

User's Manual **DM-R89**

Dual Band Digital Two Way Radio

FOREWORD

Thank you for choosing the dual band digital radio DM-R89. This product is designed to meet the requirements of a radio that is easy to operate and give excellent performance.

MAIN FUNCTIONS & FEATURES

General

- Support channel mode & frequency mode
- 250 Zones, max 64 channels can be added in each Zone
- Scan / Priority Channel Scanning
- Talk around
- Hi/Low power selection
- Squelch levels
- Chinese/English Surface Selection
- VOX
- Power saving
- Time-out Timer (TOT)
- Programmable Side Key
- Software password
- Battery Capacity Indicator
- Power On Password
- Date and time display

Digital

- Single Call / Group Call / All Calls
- Emergency Alert
- Radio checking
- Remote monitoring
- Contact list
- Calls record
- Messages (SMS)
- Encryption (16 keys)
- Calling prompt
- DTMF
- Remote killed / activating
- Work alone
- 2-Slots

Analog

- Narrow band /width band
- CTCSS/DCS
- Tail tone elimination

UNPACKING

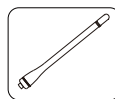
Carefully unpack the radio and its accessories to identify them as illustrated below. If you find any missing or damaged parts, please contact your dealer immediately.

Note: Pictures are for illustration purposes only. The actual accessories supplied may vary.

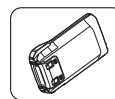
01



Radio Body



Antenna



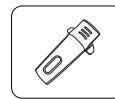
Battery Pack



Power Adaptor



Charger Pod



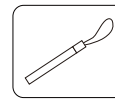
Belt Clip



Belt Clip Screws



User Manual



Hand Strap

| Items | QTY |
|------------------|-----|
| Radio Body | 1 |
| Antenna | 1 |
| Battery Pack | 1 |
| Charger Pod | 1 |
| Power Adaptor | 1 |
| Belt Clip | 1 |
| Belt Clip Screws | 2 |
| User Manual | 1 |
| Hand Strap | 1 |

BASIC OPERATION INSTRUCTION

Power On/Off / Volume

Turn the Power / Volume Knob (Fig.1) clockwise to switch ON the radio, a beep will be heard. Turn the knob clockwise / anti-clockwise to adjust the volume. Turning the knob fully anti-clockwise will switch off the radio.



VFO Mode

In the main interface, the radio can switch to VFO mode by pressing [back] key in the frequency display mode. Users can setup the frequency by rotating the channel knob or numeric keypad.

Select A Channel

Turn the channel knob to select the channel number. The radio has 250 zones and each zone has 64 channels. Each channel can set Analog mode or digital mode. You can select the zones from LCD menu. When you switch to Analog mode, some functions can't be used; the icon of referring to digital function will be grey.



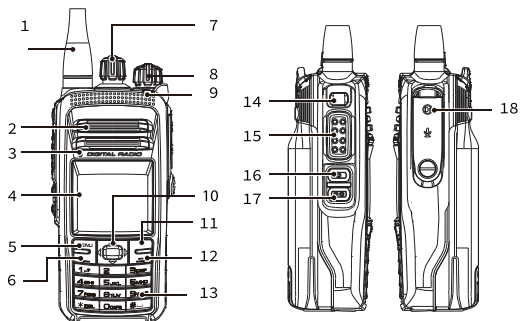
02

Transmit/Receive

Hold the radio about 2.5cm to 5cm from your mouth. It is important that the antenna is 2.5 cm away from your face. Press the PTT button, the red LED will be illuminated and whilst keeping it pressed, speak into the microphone in your normal voice. And release the PTT key to receive, the green LED will illuminate.



OVERVIEW



| No. | Items | | |
|-----|------------------------|--|--|
| 1 | Antenna | | |
| 2 | Speaker | | |
| 3 | MIC | | |
| 4 | LCD Display | | |
| 5 | MENU Key | | |
| 6 | Programming Key 1 (P1) | | |
| 7 | Channel Knob | | |
| 8 | Power / Volume Knob | | |
| 9 | LED Indicator | | |

Notes: Users need to understand well the functions which definite in Keypad / Side Buttons / LCD Display Icon / LED Indicator, then can maximize the capabilities of this DMR radio .

03

KEYPAD

◆ Users can check the menu function by pressing [Navigation key], after choose the function, press [MENU] key to confirm or press [Return] key back to last menu.

◆ Users can use the 3 X 4 alphabet and digital keypad to view the function, also can input the alias, ID and message. Some character needs to press more times.

PROGRAMMABLE BUTTONS P1 / P2 / SK1 / SK2 / SK3

These side buttons PF1/PF2 can be allocated for certain functionalities by software. The functions and features that can be programmed are listed below, you can active / deactivate the function by short press or long press once your definite the key in advanced.

Short Press – Pressing and releasing rapidly.

Long Press – Pressing and holding for the programmed duration.

| No. | Feature | No. | Feature |
|-----|-------------------------|-----|------------------|
| 1 | None | 10 | Squelch |
| 2 | All Alert Tones On/Off | 11 | Private On/Off |
| 3 | Emergency On | 12 | VOX On/Off |
| 4 | Emergency Off | 13 | Zones Selective |
| 5 | High/Low Power | 14 | Battery Checking |
| 6 | Monitor | 15 | Lone Work On/Off |
| 7 | One key Connected "1-6" | 16 | 1750 Tone |
| 8 | Repeater/Talk Around | 17 | Right Key |
| 9 | Scan On/Off | 18 | Left Key |

FUNCTIONS OPERATION INSTRUCTION

Making and Receiving Calls

1. PTT Button

Each channel can be set as Analog or Digital mode. Press PTT to transmit, release PTT to receive.

2. Select a Zone

Zone is a channels group, the radio supports max.250 zones and each zone support 64 channels.

04

Press [MENU] key enter menu page, then press [Up]/[Down] key to access menu and select the 'Zone', then press MENU] key to confirm. Turn the channel knob to select a channel under this zone.

3. Receive and Reply a Group Call

To receive a call made to a group of users, your radio must be configured as part of that group.

4. Receive and Respond to a Private Call

A Private Call is a call from an individual radio to another individual radio.

5. Receive an All Call

An All Call is a call from an individual radio to every radio on the channel. It is used to make important announcements requiring the user's full attention.

Making a Radio Call

After selecting your channel, you can select a subscriber alias or ID, or group alias or ID by using:

- The Channel Knob
- A programmed One Touch Access button
- The Contacts list
- Manually dial (by contact lists)

1. Making a Group Call

To make a call to a group of users, your radio must be configured as part of that group.

2. Making an All Call

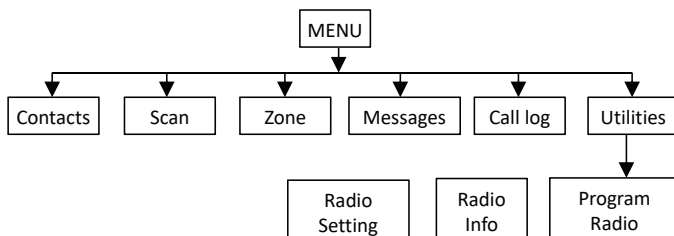
This function allows you to transmit to all users on the channel. Your radio must be programmed to allow you to use it.

3. Making a Group or Private Call with the One Touch Access Button

The One Touch Access feature allows you to make a Group or Private Call to a predefined alias or ID easily. This feature can be assigned to a short or long programmable button press, or to a long numeric button press. You can ONLY have one alias or ID assigned to a One Touch Access button. Your radio can have multiple One Touch Access buttons programmed.

05

Menu of Digital Mode



Under this menu, users can setup the functions include "Password Lock Features", "Turning the Radio Tones/Alerts On or Off", "Set Squelch Level", "Set Power Level", "Turn On/Off Display Backlight", "Turn the Introduction Screen On or Off", "Turn On/Off the VOX", "Language", "Turn On/Off VOX", "Turning the Password", Lock On or Off", "Changing the Password", "Accessing General Radio Information", "Checking the Radio Alias and ID", "Checking the Firmware Version"..... and so on.

But there are some functions that can only be used on radio after they are set in the software.

TECHNICAL SPECIFICATION

| General | |
|---------------------|--|
| Frequency Range | 136-174MHz and 400-470MHz |
| Channels | 3000 |
| Working Voltage | 7.4V Rated |
| Battery Capacity | 2200mAh |
| Dimension (H*W*D) | 120 x 55 x 37mm |
| Weight | About 319g (with battery and antenna) |
| Display Screen | 1.77 inch |
| Working Temperature | -25°C~+60°C |
| Storage Temperature | -40°C~+85°C |
| Frequency Spacing | 12.5kHz/25kHz (Analog) 12.5kHz (Digital) |
| Frequency Stability | ±1.0 ppm |

07

Emergency Alert

An emergency alert is used to indicate an emergency situation, and you can initiate an emergency call at any time or on any page when users operate radio, even if there is activity on the current channel. Your radio must be programmed for the button before use.

There are three emergency alert modes as below.

- Emergency Alert
- Emergency Alert & Calling
- Emergency Alert & Voice

Security

You can enable or disable any radio in the system. Users can choose the function by MENU operation, to active "Radio Disable" or "Radio Enable".

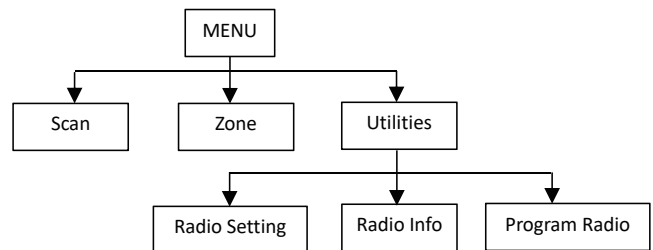
OPERATION OF MENU

Most functions of the radio can be realized through the menu. The steps of Menu operation as below.

- Press [MENU] key enter menu page, press [Up]/[Down] key to check items in Menu.
- Press [MENU] key to confirm a selection or entry next page.
- Press [Back] key return to last page.

Note: After a period of inactivity, the radio will automatically exit the menu and return to main screen (the hang time is set by the programming software).

Menu of Analog Mode



06

TECHNICAL SPECIFICATION

| Receiver | |
|------------------------------|---|
| Sensitivity (Analog) | 0.35uV/-116dBm (20 dB SINAD), 0.22uV/-120dBm (typical) |
| Sensitivity (Digital) | 0.3uV/-117.4dBm (BER 5%), 0.7uV/-110dBm (BER 1%) |
| Intermodulation | TIA603C: 55dB ETSI: 55dB |
| Adjacent Channel Selectivity | TIA603C: 55dB@12.5KHz ETSI: 55dB@12.5KHz |
| Common Channel Suppression | -12dB@12.5KHz |
| Spurious Response Rejection | TIA603C: 60dB ETSI: 60dB |
| Spurious Radiation | - 57dBm@<1GHz, - 47dBm @>1GHz |
| Block | 80dB |
| Rated Audio Power | 1W |
| Audio Response | +1~-3dB |
| Rated Audio Distortion | ≤3% |
| Transmitter | |
| Power Output | 4W/5W/1W |
| FM Hum & Noise | 40dB @ 12.5 kHz |
| Spurious Emission | -36dBm<1GHz; -30dBm>1GHz |
| Adjacent Channel Power | 60dB @ 12.5 kHz |
| FM Modulation | 11KΦF3E @ 12.5 kHz; 16KΦF3E @ 25 kHz |
| 4FSK Digital Modulation | 12.5kHz (Data only): 7K60FXD 12.5kHz Data & Voice: 7K60FXE |
| Modulation Limiting | ±2.5kHz @ 12.5 kHz |
| Idle Slot Power | -57dBm |
| Audio Response | +1~-3dB |
| Rated Audio Distortion | ≤3% |
| Digital Protocol | ETSI TS 102 361-1,-2,-3 |
| Digital Vocoder | AMBE+2™ |

Note: The above specifications are tested in accordance with applicable standards and subject to change without prior notice due to the continuous development of technology.

08