forest Industry
- Business
- Manufacturing
### Product Features

- **User-centered Design**
  The large-size color display allows good visibility even under extremely strong light. And the seven programmable keys facilitate your communication in various conditions.

- **Reliable Quality**
  MD78X/78XG is strictly compliant with MIL-STD-810 C/D/E/F/G and IP54 standards, ensuring outstanding performance even under harsh environments.

- **Superior Voice**
  With the combined application of narrowband codec and digital error-correction technologies, MD78X/78XG is capable of ensuring you superior voice under 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 4W speaker, MD78X/78XG ensures clear and crisp voice communication.

- **Higher Spectrum Efficiency, Higher Channel Capacity**
  Benefitting from the TDMA technology, MD78X/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, MD78X/78XG provides enhanced encryption capability (such as 256-bit encryption algorithm) and the Scrambler feature (selectable).

- **Versatile Services**
  In addition to conventional communication services, MD78X/78XG features rich data services and selectable functions such as Text Message, Scan, Emergency, Channel Steering, Auto Registration and Lone Worker.

- **Further Development Port**
  The reserved front and rear port in MD78X/78XG allows users or any third party partner to further develop other helpful applications to extend the radio functionalities!

- **Option Board Interface**
  MD78X/78XG supports option board interfaces to radio, allowing third party partner to develop various applications to interconnect with radios to 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)**
  MD78X/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 MD78X/78XG supports various voice call types, including Private Call, Group Call, All Call and Emergency Call.

- **GPS**
  MD78XG supports viewing of GPS positioning information and sending of GPS text message.

- **Data Services**
  MD78X/78XG supports data capabilities of sending Private, Group text message. It also supports Third Party to control the radio via Third party API (GPS, Radio Registration Services, Radio Call Control, Telemetry, Data Transfer), via Telemetry control to radio.

- **Accessory Expansion**
  MD78X/78XG supports third party to develop accessories expansion via front and rear port of the mobile. (Check out that features as channel steering, emergency footswitch has been supported via the back port!)

- **Various Analog Signaling Types**
  MD78X/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**
  MD78X/78XG supports supplementary services of Radio Check, Remote Monitor, Call Alert, Radio Enable and Radio Disable.

- **Multiple Languages**
  MD78X/78XG supports up to 15 languages, including 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**
  MD78X/78XG supports One Touch features that comprise of Text Message, Voice Calls and Supplementary Services.

- **Scan**
  MD78X/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**
  MD78X/78XG supports automatic roaming of all sites in a IP Multi-site Connect system.

- **Privacy of Voice and Data**
  MD78X/78XG supports analog scrambling, and digital encryption using Advanced Encryption Standard (AES) and ARFCOUR (ARC4) encryption methodology to both voice and data.

- **Analog/Digital Telephone Interconnect (via DTMF signaling)**
  MD78X/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 Upgradable**
  Upgrade software enables new features without buying a new radio; MD78X(G) could also be switched into MPT and DMR trunking modes with corresponding trunking license applied in the same hardware.

### Standard Accessories

<table>
<thead>
<tr>
<th>Palm Microphone</th>
<th>Power Cord</th>
<th>Microphone Hanger</th>
<th>Fuse</th>
<th>Microphone Hanger Screws</th>
<th>GPS Antenna (for MD78XG only)</th>
<th>Mounting Bracket</th>
</tr>
</thead>
</table>

**Notes:** MD78X/78XG, X=0, 2, 5 or 8, model number varies geographically. For details, please contact our regional sales representatives.
Specifications

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>UHF1: 400-470MHz; UHF2: 450-520MHz; UHF3: 350-400MHz; UHF5: 804-941MHz* VHF: 136-147MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Capacity</td>
<td>1024</td>
</tr>
<tr>
<td>Zone Capacity</td>
<td>64(each with a maximum of 16 channels)</td>
</tr>
<tr>
<td>Channel Spacing</td>
<td>12.5 kHz / 20 kHz / 25 KHz</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>13.6 V ± 15%</td>
</tr>
<tr>
<td>Current Drain</td>
<td>Standby: &lt; 0.6A</td>
</tr>
<tr>
<td></td>
<td>Receive: &lt; 2.0A</td>
</tr>
<tr>
<td></td>
<td>Transmit: 5W, 50W, 45W/50W, 25W, 8A, 5W</td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>± 1.5ppm</td>
</tr>
<tr>
<td>Antenna Impedance</td>
<td>50Ω</td>
</tr>
<tr>
<td>Dimensions (H* W* D)</td>
<td>60* 174* 200 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.7kg</td>
</tr>
<tr>
<td>LCD Display</td>
<td>220* 176 pixels, 262000 colors, 2.0 inch, 4 rows</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Analog: 0.3 V (+2dB SINAD), 0.22 V (+20dB SINAD), 0.4 V (20dB SINAD)</td>
</tr>
<tr>
<td></td>
<td>Digital: 0.3μV (+8dB SINAD)</td>
</tr>
<tr>
<td>Selectivity</td>
<td>TIA-603: 65dB @ 12.5/20KHz; 75dB @ 20/25KHz; 60dB @ 12.5/20KHz; 50dB @ 20/25KHz</td>
</tr>
<tr>
<td>Intermodulation</td>
<td>TIA-603: 75dB @ 12.5/20KHz; 70dB @ 12.5/20KHz</td>
</tr>
<tr>
<td>Spurious Response Rejection</td>
<td>TIA-603: 75dB @ 12.5/20KHz; 70dB @ 12.5/20KHz</td>
</tr>
<tr>
<td>Blocking</td>
<td>TIA-603: 90dB</td>
</tr>
<tr>
<td>Hum and Noise</td>
<td>40dB @ 12.5KHz; 43dB @ 20KHz; 45dB @ 25KHz</td>
</tr>
<tr>
<td>Rated Audio Power Output</td>
<td>Internal (≥ 20 ohm load): 3W; External (≥ 8 ohm load): 7.5W</td>
</tr>
<tr>
<td>Max Audio Power Output</td>
<td>Internal (≥ 20 ohm load): 8W; External (≥ 8 ohm load): 20W</td>
</tr>
<tr>
<td>Rated Audio Distortion</td>
<td>≤ 3%</td>
</tr>
<tr>
<td>Audio Response</td>
<td>+1 ~ -3dB</td>
</tr>
<tr>
<td>Conducted Spurious Emission</td>
<td>&lt; -57dBm</td>
</tr>
</tbody>
</table>

**RF Power Output**

- **Low Power**: UHF1/UHF2/UHF5: 3-25W; VHF: 5-25W
- **High Power**: UHF1/UHF2/UHF5: 3-45W; VHF: 5-50W

**Modulation**

- **4FSK**: 11KOF3E @ 12.5KHz; 14KOF3E @ 20KHz; 16KOF3E @ 25KHz

**Conducted/Radiated Emission**

- **36dBm@10Hz; 30dBm@1GHz**

**Spurious Response Rejection**

- AMBE++ or SELP

**Adjacent Channel Power**

- ≤ 45dB (20dB SINAD)

**Audio Response**

- 60dB @ 12.5KHz; 70dB @ 20/25KHz

**Audio Distortion**

- ≤ 3%

**Digital Vocoder Type**

- AMBE+ or SELP

**Digital Protocol**

- ETSI-TS102 361-1, 2, 3

**Operating Temperature**

- -30°C ~ +60°C

**Storage Temperature**

- -40°C ~ +85°C

**ESD**

- ±8KV (contact); ±15KV (air)

**American Military Standard**

- MIL-STD-810 C/D/E/F/G Standard

**Dust & Water Intrusion**

- IP54 Standard

**Humidity**

- MIL-STD-810 C/D/E/F/G Standard

**Shock & Vibration**

- MIL-STD-810 C/D/E/F/G Standard

**GPS**

- **Horizontal Accuracy**: 5.0KHz @ 25KHz
- **Vertical Accuracy**: 2.5KHz @ 12.5KHz;
- **Cold Start**: < 1 minute
- **Hot Start**: < 10 seconds
- **Warm Start**: < 10 seconds
- **Time To First Fix**

**Accuracy specs are for long-term tracking/95th percentile values, 5 satellites visible at a nominal -130dBm signal strength**

**Frequency Range**

- **UHF1**: 400-470MHz
- **UHF2**: 450-520MHz
- **UHF3**: 350-400MHz
- **UHF5**: 804-941MHz
- **VHF**: 136-147MHz

**Frequency Stability**

- ± 1.5ppm

**Environmental Specifications**

- **Shock & Vibration**: Per MIL-STD-810 C/D/E/F/G Standard
- **Humidity**: ≤ 3%
- **Temperature (Storage)**: -40°C ~ +85°C
- **Temperature (Operating)**: -30°C ~ +60°C
- **IP54 Standard**
- **Vibration**
- **Shock**

Optional Accessories

- **External Speaker**: SM001
- **Desktop Microphone**: SM10A1
- **320W External Power Supply**: PS2002
- **Programming Cable**: (USB Port) PC37
- **Data Cable**: PC40
- **Keypad Microphone**: SM18A1
- **Antenna**: PC43
- **GPS Antenna**: PC37
- **12V vehicle mounting bracket**: SM19A1
- **Adapter cable for repeater accessory pin**: SM20A1
- **Dispatch cable**: PS16001
- **Mobile Radio Remote Mount Kit**: PS16002
- **Palm Microphone**: (IP67) SM16A2
- **Telephone Style Headset**: SM21A2
- **DB26 Connector Dispatching Cable**: PC43

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

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