

***YAESU***  
***The radio***

C4FM/FM 144/430MHz  
DUAL BAND DIGITAL TRANSCEIVER

# ***FTM-500DR***

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Operating Manual



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**① Turning the Power ON**

Press and hold the [POWER] switch.

**② Inputting the Call sign**

When turning the power ON for the first time after purchasing, input the call sign of your own station.

1. When turning the power ON for the first time after purchasing, the call sign input screen will be displayed.
2. Input the call sign.  
Rotate the **FUNC** knob to select each character, then press the **FUNC** knob to move the cursor to the right.
3. Repeat step 2 to input the remaining call sign characters.  
Rotate the **FUNC** knob to select , then press the **FUNC** knob to move the cursor to the left.
5. Press and hold the **FUNC** knob to conclude inputting.  
Normal operation (VFO Mode) screen will be displayed.

**③ Selecting the Operating Band**

Press the [BAND] key.

**④ Tuning the frequency**

Rotate the **DIAL** knob.

**⑤ Adjusting the volume**

Rotate the **VOL/SQL** knob to adjust the volume to a comfortable level.

**⑥ Adjusting the squelch setting**

The squelch level may be adjusted to mute the background noise when no signal is received.

1. Press the **VOL/SQL** knob.
2. Rotate the **FUNC** knob to adjust the squelch to a level at which the background noise is muted.  
\* When the squelch level is increased, the noise is more likely to be silenced, but it may become more difficult to receive weak signals.
3. Press the **VOL/SQL** knob to save the setting.

**⑦ Selecting the Communication Mode**

The communication mode is automatically selected to correspond to the signal being received.

Press the [D X] to manually select the communication mode.

**⑧ Transmitting/Receiving Signals**  
**Transmitting**

While pressing and holding the **PTT** speak into the microphone.

**Receiving**

Release the **PTT** to return to receive mode.

# 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.



**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.



**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.



**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 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.



**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 1.8m (VHF) or 2.2m (UHF) away from your body.**  
**Do not use modified or damaged antennas.**



**RF Exposure: This device should be operated with a minimum separation distance of 20cm (8 inches) between the equipment and a person's body.**



**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.



**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.



**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.



**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.



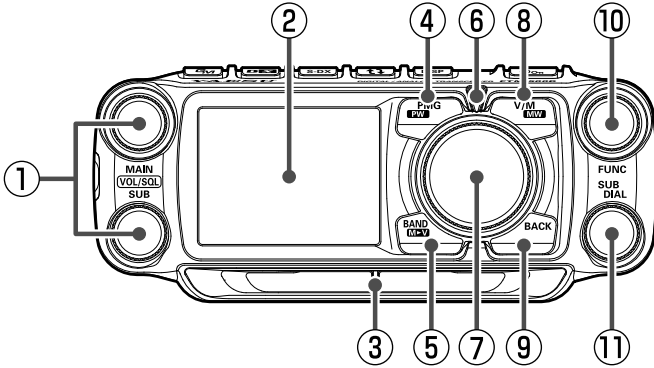
**Do not use a microphone other than those specified when connecting a microphone to the device.**  
If not, this may result in equipment failure.



**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.



## ① VOL / SQL knob

The volume will increase when the knob is turned in a clockwise direction and decrease when turned in a counter-clockwise direction.

The upper end is for MAIN band use while the lower end is for SUB band use.

## ② Display

## ③ Speaker

## ④ PMG key

Press

- Displays PMG (Primary Memory Group Activity Monitor).
- Press again to cancel PMG mode.

Press and hold

- Register the displayed frequency in PMG.

## ⑤ BAND key

Pressing each time increases the frequency band.

## ⑥ MODE indicator

## ⑦ DIAL knob

- The frequency of the upper band can be adjusted.

The frequency will increase when the knob is turned in a clockwise direction and decrease when turned in a counter-clockwise direction.

Press the knob to enable setting the operating band frequency in 1 MHz units.

- This knob is also used to select the items during the set up and memory operations, group monitor operations, etc.

## ⑧ V/M (MW) key

Pressing each time switches between VFO mode and memory mode.

## ⑨ BACK key

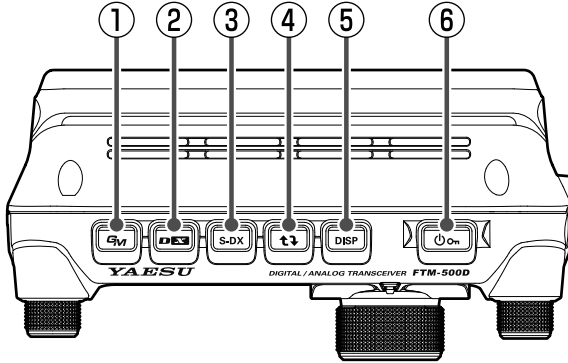
Press to return to the previous screen.

## ⑩ FUNC knob

Press the knob quickly to display the function menu.  
Press the knob for one second or longer to display the set-up menu.

## ⑪ SUB DIAL knob

- The frequency of the lower band in the dual band display can be adjusted.  
Press the knob to enable setting the operating band frequency in 1 MHz units.



## ① GM key

Press this key to start the group monitor function.  
Press this key for one second or longer to DG-ID number setting screen is displayed.

## ② D/X key

The communication mode changes each time this key is pressed for a short time.  
WIRES-X will start when this key is pressed for one second or longer.

## ③ S-DX key

## ④ t↕ key

Pressing each time switches between MAIN band and SUB band.

## ⑤ DISP key

Pressing each time switches between the frequency display and the scope display.

## ⑥ POWER (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.



## Supplied Accessories

- DTMF Microphone
- Mobile Mounting Bracket
- Control Cable
- DC power cable
- Spare fuse (15 A)
- Operating Manual (This Manual)



If any item is missing, contact the dealer from which you purchased the transceiver.

## Connecting the Power Supply

### Connecting the car Battery

When using this radio as a mobile unit, connect the DC power supply cable to the negative ground 12 V car battery.



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

1. Connect the red wire (+) of the DC power supply cable to the positive (+) terminal of the battery.
2. Connect the black wire (-) of the DC power supply cable to the negative (-) terminal of the battery.
3. Connect the DC power supply cable to the connector of the power cord of the main body.

Press the plug into the connector until a click sound is heard.

### Connecting the external power supply equipment

When using this radio as a fixed station, use an external 12 V DC power source.



- Use an external power source capable of supplying DC 13.8 V, a current capacity of 15 A or more.
- Make sure to switch OFF the power of the external power source before connecting.

1. Connect the red wire (+) of the provided DC power supply cable to the positive (+) terminal of the external power source, and the black wire (-) to the negative (-) terminal of the external power source.
2. Connect the DC power supply cable to the connector of the power cord of the main body.

Press the plug into the connector until a click sound is heard.

## Using a microSD Memory Card

Using a microSD memory card with the transceiver allows the following functions.

- Backing up the transceiver data and information
- Saving memory information
- Saving GPS log data
- Saving messages downloaded with the GM function or WIRE-X function

### Usable microSD Memory Cards

This transceiver only supports the following capacity of microSD and microSDHD memory cards.

• 2GB • 4GB • 8GB • 16GB • 32GB



- microSD memory cards formatted on other devices may not properly save information when used with this transceiver. Format microSD memory cards again with this transceiver when using memory cards formatted with another device.
- Do not remove the microSD memory card or turn the transceiver off, while saving data to a microSD memory card is in progress.

### Installing the micro-SD card

1. Press and hold the Power (Lock) switch to turn the transceiver OFF.
2. Insert the micro-SD card into the micro-SD card slot, with the terminal face on rear, until a click sound is heard.
3. After the power is switched ON, the “SD” icon will be displayed at the top of the display.

### Removing the micro-SD card

1. Press and hold the Power (Lock) switch to turn the transceiver OFF.
2. Push in on the micro-SD card.  
A click sound will be heard and the micro-SD card will be pushed outward.
3. Pull the micro-SD card from the micro-SD card slot.

### Formatting a microSD Memory Card

Format a new microSD memory card following the steps below before use.



Formatting a microSD memory card erases all data saved on it. If you are going to format the microSD memory card you are using, be sure to check the data saved on it before formatting.

1. Press and hold the **FUNC** knob.  
The “SETUP MENU” screen appears.
2. Turn the **FUNC** knob to select [**108 FORMAT**], then press the **FUNC** knob.  
“FORMAT” appears on the LCD.
3. Turn the **FUNC** knob to select [**OK**], then press the **FUNC** knob.  
Initialization starts and “Formatting” appears.
  - To cancel formatting, select [**CANCEL**].
4. When formatting is completed, “Completed” appears on the LCD.

## Turning the Transceiver ON

1. Press and hold the Power (Lock) switch to turn the transceiver ON.



- When switching the power on for the first time after purchasing, or after resetting, a screen requesting the call sign of your own station be entered, will be displayed.
- From the second time onwards, the call sign of your own station entered the first time will be displayed.

### ● Switching the power OFF

1. Press and hold the Power (Lock) switch.

The screen display will disappear, and the power will be switched OFF.

### ● Inputting the call sign

The first time the transceiver is turned ON after it is purchased; the call sign input screen will be displayed.

- When the transceiver is turned on the second time, and subsequently, the opening screen appears followed by the frequency screen.
2. Input the call sign (toggle the alphabet input screen, and the number input screen when necessary).
  3. Saving the inputted call sign:
  4. Press and hold the **FUNC** knob to conclude inputting.



- Up to 10 characters (letters, numbers, and symbols) can be entered.
- Characters that may be inputted for the call sign are the numbers "0" to "9", letters "A" to "Z" in upper case, the hyphen and the slash.

## Adjusting the Volume Level

1. Rotate the **VOL/SQL** knob to adjust the volume to a comfortable level.
  - The transceiver volume levels for the MAIN band and SUB band are adjusted separately.

## Adjusting the squelch setting

The squelch level may be adjusted to mute the background noise when no signal is present.

1. Press the **VOL/SQL** knob and then rotate the **VOL/SQL** knob to adjust to a level at which the background noise is muted.
  - The transceiver squelch levels for the MAIN band and SUB band are adjusted separately.



- When the squelch level is increased, the noise is more likely to be silenced, but it may become more difficult to receive weak signals.

2. Press the **VOL/SQL** knob to save the setting.

## Toggling the Operating Band

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Normally, both operating bands are displayed on the top half and bottom half of the transceiver screen. This is Dual band.

With one of the bands selected, change the frequency and radio operating mode.

- The selected band (displayed in white letters) is called Operating band.
- The other band (displayed in gray letters) is called Sub-band.
- Each time pressing the [**↑↓**] key toggles the operating band.

## Selecting a Frequency Band

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1. Press the [**BAND**] key to select the desired frequency band.

## Tuning to a Frequency

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### ● DIAL knob

By pressing the **DIAL** knob and then rotating the **DIAL** knob, the frequency will change in 1MHz steps.

### ● The numeric keys

1. Press the **FUNC** knob.
2. Rotate the **FUNC** knob to select “KEYPAD”, then press the **FUNC** knob.
3. Enter the frequency.  
Rotate the **FUNC** knob to select numbers, then press the **FUNC** knob to move the cursor to the right.
4. Repeat step 3 to input the frequency.

## Changing the Frequency Step

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The **DIAL** knob rotation frequency step may be changed. Normally, the factory default setting will provide a good frequency step.

1. Press and hold the **FUNC** knob.
2. Rotate the **FUNC** knob to select “33 STEP”, then press the **FUNC** knob.
3. Rotate the **FUNC** knob to change the frequency step.
4. Press the PTT switch to save the setting and return to normal operation.



In the default setting, of the frequency step is set to “AUTO”, which automatically provides a suitable frequency step according to the frequency band.

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## Selecting the Communication Mode

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### ● Using AMS

The FTM-500DR transceiver is equipped with the AMS (Automatic Mode Select) function which automatically selects the communication mode corresponding to the received signal.

To utilize the AMS function, press the [D X] key to display “**DN**”\*. After receiving the signal, “FM” of “**FM**” will be changed according to the received signal.

\*The display differs depending on the received signal.

● **Setting the transmission mode when using the AMS function**

The AMS function will automatically set the receiver to the mode of the received signal, but the transmission mode may be fixed regardless of the received mode.

1. Press and hold the **FUNC** knob.
2. Rotate the **FUNC** knob to select “9 AMS TX MODE”, then press the **DIAL** knob.
3. Press the **FUNC** knob to change the transmission mode.
4. Press the PTT switch to save the setting and return to normal operation.

Transmit Mode	Receive and Transmit
AUTO (default)	Receive: Automatically selects the communication mode of transmission according to the signal being received. Transmit: Transmits automatically in the communication mode selected by the AMS function.
TX FM FIXED	Receive: Automatically selects the communication mode of transmission according to the signal being received. Transmit: Always transmits in the analog FM mode.
TX DN FIXED (TX DIGITAL)	Receive: Automatically selects the communication mode of transmission according to the signal being received. Transmit: Always transmits in the DN mode.

## Fixing the Communication Mode

1. To fix the transmission mode for operation, press the **[D X]** key to switch the communication mode.

Communication Mode	Icon	Description of Modes
V/D Mode (Voice/Data simultaneous transmission mode)	DN	This is the standard digital mode. Calls are less prone to interruptions caused by detection and correction of the received digital voice signal.
Voice FR Mode* <sup>1</sup> (Voice Full Rate Mode)	VW * <sup>1</sup>	High speed data communication using entire 12.5 kHz band. Enables high-quality voice communication.
FM Mode	FM	Analog communication using FM mode.
AM Mode (receive only)* <sup>2</sup>	AM	The AM mode for receive only.

\*1 When the Set Mode **[14 DIGITAL VW]** is set to “**ON**” (factory default is “**OFF**”), the Voice FR mode (VW) may be selected.

\*2 When the Set Mode **[16 RX MODE]** is set to “**AUTO**” (factory default setting), AM mode is automatically selected within the AIR band.

## Transmission

1. While pressing and holding the **PTT** switch, speak into the microphone.  
A red bar will be displayed on the left of the band display.



If the PTT switch is pressed when a frequency other than the amateur ham radio band is selected, an alarm tone (beep) will be emitted and “TX PROHIBIT” appears on the LCD, disabling transmission.

2. Release the **PTT** switch to return to receive mode.



If transmission is continued for a long period, the transceiver overheats and the high temperature protection function is activated. As a result, the transmitting power level is automatically set to Low Power. If transmission continues while the high temperature protection function is active, the transceiver will be forcibly returned to the receive mode.


## Changing the Transmission Power Level

1. Press the **FUNC** knob, then rotate the **FUNC** knob to select “TXPWR”.
2. Press the **FUNC** knob to select one of the following transmission power levels.  
HIGH (50W) → LOW (5W) → MID (20W)
3. Press the **[BACK]** key twice to save the setting and return to the normal operation.





The transmission power level may be set separately for each frequency band.

## Locking Keys and DIAL knob

1. Press the Power (Lock) switch, “**LOCK**” is displayed on the display for one second, the “” icon appears on the LCD, and then the keys and **DIAL** knob are locked.
2. Press the POWER (Lock) switch again, “**UN LOCK**” will be displayed on the Display and keys and the **DIAL** knob are unlocked.



## Communicating Via the Repeater

The transceiver includes an ARS (Automatic Repeater Shift) function which sets the repeater operation automatically when the receiver is tuned to the repeater frequency.

1. Set the downlink (output) frequency from the repeater.
2. “” or “” icon may automatically appear above the frequency.
3. Speak into the microphone while pressing and holding the PTT switch.

### ● The reverse state

The “reverse” state temporarily reverses the transmit and receive frequencies. This allows checking to find if direct communication with the other station is possible.

1. Press the **FUNC** knob.
2. Rotate the **FUNC** knob to select “RPT-R”, then press the **FUNC** knob.
  - The transmit and receive frequencies are temporarily reversed (“reverse” state).
  - In the “reverse” state, the “” or “” blinks on the display.
3. Press the **FUNC** knob.
4. Rotate the **FUNC** knob to select “RPT-R”, then press the **FUNC** knob to exit from the “reverse” state.

- 
- The repeater settings may be changed from the Set Mode.
    - Set Mode [26 RPT SHIFT]: Allows setting the repeater shift direction.
    - Set Mode [27 RPT SHIFT FREQ]: Allows changing the repeater shift offset.
    - Set Mode [46 TONE SQL FREQ]: Allows setting the tone encoder frequency.
  - The ARS function may be set to OFF in the Set Mode [25 RPT ARS].
- 



# Using the Memory

## Caution

The information registered to memory channels can be corrupted by incorrect operation, static electricity, or electrical noise. Also, it can be erased in the event of a failure or repair. Be sure to keep a record of the settings on paper or back up the data to the microSD memory card. For details on saving a backup onto a microSD memory card, see “Set Mode: SD CARD Menu Operations”.

## Registering to Memory Channels

1. Set the frequency and the communication mode to be registered to a memory channel.
2. Press and hold the **[V/M(MW)]** key.
3. Rotate the **FUNC** knob to select the desired channel number.
4. Press and hold the **[V/M(MW)]** key to save the data to memory.
  - If you attempt to register a frequency to a memory channel that already contains frequency data, “OVER WRITE?” will appear on the LCD. Rotate the **FUNC** knob to select **[OK]**, then press the **FUNC** knob to overwrite the memory channel.

## Recalling a Memory Channel

1. Press the **[V/M(MW)]** key.  
The memory channel most recently used appears on the display.
2. Rotate the **DIAL** knob to select the desired memory channel.
3. Press the **[V/M(MW)]** key to exit the memory mode, and return to the normal operation.

## Clearing Memories

1. Press and hold the **[V/M(MW)]** key.
2. Rotate the **FUNC** knob to select the memory channel from which the data is to be cleared.
3. Press the **FUNC** knob.
4. Rotate the **FUNC** knob to select “DELETE”, then press the **FUNC** knob.  
Confirmation screen “DELETE” is displayed.
5. Rotate the **FUNC** knob to select “OK”, then press the **FUNC** knob to clear the memory channel.
6. Press the **[BACK]** key to the normal operation.



Data on memory channel One, and the Home channel may not be cleared.

## Recalling the Home Channels

1. Press the **FUNC** knob.
2. Rotate the **FUNC** knob to select “HOME”, then press the **FUNC** knob.
3. Press the **[V/M(MW)]** key to return to the previous frequency.



While recalling the home channel, rotate the **DIAL** knob to transfer the home channel frequency to the VFO operating band.



## Changing the Home Channel Frequency

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1. Set the frequency and the operating mode you want to store as a home channel.
2. Press and hold the **[V/M(MW)]** key.
3. Rotate the **FUNC** knob to select "HOM", then press and hold the **[V/M(MW)]** key.
4. "OVER WRITE" will appear on the LCD. Rotate the **FUNC** knob to select [OK], then press the **FUNC** knob.



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

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## Split Memory

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Two different frequencies, one for receive and another for transmit, can be registered to a memory channel.

## Using Memory Tag

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Memory name tags may be assigned to the memory channels and home channels.

# Scanning Function

The FTM-500DR supports the following four scanning functions:

- VFO Scan
- Memory Channel Scan
- Programmable Memory Scan (PMS)



For additional details on the Programmable Memory Scan (PMS) and Scan for specified memory channels, refer to the Advanced Manual which may be downloaded from the Yaesu website.

## VFO Scan

VFO scan function scans the frequencies, and detects signals.

1. Press the **[V/M(MW)]** key to enter the VFO mode.
2. Press the **FUNC** knob.
3. Rotate the **FUNC** knob to select "SCAN", then press the **FUNC** knob.
  - Scanning starts toward higher frequencies.
  - If the **DIAL** knob is rotated while scanning is in progress, the scanning will continue up or down in frequency according to the direction of the **DIAL** Knob rotation.
  - If the scanner halts on an incoming signal, the frequency display will blink. Scanning will resume in about five seconds.
4. Press the **PTT** switch to cancel the scanning.



- If the scan has paused on a signal, rotating the DIAL knob will cause scanning to resume instantly.
- When turning the transceiver OFF while scanning, turning the transceiver ON, will cause scanning to resume.

## Memory Channel Scanning

The receiver may be set to scan memory channels:

1. Recall a memory channel to begin memory scanning.
2. Press the **FUNC** knob.
3. Rotate the **FUNC** knob to select "SCAN", then press the **FUNC** knob.
  - Scanning starts toward higher memory channel numbers.
  - If the **DIAL** knob is rotated while scanning is in progress, the scanning will continue up or down in frequency according to the direction of the **DIAL** Knob rotation.
  - If the scanner halts on an incoming signal, the frequency display will blink. Scanning will resume in about five seconds.
4. Press the **PTT** switch to cancel the scanning.



If the scan has paused on a signal, rotating the DIAL knob will cause scanning to resume next memory channel.

## Programmable Memory scan (PMS)

This function scans only the range of frequencies between the lower and upper limits registered in a pair of PMS Programmable Memory channels. 50 sets of PMS memory channels (L01/U01 to L50/U50) are available.

## Bluetooth® Operation

The FTM-500DR has built-in Bluetooth® functionality, so hands-free operation is possible using the optional Bluetooth® headset (SSM-BT10) or a commercially available Bluetooth® headset.

### ● About communicable range

The communicable distance between SSM-BT10 and FTM-500DR is about 10m, but it changes greatly depending on the surrounding conditions and the human body.

### When connecting to a Bluetooth Headset for the first time -Pairing-

When using the Bluetooth® Headset for the first time, the Bluetooth® Headset and the FTM-500DR must be paired.

This step is necessary only once at the beginning.

1. Bluetooth® headset into pairing mode.

**SSM-BT10:** Press and hold the Multi Function Button for 3 seconds, until the SSM-BT10 LED blinks red/blue alternately.

2. Press and hold the **FUNC** knob.
3. Rotate the **FUNC** knob to select "110 Bluetooth", then press the **FUNC** knob.
4. Rotate the **FUNC** knob to select "Bluetooth", then press the **FUNC** knob.
5. Rotate the **FUNC** knob to select "ON", then press the **FUNC** knob.
6. Rotate the **FUNC** knob to select "DEVICE", then press the **FUNC** knob.
7. Rotate the **FUNC** knob to select "SEARCH", then press the **FUNC** knob.

"Searching" is displayed and the model name of the found Bluetooth® device is displayed in the list.

8. Rotate the **FUNC** knob to select the desired Bluetooth® device.
9. Press the **FUNC** knob.
10. Rotate the **FUNC** knob to select "CONNECT", then press the **FUNC** knob.
11. When pairing is complete and connected, the Bluetooth® headset model name is displayed.

**SSM-BT10:** LED blinks blue.

12. Press the **PTT** switch to return to the normal operation.

### Hands-free operation with a Bluetooth headset (VOX function)

When FTM-500DR's VOX (automatic voice transmission) function is turned on, you can use the Bluetooth® headset to perform hands-free operation that transmits automatically just by talking.

Turn on the VOX function according to "VOX function".

### Send by pressing the button on the Bluetooth® headset (when the VOX function is off)

When the VOX function is OFF, pressing the "Call button"\* on the Bluetooth® headset once will keep the FTM-500DR in transmission and you can make a call using the Bluetooth® headset.

If you press the "Call button"\* again, FTM-500DR will return to the reception state.

\*The button name may differ depending on your Bluetooth® headset.

**SSM-BT10:** When press the Multi Function Key, a beep will sound and the FTM-500DR will continue to transmit.

Press the Multi Function Key again, a beep will sound and the FTM-500DR will be in receive mode.

## VOX Operation

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The VOX system provides automatic transmit/receive switching based on voice input to the microphone or Bluetooth® Headset. With the VOX system enabled, you do not need to press the PTT switch in order to transmit, and it is not necessary to use a VOX headset in order to utilize VOX operation.

### Setting VOX function

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1. Press and hold the **FUNC** knob.
2. Rotate the **FUNC** knob to select "11 VOX", then press the **FUNC** knob .
3. Press the **FUNC** knob, and then rotate the **FUNC** knob to select "**LOW**" or "**HIGH**".  
**OFF**: VOX function OFF  
**LOW**: VOX function ON (VOX Gain Levl "**LOW**")  
**HIGH**: VOX function ON (VOX Gain Levl "**HIGH**")
4. Press the **FUNC** knob .
5. Press the **[DISP]** key to return to the normal operation.

#### ● Disable the VOX function

To cancel VOX and return to **PTT** operation, just repeat the above procedures, selecting "**OFF**" in step 3 above.

### Set the VOX (automatic voice transmission) delay time

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During transmission with VOX (automatic voice transmission) function, set the time to stop speaking and return to reception.

1. Press and hold the **FUNC** knob.
2. Rotate the **FUNC** knob to select "11 VOX", then press the **FUNC** knob.
3. Rotate the **FUNC** knob to select "DELAY", then press the **FUNC** knob.
4. Rotate the **FUNC** knob to select the delay time (the transmit-receive delay after the cessation of speech).  
0.5s / 1.0s / 1.5s / 2.0s / 2.5s / 3.0s
5. Press the **PTT** switch to return to the normal operation.

## Band Scope

The Spectrum Analyzer presents a view of operating activity on channels above and below the current main band operating frequency as the center.

1. Press the **[DISP]** key.
2. With the current frequency in the center, the signal strengths of 39 channels bandwidth are shown on a graph.
3. To turn the Band Scope OFF, press the **[DISP]** key.



- Press and hold the **FUNC** knob → **[4 BAND SCOPE]**. The number of band scope channels can be changed to NARROW (19) or WIDE (39).
- The band scope channel interval is the same as the VFO frequency step.

## GPS Function

FTM-500DR is equipped with GPS (Global Positioning System) reception function. When receiving signals from GPS satellites, the current position (latitude, longitude, altitude) can be calculated and displayed within the tolerance of several meters. In addition, GPS can receive the exact time from a satellite-mounted atomic clock.



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

## Tone squelch feature

The tone squelch opens the speaker audio only when a signal containing the specified CTCSS tone is received. By matching the tone frequency with the partner station in advance, a quiet standby is possible.

## Digital Code squelch (DCS) feature

DCS (Digital Coded Squelch) function that allows audio to be heard only when signals containing the same DCS code are received.

## Digital Personal ID (DP-ID) feature

Digital Personal ID (DP-ID) feature opens the speaker audio only when a signal set to the same DP-ID in the Digital Mode is received.

## Using Set Mode

The Set Mode permits configuring the various functions according to individual operating needs and preferences.

### Set Mode Operation

1. Press and hold the **FUNC** knob.
2. The SETUP MENU screen will be displayed.
3. Rotate the **FUNC** knob to select the desired item in Setup Menu.
4. Prss the **FUNC** knob.  
The Sub-menu screen will be displayed.
5. Rotate the **FUNC** knob to select the desired Set Mode Sub-menu.
6. Rotate the **FUNC** knob to select the desired item to set.  
[When there is no deeper level of menu items]  
Go step 8.  
[When there is deeper level of menu items]
7. Press the **FUNC** knob.
8. Rotate the **FUNC** knob to select the desired item to set.
9. Press the **PTT** switch to save the settings and return to normal operation.  
On some setting screens, pressing **PTT** switch does not exit from Menu Mode. In this case, press the [**BACK**] key several times to return to the frequency display screen.

## Tables of Set Mode Operations

Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
<b>DISPLAY</b>		
1 FREQUENCY INPUT	Enter frequency directly or display memory channel list.	–
2 LCD BRIGHTNESS	Set the brightness level of the LCD backlight and numeric keypad light.	MIN / MID / <b>MAX</b>
3 FREQUENCY COLOR	Set the font color of the operation band frequency.	<b>WHITE</b> / BLUE / RED
4 BAND SCOPE	Set the number of search channels for the band scope function.	<b>WIDE</b> / NARROW
5 TARGET LOCATION	Set what to display using the smart navigation function.	<b>COMPASS</b> / NUMERIC
6 COMPASS	Set the compass display of the smart navigation function.	<b>HEADING UP</b> / NORTH UP
7 DISPLAY MODE	Back Track, Altitude, Timer/Clock or GPS Information screen display.	<b>BACKTRACK</b> / ALTITUDE / TIMER/CLOCK / GPS INFORMATION
<b>TX</b>		
8 TX POWER	Set the transmit power level.	LOW / MID / <b>HIGH</b>
9 AMS TX MODE	Set the AMS transmission mode	<b>AUTO</b> / TX FM FIXED / TX DN FIXED
10 MIC GAIN	Adjust the microphone gain level.	<b>NORMAL</b> / HIGH / MAX / MIN / LOW
11 VOX	VOX function setting.	VOX: <b>OFF</b> / LOW / HIGH DELAY: <b>0.5s</b> / 1.0s / 1.5s / 2.0s / 2.5s / 3.0s
12 AUTO DIALER	DTMF code automatic transmission setting	<b>OFF</b> / ON
13 TOT	TX time out setting	OFF / 1 min / 2 min / 3 min / <b>5 min</b> / 10 min / 15 min / 20 min / 30 min

Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
14 DIGITAL VW	Turn the VW mode selection ON or OFF.	<b>OFF</b> / ON

## RX

15 FM BANDWIDTH	Set the FM transmission modulation level.	<b>WIDE</b> / NARROW
16 RX MODE	Select the receive mode.	<b>AUTO</b> / FM / AM
17 SUB BAND	Sub-band mute setting	<b>OFF</b> / ON
18 AUDIO EQUALIZER	The combination of the internal speaker on top of the transceiver with the front panel speaker, reproduces high-quality received audio with a wide frequency range.	FRONT TONE: <b>OFF</b> / FLAT / HI PITCH LO PITCH / BPF REAR TONE: <b>FLAT</b> / HI PITCH / LO PITCH BPF / 1kHz LPF / 700Hz LPF REAR OUT: 0% to <b>100%</b> AESS PHASE: OFF / 1.25ms to 20.00ms ( <b>10.00ms</b> )

## MEMORY

19 HOME	Recall the home channel.	–
20 MEMORY LIST	Displays the Memory channel list screen.	–
21 MEMORY LIST MODE	Displays a list of memory channels in memory mode.	ON / <b>OFF</b>
22 PMG	Set the resume operation after PMG scan stop.	PMG TIMER: 1sec / <b>2sec</b> / 3sec PMG CLEAR: –

## CONFIG

23 BEEP	Set the beep emitting function, and set whether or not to emit the beep sound when a band edge/CH1 is encountered.	OFF / LOW / <b>HIGH</b>
24 BAND SKIP	Set the frequency bands that can be selected.	AIR: <b>ON</b> / OFF VHF: <b>ON</b> / OFF UHF: <b>ON</b> / OFF OTHER: <b>ON</b> / OFF
25 RPT ARS	Turn the ARS function on/off.	<b>ON</b> / OFF
26 RPT SHIFT	Set the repeater shift direction.	<b>OFF</b> (SIMPLEX) / - / +
27 RPT SHIFT FREQ	Set the repeater shift width.	0.00 MHz to 99.95MHz ( <b>0.60 MHz</b> )
28 RPT REVERSE	Reverses the transmit and receive frequencies while working through a repeater.	<b>NORMAL</b> / REVERSE
29 MIC PROGRAM KEY	Microphone P buttons setting	OFF (disable the P button) / BAND SCOPE / SCAN / HOME / RPT SHIFT / REVERSE / TX POWER / SQL OFF / T-CALL / D_X / WX / STN LIST / MSG LIST / REPLY / MSG EDIT P1: <b>GM (FIX)</b> P2: <b>TX POWER</b> P3: <b>WIRES</b> P4: <b>WX</b>
30 DATE&TIME ADJUST	Setting the date and time.	–
31 DATE&TIME FORMAT	Setting the date and time display formats.	DATE: mmm/dd/yyyy / <b>yyyy/mmm/dd</b> / dd/mmm/yyyy / yyyy/dd/mmm TIME: <b>24 hour</b> / 12 hour
32 TIME ZONE	Time zone setting.	UTC -14:00 to UTC ±0:00 to UTC +14:00
33 STEP	Set the channel step.	<b>AUTO</b> / 5.00kHz / 6.25kHz / (8.33kHz) / 10.00kHz / 12.50kHz / 15.00kHz / 20.00kHz / 25.00kHz / 50.00kHz / 100.00kHz
34 CLOCK TYPE	Set the clock shift function.	<b>A</b> / B

Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
35 UNIT	Display unit setting	<b>METRIC</b> / INCH
36 APO	Set the length of time until the transceiver turns off automatically.	<b>OFF</b> / 0.5hour to 12.0hour
37 GPS DATUM	GPS function positioning selection	<b>WGS-84</b> / TOKYO MEAN
38 GPS DEVICE	GPS receiver selection	<b>INTERNAL</b> / EXTERNAL
39 GPS LOG	Set the GPS log recording time interval.	<b>OFF</b> / 1 sec / 2 sec / 5 sec / 10 sec / 30 sec / 60 sec

## AUDIO

40 RECORDING	Voice recode function setting.	BAND: <b>A</b> / B / A+B MIC: ON / <b>OFF</b>
41 REC/STOP	Start and stop recording.	–
42 FRONT SP MUTE	Settings for internal speakers when external speakers are connected.	<b>CONTINUE</b> / AUTO MUTE

## SIGNALING

43 DTMF	Load DTMF Autodialer Memories.	–
44 DTMF MEMORY	Set the DTMF auto dialer channel and code (16 characters).	<b>1</b> to 9
45 SQL TYPE	Select a squelch type.	<b>OFF</b> / TONE ENC / TONE SQL / REV TONE / DCS / PR FREQ / PAGER / (DCS ENC)* / (TONE DCS)* / (DCS TSQL)* *The options in the parentheses are available when the SQL expansion is ON.
46 TONE SQL FREQ DCS CODE	Set a tone frequency or DCS code..	67.0Hz to 254.1Hz ( <b>100.0Hz</b> ) <b>023</b> to 754
47 SQL EXPANTION	Set a squelch type separately for Receive and transmit.	ON / <b>OFF</b>
48 PAGER CODE	Pager individual code setting.	RX CODE 1 : 01 - 50 <b>05</b> RX CODE 2: 01 - 50 <b>47</b> TX CODE 1: 01 - 50 <b>05</b> TX CODE 2: 01 - 50 <b>47</b>
49 PR FREQUENCY	Set a non-communication squelch.	300Hz to 3000Hz ( <b>1500Hz</b> )
50 BELL RINGER	Recall sound length setting	<b>OFF</b> / 1 time / 3 times / 5 times / 8 times / CONTINUOUS
51 WX ALEAT	Enables/Disables the Weather Alert Feature.	ON / <b>OFF</b>

## SCAN

52 SCAN	Engages the Scan operation.	–
53 DUAL RCV MODE	Dual receive operation setting.	<b>OFF</b> / PRIORITY
54 DUAL RCV INTRVAL	Dual receive reception interval setting. (Only enabled when "53 Dual RCV Mode" is set to "PRIORITY".)	0.5sec / 1.0sec / 2.0sec / 3.0sec / <b>5.0sec</b> / 7.0sec / 10sec
55 PRIORITY REVERT	The transmission operation during dual receive always transmits on the home channel.	<b>OFF</b> / ON



Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
56 SCAN RESUME	Set the resume operation after scan stop	<b>BUSY</b> / HOLD / 1 sec / 3 sec / 5 sec
57 DIGITAL POPUP	Set the POP UP time.	OFF / 2 sec / 4 sec / 6 sec / 8 sec / <b>10 sec</b> / 20 sec / 30 sec / 60 sec / CONTINUE
58 LOCATION SERVICE	Set whether or not to display your current location in digital mode.	<b>ON</b> / OFF
59 STANDBY BEEP	Switch the standby beep function between ON/OFF.	<b>ON</b> / OFF

## GM

\* For details of the functions, refer to the GM Function Instruction Manual.

60 DP-ID LIST	Displays the DP-ID list screen.	—
61 RANGE RINGER	Bell sound setting when checking for stations within sphere of communications	<b>OFF</b> / ON
62 RADIO ID	Display the transceiver specific number (ID). (Uneditable)	—
63 LOG LIST	Display a list of recorded voices, received messages and images.	—

## WIRES-X

\* For details of the functions, refer to the WIRES-X Instruction Manual.

64 RPT/WIRES FREQ	Set the frequency to be used for Repeater/WIRES.	<b>MANUAL</b> / PRESET
65 SEARCH SETUP	Set the WIRES ROOM selection method.	<b>HISTORY</b> / ACTIVITY
66 EDIT CATEGORY TAG	Edit category tags.	C1 to C5
67 DELETE ROOM/NODE	Delete registered Category ROOMs.	C1 to C5
68 WIRES DG-ID	Set the DG-ID number for WIRES-X.	01 to 99 / <b>AUTO</b>

## DATA

69 COM PORT	COM port setting.	SPEED: 4800bps / <b>9600bps</b> / 19200bps / 38400bps / 57600bps OUTPUT: <b>OFF</b> (camera) / GPS OUT / PACKET / WAYPOINT WP FORMAT: NMEA 6 / NMEA 7 / NMEA 8 / <b>NMEA 9</b> WP FILTER: <b>ALL</b> / MOBILE / FREQUENCY / OBJECT/ITEM / DIGIPEATER / VoIP / WEATHER / YAESU / CALL RINGER / RANGE RINGER
70 DATA BAND	APRS/DATA band selection setting.	APRS: MAIN BAND / SUB BAND / A-BAND FIX / <b>B-BAND FIX</b> / A=TX/B=RX / A=RX/B=TX DATA: MAIN BAND / SUB BAND / A-BAND FIX / <b>B-BAND FIX</b> / A=TX/B=RX / A=RX/B=TX
71 DATA SPEED	APRS/DATA communication baud rate setting.	APRS: <b>1200 bps</b> / 9600 bps DATA: <b>1200 bps</b> / 9600 bps
72 DATA SQL	Squelch detection setting.	APRS: <b>RX BAND</b> / TX/RX BAND DATA: <b>RX BAND</b> / TX/RX BAND TX: <b>ON</b> / OFF

Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
<b>APRS</b>		
* For details of the functions, refer to the APRS Instruction Manual.		
73 APRS DESTINATION	Model code display. Non-editable	APY500
74 APRS FILTER	Select the filter function.	Mic-E: <b>ON</b> / OFF POSITION: <b>ON</b> / OFF WEATHER: <b>ON</b> / OFF OBJECT: <b>ON</b> / OFF ITEM: <b>ON</b> / OFF STATUS: <b>ON</b> / OFF OTHER: <b>ON</b> / <b>OFF</b> RANGE LIMIT: 1km / 10km / 100km / 1000km / 3000km / <b>OFF</b> ALTNET: <b>ON</b> / <b>OFF</b>
75 APRS MSG TEXT	Standard message text input.	1 to 8
76 APRS	Set the APRS baud rate.	<b>OFF</b> / <b>ON</b>
77 APRS MUTE	Set the B-band AF muting function ON/OFF when APRS is active.	<b>ON</b> / <b>OFF</b>
78 APRS POPUP	Display time setting for pop-up display of beacons and messages	BEACON: OFF / 3 sec / 5 sec / <b>10 sec</b> / HOLD MESSAGE: OFF / 3 sec / 5 sec / <b>10 sec</b> / HOLD MYPACKET: <b>OFF</b> / <b>ON</b>
79 APRS RINGER	Bell sound setting at beacon arrival	TX BEACON: <b>ON</b> / OFF TX MESSAGE: <b>ON</b> / OFF RX BEACON: <b>ON</b> / OFF RX MESSAGE: <b>ON</b> / OFF MY PACKET: <b>ON</b> / OFF CALL RINGER: <b>ON</b> / <b>OFF</b> RANGE RINGER: <b>OFF</b> / 1km / 5km / 10km / 50km / 100km MSG VOICE: <b>ON</b> / <b>OFF</b>
80 APRS RINGER (CS)	Call sign setting for CALL RINGER	1 to 8 stations
81 APRS TX DELAY	Data transmit delay time setting.	100 ms to 1000 ms ( <b>250 ms</b> )
82 APRS UNITS	APRS display unit setting	POSITION: <b>dd°mm.mm'</b> / dd°mm'ss" DISTANCE: <b>km</b> / mile SPEED: <b>km/h</b> / mph / knot ALTITUDE: <b>m</b> / ft BARO: <b>hPa</b> / mb / mmHg / inHg TEMP: <b>°C</b> / <b>°F</b> RAIN: <b>mm</b> / inch WIND: <b>m/s</b> / mph / knot
83 BEACON INFO	Transmit beacon information setting.	AMBIGUITY: <b>OFF</b> / 1 digit / 2 digits / 3 digits / 4 digits SPEED/COURSE: <b>ON</b> / OFF ALTITUDE: <b>ON</b> / OFF
84 BEACON STATUSTXT	Status text input setting	SELECT: TEXT 1 to TEXT 5 / <b>OFF</b> TX RATE: <b>1/1</b> to 1/8 / 1/2(FREQ) - 1/8(FREQ) TEXT 1 to 5: NONE / FREQUENCY / FREQ & SQL & SHIFT
85 BEACON TX SET	Select automatic or manual sending of beacon.	AUTO: <b>OFF</b> / <b>ON</b> INTERVAL: 30 sec / 1 min / 2 min / 3 min / <b>5 min</b> / 10 min / 15 min / 20 min / 30 min / 60 min PROPORTIONAL: <b>ON</b> / OFF DECAY: <b>ON</b> / OFF LOW SPEED: 1 km/h to 99 km/h ( <b>5km/h</b> ) RATE LIMIT: 5sec to 180sec ( <b>30sec</b> )

Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
86 DIGI PATH	Set the digital repeater route.	OFF / WIDE1-1 / <b>WIDE1-1, WIDE2-1</b> / PATH 1 / PATH 2 / PATH 3 / PATH 4 / FULL 1 / FULL 2
87 DIGI PATH 1	Digital repeater route address setting	ADDRESS 1: - ADDRESS 2: -
88 DIGI PATH 2		
89 DIGI PATH 3		
90 DIGI PATH 4		
91 DIGI PATH FULL 1	Digital repeater route address setting	ADDRESS 1 to ADDRESS 8: -
92 DIGI PATH FULL 2	Digital repeater route address setting	ADDRESS 1 to ADDRESS 8: -
93 CALLSIGN (APRS)	Specify the call sign of your station.	----- --
94 MESSAGE GROUP	Group filtering for received messages.	GROUP 1: ALLxxxxxx GROUP 2: CQxxxxxxx GROUP 3: QSTxxxxxx GROUP 4: YAESUxxxxx GROUP 5: ----- GROUP 6: ----- BULLETIN 1: BLN?xxxxxx BULLETIN 2: BLN? BULLETIN 3: BLN?
95 MESSAGE REPLY	Automatic response setting of received messages	REPLY: <b>OFF</b> / ON CALLSIGN: xxxxxx-xx REPLY TEXT: -
96 MY POSITION SET	My position setting	<b>GPS</b> / Manual
97 MY POSITION	My position manual setting.	LAT: N 0°00. 00' ( ' 00" ) LON: E 0°00. 00' ( ' 00" )
98 MY SYMBOL	Set your station symbol.	ICON 1: [>] Car ICON 2: [R] REC.Vehicle ICON 3: [-] House QTH (VHF) USER: [Y] Yaesu Radios
99 POSITION COMMENT	Set up the position comment function.	<b>Off Duty</b> / En Route / In Service / Returning / Committed / Special / Priority / Custom 0 to 6 / Emergency!
100 SmartBeaconing	Set the smart beaconing function.	STATUS: <b>OFF</b> / TYPE1 / TYPE2 / TYPE3 LOW SPEED: 2 km/h to 30 km/h ( <b>5 km/h</b> ) HIGH SPEED: 3 km/h to 90 km/h ( <b>70 km/h</b> ) SLOW RATE: 1 min to 100 min ( <b>30 min</b> ) FAST RATE: 10 sec to 180 sec ( <b>120 sec</b> ) TURN ANGLE: 5° to 90° ( <b>28°</b> ) TURN SLOPE: 1 to 255 ( <b>26</b> ) TURN TIME: 5 sec to 180 sec ( <b>30 sec</b> )
101 SORT FILTER	Sort function / filter function setting	SORT: <b>TIME</b> / CALLSIGN / DISTANCE FILTER: <b>ALL</b> / MOBILE / FREQUENCY / OBJECT/ITEM / DIGIPEATER / VoIP / WEATHER / YAESU / OTHER PACKET / CALL RINGER / RANGE RINGER / 1200 bps / 9600 bps
102 VOICE ALERT	Voice alert function setting	VOICE ALERT: <b>NORMAL</b> / TONE SQL / DCS / RX-TSQL / RX-DCS TONE SQL: 67.0 Hz to 254.1 Hz ( <b>100.0 Hz</b> ) DCS: 023 to 754 ( <b>023</b> )
103 STATION LIST	Displays the APRS Station list screen.	-
104 MESSAGE LIST	Displays the APRS Message list screen.	-
105 BEACON TX SELECT	Beacon automatic transmit / Manual transmit switch.	<b>MANUAL</b> / AUTO / (SmartBeaconing)* *The option in the parentheses is available when the "100 SmartBeaconing" is TYPE1, TYPE 2 or TYPE 3, and the "96 MY POSITION SET" is GPS.

Set mode no. / item	Description	Selectable options (Options in bold are the default settings)
106 BEACON TX	Manual beacon transmission (one time)	–

## SD CARD

107 BACKUP	Save the data stored on the transceiver onto a microSD memory card or load the data from a microSD card.	WRITE TO SD: ALL / MEMORY / SETUP READ FROM SD: ALL / MEMORY / SETUP
108 MEMORY INFO	Displays the total capacity and free space of the SD Memory Card.	–
109 FORMAT	Initialize microSD memory cards.	–
110 JPG IMPORT		

## OPTION

111 Bluetooth	Sets the Bluetooth function.	Bluetooth: <b>OFF</b> / ON DEVICE: - STATUS: - SAVE: <b>OFF</b> / ON
112 VOICE MEMORY	Voice memory function setting	PLAY/REC: <b>FREE 5 min</b> / LAST 30 sec ANNOUNCE: OFF / <b>AUTO</b> / MANUAL LANGUAGE: JAPANESE / <b>ENGLISH</b> VOLUME: <b>HIGH</b> / MID / LOW RX MUTE: <b>ON</b> / OFF
113 FVS REC	Start recording the received audio.	–
114 TRACK SELECT	Selecting the audio track to play.	ALL / 1 - 8
115 PLAY	Start playing the recorded sound	–
116 STOP	Stop recording / playing	–
117 CLEAR	Erase all recorded audio	–
118 VOICE GUIDE	The frequency of the operating band will be announced.	–

## CLONE

119 This → Other	Copy all saved data	–
120 119 Other → This	Copy all saved data	–

## RESET

121 CALLSIGN	Set the call sign.	xxxxxxxxxx
122 MEMORY CH RESET	Erasing registered memory channels	–
123 APRS RESET	Return APRS settings to default settings when shipped	–
124 CONFIG SET	Preset registration	–
125 CONFIG RECALL	Recall preset	–
126 SOFTWARE VERSION	Display the software version.	Main / Sub / DSP
127 FACTORY RESET	Return all settings to default settings when shipped	–

## Restoring to Defaults (Reset)

### Caution

When the All Reset function is performed, all data registered in the memory will be deleted. Be sure to note the settings on paper or back up the data on a microSD memory card.

### All Reset

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To restore all transceiver settings and memory content to the factory defaults.

1. Press and hold the **FUNC** knob.
2. Rotate the **FUNC** knob to select "127 FACTORY RESET", then press the **FUNC** knob.  
"FACTORY RESET" will appear on the LCD.
3. Rotate the **FUNC** knob to select [OK], then press the **FUNC** knob.
  - The beep will sound, and the transceiver will reset all factory defaults.
  - After resetting all defaults, the call sign input message appears on the LCD. Set the call sign.
  - To cancel the resetting, rotate the **FUNC** knob to select [CANCEL], then press the **FUNC** knob.

# Specifications

## ● General

Frequency Range	: TX 144 - 148 MHz, 430 - 450 MHz : RX: 108 MHz to 999.995 MHz (Cellular Blocked)
Channel Steps	: 5/6.25/(8.33)/10/12.5/15/20/25/50/100 kHz ( ) Air Band
Mode of Emission	: F1D, F2D, F3E, F7W
Frequency Stability	: ±2.5ppm (-4°F to +140°F [-20°C to +60°C])
Antenna Impedance	: 50Ω
Supply Voltage	: Nominal 13.8 V DC, Negative Ground : Operating 11.7 to 15.8 V DC, Negative Ground
Current Consumption (Approx.)	: 0.4 A (Receive) : 11 A (TX, 144 MHz 50 W) : 12 A (TX, 430 MHz 50 W)
Operating Temperature Range	: -4°F to +140°F (-20°C to +60°C)
Case Size (W x H x D)	: Radio unit: 5.47" x 1.66" x 5.2" (139 x 42 x 132 mm) (w/o FAN) : Controller: 6.14" x 2.52" x 2.31" (156 x 64 x 58.6 mm)
Weight (approx.)	: 3.09 lbs (1.4 kg) (with radio unit, controller, control cable)

## ● Transmitter

Output Power	: 50 / 25 / 5 W
Modulation Type	: F1D, F2D, F3E: Variable Reactance Modulation : F7W: 4FSK (C4FM)
Spurious Emission	: At least 60 dB below

## ● Receiver

Circuit Type	: Double-conversion super heterodyne
Intermediate Frequency	: 1st: Band A 58.05 MHz : 1st: Band B 57.15 MHz : 2nd: Band A, Band B 450 kHz
Sensitivity	: 108 - 137 MHz (AM) 0.8 μV typ @10 dB SN : 137 - 140 MHz (FM) 0.2 μV @12 dB SINAD : 140 - 150 MHz (FM) 0.2 μV @12 dB SINAD : 150 - 174 MHz (FM) 0.25 μV @12 dB SINAD : 174 - 222 MHz (FM) 0.3 μV typ @12 dB SINAD : 222 - 300 MHz (FM) 0.25 μV typ @12 dB SINAD : 300 - 336 MHz (AM) 0.8 μV typ @10 dB SINAD : 336 - 420 MHz (FM) 0.25 μV @12 dB SINAD : 420 - 470 MHz (FM) 0.2 μV @12 dB SINAD : 470 - 520 MHz (FM) 0.2 μV @12 dB SINAD : 800 - 900 MHz (FM) 0.4 μV typ @12 dB SINAD : 900 - 999.99 MHz (FM) 0.8 μV typ @12 dB SINAD : Digital Mode 0.19 μV typ @BER1% : Cellular Blocked
Selectivity (-6 dB/-60 dB)	: NFM, AM 12 kHz/30 kHz
AF Output	: 3 W (8Ω for THD 10 % 13.8 V DC) internal speaker : 3 W (8Ω for THD 10 % 13.8 V DC) external speaker

## ● Bluetooth

Version	: Version 5.0
Class	: Class 1

Specifications are subject to change without notice, and are guaranteed within the 144/430 MHz amateur bands only.

Changes or modifications to this device that are not expressly approved by YAESU MUSEN could void the user's authorization to operate this device.

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.

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.

The YAESU MUSEN is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

This device complies with ISED's applicable 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.**

CAN ICES-3 (B) / NMB-3 (B)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy; and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC/IC radiation exposure limits and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that is deemed to comply without testing of specific absorption rate (SAR).

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

# ***YAESU***

## **Declaration of Conformity**

Type of Equipment:	144/430MHz Digital/Analog Transceiver
Brand Name:	YAESU
Model Number:	FTM-500DR
Manufacturer:	YAESU MUSEN CO., LTD.
Address of Manufacturer:	Omori Bellport Building D-3F 6-26-3 Minami-Oi, Shinagawa-ku, Tokyo, 140-0013, Japan

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 received, including interference that may cause undesired operation.

The technical documentation as required by the Conformity Assessment procedures is kept at the following address:

Company: Yaesu U.S.A.

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

Telephone: (714) 827-7600





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