

YAESU**The radio**

FTM-400XDR/DE

Operating Manual

144/430MHz 50W**DUAL BAND TRANSCEIVER****C4FM FDMA/FM****Before Using****Installation and Connection****Basic Operations****Using the Memory****Scanning****Using the GPS Function****Using the APRS Function****Using the GM Function****Convenient Functions****Functions to be used
when Necessary****Customize Menu Settings
and User Preferences****Appendix**

Introduction

Features of this radio

- 144/430 MHz dual band mobile radio equipped with standard C4FM digital communication modem
 - Clear audio and data communication is achieved using the digital modem functions
 - Wide band receive in the 108 MHz to 999 MHz range (wireless business, public service and air band)
 - Transmit power 50 watts with cooling fan
 - Full color 3.5-inch LCD, high luminance TFT touch panel controller
 - Intuitive, user touch panel operation
 - 500 memory channels in the Band A (band at the top of the display) and 500 channels in the Band B (band at the bottom of the display)
 - The frequency and settings memories can be saved, using a micro-SD card. The data in the micro-SD card can easily be copied to other radios
 - Diverse range of scanning functions (VFO scan, memory scan etc.)
 - Built-in GPS receiver unit, location and movement information can be displayed and GPS data can be output to connected devices
 - Incorporated APRS® functions. Position, movement data and messages can be communicated to other stations, digipeaters and the Internet.
*Refer to the separate “APRS Operating Manual”
 - GM (Group Monitor) function where in a group of frequently communicating members can be registered, and then position information and messages can be exchanged
*Refer to the separate “GM Operating Manual”
 - Supports Yaesu WIRES-X Internet linking, providing communication with remote partners using the Internet
*Refer to the separate “WIRES-X Operating Manual”
 - Bluetooth adaptor unit BU-2 (sold separately) permits hands-free operation
 - Voice guide unit FVS-2 (sold separately) provides frequency voice announcement, and recording of received audio
 - Camera-equipped microphone MH-85A11U (sold separately). Images taken with the camera can be transmitted to other stations, and also shown on the LCD display.
- * The APRS, GM and WIRES-X Operating Manuals are not included with the product. Please download them from the Yaesu website.

Important precautions for mobile radio operation

- The use of protective tape or covering is recommended to protect the wiring and the power cord inside the vehicle.
- When installing the unit inside a vehicle, locate the radio, antenna, co-axial cable, etc. at least 20 cm away from the following control equipment.
 - **Engine-related:** Fuel injection equipment and engine control
 - **Transmission-related:** Transmission and 4WD electronic control unit
 - **Others:** ECS/EPS/ABS/ETACS/Fully automatic air-conditioner/
Auto-heater control unit/G sensor
- Install the antenna and co-axial cable away from the control unit and wiring harness. Place all cables so they do not entangle and impede the driver or passengers. Never place any equipment in a location where it may pose a danger to the passengers, where it may interfere with driving, or obstruct the driver field of view.
- Do not install any apparatus in such a way that it may interfere with the proper operation of the air bags.
- After installing the radio, check that the brake lamp, head lamp, turning indicator lights, wiper, etc. are working normally with the radio power switched on.
- Keep full attention on driving, do not operate the radio controls or look at the radio display while driving. Stop the vehicle at a safe location, before operating the radio controls or looking at the display.
- Do not drive the car in such a way that external sounds required for safe driving cannot be heard. Most areas and districts prohibit the use of earphones and headphones while driving.
- When using the radio transmitter, if it appears to have abnormal effects on the control equipment of the vehicle, stop the engine, turn off the power supply, and disconnect the power cord. Resolve the problem before continuing to operate the radio equipment.
- When using the radio in an electric or hybrid car, the receiver may experience high RF interference and noise from the inverters that are built into the electric vehicle.

Introduction

About the touch panel

● Precautions in using the touch panel

The touch panel of the controller is designed to work with the slightest touch of a finger.

- The touch panel may not work when a protective film or sheet is adhered to the LCD.
- Use of a pointed fingernail or pen to operate the touch panel, or pressing too hard may damage or scratch the screen.
- Smart phone operations such as flicking, pinch in and pinch out are not possible.

● Maintaining the touch panel

- To clean the touch panel, switch off the power supply first before using a dry, soft cloth to wipe away dust and dirt from the touch panel.

When the touch panel is really dirty, wet a soft cloth and wring it out thoroughly before using it to wipe the touch panel.

- When wiping the touch panel, be careful not to wipe too hard or scratch the surface with your nails.

When the touch panel is scratched, it may become difficult to see the display.

About registered trademarks and copyrights

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

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

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How to read this manual

In this manual, controller operations are expressed as follows:

- Press Indicates that the key or switch is to be pressed quickly.
- Press  for 1 second or longerIndicates that the key or switch is to be pressed for one second or longer.
- Touch **[SQL]**Indicates that the symbol on the touch panel screen is to be touched quickly.
- Touch **[SQL]** for 1 second or longer ...Indicates that the symbol on the touch panel screen is to be touched for one second or longer.
- Select **[MODE]**Indicates that the items are to be highlighted on the touch panel screen.

The following symbols are also used in this manual:

Caution  ...Explains information to avoid incorrect operation.

Tip  ...Explains operating hints and helpful advice.

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

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Safety Precautions (make sure to read these)

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

Note beforehand that the company shall not be liable for any damages suffered by the customer or third parties in using this product, 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 handled wrongly.



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 handled wrongly.



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 handled wrongly.

Type and meaning of symbols



Prohibited actions that must not be carried out 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 aeroplanes.

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.

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.

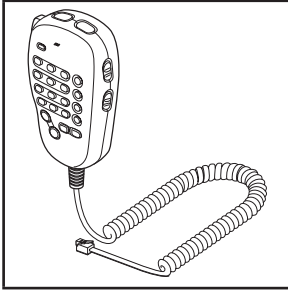
When used for a long period of time, the temperature of the heat radiating parts will get higher, resulting in burns when touched.



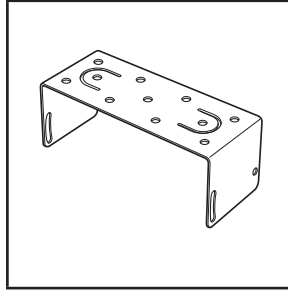
Do not open the case of the product except when replacing the fuse and when installing items sold separately.

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

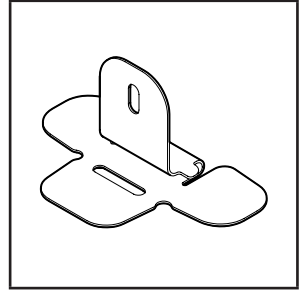
Accessories



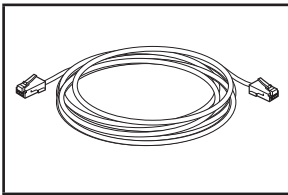
DTMF microphone
MH-48A6JA



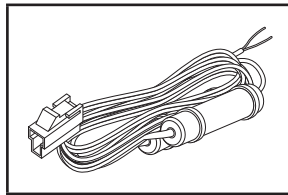
Bracket for main body
MMB-36



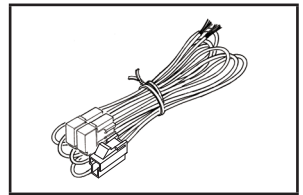
Bracket for the
controller



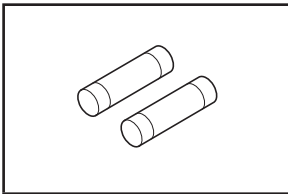
Controller cable
(3 m)



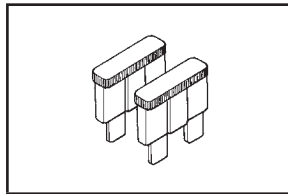
DC power cable
(with fuse attached)
(USA, EXP version)



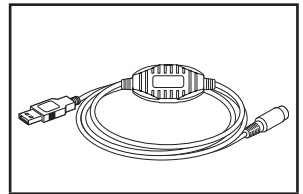
DC power cable
(with fuse attached)
(European version)



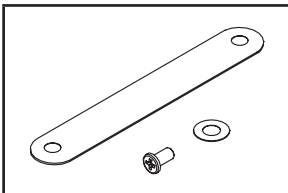
Spare fuse (15 A)
(USA, EXP version)



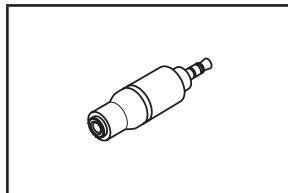
Spare Fuse (15 A)
(European version)



PC connection cable
SCU-20



Microphone cord holder



Stereo to Monaural Plug

Operating Manual
Warranty Card
Quick Manual

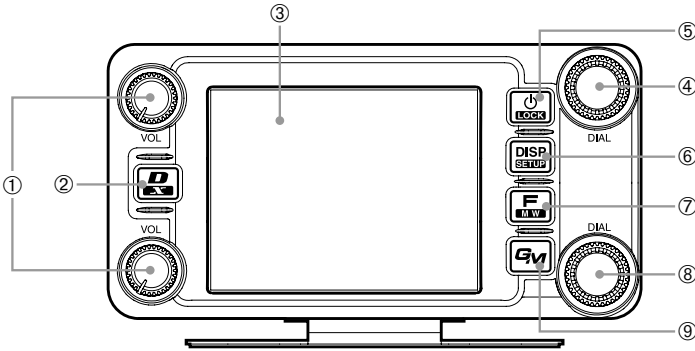
Tip

Various optional parts are also available.
Refer to Page 206 for details.

Name and Function of Each Component

Controller

Front

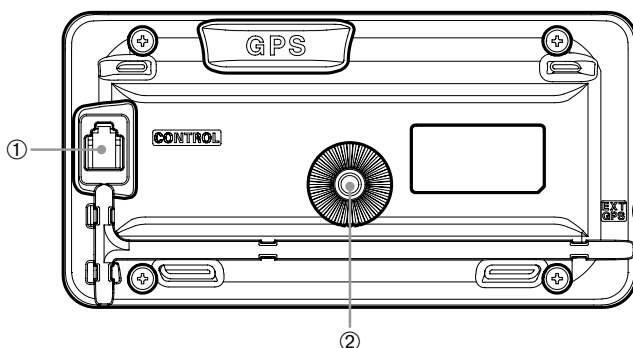


- ① VOL knob ()
The volume will increase when the knob is turned in a clockwise direction and decrease when turned in an counter-clockwise direction.
The upper end is for Band A use while the lower end is for Band B use.
- ② D/X key ()
The communication mode changes each time this key is pressed for a short time.
Tip Refer to Page 45 for the communication mode.
WIRES-X will start when this key is pressed for one second or longer.
- ③ Touch panel display
- ④ Band A DIAL knob ()
 - The frequency of the upper band in the dual band display can be adjusted.
The frequency will increase when the knob is turned in a clockwise direction and decrease when turned in an counter-clockwise direction.
Press the knob to enable setting the operating band frequency in 1 MHz units.
Press the knob for one second or longer to enable setting the frequency in 5 MHz units.
 - In memory mode when the knob is pressed for one second or longer, if a tag (name) is attached to the memory channel, the tag and frequency displays will be reversed.
 - This knob is also used to select the items during the set up and memory operations, group monitor operations, etc.
- ⑤ Power supply/LOCK switch ()
Press this button for 2 seconds or longer to switch the power on and off.
The key lock can be engaged or released by pressing the button quickly while the radio is turned on.
- ⑥ DISP/SETUP key ()
The display screen will change each time the button is pressed quickly.
Tip Refer to Page 20 for the display.
Press the button for one second or longer to display the set-up menu.

Name and Function of Each Component

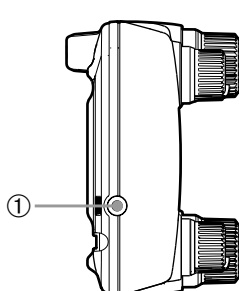
- ⑦ F/MW key ()
Press the button quickly to display the function menu.
Press the button for 2 seconds or longer to change to the memory writing mode.
- ⑧ Band B DIAL knob ()
- The frequency of the upper band in the dual band display can be adjusted.
Press the knob to enable setting the operating band frequency in 1 MHz units.
Press the knob for one second or longer to enable setting the frequency in 5 MHz units.
 - In memory mode when the knob is pressed for one second or longer, if a tag (name) is attached to the memory channel, the tag and frequency displays will be reversed.
- ⑨ GM key ()
Press this key to start the group monitor function.

Back



- ① CONTROL jack
Plug in the control cable into this jack to connect with the main body.
- ② Screw hole to attach the mounting bracket

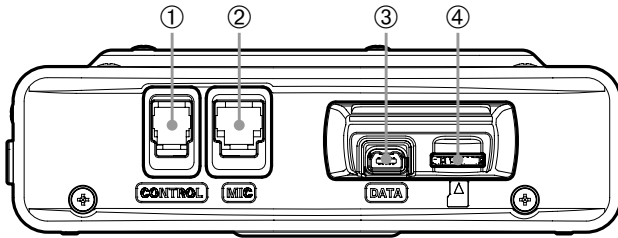
Left side

- ① EXT GPS jack
Plug in a cable to connect with external GPS devices.
- 
- The diagram shows the left side of the device. A small circular jack is labeled with a circled '1'. Below it, there are two larger circular ports, likely for antennas.

Name and Function of Each Component

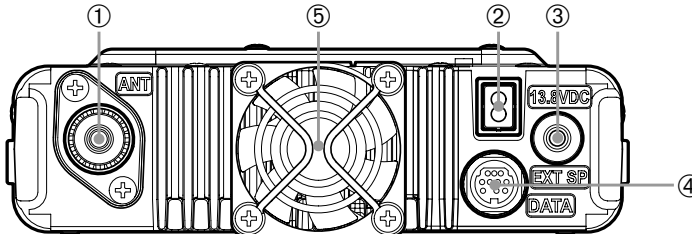
Main body

Front



- ① CONTROL jack
Plug in the control cable into this jack to connect with the controller.
- ② MIC jack
Plug in the provided microphone cable.
- ③ DATA jack
Connect MH-85A11U, the optional speaker microphone with camera.
* There is no audio output available from the FTM-400XDR/DE to the MH-85A11U speaker.
- ④ micro-SD card slot

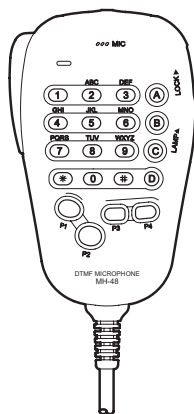
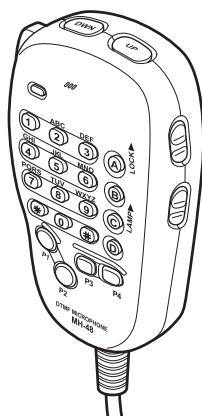
Back



- ① ANT terminal
Connect the co-axial cable for the antenna.
- ② 13.8 VDC
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 the cable for connecting with the personal computer interface unit and the external terminal unit (P.155 Page).
- ⑤ Cooling fan

Name and Function of Each Component

Microphone (MH-48A6JA)



- [UP]** Frequency is increased by 1 step.
- [DWN]** Frequency is decreased by 1 step.
- [LOCK]** Locks / unlocks the [UP] and [DWN] keys and [P1] to [P4] keys.
- [LAMP]** Turns the lamp on the body of the microphone on/off.
- [MIC]** Speak into here during transmission.
- [1] to [0]** Enters the numbers and letters.
- [*]** Changes the VFO/Memory operating mode of the operating band.
- [#]** Activates the GM (Group Monitor) functions.
- [A]** Switches the operating band to Band A.
- [B]** Switches the operating band to Band B.
- [C]** Adjusts the squelch level.
- [D]** Switches the display.
- [P1]** Turns off the squelch (T.CALL: European version).
- [P2]** Recalls the receiver home channel.
- [P3]** Changes the communication mode.
- [P4]** Changes the transmit power.
- [PTT]** Press this key to begin the transmit mode.

Tip

Preferred functions can be assigned to buttons [P1] to [P4]. Select using the **[CONFIG]→[10 MIC PROGRAM KEY]** in the set-up menu.