

FTM-100DR/DE

Operating Manual

144/430 MHz
DUAL BAND TRANSCEIVER

C4FM/FM



Before Use

Installation and Connection

Basic Operations

DG-ID and DP-ID Function

Using the Memory

Scanning

Using the GPS Function

Using the APRS Function

Using the GM Function

Using the WIRES-X Function

Convenient Functions

Customizing Menu Settings and
User Preferences

Appendix

Features of this transceiver

- 144/430 MHz dual-band transceiver equipped with standard C4FM digital communication modulation
 - Clear audio and data communication are achieved using the digital modulation functions
 - With the DG-ID (Digital Group ID), the Group Monitor (GM) feature enables automatically locating, and communicating with other stations that have the same DG-ID number within contact range, by utilizing a matching group ID number from 00 to 99
 - The Digital Personal ID (DP-ID) feature may communicate only by the transceivers registered the individual ID information that is different for each transceiver included in the transmission radio wave of C4FM digital communication
 - Wide-band receives in the 108 MHz to 999 MHz range (air band, information wireless band)
 - Transmit power 50 watts with cooling fan
 - The dot matrix LCD is mounted on the front panel
 - 500 memory channels in the A-band and 500 channels in the B-band
 - Your frequency memory channels and transceiver configuration settings can be backed up using a micro-SD memory card. The data on the micro-SD memory card can easily be copied to other transceivers
 - A choice of scanning functions (including VFO scan, memory scan)
 - Built-in GPS receiver unit displays your station location and movement information. Connection to external GPS devices is enabled.
*Refer to the separate “Advance Manual”
 - Incorporated APRS® function enables data communication of location information and messages
*Refer to the separate “APRS Instruction Manual”
 - GM (Group Monitor) function in which frequently communicating members can be registered as a group, thereby allowing location information and messages to be exchanged
*Refer to the separate “GM Instruction Manual”
 - Supports Yaesu WIRES-X Internet linking, enabling communication with remote partners via the Internet
*Refer to the separate “WIRES-X Instruction Manual”
 - Bluetooth adaptor unit BU-2 (sold separately) permits hands-free operation
*Refer to the separate “Advance Manual”
 - Voice guide unit FVS-2 (sold separately) provides voice announcements and recording of received audio
*Refer to the separate “Advance Manual”
- * The Advance Manual, WIRES-X, APRS, and GM Instruction Manuals are not included with this product. Please download them directly from the Yaesu website.

About registered trademarks and copyrights

APRS is a registered trademark of Mr. Bob Bruninga WB4APR.

SmartBeaconing is supplied by HamHUD Nichetronix.

Microsoft, Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries.


Bluetooth® is a registered trademark of the Bluetooth SIG.


Other company and product names listed in this manual are trademarks and registered trademarks of their respective companies.

Unauthorized reproduction or copying of a part or all of the copyrights owned by Yaesu Musen Co., Ltd. in any form whatsoever is strictly prohibited.

How to read this manual

In this manual, front panel operations are described as follows.

Press  Indicates that the key or switch is to be pressed briefly.

Press  for over one second.... Indicates that the key or switch is to be pressed for over one second.

The following symbols are also used in this manual:

Caution



...Explains caution to observe during operation.

Tip



...Explains operating suggestions or useful tips.

Also note: the actual product may differ from the drawings shown in this manual.

Contents

Introduction.....	2	Other settings.....	34
Features of this transceiver.....	2	Locking the DIAL and keys.....	34
About registered trademarks and copyrights.....	3	Adjusting the date and time.....	34
How to read this manual.....	3	Restoring defaults (All Reset).....	36
Before Use.....	5	DG-ID and DP-ID Function.....	37
Safety Precautions (make sure to read these).....	5	Digital Group ID (DG-ID) function.....	37
Checking the supplied items.....	9	Communicating only with the specific members	
Name and function of each component.....	10	by setting the DG-ID number except for "00".....	37
Front panel.....	10	Digital Personal ID (DP-ID) function.....	39
Front.....	10	Registering the DP-ID to a DR-2X	
Rear.....	12	digital repeater.....	39
Main body.....	12	Register the transceivers.....	39
Front.....	12	Deleting the registered DP-ID.....	40
Rear.....	13	Using the Memory.....	41
Microphone (MH-48A6JA).....	14	Registering to the memory channel.....	41
Screen display.....	15	Recalling memories.....	42
Input characters.....	16	Recalling the home channel.....	43
Switching the character type.....	16	Changing the frequency of the home channel... ..	44
Deleting the input characters.....	16	Clearing memories.....	45
Moving the cursor to the left.....	16	Naming a memory channel.....	46
Moving the cursor to the right.....	16	Displaying the memory tag.....	48
Deleting the most recently input character.....	16	Split memory.....	48
Completing input.....	16	Receiving Weather Broadcast Channels	
Installation and Connection.....	17	(USA version only).....	49
Installing the transceiver.....	17	Assigning the "WX" function to a	
Precautions on installation.....	17	programmable key on the microphone.....	49
Installation location when used in a mobile unit... ..	18	Recalling the weather channels.....	49
About the antenna.....	19	Listening the weather alert.....	50
Installing the antenna.....	19	Scanning.....	51
Installing the main body.....	20	Searching for signals.....	51
Installing the front panel.....	21	VFO scan.....	51
Connecting the transceiver.....	22	Selecting the receiver operation performed	
Connecting the front panel to the main body.....	22	after scanning stops.....	52
Connecting the microphone.....	22	Memory scan.....	53
Connecting the antenna.....	22	Selecting the scanning method.....	54
Connecting the power supply.....	23	Using the GPS Function.....	55
Connecting the car battery.....	23	Using the APRS Function.....	56
Connecting the external power supply		What is the APRS (Automatic Packet Reporting	
equipment.....	23	System) function?.....	56
Basic Operations.....	24	Using the GM Function.....	57
Receiving.....	24	What is the GM (Group Monitor) Function?.....	57
Turning the power on.....	24	How to use the GM function.....	57
Switching the power off.....	24	Using the WIRES-X Function.....	59
Inputting the call sign.....	24	What is the WIRES-X Function?.....	59
Toggling the operating band.....	25	Convenient Functions.....	60
Adjusting the volume level.....	25	Communicating with specific stations.....	60
Adjusting the squelch level.....	26	Using the tone squelch function.....	60
Tuning in to the frequency.....	27	Using the digital code squelch function.....	60
Changing the frequency steps.....	27	Using the new pager function.....	60
Switching the operation mode.....	28	Notification of incoming calls from	
Selecting communication mode.....	29	partner stations using the bell function.....	60
Switching the modulation mode.....	30	Exchanging messages or images.....	60
Communicating.....	31	Setup menu basic operations.....	61
Transmitting.....	31	Setup-menu listing.....	62
Adjusting the transmit power.....	32	Appendix.....	68
Communicating in FM mode.....	32	Optional components.....	68
Communicating using the repeater.....	32	Specifications.....	69
Tone Calling (1750 Hz).....	33		
Changing the 100.0 Hz CTCSS tone squelch.....	33		

Safety Precautions (make sure to read these)

Make sure to read this manual in order to use this radio safely and correctly.

Before using this product, note that the company shall not be liable for any damages suffered by the customer or third parties, or for any failures and faults that occur during the use or misuse of this product, unless otherwise provided for under the law.

Type and meaning of the marks



DANGER

This symbol indicates the possibility of death or serious injury being inflicted on the user and the surrounding people when these instructions are ignored and the product is mishandled.



WARNING

This symbol indicates the possibility of death or serious injury being inflicted on the user and the surrounding people when these instructions are ignored and the product is mishandled.




CAUTION

This symbol indicates the possibility of physical impediments occurring or impediments being inflicted on the user and the surrounding people when these instructions are ignored and the product is mishandled.


Type and meaning of symbols



Prohibited actions that must not be attempted, in order to use this radio safely.

For example,  signifies that disassembly is prohibited.



Precautions that must be adhered to in order to use this radio safely. For example,  signifies that the power supply is to be disconnected.



DANGER



Do not use the device in "regions or aircrafts and vehicles where its use is prohibited" such as in hospitals and airplanes.

This may exert an impact on electronic and medical devices.



Do not use this product while driving or riding a motorbike. This may result in accidents.

Make sure to stop the car in a safe location first before use if the device is going to be used by the driver.



Never touch the antenna during transmission.

This may result in injury, electric shock and equipment failure.



When an alarm goes off with the external antenna connected, cut off the power supply to this radio immediately and disconnect the external antenna from this radio.

If not, this may result in fire, electric shock and equipment failure.

Safety Precautions (make sure to read these)



Do not operate the device when flammable gas is generated.

Doing so may result in fire and explosion.



Do not transmit in crowded places in consideration of people who are fitted with medical devices such as heart pacemakers.

Electromagnetic waves from the device may affect the medical device, resulting in accidents caused by malfunctions.



Do not touch any liquid leaking from the liquid display with your bare hands.

There is a risk of chemical burns occurring when the liquid comes into contact with the skin or gets into the eyes. In this case, seek medical treatment immediately.



WARNING



Do not use voltages other than the specified power supply voltage.

Doing so may result in fire and electric shock.



Do not transmit continuously for long periods of time.

This may cause the temperature of the main body to rise and result in burns and failures due to overheating.



Do not dismantle or modify the device.

This may result in injury, electric shock and equipment failure.



Do not handle the power plug and connector etc. with wet hands. Also do not plug and unplug the power plug with wet hands.

This may result in injury, liquid leak, electric shock and equipment failure.



When smoke or strange odors are emitted from the radio, turn off the power and disconnect the power cord from the socket.

This may result in fire, liquid leak, overheating, damage, ignition and equipment failure. Please contact our company amateur customer support or the retail store where you purchased the device.



Keep the power plug pins and the surrounding areas clean at all times.

This may result in fire, liquid leak, overheating, breakage, ignition etc.



Do not place the device in areas that may get wet easily (e.g. near a humidifier).

This may result in fire, electric shock and equipment failure.



When connecting a DC power cord, pay due care not to mix up the positive and negative polarities.

This may result in fire, electric shock and equipment failure.



Do not use DC power cords other than the one enclosed or specified.

This may result in fire, electric shock and equipment failure.



Do not bend, twist, pull, heat and modify the power cord and connection cables in an unreasonable manner.

This may cut or damage the cables and result in fire, electric shock and equipment failure.



Do not pull the cable when plugging and unplugging the power cord and connection cables.

Please hold the plug or connector when unplugging. If not, this may result in fire, electric shock and equipment failure.



When transmitting, keep the antenna at least 1.8 m (VHF) or 2.2 m (UHF) away from your body. Do not use modified or damaged antennas.

Safety Precautions (make sure to read these)

Do not use the device when the power cord and connection cables are damaged, and when the DC power connector cannot be plugged in tightly.



Please contact our company amateur customer support or the retail store where you purchased the device as this may result in fire, electric shock and equipment failure.

Never cut off the fuse holder of the DC power cord.



This may cause short-circuiting and result in ignition and fire.

Do not use fuses other than those specified.



Doing so may result in fire and equipment failure.

Do not allow metallic objects such as wires and water to get inside the product.



This may result in fire, electric shock and equipment failure.

Refrain from using headphones and earphones at a loud volume.



Continuous exposure to loud volumes may result in hearing impairment.

Disconnect the power cord and connection cables before incorporating items sold separately and replacing the fuse.



This may result in fire, electric shock and equipment failure.

Follow the instructions given when installing items sold separately and replacing the fuse.



This may result in fire, electric shock and equipment failure.

Do not use the device when the alarm goes off.

For safety reasons, please pull the power plug of the DC power equipment connected to the product out of the AC socket.



Never touch the antenna as well. This may result in fire, electric shock and equipment failure due to thunder.



CAUTION

Do not place this device near a heating instrument or in a location exposed to direct sunlight.



This may result in deformation and discoloration.

Do not place this device in a location where there is a lot of dust and humidity.



Doing so may result in fire and equipment failure.

Stay as far away from the antenna as possible during transmission.



Long-term exposure to electromagnetic radiation may have a negative effect on the human body.

Do not wipe the case using thinner and benzene etc.



Please use a soft and dry piece of cloth to wipe away the stains on the case.

For safety reasons, switch off the power and pull out the DC power cord connected to the DC power connector when the device is not going to be used for a long period of time.



If not, this may result in fire and overheating.

Do not throw or subject the device to strong impact forces.



This may result in equipment failure.

Do not put this device near magnetic cards and video tapes.



The data in the cash card and video tape etc. may be erased.

Do not turn on the volume too high when using a headphone or earphone.



This may result in hearing impairment.

Safety Precautions (make sure to read these)



Keep out of the reach of small children.

If not, this may result in injuries to children.



Do not put heavy objects on top of the power cord and connection cables.

This may damage the power cord and connection cables, resulting in fire and electric shock.



Do not transmit near the television and radio.

This may result in electromagnetic interference.



Do not use optional products other than those specified by our company.

If not, this may result in equipment failure.



When using the device in a hybrid car or fuel-saving car, make sure to check with the car manufacturer before using.

The device may not be able to receive transmissions normally due to the influence of noises from the electrical devices (inverters etc.) fitted in the car.



Do not place the device on an unsteady or sloping surface, or in a location where there is a lot of vibration.

The device may fall over or drop, resulting in fire, injury and equipment failure.



Do not stand on top of the product, and do not place heavy objects on top or insert objects inside it.

If not, this may result in equipment failure.



Do not use a microphone other than those specified when connecting a microphone to the device.

If not, this may result in equipment failure.



Do not touch the heat radiating parts.

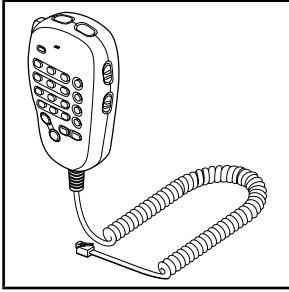
When used for a long period of time, the temperature of the heat radiating parts will get higher, resulting in burns when touched.



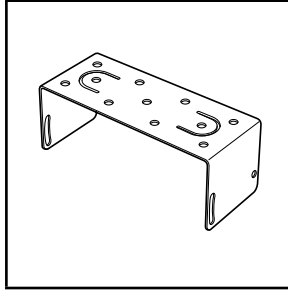
Do not open the case of the product except when replacing the fuse and when installing items sold separately.

This may result in injury, electric shock and equipment failure.

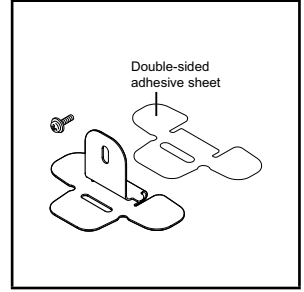
Checking the supplied items



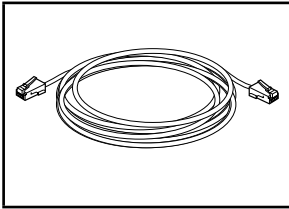
DTMF microphone
MH-48A6JA



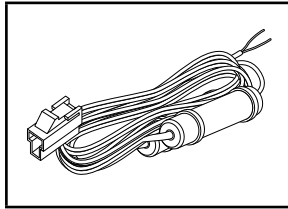
Bracket for main body
MMB-36
Attachment screw set



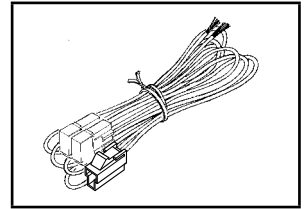
Bracket for the
controller



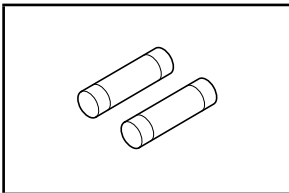
Controller cable
(3 m)



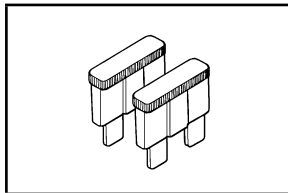
DC power cable
(with fuse attached)
(USA, Asian version)



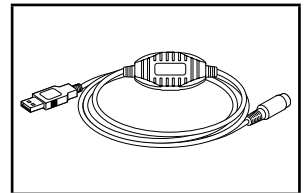
DC power cable
(with fuse attached)
(European version)



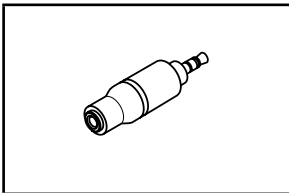
Spare fuse (15 A)
(USA, Asian version)



Spare fuse (15 A)
(European version)



PC connection cable
SCU-20



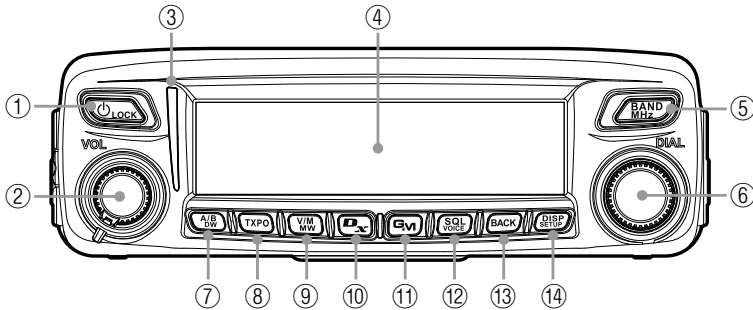
Stereo to monaural plug

Operating Manual (this manual)
Warranty Card

Name and function of each component

Front panel

Front



① Power/LOCK key (⏻ Lock)

Pressing the key for over 2 seconds switches the power between ON and OFF. Briefly pressing the key while the transceiver is turned ON engages or releases the key lock.

② VOL knob

Turning the knob clockwise increases the volume, whereas turning it counterclockwise decreases the volume.

③ Mode/Status indicator

Indicates the transmission/reception status with a two-color combination on the upper and lower portions of the mode/status indicator.

Communication status	Upper portion	Lower portion
Receiving analog audio	Green	Green
Transmitting analog audio	Red	Red
Receiving digital audio	Green	Blue
Transmitting digital audio	Red	Blue
Receiving digital data	Green	White
Transmitting digital data	Red	White
Receiving signals with unmatched tone frequency or DCS code	Green	Blink in blue

④ Dot matrix LCD display

⑤ BAND MHz key (BAND MHz)

Switches each band between the operating band and sub-band.











Pressing and holding for over one second allows you to set the frequency in 1 MHz units.

⑥ DIAL knob

- Allows you to set the operating band frequency.

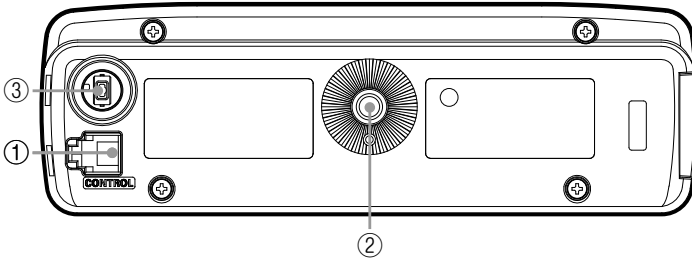
Turning clockwise increases the frequency whereas turning counterclockwise decreases the frequency.

- Allows you to select the desired item for setup, memory registration, group monitoring operation, etc.

- ⑦ A/B DW key ()
Briefly pressing each time switches the operating band between Band A and Band B. Pressing for over one second each time switches the dual watch function between ON and OFF.
- ⑧ TXPO key ()
Briefly pressing each time switches the transmission power (HIGH/MID/LOW). Pressing and holding for over one second each time switches the signaling setting. For details, refer to the Advanced Manual (download from the Yaesu website).
- ⑨ V/M MW key ()
Briefly pressing each time switches between VFO mode and memory mode. Pressing and holding for over one second displays the memory registration screen.
- ⑩ D/X key ()
Briefly pressing each time switches the operating band communication mode.
Tip For details on the communication mode, see “Selecting communication mode” on page 29. Pressing and holding for over one second activates WIRES-X.
- ⑪ GM key ()
Activates the GM (group monitor) function.
Pressing and holding for over one second displays the DG-ID SETUP screen.
Tip Press the , ( appears on the left side) on the DG-ID SETUP screen displays the logging function screen. (see “Digital Group ID (DG-ID) function” on page 37.)
- ⑫ SQL VOICE key ()
Pressing this button briefly and rotating the DIAL sets the squelch level. Pressing and holding for over one second activates VOICE mode (when the optional FVS-2 is mounted).
- ⑬ BACK key ()
Briefly pressing enables the selected item or value. Then, the display returns to the previously viewed screen.
- ⑭ DISP SETUP key ()
Briefly pressing switches the display information (your location information/received station location information/GPS INFO screen).
Tip For details on the display information, see page 15.
Pressing and holding for over one second displays the Setup menu.

Name and function of each component

Rear

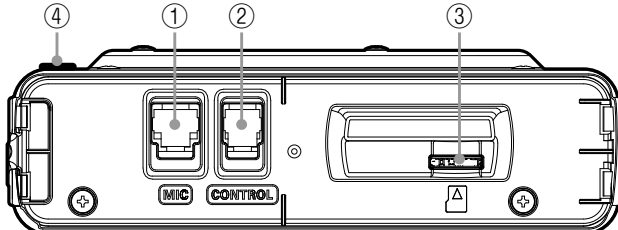


- ① CONTROL jack
Connect the control cable into this jack to connect to the main body.
- ② Screw hole to attach the mounting bracket
- ③ Firmware update switch

Caution Keep the rubber cap on when not in use.

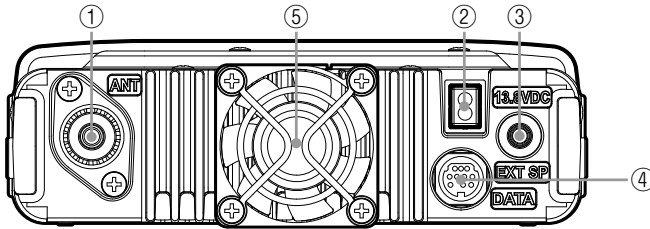
Main body

Front



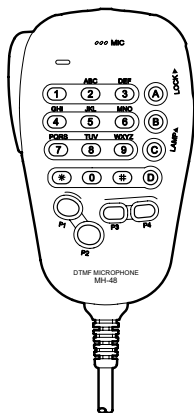
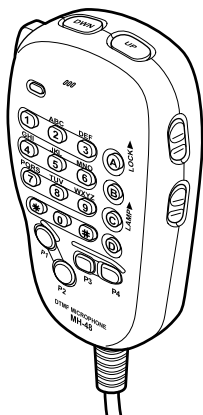
- ① MIC jack
Connect the provided microphone cable.
- ② CONTROL jack
Connect the control cable into this jack to connect to the controller.
- ③ micro-SD memory card slot
- ④ Firmware update switch

Caution Keep the rubber cap on when not in use.

Rear

- ① ANT terminal
Connect the antenna.
- ② 13.8V DC
Connect the provided DC power supply cable (with fuse attached).
- ③ EXT SP jack
Connect the optional external speaker.
- ④ DATA jack
Connect a cable for remote operation or a cable for connecting to devices such as your computer interface unit and the external terminal unit.
- ⑤ Cooling fan

Microphone (MH-48A6JA)

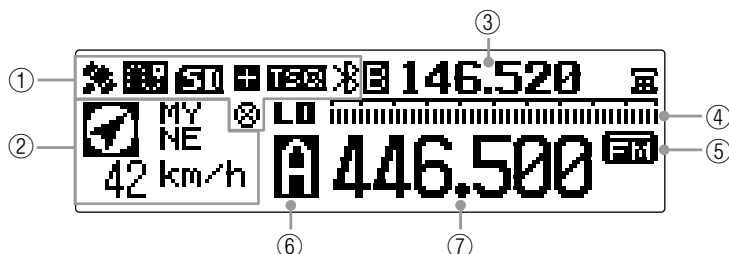


- [UP]** Increases the frequency by one step.
- [DOWN]** Decreases the frequency by one step.
- [LOCK]** Locks / unlocks the [UP] and [DOWN] keys and [P1] to [P4] keys.
- [LAMP]** Turns the lamp on the body of the microphone on/off.
- [MIC]** Speak into this part during transmission.
- [1] to [0]** Enters the numbers.
- [*]** Switches between VFO and Memory operating mode of the operating band.
- [#]** Activates the GM (Group Monitor) functions.
- [A]** Switches the operating band to the A-band.
- [B]** Switches the operating band to the B-band.
- [C]** Adjusts the squelch level.
- [D]** Switches the display.
- [P1]** Turns off the squelch function.
(T.CALL: European version)
- [P2]** Recalls the receiver home channel.
- [P3]** Changes the communication mode.
- [P4]** Changes the transmit power.
- [PTT]** Switches the transceiver to transmission mode.

Tip

The desired functions can be assigned to buttons [P1] to [P4]. For details, refer to the Advanced Manual (download from the Yaesu website).

Screen display



- ① Icon display
Displays the Bluetooth, APRS, micro-SD memory card and GPS icons when each function is in use.
- ② Station location information display
Displays the received station's location information and your station location information. Briefly pressing the **DISP** key each time switches the displayed data between the received station location, and your station location.
- ③ Sub-band frequency display
While in VFO mode, displays the sub-band name (A or B) and sub-band frequency. While in memory mode, displays the registered frequency or memory tag.
- ④ S-meter display
Displays the S-meter bar graph. Displays the squelch level while adjusting the squelch.
Functions as a power indicator during transmission.
- ⑤ Communication mode display
Displays the current operating mode, such as analog and digital using abbreviations. Auto mode is indicated with a flashing bar appearing above the abbreviation. In Auto mode, the communication mode is automatically set according to the receiving signal.
Tip The AMS functions can be changed in the Setup menu from **[2 TX/RX]** → **[3 AMS TX MODE]**.
- ⑥ Indicates the operating band name, memory channel, and transmission.
When in VFO mode, the operating band name (A or B) is displayed.
While in memory mode, displays **MA** and the memory channel number for the A-band, and **MB** and the memory channel number for the B-band.
When transmit is keyed, **LO** indicates the "LO" level transmit power, and **MID** indicates the "MID" level transmit power.
- ⑦ Frequency display
Displays the operating band frequency.

Name and function of each component

● GPS INFO screen

While a received station's information is displayed, briefly press the **(DISP SETUP)** key to display the GPS INFO screen.

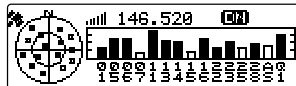
May also display the compass and the signal level of each acquired satellite. □ indicates an un-acquired satellite and ■ indicates an acquired satellite.

Tip From [1 DISPLAY] → [4 GPS INFORMATION], you can select "LOCATION" (location display) or "FREQUENCY" (frequency display).

[Location display]



[Frequency display]



Input characters

You can input letters and characters to enter your call sign and memory channel tags by following the procedure below.

■ Switching the character type

Press **(TXPO)** (**A/E** appears on the upper display). Pressing each time changes the character type in the following order.

Uppercase letters → symbols → lowercase letters → numbers

■ Deleting the input characters

Press **(V/M MW)** (**CLR** appears on the upper display).

Deletes all characters to the right side of the cursor including the character on which the cursor is currently positioning.

■ Moving the cursor to the left

Press **(D<)** (**←** appears on the upper display).

■ Moving the cursor to the right

Press **(D>)** (**→** appears on the upper display).

■ Deleting the most recently input character

Press **(SQL VOICE)** (**←X** appears on the upper display).

■ Completing input

Press **(DISP SETUP)**. To cancel inputting, press **(BACK)**.

Installing the transceiver

Precautions on installation

Note the following when installing the transceiver.

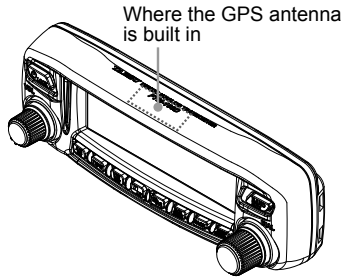
- Do not install the transceiver in a place where it would be exposed to direct sunlight, high temperatures, excessive humidity, dusty conditions, or extreme vibrations.
- Install the transceiver in a well-ventilated position, so that heat dissipation is not hindered, because the heat sinks will become hot when the transceiver is run for an extended period of time.
- Do not place any objects on the transceiver.
- Do not attempt to lift the front panel by holding onto just the knob or control cable.
- This transceiver requires a 13.8 V DC power supply.
When using this transceiver in a mobile unit, ensure that the car battery is a 12 V type. Never connect this transceiver to a 24 V battery of a large vehicle.
- Never connect the transceiver to a 100 V AC power source.
- Heed caution as hum and noise may be introduced, depending on the installation conditions of the external power source.
- Install the transceiver as far away as possible from TVs and radios. Failing to do so may result in noise interference such as broadcast interference (BCI) or television interference (TVI) from radios and TVs respectively.
Never attempt to install this transceiver near indoor antenna elements.

Installation location when used in a mobile unit

● Front panel

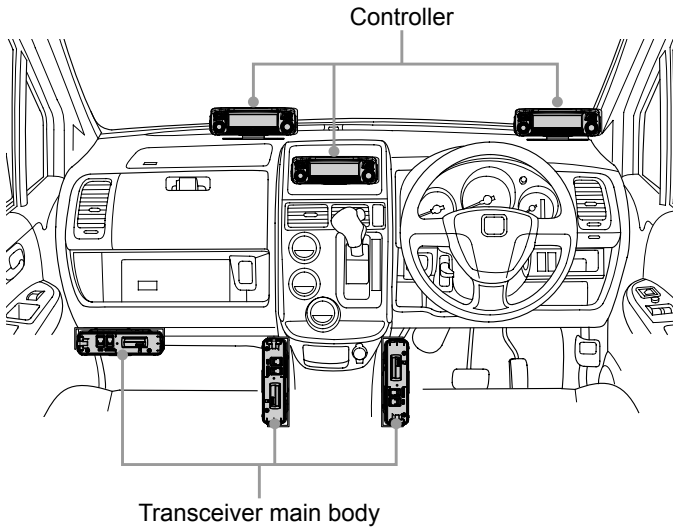
To efficiently receive the GPS satellites, it is recommended that the transceiver should be installed on the dashboard or front side of the center console. See “Installing the front panel” on page 21.

Tip The GPS reception antenna is built into the front panel.



● Main body

It is recommended that the main body be installed below the car dashboard or to either side of the center console. See “Installing the main body” on page 20.



About the antenna

The antenna is an extremely important part for both transmitting and receiving. The antenna type and its inherent characteristics determine whether the performance of the transceiver can be fully realized. As such, please note the following:

- Use an antenna that is suitable for the installation conditions and application objective.
- Use an antenna that is suitable for the operating frequency band.
- Use an antenna and a coaxial cable with a characteristic feed point impedance of 50Ω.
- Adjust the VSWR (Voltage Standing Wave Ratio) until it is 1.5 or less for an antenna with an adjusted impedance of 50Ω.
- Keep the coaxial cable routing length as short as possible.

Installing the antenna

● Antenna installation in a mobile unit

Install the antenna base to the rear of the car (rear bumper, trunk, rear gate, etc.) and then attach the antenna to the base.

Cautions

- Verify that the antenna base is securely grounded to the car body.
- When using a coaxial cable included with a commercially-available on-vehicle antenna, lay the cable in a way to keep it as short as possible.
- Do not allow rain water or moisture to penetrate the entrance of the cable or connectors when routing the coaxial cable inside the vehicle.

● Antenna installation when using a fixed station

For use in an outdoor setting, there are omni-directional antennas and a variety of directional antennas.

- Omni-directional antennas such as the GP (Ground Plane) antenna are suitable for communications with a local station or mobile stations in all directions.
- Directional antennas such as the Yagi antenna are suitable for communications with a specific station or a remote station in a specific direction.

Cautions

- Create a loop (slack) in the coaxial cable directly underneath the antenna and fasten the coaxial cable so that the weight of the cable does not pull on the antenna.
- When installing the antenna, take into consideration the securing supports and how the guy wires are positioned, so that the antenna does not fall over or get blown away by strong wind gusts.

Installing the main body

Install the main body using the supplied MMB-36 bracket.

- 1 Select the installation location.

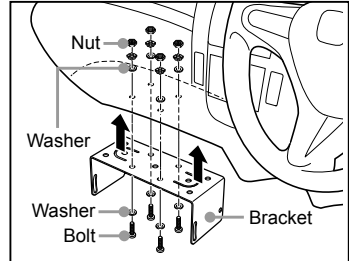
Caution Select a location where the transceiver can be securely attached.

Tip See “Installation location when used in a mobile unit” on page 18.

- 2 Drill four 6 mm diameter holes in the location where the bracket is to be mounted, matching the positions of the bolting holes of the bracket.

- 3 Attach the bracket.

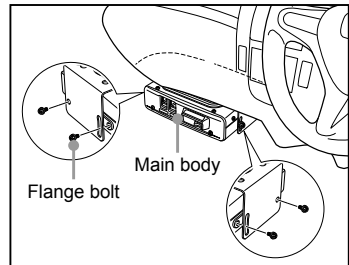
Attach the bracket using the supplied bolts, nuts and washers.



- 4 Attach the main body to the bracket.

Fasten the main body to the bracket, using the supplied flange bolts, as shown in the illustration.

Tip The mounting angle can be changed depending on the securing position of the flange bolts.



Installing the front panel

Install the front panel using the supplied bracket.

Caution

The bracket can be formed by hand to match the location where the front panel is installed. Be careful not to cause an injury when bending the bracket.

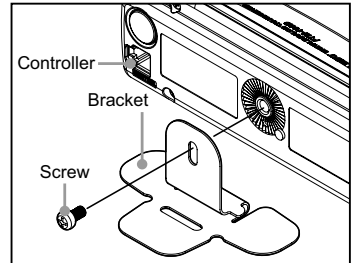
- 1 Select the installation location.

Caution Select a stable, flat location with as few dents and protrusions as possible.

Tip See "Installation location when used in a mobile unit" on page 18.

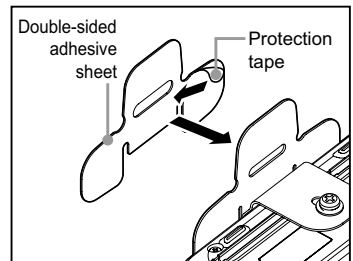
- 2 Attach the bracket to the front panel.

Attach the bracket to the front panel using the supplied screws as shown in the illustration.



- 3 Adhere double-sided adhesive sheet to the bracket.

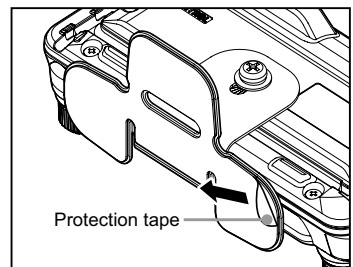
Peel off the protection tape from one side of the supplied double-sided adhesive sheet, and paste it onto the bottom side of the bracket.



- 4 Install the bracket where you want to place the front panel.

After the adhesive sheet is adhered to the bottom side of the bracket, Peel off the other side of the protection tape, and then stick the bracket to the installation location.

Caution Remove all dirt and dust from the installation location before affixing the bracket.



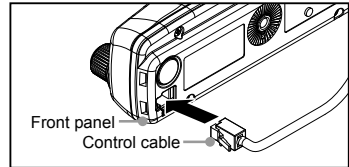
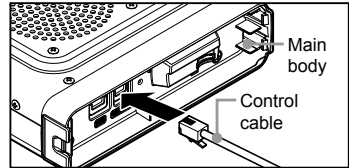
Connecting the transceiver

Connecting the front panel to the main body

Caution

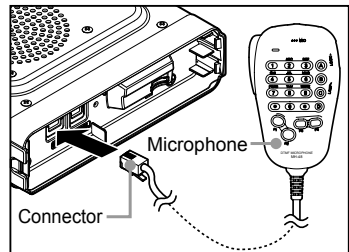
Make sure to turn the transceiver OFF before connecting.

- 1 Connect the supplied control cable to the transceiver main body.
Push the control cable plug into the CONTROL jack on the front panel of the transceiver main body, until it clicks.
- 2 Connect the other side of the front panel to the control unit.
Push the other control cable plug into the CONTROL jack on the transceiver control front panel, until it clicks.



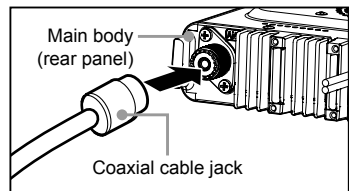
Connecting the microphone

- 1 Connect the supplied microphone to the main body.
Plug the microphone connector into the MIC jack on the front panel until it clicks.
- Tips**
- When disconnecting the microphone, pull the cable while pressing the connector latch.
 - Use the optional microphone extension kit "MEK-2". An extension cable (Approx. 3 m) is supplied with MEK-2 allowing you to operate further away from the main body.



Connecting the antenna

- 1 Connect the coaxial cable to the main body.
Plug the coaxial cable jack into the ANT terminal on the rear panel of the main body, then rotate and tighten it.



Connecting the power supply

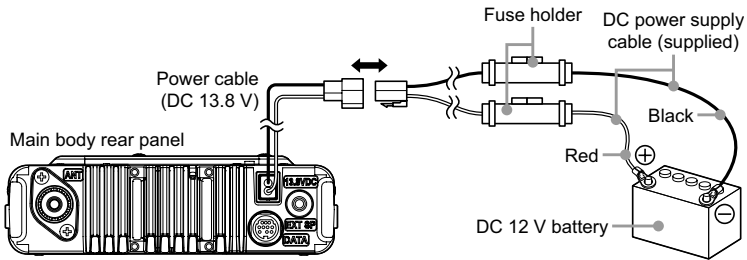
Connecting the car battery

When using the transceiver as a mobile unit, connect the DC power supply cable to the car battery.

Cautions

- Use the transceiver in a car with a negative ground system where the minus (-) pole of the battery is connected to the car body.
- Check the car battery specification is 12 V. Do not connect the transceiver to the 24 V battery of a large vehicle.
- Do not use the cigarette lighter socket inside the car as a power source.

Plug into the connector of the main body power cable until it clicks.

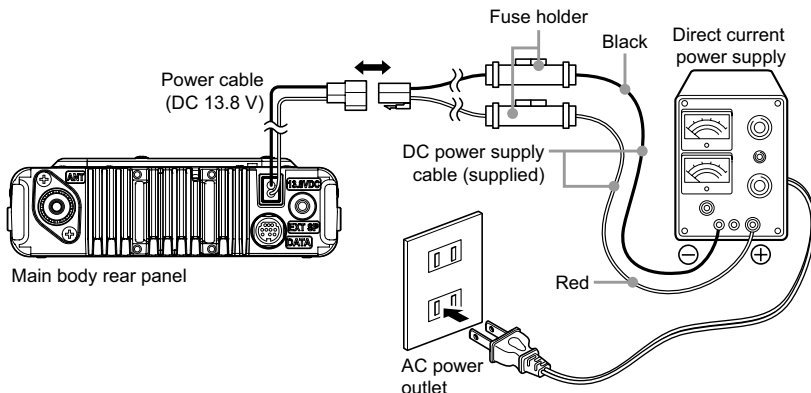


Connecting the external power supply equipment

When using the transceiver as a fixed station, use an external power source.


Cautions

- Use an external power source capable of supplying DC 13.8 V, a current capacity of 20 A or more.
- Make sure to switch OFF the power of the external power source before connecting.



Receiving

Turning the power on

- 1 Press and hold  for over 2 seconds.

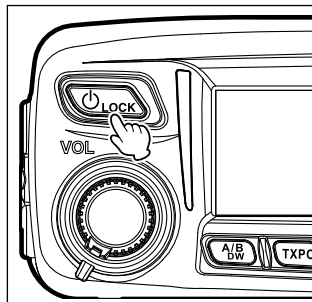
The power switches on, and the display appears on the screen.

<When using the same call sign for digital and APRS>



<When using separate call signs for digital and APRS>


The call sign for digital appears on the left and the call sign for APRS appears on the right.



Tips • When turning the transceiver on for the first time, or after resetting the transceiver, a screen requesting input of a call sign appears.

- When turning the transceiver on thereafter, the previously registered call sign will be displayed.

Switching the power off

- 1 Press and hold  for over 2 seconds.

The screen display disappears, and the power switches off.

Inputting the call sign

A screen requesting input of a call sign appears when turning the transceiver on for the first time, or after resetting the transceiver.

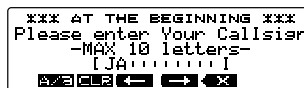
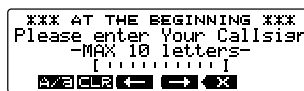
The call sign is used to identify the transmitting station when communicating in digital mode.

- 1 Rotate the DIAL to select characters, then press



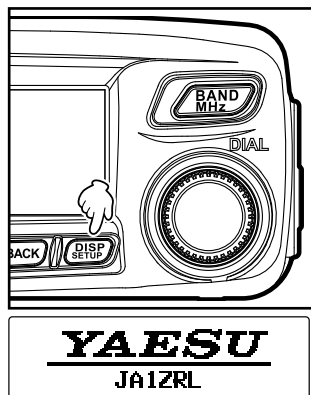
Tips • Up to 10 characters (alphanumeric characters including hyphen) can be entered.

- See "Input characters" on page 16 on how to operate the character input screen.



- 2 Press **DISP SETUP**.
The display changes.

The entered call sign appears at the bottom of the screen, and the screen switches to the frequency display screen.

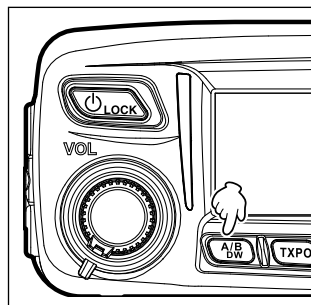


Toggling the operating band

Normally, 2 operating bands appear on the top half and bottom half of the screen. The frequency and modulation mode may be changed only for the band on the top half of the screen, which is called “operating band”. The other band, displayed on the bottom half of the screen, is not in operation, and is called the “sub-band”.

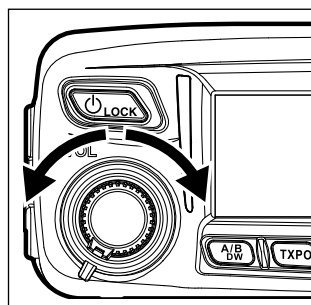
- 1 Press **A/B BW**.
Each press toggles the operating band between A-band and B-band.

Caution The operating band signals and sub-band signals cannot be received simultaneously.



Adjusting the volume level

- 1 Rotate VOL.
Clockwise rotation increases the volume, whereas counterclockwise rotation decreases the volume.



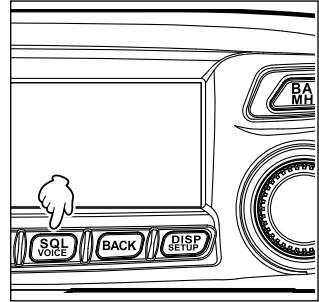
Adjusting the squelch level

Annoying noises can be eliminated when there is no signal present. The A-band and B-band squelch levels can be individually adjusted. Increasing the squelch level will be more effective in reducing noise; however setting the squelch level too high may block weak signals. Adjust the squelch level as required.

- 1 Press **SQL VOICE**.

The current squelch level is shown on the sub-band display and on the SQL meter.

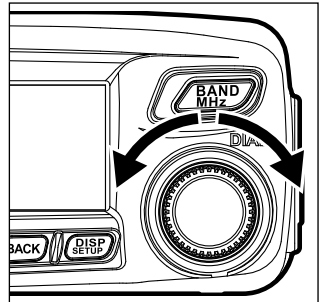
Tip In digital mode, noise does not occur even if the squelch level is set to 0.



- 2 Rotate the DIAL to adjust the squelch level.

The squelch level value is shown on the sub-band display, and the level is displayed on the SQL meter.

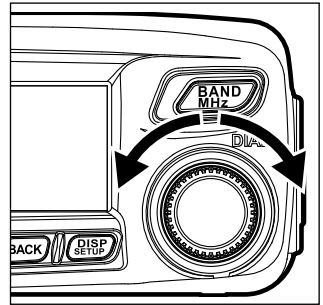
Tip The display returns to the normal operating screen three seconds after the squelch is adjusted, or if no adjustment is made.



Tuning in to the frequency

● Using the DIAL

- 1 Rotate the DIAL.
Clockwise rotation tunes the frequency upwards, whereas counterclockwise rotation tunes the frequency downwards.



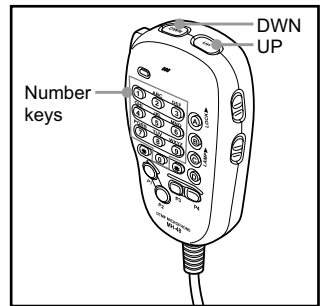
● Using the microphone

Press [UP] and [DWN] briefly

Pressing [UP] briefly, tunes the frequency upwards. Whereas pressing [DWN] briefly tunes the frequency in the downward direction.

Using the number keys

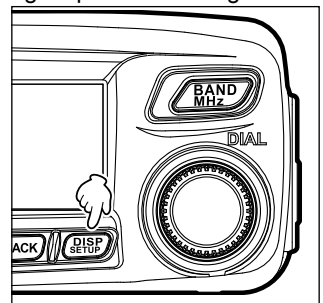
Use the ① to ⑨ number keys to directly input the frequency.



Changing the frequency steps

The DIAL and microphone [UP]/[DWN] keys frequency tuning step can be changed.

- 1 Press **DISP SETUP** for over one second.
The Setup menu appears.

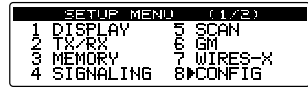


Receiving

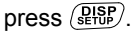
- 2 Rotate the DIAL to select [8 CONFIG], then press



The menu list appears.



- 3 Rotate the DIAL to select [7 FM AM STEP], then press



- 4 Rotate the DIAL to select the desired frequency step.

The frequency steps change in the following order:

“AUTO” → “5.00 KHz” → “6.25 KHz” → “8.33 KHz”
→ “10.00 KHz” → “12.50 KHz” → “15.00 KHz” →
“20.00 KHz” → “25.00 KHz” → “50.00 KHz” →
“100.00 KHz”



Tips • The default setting: AUTO

- The 8.33 kHz frequency step can be selected only on the Air band.
- The 5 kHz, 6.25 kHz or 15 kHz frequency step cannot be selected on 480 MHz or higher frequency.

- 5 Press and hold for over one second.

The selected frequency step is set, and the display returns to the previous operating display.

Tip To return to the previous operating display press 3 times.

Switching the operation mode

The operating mode can be switched between VFO mode and MEMORY mode. In VFO mode, the operating frequency may be freely adjusted; in MEMORY mode, the memory channels are recalled and displayed on the screen for operation.

- 1 Select the desired operating band.

- 2 Press .

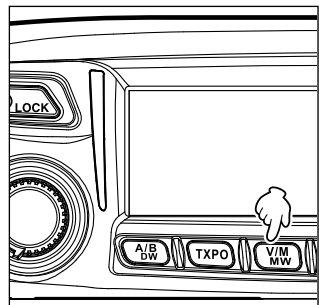
The display switches to MEMORY mode.

or and the memory channel number appear on the operating band name display.

Tips • appears on the A-band.

- appears on the B-band.

When a name (tag) has been assigned to the memory channel, the tag appears on the frequency display or the sub-band display.




3 Press .

The display switches to VFO mode and returns to the previous receive frequency.

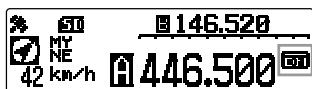
Selecting communication mode

The FTM-100DR/DE transceiver is equipped with the AMS (Automatic Mode Select) function which automatically selects from 4 modes of transmission corresponding to the signal being received.



The transmit mode is selected according to the received signal so that C4FM digital signals, and analog signals are received and transmitted automatically.

Press  to display “○○” on the screen.

*The display differs depending on the received signal.



— Display example when in AMS mode

To operate in fixed communication mode, press  to switch the communication mode. Each time  is pressed, the communication mode changes in the following order:

“ (AMS)” → “DN (V/D mode)” → “VW/DW (FR mode)” → “FM (analog)”

Operation mode	Icon	Description of modes
AMS (Automatic Mode Select)	○○	Transmission mode is automatically selected from 4 types according to the signal received. (“○○” icon differs depending on the received signal.) The AMS function operation can be changed from the Setup menu setting. See page 62.
V/D Mode (Voice/Data simultaneous transmission mode)	DN	Calls are less prone to interruptions due to detection and correction of voice signals during digital voice signal transmission. This is the standard mode for C4FM Digital.
Voice FR Mode (Voice Full Rate Mode)	VW	Digital voice data transmission using the entire 12.5 kHz band. Enables high-quality voice communication.
Data FR Mode (High Speed Data Communication Mode)	DW	High speed data communication using the entire 12.5 kHz band. The transceiver automatically switches to this mode during image transmission.
Analog FM Mode	FM	Analog communication using FM mode. Effective when the signal is weak and audio is susceptible to interruption in digital mode.

Cautions

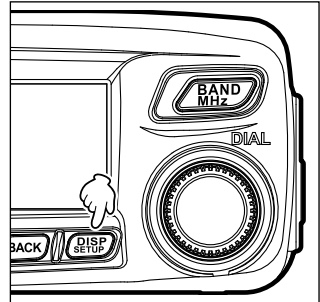
- In V/D mode (“DN” on the screen), location information is included in the transmitted signal during voice communication, however, location information is not included with the Voice in the FR mode (“VW” on the LCD).

Switching the modulation mode

In analog mode, the modulation mode can be selected from “AUTO”, “MANUAL (FM)” and “MANUAL (AM)”.

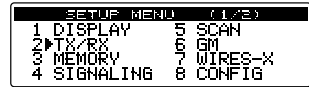
When shipped from the factory, the mode is set to “AUTO” where the most optimal modulation mode is automatically selected according to the frequency.

- 1 Select the desired operating band.
- 2 Press and hold **DISP SETUP** for over one second.
The Setup menu appears.



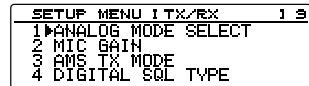
- 3 Rotate the DIAL to select **[2 TX/RX]**, then press **DISP SETUP**.

The menu list appears.



- 4 Rotate the DIAL to select **[1 ANALOG MODE SELECT]**, then press **DISP SETUP**.

The modulation mode setting value appears.



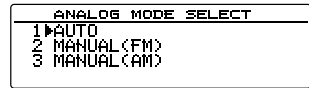
- 5 Rotate the DIAL to select the desired modulation mode.

“1 AUTO”: Automatically switches the modulation mode to match the frequency band.

“2 MANUAL(FM)”: Switches to FM mode.

“3 MANUAL(AM)”: Switches to AM mode.

Tip The default setting: AUTO



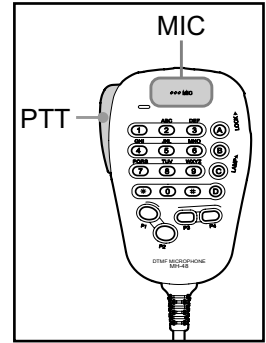
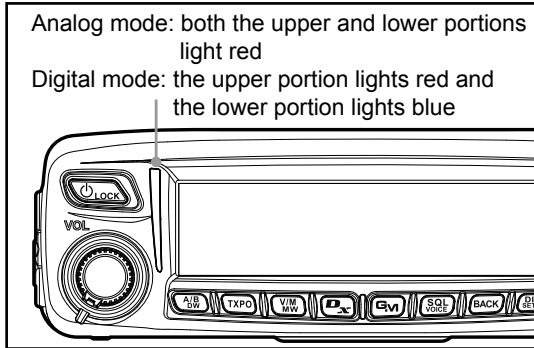
- 6 Press and hold **DISP SETUP** for over one second.

Sets the selected modulation mode and returns the display to the previously viewed screen.

Tip You can also return to the previous screen by pressing **BACK** 3 times.

Transmitting

- 1 Press and hold **[PTT]** on the microphone.
In analog mode, both the upper and lower portions of the mode/status indicator light red.
In digital mode, the upper portion of the mode/status indicator lights red and the lower portion of the mode/status indicator lights blue.



- 2 Speak into **[MIC]** on the microphone.
Tip Keep the microphone about 5 cm away from your mouth.
- 3 Release **[PTT]**.
The transmit mode/status indicator turns off and the transceiver returns to the receive mode.

Tips

- Do not continue transmitting for a prolonged period. The transceiver may overheat, resulting in malfunction or burn.
- Use the optional cooling fan SMB-201 to effectively cool down the transceiver that has heated up due to continuous transmission.
- "ERROR TX FREQ" appears if you attempt to transmit an unavailable frequency.

Adjusting the transmit power

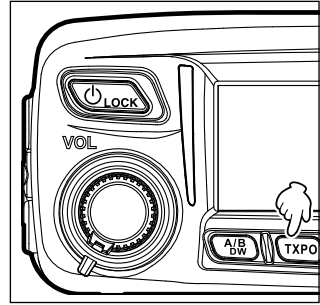
When communicating with a nearby station, the transmit power level may be lowered to reduce the battery power consumption.

- 1 Press **TXPO**.

Each time **TXPO** is pressed, the transmit power level changes in the following order:

“HIGH” → “LOW” → “MID”

Model	HIGH	MID	LOW
FTM-100DR/DE	50 W	20 W	5 W



Communicating in FM mode

- 1 Select the desired operating band.
- 2 Set the modulation mode to “MANUAL (FM)”.
- 3 Rotate the DIAL to tune to the desired frequency.
- 4 While pressing and holding **[PTT]**, speak into the microphone.

Tip

To use the half deviation, select “1 ON” from **[2 TX/RX]** → **[7 HALF DEVIATION]** in the Setup menu.

Communicating using the repeater

The FTM-100DR/DE includes the ARS (Automatic Repeater Shift) function which permits communication through repeaters automatically, by simply setting the receiver to the repeater frequency.

- 1 Tune to the repeater frequency.



- 2 Press the **[PTT]** to transmit.

During transmission, radio waves having an 100.0 Hz* tone signal are emitted on the frequency lower than reception frequency by 5 MHz*.

*: Depends on the transceiver version.

Tip

From the Setup menu, you can change the repeater setting.

[8 CONFIG] → [4 AUTO REPEATER SHIFT]: Deactivates the ARS function.

[8 CONFIG] → [5 REPEATER SHIFT]: Allows setting the repeater shift direction.

[8 CONFIG] → [6 REPEATER SHIFT FREQ]: Allows changing the repeater shift frequency offset.

Tone Calling (1750 Hz)

If your transceiver is FTM-100DE (European version), press and hold in the program key [P1] of the microphone (MH-48) to generate a 1750 Hz burst tone to access the European repeater. The transmitter will automatically be activated, and a 1750 Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release the [P1] key, and use the [PTT] for activating the transmitter thereafter.

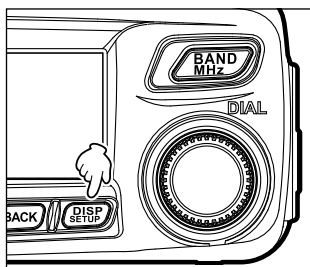
Changing the 100.0 Hz CTCSS tone squelch

To communicate with a repeater that uses a tone signal other than 100.0 Hz, change the CTCSS tone frequency using the setup menu.

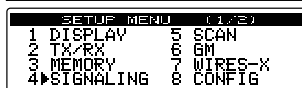
1 Tune the transceiver receiver frequency to the repeater frequency.



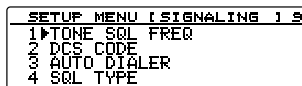
2 Press **[DISP SETUP]** for more than one second. Setup menu appears.



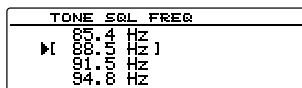
3 Turn the DIAL to select [4 SIGNALING], and then press **[DISP SETUP]** to display the menu list.



4 Turn the DIAL to select [1 TONE SQL FREQ] and then press **[DISP SETUP]**, the CTCSS tone frequency will be displayed.



5 Turn the DIAL to change and select the different tone frequency.



6 Press **[DISP SETUP]** for more than one second to set the new tone and return to the original operating screen.

Tip You can also return to the previous operating screen by pressing **[BACK]** 3 times.

7 Press the **[PTT]** to transmit.

The transmit frequency is automatically offset to the repeater input frequency, and the squelch tone signal is set.

Tip



The squelch tone and transmit offset frequency will be recorded whenever the displayed frequency is registered to a memory channel. (Refer to "Registering to the memory channel" on page 41).

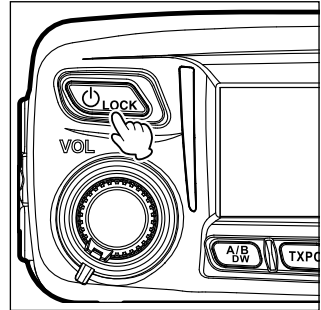
Other settings

Locking the DIAL and keys

To prevent accidental frequency change during operation, the DIAL and keys can be locked.

Tip VOL is not locked.

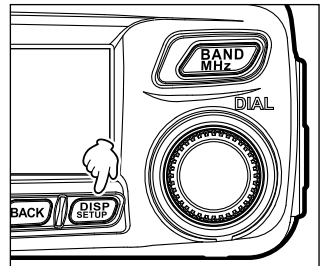
- 1 Press  briefly.
“LOCK” will be displayed on the screen and the DIAL and keys will be inoperative.
Press  briefly again to unlock the DIAL and keys. “UNLOCK” will be displayed on the screen.





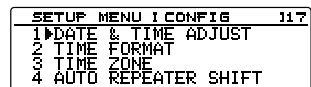
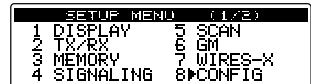
Adjusting the date and time

The FTM-100DR/DE transceiver has a built-in clock. Set the time and date before using the radio. Also the clock is automatically set when signals are received from the GPS.

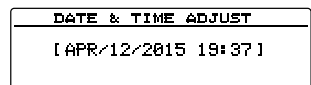
- 1 Press and hold  for over one second.
The Setup menu appears.



- 2 Rotate the DIAL to select **[8 CONFIG]**, then press .
- 3 Rotate the DIAL to select **[1 DATE & TIME ADJUST]**, then press .



The current date and time settings appear.



- 4 Press **DISP SETUP**.

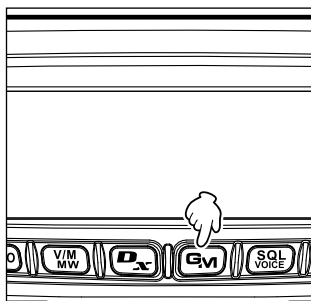
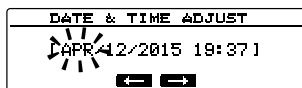
The “Month” display blinks.

- 5 Rotate the DIAL to select the month

- 6 Press **Gv** (**→** appears on the upper side).

The “Day” display blinks.

Tip Press **Dx** to go back (**←** appears on the upper side).



- 7 Rotate the DIAL to select the day.

- 8 Press **Gv** (**→** appears on the upper side).

The “Year” display blinks.

Tip Press **Dx** to go back (**←** appears on the upper side).

- 9 Rotate the DIAL to select the year.

- 10 Press (**→** appears on the upper side).

The “Hour” display blinks.

Tip Press **Dx** to go back (**←** appears on the upper side).

- 11 Rotate the DIAL to select the hour.

- 12 Press (**→** appears on the upper side).

The “Minute” display blinks.

Tip Press **Dx** to go back (**←** appears on the upper side).

- 13 Rotate the DIAL to select the minute.

- 14 Press **DISP SETUP**.

The date and time are set, and the screen returns to the setting screen.

- 15 Press and hold **DISP SETUP** for over one second.

The display is returned to the previously viewed screen.

Tip You can also return to the previous operating screen by pressing **BACK** 3 times.

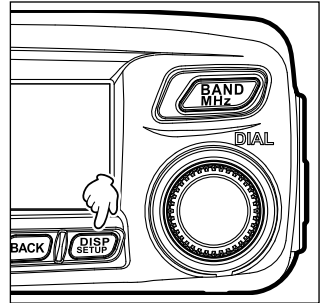
Tips

- At normal temperature, the time accuracy is ± 30 seconds per month. It may vary depending on the temperature and environment conditions.
- The time is automatically set when signals are received from the GPS.
- When you use the transceiver for the first time, the setting of the clock may be inaccurate. In such a case, readjust the time.
- The calendar can display dates from January 1, 2000 A.D. up to December 31, 2099 A.D.

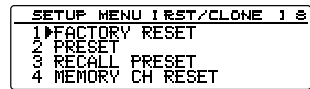
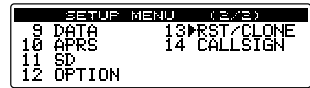
Restoring defaults (All Reset)

All transceiver settings and memory content may be restored to the defaults.

- 1 Press and hold **DISP SETUP** for over one second.
The Setup menu appears.



- 2 Rotate the DIAL to select **[13 RST/CLONE]**, then press **DISP SETUP**.
The menu list appears.
- 3 Rotate the DIAL to select **[1 FACTORY RESET]**, then press **DISP SETUP**.



- 4 Rotate the DIAL to select **[OK?]**, then press **DISP SETUP**.
Tip To cancel resetting, select **[Cancel]**.



A beep sounds and the call sign input display appears on the screen.



- 5 Input the call sign.
Input the call sign using the numeric key pad. See “Input characters” on page 16 for instruction on inputting the call sign characters.
- 6 Press **DISP SETUP**.
Sets the call sign and displays the frequency screen.

Caution

Performing the All Reset function clears all information registered to the memory channels. Be sure to write memory data down on paper or back up the data on a micro-SD memory card. For instructions on saving the data onto a backup micro-SD memory card, refer to the Advanced Manual (download from the Yaesu website).

Digital Group ID (DG-ID) function

The DG-ID function can set up two-digit DG-ID numbers from “00” to “99” separately for Transmit and Receive. By setting both transmit and receive to “00” (default), you can communicate with all the other stations in the digital C4FM mode.

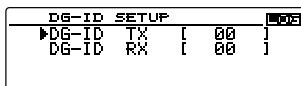
By matching the transmit DG-ID number to the uplink DG-ID number set in the club DR-2X/XE System Fusion II digital repeater, you can access the digital repeater DR-2X/XE used in the club.

For communication only among a group of friend’s transceivers, you can all match the same DG-ID number; then only your friend’s voices will be heard. Also, by using the GM function you can check whether stations with the same DG-ID are in the communication range.

Communicating only with the specific members by setting the DG-ID number except for “00”

Example: Enter the transmit DG-ID number “50” and the receive DG-ID number “50”

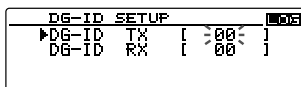
- 1 Press and hold **[GM]** for over one second.
The DG-ID number setting screen is displayed.



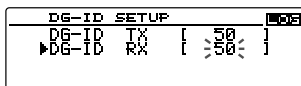
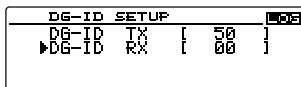
Tip

While setting the DG-ID number, press and hold **[DISP SETUP]** key will set the transmit and the receive DG-ID numbers to “00”.

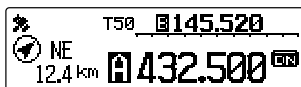
- 2 Press the **[GM]** key.
The transmit DG-ID (DG-ID TX) number blinks.
- 3 Rotate the DIAL knob to set the transmit DG-ID (DG-ID TX) to “50”.
The transmit DG-ID (DG-ID TX) number blinks.
- 4 Press the **[GM]** key, then rotate the DIAL knob to select “DG-ID RX”.



- 5 Press the **[GM]** key.
The receive DG-ID (DG-ID RX) number blinks.
- 6 Rotate the DIAL knob to set the receive DG-ID (DG-ID RX) to “50”.
- 7 Press and hold the **[GM]** key to save the setting and return to normal operation.



The group members with same DG-ID number may communicate with each other at the same frequency. The transmit DG-ID number appears on the upper side of the LCD.



Digital Group ID (DG-ID) function

Tips

- The transmit and receive DG-ID default number is set to "00".
- Normally, for general operation set the DG-ID number to "00" for both transmit and receive.

- 8 Press the **[GM]** key to turn the GM (Group Monitor) function ON, then you can check whether or not other Group Member stations are operating within communications range.



The other stations also need to turn the GM function ON.

While operating in the GM function, the call sign, the distance and the direction of a maximum 24 stations with the GM function turned ON, and that are within the communication range, may be checked.

Rotate the DIAL knob to select the other stations.

- 9 Press the **[GM]** key to turn the GM (Group Monitor) function OFF.

Tips

- Note that when the receive DG-ID number of your transceiver is set to a DG-ID number other than "00", received signals that do not have the same DG-ID number may not be heard.
- The distance and direction information is displayed only when the position information is included in the signal of the other station.
- The transceivers that may transmit position information with the GM function.

Digital Personal ID (DP-ID) function

Registering the DP-ID to a DR-2X digital repeater

Tip

To register the transceiver DP-ID in the System Fusion II, DR-2X C4FM digital repeater, refer to the instruction manual of the DR-2X.

By registering the transceiver's DP-ID in the DR-2X, you can remotely control the settings and functions of DR-2X. Remote control cannot be performed from a transceiver that does not register the DP-ID, so it is possible to securely manage repeaters.

DR-2X Remote Control Feature

- Activate the repeater operation
- Deactivate the repeater operation
- Set the repeater to C4FM mode
- Set the transmit power
- Voice Message Control (Rec / Play / Stop)
- Set the Emergency Call

Register the transceivers

- 1 Press and hold the **DISP SETUP** key to enter the Set-up Menu.
- 2 Rotate the DIAL knob to select **[6 GM]**.
- 3 Press the **DISP SETUP** key.
- 4 Rotate DIAL knob to select **[1 DP-ID LIST]**.
- 5 Press the **DISP SETUP** key.
The DP-ID List is displayed.
- 6 While the DP-ID list is displayed, a transmission in the digital C4FM mode from the other transceiver will register the DP-ID.
When a signal from the other station is received, the call sign is displayed on the LCD.



Tips

- When a signal from the already registered transceiver is received, the display of DP-ID LIST does not change.
- When registering a transceiver already registered with a different call sign, the call sign registered in the DP-ID list is changed to registrar the new call sign.

Digital Personal ID (DP-ID) function

- 7 Press the **(DISP SETUP)** key.

When registering in the DP-ID list is finished, then the display returns to the DP-ID list screen.

To continue operating without registering the DP-ID, Rotate the DIAL knob to select “Cancel” and then press the **(DISP SETUP)** key.

If registering several DP-IDs, repeat steps 6 to 7. A maximum of 24 stations may be registered.

- 8 Press and hold the **(DISP SETUP)** key to return to normal operation.

Register the DP-ID of all the transceivers in the group to another transceiver using the same operation.



Tips

- Once the DP-ID is registered, the DP-ID is stored until the DG-ID is deleted.
- Register with another transceiver while each other's transceivers are nearby.

Deleting the registered DP-ID

- 1 Press and hold the **(DISP SETUP)** key to enter the Set-up Menu.

- 2 Rotate the DIAL knob to select **[6 GM]**.

- 3 Press the **(DISP SETUP)** key.

- 4 Rotate the DIAL knob to select **[1 DP-ID LIST]**.

- 5 Press the **(DISP SETUP)** key.

The DP-ID List is displayed.



- 6 Rotate the DIAL knob to select the call sign, then press the **(GM)**, (**DEL** appears on the upper side).

The confirmation screen is displayed.



- 7 Rotate the DIAL knob to select “OK?”

- 8 Press the **(DISP SETUP)** key to delete.

- When deleting in the DP-ID list is finished, then the display returns to the DP-ID list screen.
- To return to normal operation without deleting the DP-ID, rotate the DIAL knob to select “Cancel” and then press the **(DISP SETUP)** key.
- If deleting several DP-IDs, repeat steps 6 to 8.



- 9 Press and hold the **(DISP SETUP)** key to return to normal operation.

Using the Memory

Frequently used frequencies and settings can be registered to the memory channels. The preset channels may be quickly recalled for convenient operation. The transceiver is also equipped with the following memory functions:

- Skip memory channels to preclude reception during scanning*
- Scan only the specified memory channels*
- “Programmable Memory Scan (PMS)” that scans only the specified frequency range (in the same frequency band)*

* For details, refer to the Advanced Manual (download from the Yaesu website).

The individual operating frequency and operating mode (modulation mode), as well as the other operating information, can be saved for each normal memory channel and PMS memory channel.

- Operating frequency
- Repeater information
- Memory skip information
- Modulation mode*
- Tone information
- Transmit power
- Memory tag
- DCS information

*Digital mode and analog mode information are not stored in the memory.

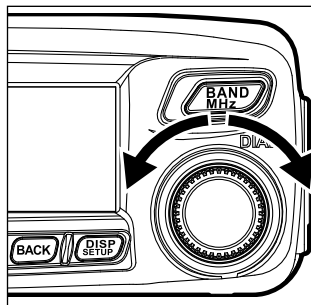
Registering to the memory channel

Caution

The information registered to the memory channel may be lost due to incorrect operation, static electricity or electrical noise. Data may also be lost due to component failures and repairs. Make sure to write down the information registered to the memory channels on a piece of paper or save the data to a backup micro-SD memory card.

A total of 500 memory channels are available for each of the A-band and B-band.

- 1 Switch to VFO mode.
- 2 Rotate the DIAL to tune to the desired frequency.
Select the frequency you want to register to a memory channel.



Using the Memory

- 3 Press and hold **V/M MW** for over one second.

The MEMORY WRITE screen appears.

The frequency automatically appears on an empty memory channel.

- Tips**
- For details on how to assigning a nametag to a memory channel, refer to the Advanced Manual (download from the Yaesu website).
 - To specify a specific memory channel, refer to the Advanced Manual (download from the Yaesu website).
 - To set memory channels to skip, refer to the Advanced Manual (download from the Yaesu website).

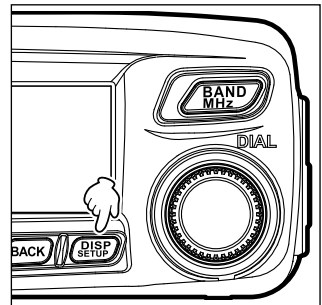
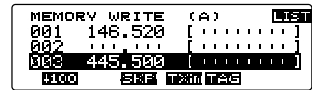
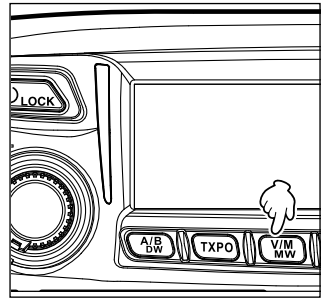
- 4 Rotate the DIAL to select the desired memory channel.

Tip Pressing **TXPO** briefly each time skips memory channels in steps of 100 memory channels.

- 5 Press **DISP SETUP**.

Completes memory registration and displays the frequency and the memory channel number on the screen.

- Tips**
- The frequency which has been registered to a memory channel can be overwritten with a new frequency.
 - Press **V/M MW** to return to VFO mode.



Tips

- When shipped from the factory, the frequency in memory channel 1 of A-band is set to 144.000 MHz whereas the frequency in memory channel 1 of B-band is set to 430.000 MHz. These can be changed to other frequencies but cannot be erased.
- Names can also be assigned to the memory channels. See "Naming a memory channel" on page 46.
- 9 pairs of PMS memory channels can be written for the A-band and B-band each. For details, refer to the Advanced Manual (download from the Yaesu website).

Recalling memories

- 1 Press **V/M MW**.

Switches to memory mode. The most recently used memory channel appears on the screen.



- 2 Rotate the DIAL to select the desired memory channel.

Press **V/M** again to return to VFO mode.

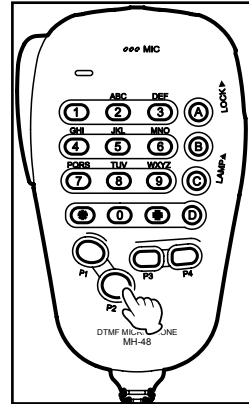
Tip

Unused memory channels are skipped.

Recalling the home channel

- 1 Press **[P2]** on the microphone.
The home channel appears on the screen.

Tip Change the frequency by rotating the DIAL to return to VFO mode.



Press **[P2]** again to return to VFO mode and display the frequency that was selected before the home channel was recalled.

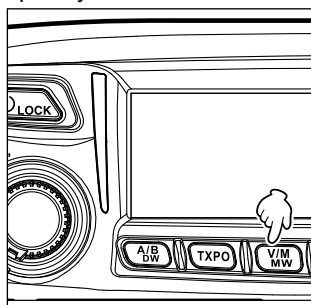
Tip

When shipped from the factory, the home channel of 144 MHz band is set to 144.000 MHz while the home channel of 430 MHz band is set to 430.000 MHz.

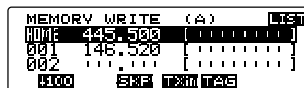
Changing the frequency of the home channel

The default frequency setting of the home channel can be changed.

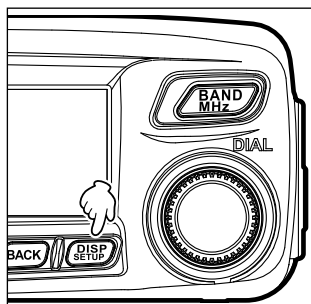
- 1 Switch to VFO mode.
- 2 Rotate the DIAL to tune to the desired home channel frequency.
- 3 Press and hold **V/M MW** for over one second.
The MEMORY WRITE screen appears.



- 4 Rotate the DIAL to select **[HOME]**.



- 5 Press **DISP SETUP**.
The overwrite confirmation screen appears.



- 6 Rotate the DIAL to select **[OK?]**, and then press **DISP SETUP**.

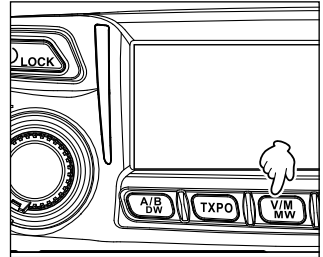


The home channel frequency is overwritten, and the new home channel frequency is displayed.

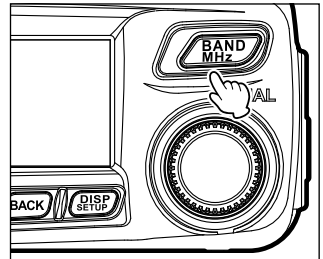
Tip To cancel overwriting, select **[Cancel]**, then press **DISP SETUP**.

Clearing memories

- 1 Press and hold **V/M MW** for over one second.
The MEMORY WRITE screen appears.



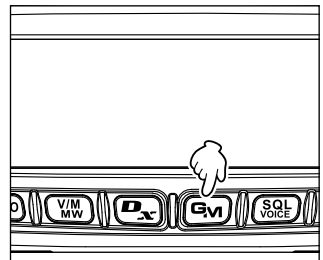
- 2 Press **BAND MHz**, (**LIST** appears on the left side).



- 3 Rotate the DIAL to select the memory channel from which memories are to be cleared.



- 4 Press **Gv**, (**DEL** appears on the upper side).
The erase confirmation screen appears.



- 5 Rotate the DIAL to select **[OK?]**, then press **DISP SETUP**.
Erases the memory and clears the display.



- Tips**
- Select **[Cancel]**, then press **DISP SETUP** to cancel the memory deletion.
 - Repeat steps 3 to 5 to clear memories from other channels.

Caution

Memories on memory channel 1 and the home channel cannot be deleted.

- 6 Press **BACK**.
The display is returned to the previously viewed screen.

Naming a memory channel

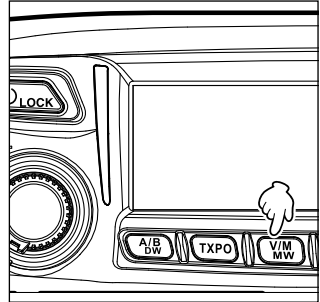
Names (memory tags) such as call signs and the names of the broadcasting stations can be assigned to the memory channels and the home channel.

Up to 8 of the following characters can be entered as a memory tag.

- Alphabet (capital/small letters), numbers, symbols

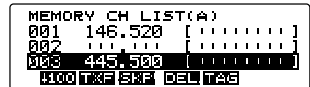
Example: Assigning a name like “YM Grp01”

- 1 Press and hold **V/M MW** for over one second.
The MEMORY WRITE screen appears.

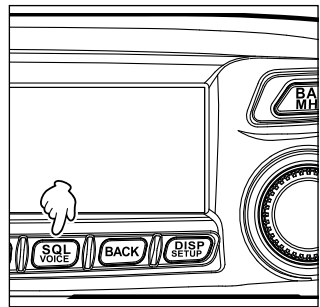


- 2 Press **BAND MHz**, (**LIST** appears on the left side).
- 3 Select the memory channel that is to be assigned a name.

Tip To assign a name to the home channel, recall the home channel.



- 4 Press **SQL VOICE**, (**TAG** appears on the upper side).
The cursor jumps to the left end of [| | | | |] on the right side of the frequency display.

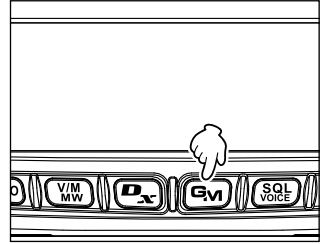


- 5 Rotate the DIAL to select **[Y]**, then press **Gv** (**→** appears on the upper side).
“Y” is entered, and the cursor moves to the right.

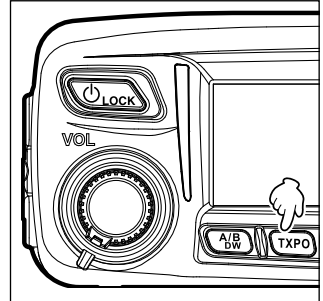
Tip To delete the letter, press **V/M MW** (**CLR** appears on the upper side).



- 6 Rotate the DIAL to select **[M]**, then press **[GM]** (**[→]** appears on the upper side).
 “M” is entered, and the cursor moves to the right.
- Tips**
- To move the cursor to the left, press **[Dx]** (**[←]** appears on the upper side).
 - To delete the letter you have just entered and move the cursor to the left, press **[SQL VOICE]** (**[X]** appears on the upper side).



- 7 Press **[TXPO]** twice (**[A/E]** appears on the upper side).
 The symbols input screen appears.
- 8 Rotate the DIAL to select “space”, then press **[GM]** (**[→]** appears on the upper side).
 A space is entered, and the cursor moves to the right.
- 9 Press **[TXPO]** (**[A/E]** appears on the upper side).
 Upper case letters can be entered.

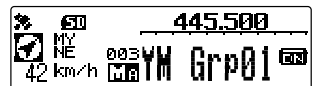


- 10 Rotate the DIAL to select **[G]**, then press **[GM]** (**[→]** appears on the upper side).
 “G” is entered, and the cursor moves to the right.
- 11 Press **[TXPO]** 3 times (**[A/E]** appears on the upper side).
 Lower case letters can be entered.
- 12 Rotate the DIAL to select **[r]**, then press **[GM]** (**[→]** appears on the upper side).
 “r” is entered, and the cursor moves to the right.
- 13 Rotate the DIAL to select **[p]**, then press **[GM]** (**[→]** appears on the upper side).
 “p” is entered, and the cursor moves to the right.
- 14 Press **[TXPO]** 4 times (**[A/E]** appears on the upper side).
 The numbers input screen appears.
- 15 Rotate the DIAL to select **[0]**, then press **[GM]** (**[→]** appears on the upper side).
 “0” is entered, then the cursor moves to the right.
- 16 Rotate the DIAL to select **[1]**.
 “1” is entered.

- 17 Press **[DISP SETUP]**.
 The entered name appears on the right side of the screen.



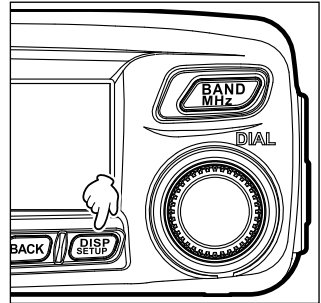
- 18 Press **[DISP SETUP]**.
 The entered name is registered to the memory channel and the display returns to the previous operating screen. The entered memory tag appears.



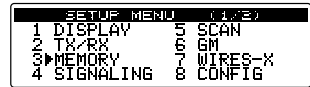
Displaying the memory tag

The frequency and name tag display format can be selected for each channel.

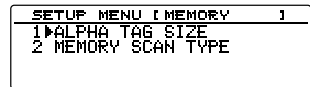
- 1 Press and hold **DISP SETUP** for over one second.
The Setup menu appears.



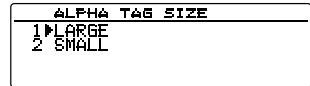
- 2 Rotate the DIAL to select **[3 MEMORY]**, then press **DISP SETUP**.
The menu list appears.



- 3 Rotate the DIAL to select **[1 ALPHA TAG SIZE]**, then press **DISP SETUP**.
The setting options appear.



- 4 Rotate the DIAL to select the desired display size.
“1 LARGE”: Displays the memory tag in large letters.
“2 SMALL”: Displays the memory tag in small letters.



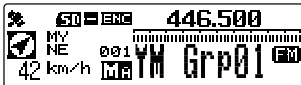
Tip The default setting: 2 SMALL

- 5 Press and hold **DISP SETUP** for over one second.

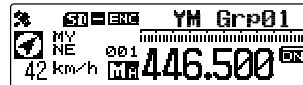
The display size is set, and the display returns to the previous operating screen.

Tip You can also switch the display by pressing and holding **BAND MHz** for over one second instead of following the procedure above.

LARGE



SMALL



Split memory

A separate transmit frequency may be registered to a memory channel to which a receive frequency has already been registered.

For details, refer to the Advanced Manual (download from the Yaesu website).

Receiving Weather Broadcast Channels (USA version only)

This radio includes the preprogrammed VHF Weather Broadcast Station Memory Channel Bank, and can receive the broadcast or the weather alert by recalling or scanning a desired channel.

The following channels are stored in the weather station memory bank of this radio.

Channel No.	Frequency	Channel No.	Frequency
WX01	162.550 MHz	WX06	162.500 MHz
WX02	162.400 MHz	WX07	162.525 MHz
WX03	162.475 MHz	WX08	161.650 MHz
WX04	162.425 MHz	WX09	161.775 MHz
WX05	162.450 MHz	WX10	163.275 MHz

This “WX” function can only be used through the programmable keys **[P1]** to **[P4]** on the microphone.

Assigning the “WX” function to a programmable key on the microphone

- Press and hold **[DISP SETUP]** for over one second.
The Setup menu appears.
- Rotate the DIAL to select **[8 CONFIG]**, then press **[DISP SETUP]**.
- Rotate the DIAL to select **[10 MIC PROGRAM KEY]**, then press **[DISP SETUP]**.
The microphone program key setting screen appears.
- Rotate the DIAL to select the program key ([P1] to [P4]) where the WX function is going to be assigned, then press **[DISP SETUP]**.
- Rotate the DIAL to select **[WX]**, then press **[DISP SETUP]**.
- Press and hold **[DISP SETUP]** for over one second.
The display returns to the previously viewed operating screen.

Recalling the weather channels

Example: When “WX” is assigned to [P1]

- Press **[P1]** on the microphone.
The WX function is activated, and the weather channel selected last time the WX function was activated will be displayed on the screen.
- Rotate the DIAL to select the other channels.
- Press the **[PTT]** on the microphone to search for louder stations.
Scanning of the channels stored in the weather station memory bank will start.
When the scanning pauses on a station, press the **[PTT]** once to halt the scan, or press it twice to restart the scan.
- Press the **[PTT]** to finish the scan.
- Press **[P1]**.
The WX function will be inactivated and returns the display to the previous viewed screen.

Listening the weather alert

In the event of extreme weather disturbances, such as storms and hurricanes, the NOAA (National Oceanic and Atmospheric Administration) sends a weather alert accompanied by a 1050 Hz tone and subsequent weather report on one of the NOAA weather channels. You may disable to receive the weather alert tone using **[4 SIGNALING] → [10 WX ALERT]** in the Setup menu.

Searching for signals

The FTM-100DR/DE is equipped with a scanning function to search for memory channels and frequencies with active signals.

Scanning can be performed using the following 5 methods:

- VFO scan
Scan in VFO mode.
- All Memory Channel Scan
Scan for all memory channels.
- Select Memory Channel Scan*
Scan for the specified memory channels.
- Skip Memory Channel Scan*
Skip the specified memory channels when scanning.
- Programmable Memory Channel Scan (PMS)*
Scan for the programmable memories.

* For details, refer to the Advanced Manual (download from the Yaesu website).

VFO scan

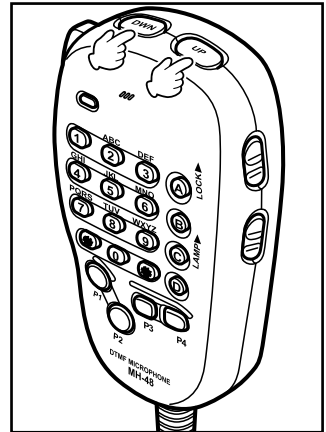
- 1 Select the band to be scanned, and then switch to VFO mode.
- 2 Press and hold **[UP]** or **[DWN]** on the microphone for over one second.

Pressing **[UP]** scans in the higher frequency direction.

Pressing **[DWN]** scans in the lower frequency direction.

During scanning, the decimal point of the frequency display blinks.

Once the transceiver receives a signal, the transceiver continuously receives it until the signal disappears, and restarts scanning 2 seconds after the signal disappears.



- Tips**
- The scanning direction (UP/DOWN) can be set from **[5 SCAN]** → **[2 SCAN DIRECTION]** in the Setup menu. This scanning direction setting is applied for scanning performed by pressing one of the **[P1]** to **[P4]** keys on the microphone to which **[SCAN]** is assigned in advance from **[8 CONFIG]** → **[10 MIC PROGRAM KEY]** in Setup menu.
 - The scanning direction can be changed by pressing and holding **[UP]** or **[DWN]** on the microphone for over one second, or by rotating the DIAL while scanning.
 - The operation performed after the scan stops on a signal, can be set from **[5 SCAN]** → **[3 SCAN RESUME]** in the Setup menu (refer to the next page).
 - The squelch level can be adjusted even during scanning, by pressing **[SQL VOICE]**, and then rotating DIAL.

● Canceling scanning

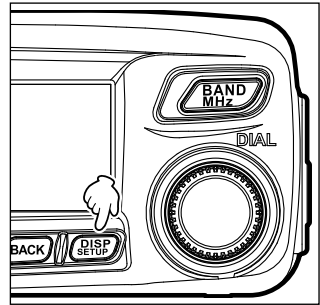
Press **[PTT]** on the microphone to cancel scanning (this does not put the transceiver into transmit mode).

Selecting the receiver operation performed after scanning stops

Select one of the following 3 receiving operations to be performed after the scanning stops.

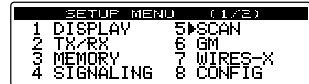
- (1) Restart scanning after receiving the frequency for the set amount of time. Select from 1, 3 or 5 seconds.
- (2) Continue receiving the frequency until the signal disappears, and then restart scanning 2 seconds after the signal disappears (BUSY).
- (3) Stop scanning and receive that frequency (HOLD).

- 1 Press and hold **DISP SETUP** for over one second.
The Setup menu appears.



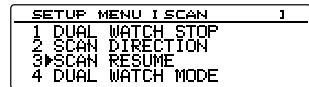
- 2 Rotate the DIAL to select **[5 SCAN]**, then press **DISP SETUP**.

The menu list appears.



- 3 Rotate the DIAL to select **[3 SCAN RESUME]**, then press **DISP SETUP**.

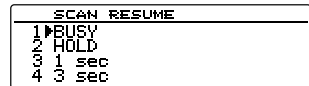
The options for receiver operation appear.



- 4 Rotate the DIAL to select the desired receiver operation, then press **DISP SETUP**.

“1 BUSY” → “2 HOLD” → “3 1sec” → “4 3sec” → “5 5sec”

Tip The default setting: 1 BUSY



- 5 Press and hold **DISP SETUP** for over one second.

The receiver scanning operation is set, and the display returns to the previous operating screen.

Tip

The settings here are applied for “VFO Scan”, “Memory Scan” and “Programmable Memory Scan”.

Memory scan

Frequencies registered to the memory channels can be scanned in the memory channel number order.

- 1 Switch to memory mode.
- 2 Press and hold **[UP]** or **[DWN]** on the microphone for over one second.

Pressing **[UP]** scans the memory channels in an upward direction.

Pressing **[DWN]** scans the memory channels in a downward direction.

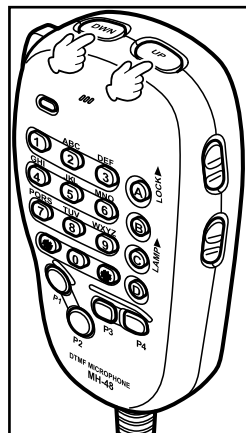
During scanning, the decimal point of the frequency display blinks.

Once the transceiver receives a signal, the transceiver continuously receives it until the signal disappears, and restarts scanning 2 seconds after the signal disappears.

- Tips**
- The scanning direction (UP/DOWN) can be set from **[5 SCAN] → [2 SCAN DIRECTION]** in the Setup menu. (This direction setting is also applied to scanning performed using one of the **[P1]** to **[P4]** keys on the microphone. The **[SCAN]** function can be assigned to the key in advance using **[8 CONFIG] → [10 MIC PROGRAM KEY]** in Setup menu).
 - The scanning direction can be changed by pressing and holding **[UP]** or **[DWN]** for over one second on the microphone or rotating the DIAL during scanning.
 - The receiver operation after scanning stops can be set from **[5 SCAN] → [3 SCAN RESUME]** in the Setup menu (refer to the previous page).
 - Press **(SQL VOICE)**, and then rotate the DIAL to adjust the squelch level, even during scanning.

● Canceling scanning

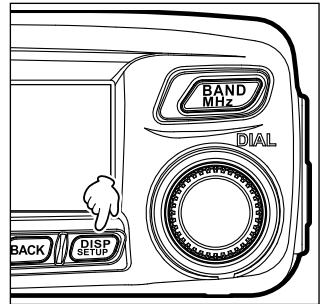
To cancel scanning, press **[PTT]** on the microphone (this does not put the transceiver into transmit mode).



Selecting the scanning method

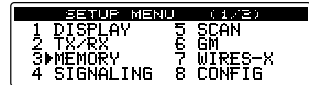
To scan all memory channels or only the specified memory channels.

- 1 Press and hold **DISP SETUP** for over one second.
The Setup menu appears.



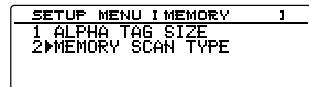
- 2 Rotate the DIAL to select **[3 MEMORY]**, and then press **DISP SETUP**.

The menu list appears.



- 3 Rotate the DIAL to select **[2 MEMORY SCAN TYPE]**, then press **DISP SETUP**.

The setting options appear.



- 4 Rotate the DIAL to select the desired option.

1 ALL MEMORY:

Scans all memories.

2 SELECT MEMORY:

Scans only specified memories.

Tip The default setting: 1 ALL MEMORY



- 5 Press and hold **DISP SETUP** for over one second.

Sets the scanning method and returns the display to the previously operating screen.

Using the GPS Function

The FTM-100DR/DE transceiver is equipped with an internal GPS reception unit to receive and display the location information at all times. The location information can be used for the following purposes:

Save the location information of other stations and note whether or not they are within communication range.

☞ Refer to the separate GM Function Instruction Manual.

Exchange the location information and messages with other stations, during data communications.

☞ Refer to the separate APRS Instruction Manual.

For additional details on the GPS function, refer to the Advanced Manual which may be downloaded from the Yaesu website.

Using the APRS Function

What is the APRS (Automatic Packet Reporting System) function?

For amateur radios, there are several functions that display location information using GPS, however the APRS is a data communication system that transmits data such as location information and messages using the format developed by Bob Bruninga of WB4APR.

Upon receiving an APRS signal from another station, information such as: the direction and distance to that station from your station; the speed of the station; the identity and other information may be displayed on the screen of your transceiver.

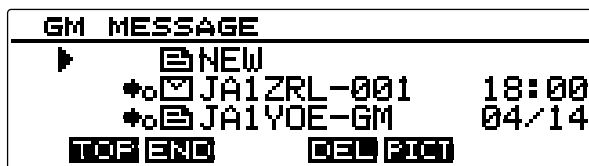
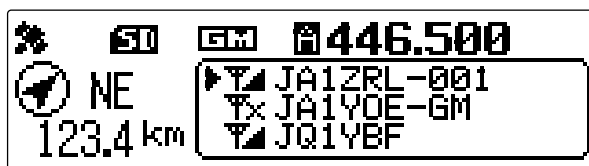


When using the APRS function, station information such as the call sign and symbol of your own station need to be set in the APRS initial setup menus.

For details, refer to the APRS Instruction Manual (download from Yaesu website).

What is the GM (Group Monitor) Function?

The GM function automatically monitors for any other stations with the GM function in operation on the same frequency, or stations transmitting in DN mode, within communication range. The GM function then displays the acquired information, including the direction and distance, on the screen for each detected call sign. In addition to notifying you of the GM group members within your communication range, the GM function also displays the relative positions of all the members in the group on the transceiver screen. Furthermore, the GM function may also be used to exchange data such as messages and images between group members.



Tips

- The GM function does not work while in the analog mode. When the GM function is activated, the operating band automatically switches to DN mode.
- When sending an image with the GM function in operation, the operating band automatically switches to FR mode (high-speed data communication mode). Upon completion of the data transmission, the mode automatically reverts to the original V/D mode (simultaneous voice/data communication mode).

How to use the GM function

The GM function enables the display of all stations operating the GM function (up to 24 stations).

For detailed information about the operation and functions of the GM mode, refer to the separate GM Function Instruction Manual (download from Yaesu website).



How to use the GM function

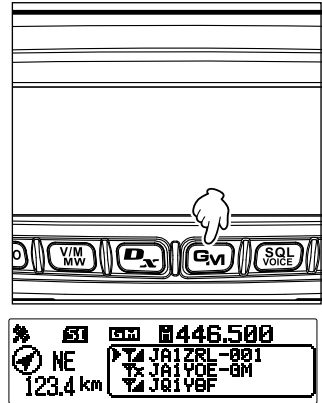
● Displaying all the stations that are transmitting in the GM function

1 Tune to the designated frequency on the operating band.

2 Press **GM**.

The GM function activates and displays up to 24 stations transmitting in the GM mode on the same frequency, or stations running in DN mode, within the communication range.

- Tips**
- Displays  for stations within your communication range.
 - Displays  for stations outside your communication range.



Using the WIRES-X Function

What is the WIRES-X Function?

The WIRES-X is a system that links to other users via the Internet. This function enables users to communicate with other users world wide, regardless of the distance.

When the transceiver is connected to WIRES-X, the call signs of other stations and rooms on the WIRES-X are displayed.



To establish a WIRES-X node station, the WIRES-X connection kit "HRI-200" sold separately is required. For details, refer to the separate WIRES-X Instruction Manual (download from the Yaesu website).

Communicating with specific stations

Using the tone squelch function

This radio is equipped with the CTCSS (Continuous Tone-coded Squelch System which allows audio to be heard only when receiving signals containing the same frequency tone as the tone that has been set in the tone squelch menu. By matching the tone frequency with the partner station in advance, a quiet standby monitoring is possible.

For details, refer to the Advanced Manual (download from the Yaesu website).

Using the digital code squelch function

This radio is equipped with a DCS (Digital Coded Squelch) function that allows audio to be heard only when signals containing the corresponding DCS code are received. By matching the DCS code with the partner stations beforehand, a quiet receive standby is possible.

For details, refer to the Advanced Manual (download from the Yaesu website).

Using the new pager function

Use the pager code consisting of 2 CTCSS tones to exchange communications with specified stations.

For details, refer to the Advanced Manual (download from the Yaesu website).

Notification of incoming calls from partner stations using the bell function

While communicating using the tone squelch, DCS, or new pager function, a beep may be programmed to sound when a signal containing the corresponding code is received.

For details, refer to the Advanced Manual (download from the Yaesu website).

Exchanging messages or images

While operating in digital mode, you can receive messages (text data) or images. Transmitted and received messages and images are all saved in the common list.

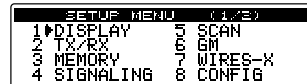
For details, refer to the Advanced Manual (download from the Yaesu website).

Customizing Menu Settings and User Preferences

From the Setup menu, the various functions of the transceiver may be customized according to your personal preferences. The functions are categorized into: display, transmission/reception, memory, device configuration, etc., in the menu. It is easy to select the item to adjust from each menu list, and then input or select the desired setting.

Setup menu basic operations

- 1 Press and hold **DISP SETUP** for over one second.
The Setup menu appears.
- 2 Rotate the DIAL to select the desired menu item, then select **DISP SETUP**.
The menu list appears.
- 3 Rotate the DIAL to select the item to be set, then press **DISP SETUP**.
- 4 Rotate the DIAL to change the setting value.



- 5 Press and hold **DISP SETUP** for over one second, or press **[PTT]**.
The selected value is set, and the display returns to the previous operating screen.

- Tips**
- Pressing the **GM** key can also confirm the set value and return the screen to the previously viewed screen.
 - To set other items from the same menu list, press **BACK** to confirm the setting value and return the display to the menu list screen.
 - Pressing **BACK** on each screen returns the display to previously viewed screen.

Tip

When a selected Setup Menu item is displayed, the previously set value will be shown on the screen. A beep sounds when the default value is selected while setting the new setting value.

Setup-menu listing

Menu / Item		Description	Selectable options (Options in bold are the default settings)
1 DISPLAY			
1	SUB DISPLAY SELECT	Sets the sub-display content	SUB BAND / TIME / VOLT
2	LCD BRIGHTNESS	Sets the screen brightness	MIN / 2 / 3 / 4 / 5 / 6 / MAX
3	LCD CONTRAST	Sets the screen contrast	-3 / -2 / -1 / 0 / +1 / +2 / +3
4	GPS INFORMATION	Switches the GPS information	LOCATION / FREQUENCY
2 TX/RX			
1	ANALOG MODE SELECT	Sets analog mode	AUTO / MANUAL (FM) / MANUAL (AM)
2	MIC GAIN	Sets the microphone sensitivity	MIN / LOW / NORMAL / HIGH / MAX
3	AMS TX MODE	Sets the transmission mode	AUTO / TX MANUAL / TX FM FIXED / TX DN FIXED / TX VW FIXED
4	DIGITAL POPUP TIME	Sets the information pop-up time	OFF / 2 sec / 4 sec / 6 sec / 8 sec / 10 sec / 20 sec / 30 sec / 60 sec / CONTINUE
5	LOCATION SERVICE	Sets your location information display in digital mode	ON / OFF For details, refer to the GM Function Instruction Manual.
6	STANDBY BEEP	Activates/deactivates the standby beep	ON / OFF
7	HALF DEVIATION	Activates/deactivates the half deviation	ON / OFF
3 MEMORY			
1	ALPHA TAG SIZE	Sets the memory channel tag display size	SMALL / LARGE
2	MEMORY SCAN TYPE	Sets the memory scan method	ALL MEMORY / SELECT MEMORY
4 SIGNALING			
1	TONE SQL FREQ	Sets the tone frequency	67.0 Hz to 254.1 Hz 100.0 Hz
2	DCS CODE	Sets the DCS code	023 to 754
3	AUTO DIALER	Activates/deactivates the DTMF code automatic transmission	ON / OFF
4	SQL TYPE	Sets the squelch type	OFF / TONE ENC / TONE SQL / REV TONE / DCS / PR FREQ / PAGER / DCS ENC* / TONE DCS* / DCS TSQ* *Displays only when [4 SIGNALING] → [9 SQL EXPANSION] is set to "ON".
5	DTMF MEMORY	Registers the DTMF code	1 to 9, 16 characters for each
6	PAGER CODE	Sets the individual pager code	RX CODE 1: 01 to 50 05 RX CODE 2: 01 to 50 47 TX CODE 1: 01 to 50 05 TX CODE 2: 01 to 50 47
7	PRG REV TONE	Set the idle line squelch	300 Hz to 3000 Hz 1500 Hz
8	BELL RINGER	Sets the number of successive bell rings	OFF / 1 time / 3 times / 5 times / 8 times / CONTINUOUS

Menu / Item		Description	Selectable options (Options in bold are the default settings)
9	SQL EXPANSION	Sets the squelch type separately for transmission and reception	ON / OFF
10	WX ALERT (USA Version Only)	Weather alert operation setting	ON / OFF
5 SCAN			
1	DUAL WATCH STOP	Sets the signal reception method	AUTO / HOLD
2	SCAN DIRECTION	Sets the scanning direction when scanning starts	UP / DOWN
3	SCAN RESUME	Sets the operation when scanning stops	BUSY / HOLD / 1 sec / 3 sec / 5 sec
4	DUAL WATCH MODE	Sets the reception time while processing the dual reception function	0.3 sec to 10 sec 5.0 sec
6 GM			
1	DP-ID LIST	Displays the DP-ID List screen	-
2	RANGE RINGER	Activates/deactivates the alert sound when detecting stations within communication range	OFF / ON
3	MESSAGE POPUP	Activates/deactivates the pop-up message display	OFF / ON
4	RADIO ID	Displays the transceiver IDs	- (uneditable)
* For details of the functions, refer to the GM Function Instruction Manual.			
7 WIRES-X			
1	RPT/WIRES FREQ	Sets the operating frequencies for repeater and WIRES-X operations. Registers the preset frequency	MANUAL / PRESET
	FREQ		Depends on the transceiver version
2	DG-ID	Sets the DG-ID number for WIRES-X	AUTO / 01 to 99
* For details of the functions, refer to the WIRES-X Instruction Manual.			
8 CONFIG			
1	DATE & TIME ADJUST	Sets the date and time using the internal clock	month/day/year, hour : minute
2	TIME FORMAT	Sets the time display format	24 hour / 12 hour
3	TIME ZONE	Sets the time zone	UTC ±14h (0.5 h interval) UTC ±0:00
4	AUTO REPEATER SHIFT	Activates/deactivates the automatic repeater shift function	OFF / ON
5	REPEATER SHIFT	Sets the repeater shift direction	SIMPLEX / - REPEATER / + REPEATER (Differs depending on frequency)
6	REPEATER SHIFT FREQ	Sets the repeater shift width	0.000 to 99.950MHz (Differs depending on frequency)

Setup-menu listing

Menu / Item		Description	Selectable options (Options in bold are the default settings)
7	FM AM STEP	Sets the channel step	AUTO / 5.00 KHz / 6.25 KHz / (8.33 KHz) / 10.00 KHz / 12.50 KHz / 15.00 KHz / 20.00 KHz / 25.00 KHz / 50.00 KHz / 100.00 KHz
8	BEEP	Sets the beep function	OFF / LOW / HIGH
9	CLOCK TYPE	Sets the clock shift	A / B
10	MIC PROGRAM KEY	Sets the microphone P buttons	OFF / SQL TYPE / SCAN / HOME / DCS CODE / TONE FREQ / RPT SHIFT / REVERSE / TX POWER / SQL OFF / T-CALL / VOICE* / D_X / WX / S-LIST / MSG / REPLY / M-EDIT *Displays when the optional FVS-2 is attached. P1KEY: SQL OFF (T-CALL: European version) P2KEY: HOME P3KEY: D_X P4KEY: TX POWER
11	RX COVERAGE	Sets the reception range expansion setting to on/off	NORMAL / WIDE
12	UNIT	Sets the unit used for the display	METRIC / INCH (Depends on the transceiver version)
13	APO	Sets the APO action time	OFF / 0.5 hour to 12.0 hour
14	TOT	Sets the time-out timer	OFF / 1 min / 2 min / 3 min / 5 min / 10 min / 20 min / 30 min
15	Bluetooth PAIRING	Sets the PIN code and starts pairing	0000 to 9999 6111
16	GPS DATUM	Selects the GPS function positioning	WGS-84 / TOKYO MEAN
17	GPS LOG	Sets the time interval to log the GPS location information	OFF / 1 sec / 2 sec / 5sec / 10 sec / 30 sec / 60 sec
9 DATA			
1	COM PORT SETTING	Sets the COM port	COM SPEED: 4800bps / 9600bps / 19200bps / 38400bps / 57600bps COM OUTPUT: OFF / GPS OUT / PACKET / WAYPOINT WP FORMAT: NMEA6 / NMEA7 / NMEA8 / NMEA9 WP FILTER: ALL / MOBILE / FREQUENCY / OBJECT/ITEM / DIGIPEATER / VoIP / WEATHER / YAESU / CALL RINGER / RNG RINGER
2	DATA SPEED	Sets the APRS/DATA communication baud rate	APRS: 1200 bps / 9600 bps DATA: 1200 bps / 9600 bps
3	DATA SQUELCH	Sets the squelch detection to on/off	TX: ON / TX: OFF

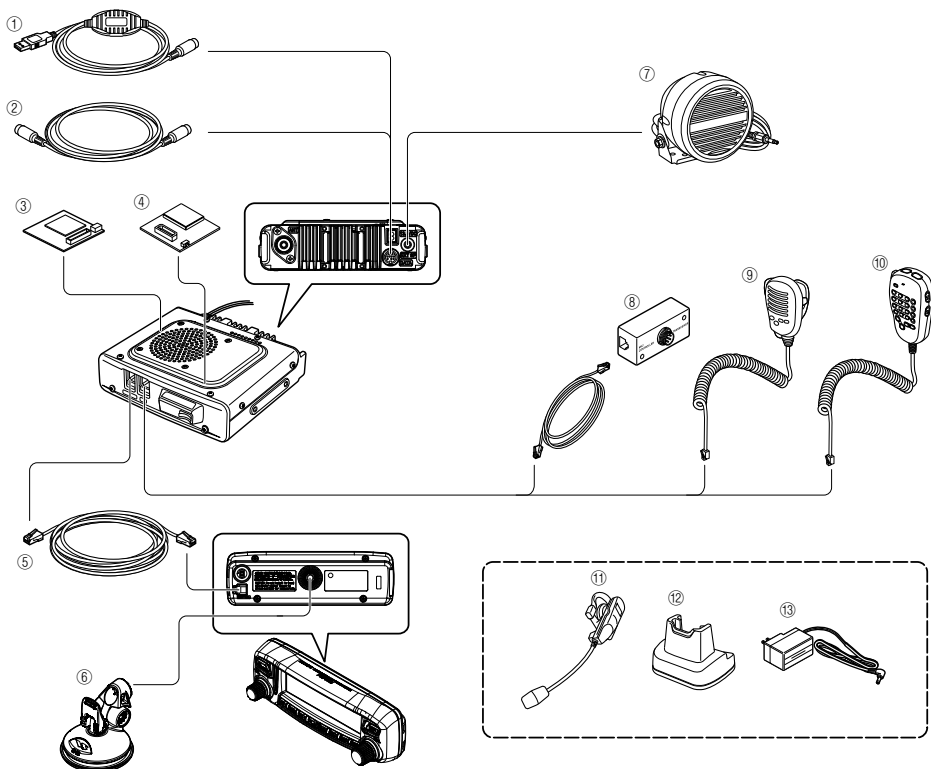
Menu / Item	Description	Selectable options (Options in bold are the default settings)
10 APRS		
1	APRS COMPASS	Sets the APRS compass display NORTH UP / HEADING UP
2	APRS DISTINATION	Displays the model code APY*** (cannot edit)
3	APRS FILTER	Sets the filter function Mic-E: ON / OFF POSITION: ON / OFF WEATHER: ON / OFF OBJECT: ON / OFF ITEM: ON / OFF STATUS: ON / OFF OTHER: ON / OFF RANGE LIMIT: 1 to 3000 / OFF ALT.NET: ON / OFF
4	APRS MESSAGE TEXT	Inputs the predetermined routine message 1 to 8 ch
5	APRS MODEM	Activates/deactivates the APRS function OFF / ON
6	APRS MUTE	Activates/deactivates the AF mute function when using the APRS function OFF / ON
7	APRS POP-UP	Sets the duration time for displaying the pop-up beacons and messages BEACON: OFF / 3 sec / 5 sec / 10 sec / HOLD MESSAGE: OFF / 3 sec / 5 sec / 10 sec / HOLD MYPACKET: OFF / ON
8	APRS RINGER	Sets the audio alert when receiving beacons TX BEACON: ON / OFF TX MESSAGE: ON / OFF RX BEACON: ON / OFF RX MESSAGE: ON / OFF MY PACKET: ON / OFF CALL RINGER: ON / OFF RANGE RINGER: 1 to 100 / OFF MSG VOICE: ON / OFF
9	APRS RINGER (CALL)	Sets the call sign for CALL RINGER 1 to 8 stations (******)
10	APRS TX DELAY	Sets the data transmission delay time 100 ms / 150 ms / 200 ms / 250 ms / 300 ms / 400 ms / 500 ms / 750 ms / 1000 ms
11	APRS UNITS	Sets the unit used for the APRS display POSITION: dd°mm'mm" / dd°mm.mm' DISTANCE: km / mile SPEED: km/h / mph / knot ALTITUDE: m / ft BARO: hPa / mb / mmHg / inHg TEMP: °C / ° F RAIN: mm / inch WIND: m/s / mph / knot
12	BEACON INFO SELECT	Sets the beacon information to transmit AMBIGUITY: OFF / 1 to 4 digit SPEED/COURSE: ON / OFF ALTITUDE: ON / OFF

Setup-menu listing

Menu / Item	Description	Selectable options (Options in bold are the default settings)
13 BEACON STATUS TEXT	Sets the status text input	SELECT: TEXT 1 to 5 / OFF TX RATE: 1/1 to 1/8 / 1/2 (FREQ) to 1/8 (FREQ) TEXT 1 to 5: NONE / FREQUENCY / FREQ & SQL & SHIFT
14 BEACON TX	Switches the beacon transmission between automatic transmission and manual transmission	AUTO: OFF / ON / SMART INTERVAL: 30sec to 60min 5min PROPORTIONAL: ON / OFF DECAY: ON / OFF LOW SPEED: 1 to 99 3 RATE LIMIT: 5sec to 180sec 30sec
15 DIGI PATH SELECT	Sets the digital repeater route	OFF / WIDE1-1 / WIDE1-1,WIDE2-1
16 MY CALLSIGN (APRS)	Sets your call sign	*****-**
17 MESSAGE GROUP	Sets the group filter for received messages	GROUP 1: ALL***** GROUP 2: CQ***** GROUP 3: QST***** GROUP 4: YAESU**** GROUP 5: - GROUP 6: - BULLETIN 1: BLN?***** BULLETIN 2: BLN? BULLETIN 3: BLN?
18 MESSAGE REPLY	Sets the automatic response for received messages	REPLY: OFF / ON CALLSIGN: *****-** REPLY TEXT: -
19 MY POSITION SET	Sets your location	GPS / MANUAL
20 MY POSITION	Sets your location manually	LAT:[N *O** *(***)] LON:[E *O** *(***)]
21 MY SYMBOL	Sets your station symbol	ICON 1: [/>] Car ICON2: [/R] REC.Vehicle ICON3: [/.] House QTH (VHF) USER: [YY] Yaesu Radios
22 POSITION COMMENT	Sets the location comments	Off Duty / En Route / In Service / Returning / Committed / Special / Priority / Custom 0 to 6 / Emergency!
23 SmartBeaconing	Sets the smart beaconing	STATUS: OFF / TYPE1 / TYPE2 / TYPE3 LOW SPEED: 2 to 30 5 HIGH SPEED: 3 to 90 70 SLOW RATE: 1 to 100min 30min FAST RATE: 10 to 180sec 120sec TURN ANGLE: 5 to 90° 28° TURN SLOPE: 1 to 255 26 TURN TIME: 5 to 180sec 30sec
24 SORT FILTER	Sets the sort and filter functions	SORT: TIME / CALLSIGN / DISTANCE FILTER: ALL / MOBILE / FREQUENCY / OBJECT/ITEM / DIGIPEATER / VoIP / WEATHER / YAESU / OTHER PACKET / CALL RINGER / RANGE RINGER / 1200 bps / 9600 bps

Menu / Item		Description	Selectable options (Options in bold are the default settings)
	25 VOICE ALERT	Sets the voice alert function	V ALERT: NORMAL / TONE SQL / DCS / RX-TSQL / RX-DCS TONE SQL: 67.0Hz to 254.1Hz 100.0Hz DCS: 023 to 754 023
* For details of the functions, refer to the APRS Instruction Manual.			
11 SD			
	1 BACKUP	Copies information to/ from the micro-SD memory card	Write to SD / Read from SD
	2 FORMAT	Initializes the micro-SD memory card	-
12 OPTION			
	1 Bluetooth	Sets the Bluetooth headset	AUDIO: AUTO / FIX BATTERY: NORMAL / SAVE PTT MODE: MOMENTARY / TOGGLE VOX: ON / OFF GAIN: HIGH / LOW
	2 VOICE MEMORY	Sets the voice memory function	PLAY/REC: FREE 5min / LAST 30sec ANNOUNCE: AUTO / MANUAL LANGUAGE: JAPANESE / ENGLISH VOLUME: HIGH / MID / LOW
13 RST/CLONE			
	1 FACTORY RESET	Restores all settings to the default state	-
	2 PRESET	Presets the desired setting value	-
	3 RECALL PRESET	Recalls the preset information	-
	4 MEMORY CH RESET	Clears the information registered to the memory channels	-
	5 MEMORY CH SORT	Sorts the memory channels you use	-
	6 APRS RESET	Restores all the APRS settings to the default state	-
	7 CLONE	Copies all the saved data	This radio → other / Other → This radio
	8 SOFTWARE VERSION	Displays the transceiver software version	MAIN CPU Ver: *.* / PANEL CPU Ver: *.* / DSP CPU Ver: *.*
14 CALLSIGN			
	1 MY CALLSIGN (DIGITAL)	Sets your station call sign	*****

Optional components



- ① PC connection cable (SCU-20)
*Same as the one provided
- ② Cloning cable (CT-166)
- ③ Voice guide unit (FVS-2)
- ④ Bluetooth unit (BU-2)
- ⑤ 6m control cable (CT-162)
- ⑥ Front panel bracket (MMB-98)
- ⑦ Water proof (equivalent to IP55) high power external speaker (MLS-200-M10)

- ⑧ Microphone extension kit (MEK-2)
- ⑨ Microphone (MH-42C6J)
- ⑩ Multifunctional DTMF microphone (MH-48A6JA)
*Same as the one provided
- ⑪ Waterproof Bluetooth headset (monaural) (BH-2A)
- ⑫ Charging cradle for BH-2A (CD-40)
- ⑬ Battery charger for CD-40 (PA-46A)

- Desktop Cooling Fan (SMB-201)
- AC Power Supply (25 A) (FP-1030A) (USA and Asian market only)
- AC Power Supply (23 A) (FP-1023) (USA market only)
- Data cable (CT-163): DIN 10 pin ↔ DIN 6 pin + Dsub 9 pin
- Data cable (CT-164): DIN 10 pin ↔ DIN 6 pin
- Data cable (CT-165): DIN 10 pin ↔ Dsub 9 pin
- Data cable (CT-167): DIN 10 pin ↔ Split end (10 pin)

Specifications

● General

Frequency range	: TX 144 - 146 MHz or 144 - 148 MHz 430 - 440 MHz or 430 - 450 MHz
	: RX 108 - 137 MHz (Air Band) 137 - 174 MHz (144 MHz HAM) 174 - 400 MHz (GEN1) 400 - 480 MHz (430 MHz HAM) 480 - 999.99 MHz (GEN2) Cellular Blocked (USA only)
Channel steps	: 5/6.25/8.33/10/12.5/15/20/25/50/100 kHz (8.33 kHz : only for Air band)
Emission Type	: F1D, F2D, F3E, F7W
Frequency stability	: ± 2.5 ppm -4°F to $+140^{\circ}\text{F}$ (-20°C to $+60^{\circ}\text{C}$)
Antenna impedance	: 50 Ω
Supply Voltage	: Nominal 13.8 V DC, negative ground Operating 11.7 - 15.8 V DC, negative ground
Current consumption	: 0.5 A (receive) 11 A (50 W TX, 144 MHz) 12 A (50 W TX, 430 MHz)
Operating temperature	: -4°F to $+140^{\circ}\text{F}$ (-20°C to $+60^{\circ}\text{C}$)
Case size	: Radio unit: 5.5" (W) \times 1.8" (H) \times 6.5" (D) (140 \times 45 \times 164 mm) with Front panel, w/o Fan, knob & connectors Front panel: 5.5" (W) \times 1.8" (H) \times 1.2" (D) (140 \times 45 \times 29 mm) w/o knob
Weight (approx.)	: 2.43 lbs (1.1 kg) with radio unit, Front panel, control cable

● Transmitter

RF power output	: 50/20/5 W
Modulation type	: F1D, F2D, F3E : Variable Reactance Modulation F7W : 4FSK (C4FM)
Spurious emission	: At least 60 dB below
Microphone impedance	: About 2 k Ω
DATA terminal input impedance	: About 10 k Ω

Specifications

● Receiver

Circuit type	: Double conversion super-heterodyne	
Intermediate frequencies	: 1st : 47.25 MHz, 2nd :450 kHz	
Receiver Sensitivity	: 108 - 137 MHz (AM)	0.8 μ V typ for 10 dB SN
	137 - 140 MHz (FM)	0.2 μ V for 12 dB SINAD
	140 - 150MHz (FM)	0.2 μ V for 12 dB SINAD
	150 - 174 MHz (FM)	0.25 μ V for 12 dB SINAD
	174 - 222 MHz (FM)	0.3 μ V typ for 12 dB SINAD
	222 - 300 MHz (FM)	0.25 μ V typ for 12 dB SINAD
	300 - 336 MHz (AM)	0.8 μ V typ for 10 dB SINAD
	336 - 420 MHz (FM)	0.25 μ V for 12 dB SINAD
	420 - 470 MHz (FM)	0.2 μ V typ for 12 dB SINAD
	470 - 520 MHz (FM)	0.2 μ V for 12 dB SINAD
	800 - 900 MHz (FM)	0.4 μ V typ for 12 dB SINAD
	900 - 999.99 MHz (FM)	0.8 μ V typ for 12 dB SINAD
		Cellular blocked (USA only)
	Digital mode	
	140 - 150 MHz (Digital)	0.19 μ V typ for BER 1%
	420 - 470 MHz (Digital)	0.19 μ V typ for BER 1%
Selectivity	: NFM, AM 12 kHz/30 kHz (-6 dB/-60 dB)	
AF output	: 3 W (8 Ω , THD10%, 13.8 V) internal speaker	
	8 W (4 Ω , THD10%, 13.8 V) Optional MLS-200-M10	
AF output impedance	: 4 - 16 Ω	

Cautions

- Rated values are at normal temperature and pressure.
- Ratings and specifications are subject to change without notice.

● Symbols placed on the equipment

— : Direct current

1. Changes or modifications to this device not expressly approved by YAESU MUSEN could void the user's authorization to operate this device.
2. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including received, interference that may cause undesired operation.
3. The scanning receiver in this equipment is incapable of tuning, or readily being altered, by the User to operate within the frequency bands allocated to the Domestic public Cellular Telecommunications Service in Part 22.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

DECLARATION BY MANUFACTURER

The Scanner receiver is not a digital scanner and is incapable of being converted or modified to a digital scanner receiver by any user.


WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

EU Declaration of Conformity

We, Yaesu Musen Co. Ltd of Tokyo, Japan, hereby declare that this radio equipment FTM-100DE is in full compliance with EU Radio Equipment Directive 2014/53/EU. The full text of the Declaration of Conformity for this product is available to view at <http://www.yaesu.com/jp/red>

ATTENTION – Conditions of usage

This transceiver works on frequencies that are regulated and not permitted to be used without authorisation in the EU countries shown in this table. Users of this equipment should check with their local spectrum management authority for licensing conditions applicable for this equipment.

					
AT	BE	BG	CY	CZ	DE
DK	ES	EE	FI	FR	UK
GR	HR	HU	IE	IT	LT
LU	LV	MT	NL	PL	PT
RO	SK	SI	SE	CH	IS
LI	NO	–	–	–	–

Disposal of Electronic and Electrical Equipment

Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.

Electronic and Electrical Equipment should be recycled at a facility capable of handling these items and their waste by-products.

Please contact a local equipment supplier representative or service center for information about the waste collection system in your country.



YAESU

The radio

Copyright 2018
YAESU MUSEN CO., LTD.
All rights reserved.

No portion of this manual may be
reproduced without the permission of
YAESU MUSEN CO., LTD.

YAESU MUSEN CO., LTD.

Tennozu Parkside Building
2-5-8 Higashi-Shinagawa, Shinagawa-ku, Tokyo
140-0002 Japan

YAESU USA

6125 Phyllis Drive, Cypress, CA 90630, U.S.A.

YAESU UK

Unit 12, Sun Valley Business Park, Winnall Close
Winchester, Hampshire, SO23 0LB, U.K.

1806C-GC
Printed in China

