

YAESU

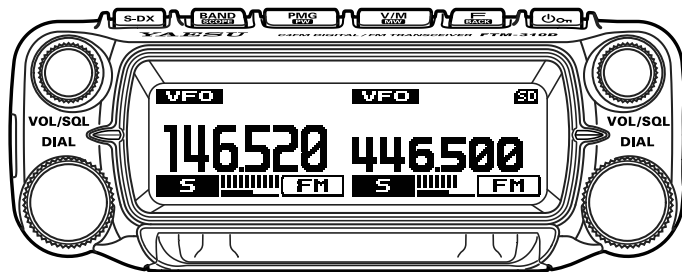
Radio for Professionals

C4FM/FM 144/430MHz
DUAL BAND DIGITAL TRANSCEIVER

FTM-310DR

FTM-310DE



Operating Manual



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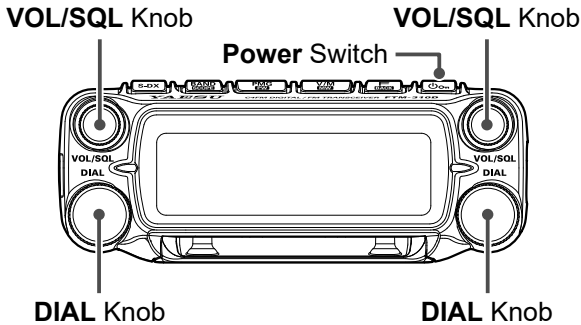
Features of the Yaesu **FTM-310DR/DE** Transceiver.

- Equipped with a front speaker. The AESS dual speaker system uses the main body speaker in combination the front panel speaker to provide clear audio quality and spacious 3D sound.
- Total audio output is 6W (3W: main body, 3W: control head) High sound quality, loud speakers.
- The PMG (Primary Memory Group Activity Monitor) function can register up to 5 channels with the receive frequencies of the VFO or memory channels by simply pressing and holding the  key. Press the  key to scan the registered frequencies and display the reception status (signal strength) in a real time bar graph.
- The Super DX function increases the sensitivity of the RF amplifier when the received signal is weak, and expands the communication range.
- Installing the Audio Digital Signal Processing Unit “SPU-1”, permits digitally processing the received audio signal to separate and remove noise. The voice can be enhanced to produce clear, comfortable, audio quality. Even weak signals that were previously inaudible due to noise can now be received clearly.
- Digital communication using Yaesu (C4FM (Quaternary FSK) system)
- Simultaneous reception of two separate frequencies, on different bands, or within the same band (V+V/U+U/V+U/U+V).
- Equipped with AMS (Automatic Mode Select) feature that automatically selects the analog FM or the C4FM digital modes, according to the signal of the other station.
- The CFL (Custom Function List) can be personalized by registering frequently used functions (up to 6) from the 127 items Setup Menu.
- MAG (Memory Channel Band Auto Grouping). The memory channels are automatically categorized in each band, so that memory channels can be easily and quickly recalled.
- High-resolution band scope that displays 47 channels
- Wide-band reception (108MHz to 550MHz)
- Built-in GPS unit permits display of the current location and heading information
- Installation of the optional Bluetooth BU-5 unit permits hands-free communication using the optional Bluetooth headset SSM-BT20 or a commercially available product.
- Large-capacity 1103 memory channels
- Heavy Duty-Heat Sink with FACC (Funnel Air-Convection Conductor)
- WIRES-X Portable Digital Node or Fixed Node with HRI-200
- Equipped with digital GM (Group Monitor) function
- Ready for APRS® communication with world standard 1200 / 9600bps AX25 modem
- Compatible with microSD memory cards


Thank you for purchasing the **FTM-310DR/DE** Transceiver. We urge you to read this manual in its entirety, and also the Advance Manual (available for download on the Yaesu website), to gain a full understanding of the amazing capability of the exciting new **FTM-310DR/DE** Transceiver.

WIRES-X, GM function and APRS instruction manuals are not included in the product package. They are available and may be downloaded from the Yaesu.com website.

Quick Guide



① Turn the Power ON

Press and hold the  key.

② Input the Call sign

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

Input call sign may be changed from Setup Menu [121 CALLSIGN].

1. When turning the power ON for the first time after purchasing, the call sign input screen will be displayed.
2. Press the Right **DIAL** knob.
3. Input the call sign.
Rotate the Right **DIAL** knob to select each character and then press the Right **DIAL** knob.
4. Repeat step 3 to input the remaining call sign characters.
5. Press and hold the Right **DIAL** knob to conclude inputting.

The power is turned OFF once and then turned on automatically. Normal operation (VFO Mode) screen will be displayed.

③ Switch the operating band

Each time the Left or Right **DIAL** knob is pressed, the operating band switches between "Left" and "Right".

④ Select the Operating Band

Press the  key.

⑤ Tune the frequency

Rotate the **DIAL** knob.

⑥ Adjust the volume

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

⑦ Adjust 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 **VOL/SQL** 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 again or wait for about 3 seconds to complete the adjustment.

⑧ Transmit/Receive Signals

Talk into the microphone while holding the **PTT** switch on the side. Release the **PTT** switch to return to receive.

Set the Bluetooth function

To use a Bluetooth headset, refer to "Bluetooth **Operation**" on page 55 for setting.

Supplied Accessories and Options

Supplied Accessories

- DTMF microphone SSM-85D
- DC power cable (with fuse attached)
- Bracket for main body
- Spare fuse (15A)
- Operating Manual (This Manual)



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

Available Options

- | | |
|--|----------|
| • Swing Head Kit | SJMK-500 |
| • Dash Mount Bracket | MMB-103 |
| • Control Cable 20ft (6m) | CT-132 |
| • Control Cable 10ft (3m) | SCU-62 |
| • Mic Extension Kit 10ft (3m) for SSM-85D and MH-42C6J | MEK-5 |
| • 8-pin to 6-pin conversion cable | SCU-67 |
| • Audio Digital Signal Processing Unit | SPU-1 |
| • Voice Guide Unit | FVS-2 |
| • WIRES-X Connection Cable kit | SCU-58 |
| • DTMF Microphone | SSM-85D |
| • Microphone | MH-42C6J |
| • Bluetooth Headset | SSM-BT20 |
| • Bluetooth Unit | BU-5 |
| • High-Power External Speaker | MLS-100 |

About this manual

The following notation is also used in this manual.



This icon indicates cautions and information that should be read.




This icon indicates notes, tips and information that should be read.

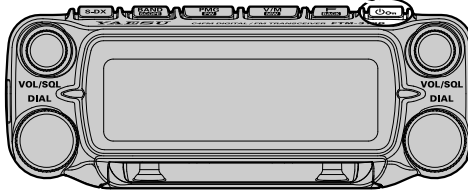
PLEASE NOTE: Due to product improvements, some of the illustrations in the instruction manual may differ from the actual product.

Basic Operation

Turning the Transceiver ON

1. Press and hold the  switch to turn the transceiver **ON / OFF**.

Press and hold 



● Inputting the call sign

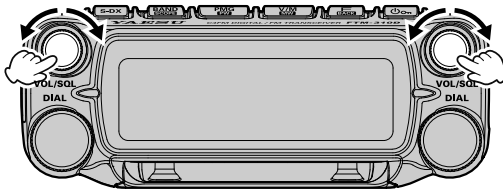
1. The first time the transceiver is turned ON after it is purchased; input your own call sign.
2. Press the Right **DIAL** knob to proceed to the call sign input screen.
The input call sign may be changed from the Setup Menu [**121 CALLSIGN**].
3. Rotate the Right **DIAL** knob, then press it to select each character.
4. Repeat step 3 to input the remaining call sign characters.
5. Press and hold the Right **DIAL** knob to conclude inputting.
Normal operating (VFO Mode) screen will be displayed.

Adjusting the volume

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

Adjust the volume level
for Left Side Band

Adjust the volume level
for Right Side Band



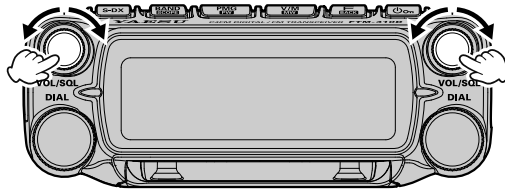
Adjusting the squelch level

Annoying noises can be muted when a signal cannot be detected. Normally, use the factory settings, but adjust the squelch to mute noise or hash.

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.

Adjust the squelch level
for Left Side Band

Adjust the squelch level
for Right Side Band



- **SQL** appears on the display.
 - Adjustment is possible for Main band and Sub band.
2. After the adjustment, press the **VOL/SQL** knob again, or do nothing for about 3 seconds, the SQL meter will return to the VOL meter.

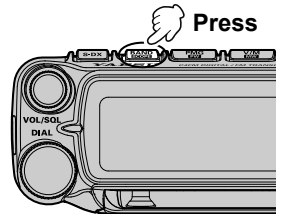


When the squelch level is increased, the noise is more likely to be silenced, but it may become more difficult to receive weak signals.

Selecting a Frequency Band

Press the **BAND SKIP** key to select the desired frequency band.

AIR Band	108MHz - 137MHz
144MHz/VHF Band	137MHz - 174MHz
VHF/UHF Band	174MHz - 400MHz
430MHz/UHF Band	400MHz - 550MHz

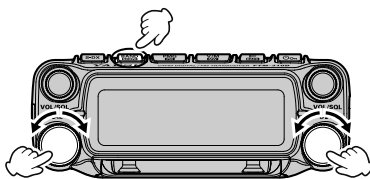


- With the “band skip function”, specific bands may be selected to be used. Even when the band skip is set so that some frequencies cannot be selected, frequently used frequencies can be recalled by saving them into the memory channels before setting band skip.
- Press and hold the **BAND SKIP** key → Rotate the Right **DIAL** knob to select **[25 BAND SKIP]** → Press the Right **DIAL** knob → Rotate the Right **DIAL** knob to select the band to set → Press the Right **DIAL** knob → Rotate the Right **DIAL** knob to select “ON” (selectable) or “OFF” (not selectable)

Tuning to a Frequency

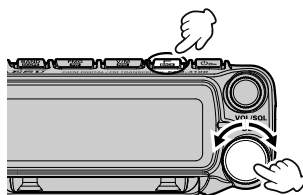
1. Press the **BAND** key to select the desired frequency band.
2. Rotate the **DIAL** knob to select the desired frequency.

AIR Band 108MHz - 137MHz
 144MHz/VHF Band 137MHz - 174MHz
 VHF/UHF Band 174MHz - 400MHz
 430MHz/UHF Band 400MHz - 550MHz



● Keyboard frequency entry (Direct Input)

1. Press the **FUNC** key, to display the function list screen.
2. Rotate the Right **DIAL** knob to select **[KEYPAD]** then press the Right **DIAL** knob. Display the frequency input screen.
3. The leftmost digit will blink, then turn the Right **DIAL** knob to select the first digit.
4. Press the Right **DIAL** knob, the second digit will blink.
5. Rotate the Right **DIAL** knob to select the second digit.
6. Repeat the same operation to select additional digits. Then press and hold the Right **DIAL** knob to conclude the input and confirm the frequency.



M->V	GM	WIRES-X
KEYPAD	RPT ARS	RPT REV
TX PWR		
>		

FREQUENCY				
1	2	3	4	5
6	7	8	9	0
MEM CH		MEM LIST		⏏



While entering a frequency using the keyboard, the entry may be canceled by pressing the **FUNC** key.

● Change the frequency rapidly (MHz up/down function)

Press and hold the **DIAL** knob, to blink the MHz digit. Change the frequency in 1MHz steps by turning the **DIAL** knob while it is blinking.



In this case, change the frequency within the range of 108MHz to 550MHz regardless of the band. Operation will be within the band that includes the input frequency.

See below for details on operating bands.

108MHz - 137MHz	→ AM mode*
137MHz - 174MHz	→ Digital or FM mode*
174MHz - 300MHz	→ FM mode*
300MHz - 320MHz (for USA: 336MHz)	→ AM mode*
320MHz (for USA: 336MHz) - 400MHz	→ FM mode*
400MHz - 480MHz	→ Digital or FM mode*
480MHz - 550MHz	→ Digital or FM mode*



*Change to AM or FM mode in the Set Menu **[17 RX MODE]**.

● The numeric keys on microphone

Press the numeric keys “0” to “9” to enter the frequency.

Example: To input 145.525MHz

[1] → [4] → [5] → [5] → [2]

Example: To input 430.000MHz

[4] → [3] → [Press and hold any numeric key]



While entering a frequency using the numeric keys, the entry may be canceled by pressing **PTT**.

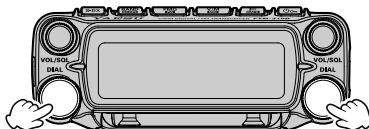


Switch between Main Band and Sub Band

The two operational bands are displayed on the left and right of the display. The large numbers indicate which band can transmit.

Each time the Left or Right **DIAL** knob is pressed, the operating band switches between “Left” and “Right”.

The band displayed with large numbers is called the “Main Band”. The band that is indicated in small numbers is the “Sub Band”.



Transmitting

1. While pressing and holding **PTT**, speak into the microphone.
2. Release the PTT to return to receive.

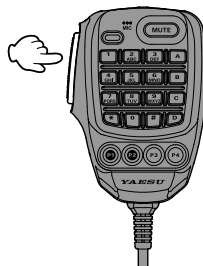


Press the microphone [P1] key (factory default) to transmit on the Sub Band frequency.




- 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, “**TX PROHIBIT**” appears on the display, and transmit is disabled.



- 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.



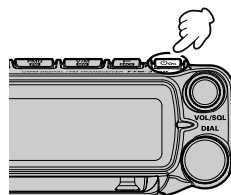
Locking the Keys and DIAL knob

1. Press the  switch, “**LOCK**” is shown on the display for one second, the “” icon appears on the display, and then the keys and **DIAL** knob are locked.
2. Press the  switch again, “**UNLOCK**” will be shown on the Display and the keys and the **DIAL** knob are unlocked.

The “” icon disappears.




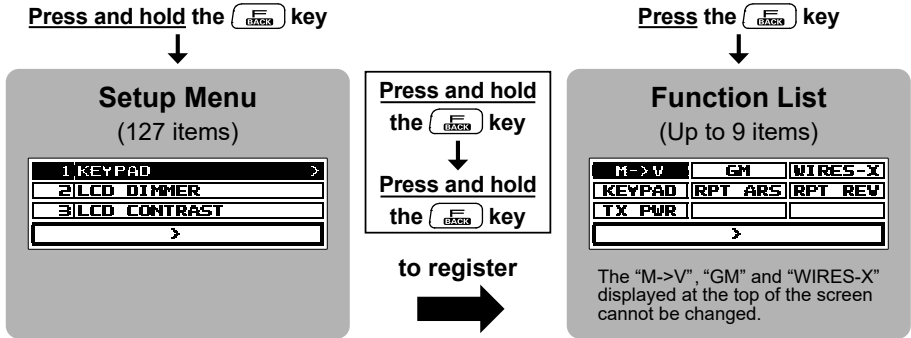
The **PTT** switch and the VOL/SQL knob cannot be locked.





Useful Functions


① CFL: Custom Function List page 18

From 127 items of the Setup Menu, frequently used functions in the Function List can be registered and then recalled by simply pressing the  key. The Function List screen displays the registered functions and current settings in an easy-to-read form, so you can immediately select and use the function. By default, 7 functions are registered in the Custom Function List. Up to 6 frequently used functions can be registered and customized in the Function List.




● Registration to the Custom Function List

Press and hold the  key to display the setup menu, select the item to be registered with the Right **DIAL** knob, then press and hold the  key.

Select the list position to register the setup item with the Right **DIAL** knob, and then press and hold the  key to register it in the setup menu.

● Use the Function List

Press the  key to display the function list screen, and select the function to be used with the Right **DIAL** knob.

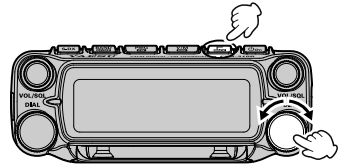
By pressing the Right **DIAL** knob, you can execute functions or change settings.


● Cancel registration to Function List

On the function list screen, select the function to cancel with the Right **DIAL** knob.

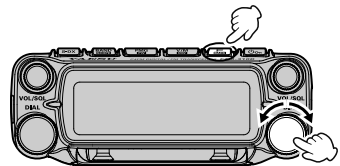
Press and hold the  key to cancel the registration.

Press and hold: to register in the function list



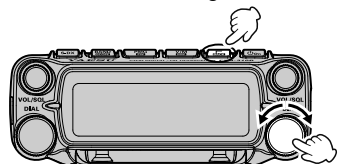
Turn the Right **DIAL** knob to select, then press and hold the  key

Press: to recall




Turn the Right **DIAL** knob to select, then press the Right **DIAL** knob

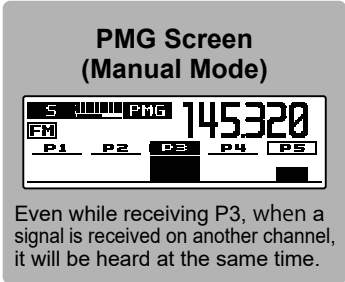
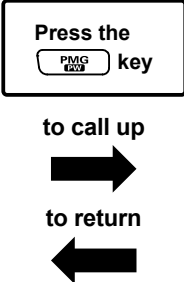
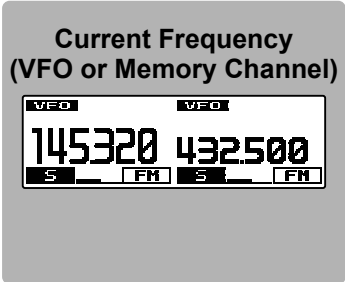
Press and hold: to cancel registration





② **PMG (Primary Memory Group)** **page 16**

The PMG function allows registration of up to five often used frequencies for easy monitoring. Simply press and hold the  key to register the currently displayed VFO or Memory Channel frequency. The PMG screen can be switched to auto mode or manual mode by pressing and holding the Right **DIAL** knob.

In manual mode, while receiving the channel selected with the DIAL knob, other channels are also scanned and a channel with a signal is simultaneously heard.



- **Register the frequency to PMG**
Display the frequency of the VFO or memory channel, then press and hold the  key. The frequency is registered in PMG.
- **Display the PMG screen**
Press the  key to display the PMG screen.

Press and hold the Right **DIAL** knob to switch between Manual Mode and Auto Mode.

Manual Mode:

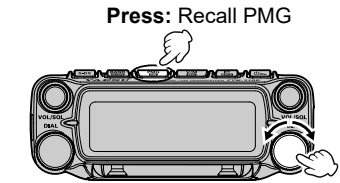
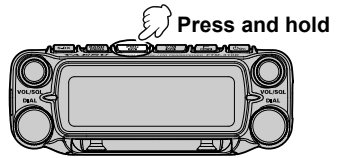
While receiving the channel selected with the **DIAL** knob, other channels are also scanned and a channel with a signal is heard at the same time.

Transmission is fixed to the channel selected with the **DIAL** knob.

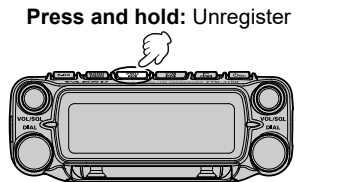
Auto Mode:


The PMG channels are scanned and up to two channels with signals are simultaneously received. When a signal disappears, scanning resumes and up to two channels are always heard at the same time.

Transmission is automatically performed on the channel that received the signal.



Rotate the Right **DIAL** knob to select
Press and hold the Right **DIAL** knob to switch Manual Mode / Auto Mode



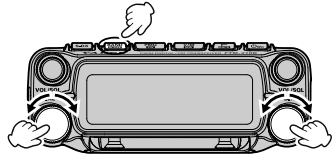
- **Cancel the frequency registered in PMG**
Select a channel on the PMG screen and press and hold the  key.

③ **Band Scope** **page 14**

The receive status (signal strength) of the channels above and below the current frequency can be displayed as a bar graph, whether in VFO mode or in memory mode.

Press and hold the **[BAND SCOPE]** key to display the band scope screen. When the desired channel is set to the center with the **DIAL** knob, the received audio is played.

Press and hold: Displays the band scope



Rotate the **DIAL** knob to select the channel

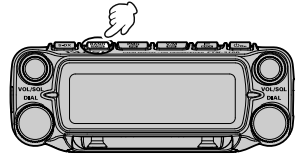
④ **Memory auto grouping (MAG) function** **page 47**

Memory channels can be automatically grouped and recalled for each band.

Press the **[BAND SCOPE]** key in memory mode.

In the memory mode, each time the **[BAND SCOPE]** key is pressed, only memory channels of the specified frequency band are automatically recalled as a group, as shown below:

Press: Select the band to display in memory mode

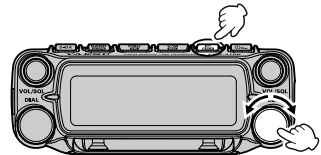


⑤ **VFO Band skip function** **page 40**

Bands that are not normally used can be skipped when the **[BAND SCOPE]** key is pressed.

Press and hold the **[F BAND]** key → select **[25 BAND SKIP]** → press the Right **DIAL** knob → select the desired band with the Right **DIAL** knob → press the Right **DIAL** knob → rotate the Right **DIAL** knob to set "ON" (selectable) or "OFF" (not selectable)

Press and hold: Select **[25 BAND SKIP]**



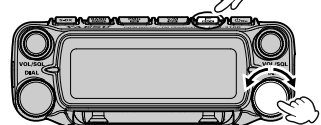
Turn the Right **DIAL** to select a band then select ON/OFF

⑥ **Memory channel → VFO copy** **page 46**

Transfers the recalled memory channel to the VFO.

Press the **[F BAND]** key while recalling memory → select **[M->V]** → press the Right **DIAL** knob

Press



Select **[M->V]**
Press the Right **DIAL** knob

Setup Menu List

Frequently used items from the below 127 Setup Menu types, can be registered to the Function List. (See page 18) The gray Setting items are registered in the Function List by factory default. See page 72 for detail information on the Setup Menu.

DISPLAY	SIGNALING	86 BEACON TX SET
1 KEYPAD	44 DTMF	87 DIGI PATH
2 LCD DIMMER	45 DTMF MEMORY	88 DIGI PATH 1
3 LCD CONTRAST	46 SQL TYPE	89 DIGI PATH 2
4 BAND SCOPE	47 TONE SQL FREQ / DCS CODE	90 DIGI PATH 3
5 S-METER SYMBOL	48 SQL EXPANSION	91 DIGI PATH 4
6 BACKLIGHT COLOR	49 PAGER CODE	92 DIGI PATH FULL 1
7 COMPASS	50 PR FREQUENCY	93 DIGI PATH FULL 2
8 GPS INFORMATION	51 BELL RINGER	94 CALLSIGN (APRS)
TX	52 WX ALERT	95 MESSAGE GROUP
9 TX POWER	SCAN	96 MESSAGE REPLY
10 AMS TX MODE	53 SCAN	97 MY POSITION SET
11 MIC GAIN	54 DUAL RECEIVE MODE	98 MY POSITION
12 VOX	55 DUAL RX INTERVAL	99 MY SYMBOL
13 AUTO DIALER	56 PRIORITY REVERT	100 POSITION COMMENT
14 TOT	57 SCAN RESUME	101 SmartBeaconing
15 DIGITAL VW	DIGITAL	102 SORT FILTER
RX	58 DIGITAL POPUP	103 VOICE ALERT
16 FM BANDWIDTH	59 LOCATION SERVICE	104 STATION LIST
17 RX MODE	60 STANDBY BEEP	105 MESSAGE LIST
18 SUB BAND	GM	106 BEACON TX SELECT
19 AUDIO EQUALIZER	61 DP-ID LIST	107 BEACON TX
MEMORY	62 RANGE RINGER	SD CARD
20 HOME CH	63 RADIO ID	108 BACKUP
21 MEMORY LIST	64 LOG LIST	109 SD INFORMATION
22 MEMORY LIST MODE	WIRES-X	110 SD FORMAT
23 PMG	65 RPT/WIRES FREQ	OPTION
CONFIG	66 SEARCH SETUP	111 Bluetooth
24 BEEP	67 EDIT CATEGORY TAG	112 VOICE MEMORY
25 BAND SKIP	68 DELETE ROOM/NODE	113 FVS REC
26 RPT ARS	69 WIRES DG-ID	114 TRACK SELECT
27 RPT SHIFT	DATA	115 FVS PLAY
28 RPT SHIFT FREQ	70 COM PORT	116 FVS STOP
29 RPT REVERSE	71 DATA BAND	117 FVS CLEAR
30 MIC PROGRAM KEY	72 DATA SPEED	118 VOICE GUIDE
31 DATE&TIME ADJUST	73 DATA SQL	CLONE/RESET
32 DATE&TIME FORMAT	APRS	119 This → Other
33 TIME ZONE	74 APRS DESTINATION	120 Other → This
34 STEP	75 APRS FILTER	121 CALLSIGN
35 CLOCK TYPE	76 APRS MESSAGE TEXT	122 MEMORY CH RESET
36 UNIT	77 APRS MODEM	123 APRS RESET
37 APO	78 APRS MUTE	124 CONFIG SET
38 GPS DATUM	79 APRS POPUP	125 CONFIG RECALL
39 GPS LOG	80 APRS RINGER	126 SOFTWARE VERSION
AUDIO	81 APRS RINGER (CS)	127 FACTORY RESET
40 RECORDING	82 APRS TX DELAY	
41 REC/STOP	83 APRS UNITS	
42 REAR SP OUT	84 BEACON INFORMATION	
43 FRONT SP MUTE	85 BEACON STATUS TEXT	

Switch between Dual receive and Scope operation with one touch

Dual receive and Scope operations are switched each time the  key is pressed and held.

The center frequency or memory channel can be changed by turning the Left **DIAL** knob:

In VFO Mode, press and hold the Right **DIAL** knob, then turn the Right **DIAL** knob to select the frequency in 1MHz increments.

In Memory Mode, press and hold the Right **DIAL** knob, then turn the Right **DIAL** knob to select in 10 channel steps.

Dual Receive



Press and hold the



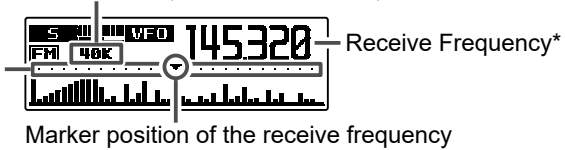
Scope Screen



Scope Screen

The interval between dots indicating the channel step (40 kHz in this case)

The interval between dots indicating the channel step (Is not displayed in memory mode)






Marker position of the receive frequency

*Memory channels with names (TAG), can be switched between TAG display and frequency display by briefly pressing the DIAL knob on the side where the scope function is activated.

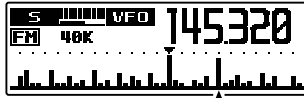
- Even when the scope is operating, each time the Left or Right DIAL knob is pressed, you can switch between the “Main band” and “Sub band”.
- In scope operation, the marker frequency is received while other frequencies are monitored and a bar graph is displayed.
- Transmission is also performed at the frequency of the marker position.
- The status (strengths) of the signals in the upper and lower frequency channels (47CH or 23CH), or memory channels (23CH or 13CH) are displayed on the Scope Bar graph, centered on the current operating channel.

Change the number of channels displayed during scope operation

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [4 BAND SCOPE].
3. Press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select “WIDE” or “NARROW”.
5. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.

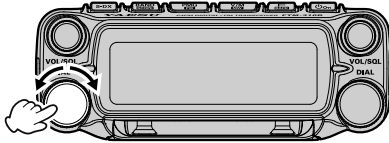
	VFO Mode	Memory Mode
WIDE	47 channels	23 channels
NARROW	23 channels	13 channels

Select the signal bar on the scope to hear the audio

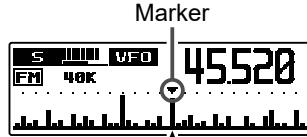


Receiving this signal

- The left **DIAL** knob moves the bar without moving the marker.
- Receive the desired signal to hear by aligning the bar with the center marker.

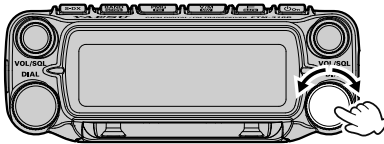


Rotate the Left DIAL knob



Align the bar of the signal you want to hear with the center marker.

- The right **DIAL** knob moves the marker without moving the bar.
- Receive the signal you want to hear by aligning the marker with the bar.




Rotate the Right DIAL knob

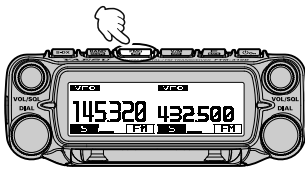
Align the marker on the bar of the signal you want to hear




PMG (Primary Memory Group)

The PMG function scans up to 5 channels registered to the PMG. The receive status of each channel is simultaneously displayed in real time with a bar graph. In addition, two channels with signals are simultaneously received, allowing convenient standby. In manual mode, transmit and receive are fixed to the selected channel, and signals are received simultaneously on other channels. In auto mode, other channels are scanned while receiving on the selected channel, and up to two channels with signals are received simultaneously. Transmission is automatically performed on the receiving channel. To register the currently displayed VFO or memory channel to the PMG, simply press and hold the  key on the frequency.

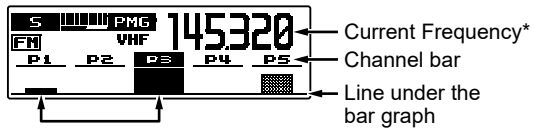
PMG Screen



Press the  key

When the PMG function is active, the  key illumination changes to amber.

*Memory channels with names (TAG), can be switched between TAG display and frequency display by briefly pressing the right DIAL knob.



When there is a signal, a bar graph is displayed


Current Frequency*

Channel bar





Line under the bar graph

Fine: Manual Mode
Thick: Auto Mode


: Receiving signal

: Previously received signals Bar graph (Disappears after about 2 seconds*)

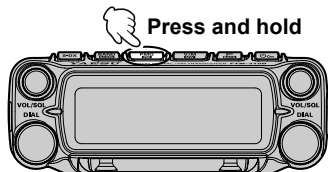
*The disappeared signal hold time can be changed from the Setup Menu [23 PMG] → [PMG HOLD].

- If there are no registered Channels in PMG, the PMG screen will not be displayed even if the  key is pressed.
- To adjust the volume and squelch while PMG is operating, use the Right VOL/SQL knob.
- Press and hold the  key to cancel the registration of the currently selected PMG channel.
- Press the  key to return to the screen displayed before the PMG screen.
- Press and hold the  key on the PMG screen to copy the contents of the currently selected PMG channel to the VFO, and enter VFO mode.


Register the frequency to PMG

Press and hold the  key to register the current frequency in PMG. PMG channels are registered in order from P1 to P5.

- Up to 5 channels can be registered in PMG. When registering more than five Frequencies, older frequencies will be deleted in order from PMG.
- Cannot register a frequency that is already registered.



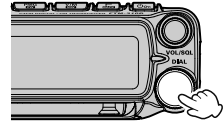
Unregister the Channel (Frequency) registered in PMG

1. Select the channel to be unregistered by rotating the Right DIAL knob.
2. Press and hold the  key to cancel the registration.

On the PMG screen, rotate the Right **DIAL** knob to select the channel to be heard. The channel number display will be inverted to indicate the received channel.



Press and hold the Right **DIAL** knob Switch between **Manual Mode** and **Auto Mode**.



Press and hold

MANUAL Mode

While continuously receiving on the PMG channel selected with the DIAL knob. Other PMG channels are simultaneously scanned, and received signals are heard. Transmission is on the selected channel (displayed in inverse image).

When a signal is received on another channel, the signal strength is displayed as a bar graph and it is simultaneously heard, but the transmit channel does not change. Turn the **DIAL** knob to change the transmit channel.

Turn the DIAL knob to select the desired channel (e.g. P2).



Receive a signal on P2.
Scan P1, P3 to P5.

Receive a signal on P2



While listening to received audio on P2, scanning will continue on P1, P3 to P5.

Receive a signal other than P2 (e.g. P5)



Display as a bar graph. Scan will stop. P2 and P5 received audio can be heard at the same time. Transmission is on P2.

When the P5 signal disappears.

While listening to received audio on P2, scanning will continue on P1, P3 to P5.



The volume of P2 can be adjusted with the right VOL/SQL knob, and the audio of other channels can be adjusted with the left VOL/SQL knob.

AUTO Mode

While receiving the PMG channel selected with the **DIAL** knob, scan continues on the other PMG channels and up to two channels with signals are simultaneously received. When a signal disappears, scanning resumes. Transmission is automatically performed on the channel that received the signal.



Receive a signal on P2.
Scan P1, P3 to P5.

Receive a signal on P3



The channel will automatically change to P3 and while listening to received audio on P3, scanning will continue on P1, P2, P4 and P5. Transmit will also be set to this channel.

Receive a signal on P5




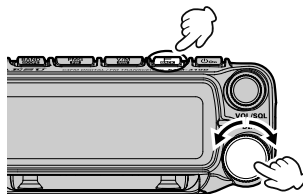
P3 and P5 received audio can be heard at the same time. Scan will stop.

The volume of P3 can be adjusted with the right VOL/SQL knob, and the audio of other channels can be adjusted with the left VOL/SQL knob.



Change feature settings


Setting functions using the Function List

1. Press the  key.
The Function List is displayed.
2. Rotate the Right **DIAL** knob to select the desired function.
3. Press the Right **DIAL** knob to execute functions or change settings.




Close the function List

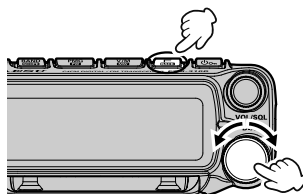
Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.

 The functions in the Function List are set as shown in the screen illustration on the right when shipped from the factory. To change the settings, refer to the instructions on the next page.



M → V	GM	WIRES-X
KEYPAD	RPT ARS	RPT REV
TX PWR		
▶		

Setting functions using the Set up Menu


1. Press and hold the  key.
The Setup Menu screen is displayed.
2. Rotate the Right **DIAL** knob to select the desired function (see table below).
3. Press the Right **DIAL** knob to execute functions or change settings.




Close the Set-Up Menu

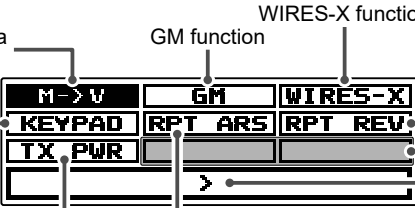
Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.

Swapping functions in the function list

Easily operate frequently used functions by calling them from the function list with one-touch operation of the  key. The list of registered priority functions and the setting status can be viewed at a glance. Change the function or change the setting just by selecting and pressing with the **DIAL** knob. The following 7 functions are registered in the function list by factory default. However, up to 6 frequently used functions from 127 setup menu types can be registered (see previous page).

Press the  key briefly to recall the function list

Function List display example (factory default setting)



Copies the contents of a memory channel to the VFO mode.

1 KEYPAD
Displays the frequency or memory channel number input screen.

9 TX POWER
Selects the transmit power output level

26 RPT ARS
Activates/Deactivates the Automatic Repeater Shift feature.

GM function

WIRES-X function

29 RPT REVERSE
Temporarily swaps the transmit and receive frequencies of a repeater or split memory

Nothing registered




Displays the current setting for the selected function.

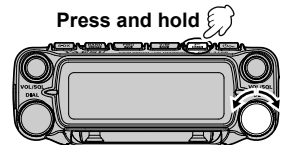


- The “M -> V”, “GM” and “WIRES-X” displayed at the top of the screen cannot be changed.
- Up to 6 items can be registered in the Function List.



Changing the contents of the function list

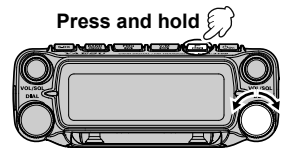
Registration to the Function List

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select the item to be registered in the Function List.
3. Press and hold the  key.
The Function List screen appears.
4. Rotate the Right **DIAL** knob to select the location to register.
5. Press and hold the  key.
The function is registered in the selected location.



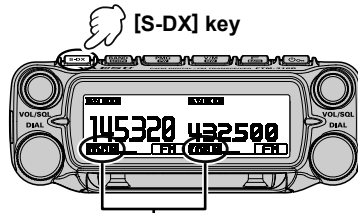
Cancel registration in the Function List

1. Press the  key.
2. Rotate the Right **DIAL** knob to select the registered item to cancel.
3. Press and hold the  key.
The confirmation screen will be displayed.
4. Rotate the Right **DIAL** knob to select [OK] and press the Right **DIAL** knob.



Super DX plus Noise Cancelling

The Super DX function increases the sensitivity of the RF amplifier when the received signal is weak, expanding the calling range. In addition, by installing the Audio Digital Signal Processing Unit “SPU-1”, the received audio signal can be digitally processed to separate and remove noise. The voice can be enhanced to produce clearer, more comfortable sound quality. Even weak signals that were previously inaudible due to noise can now be received clearly.

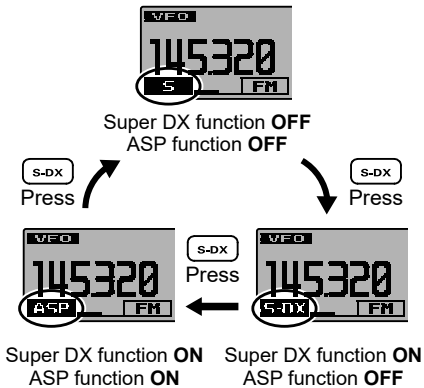


Displays the operating status of the ASP and Super-DX functions.

Regarding ASP Operation

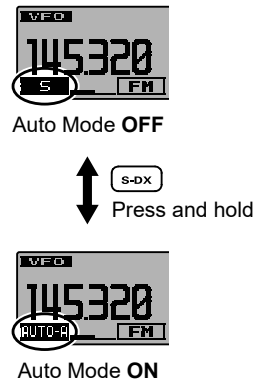
Manual Mode

Super DX Function and ASP Function, the operation will switch each time the **[S-DX]** key is pressed.



Auto Mode

Press and hold the **[S-DX]** key, activates the “Auto Mode” function, ASP will automatically turn ON/OFF depending on signal strength. Weak signals automatically turn on the ASP to eliminate noise, but normal signals do not.



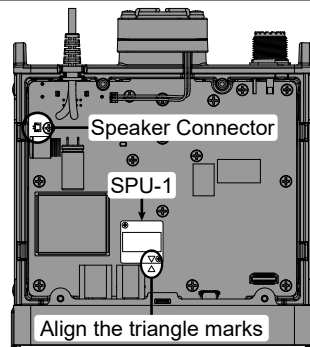
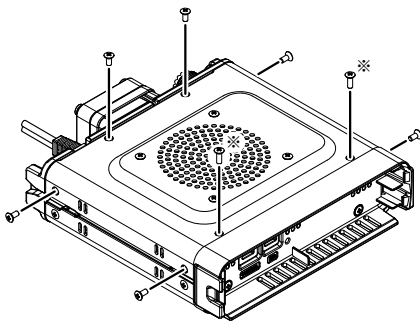
- If the SPU-1 is **not** installed, a press of **[S-DX]** key only turns the Super DX function ON/OFF. The ASP function will not operate.
- When the ASP Auto function is enabled, a short press of **[S-DX]** key disables the function.
- The Super DX function is always activated when the ASP Auto function is in enabled.

Installing the Audio Digital Signal Processing Unit “SPU-1”

1. Disconnect all the cables and the microphone from the transceiver.
2. Remove the 8 screws from the main body, 4 on top and 2 each at the sides.
3. Carefully lift the top cover of the main body.
4. Unplug the speaker cables extending from the top cover from the socket on the board inside the main body before removing the cover.
5. Refer to the illustration for the mounting location of the SPU-1. Align the triangle marks and plug the SPU-1, all the way into the connector.
6. Fasten the SPU-1 into place using the 2 screws supplied with the SPU-1.
Do not use incorrect screws, only use the supplied screws.
7. Replace the top cover and secure it using the 8 screws.




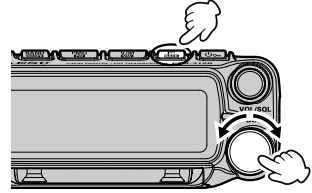
*Please note that the 2 screws on the front panel side of the top cover are longer than the other 6 screws.



AESS (Acoustic Enhanced Speaker System)




The phase adaptation speaker system AESS (Acoustic Enhancement Speaker System) is generated conjointly by the main-unit speaker and the front speaker. By varying the phase, output balance, and frequency characteristics of the front and main speaker output, AESS achieves clear, high-fidelity audio that reduces fatigue even when used for sustained communications.

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [19 AUDIO EQUALIZER].
3. Press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to set the sound quality of the front speaker.



17 RX MODE	
18 SUB BAND	➤
19 AUDIO EQUALIZER	
	➤

- OFF** :Standard sound quality without AESS
FLAT :Use AESS without changing sound quality
HI PITCH :Emphasizes high frequencies
LO PITCH :Emphasizes low frequencies
BPF :Attenuates high and low frequencies

5. Press the  key.
6. Similarly, rotate the Right **DIAL** knob to select each item of “REAR TONE” and “AESS PHASE”, then press the Right **DIAL** knob.
7. Rotate the Right **DIAL** knob and refer to the table below to select settings.
8. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.

FRONT TONE

OFF	Standard sound quality without AESS (When set to OFF, only “REAR OUT” cannot be set.)
FLAT	Use AESS without changing sound quality
HI PITCH	Emphasizes high frequencies
LO PITCH	Emphasizes low frequencies
BPF	Attenuates high and low frequencies

REAR TONE

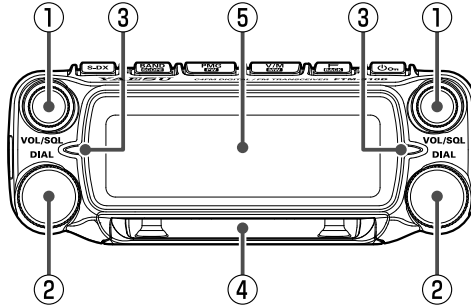
FLAT	Use AESS without changing sound quality
HI PITCH	Emphasizes high frequencies
LO PITCH	Emphasizes low frequencies
BPF	Attenuates high and low frequencies
1kHz	Cuts high frequencies above 1kHz
700Hz	Cuts high frequencies above 700Hz

AESS PHASE

OFF	Use AESS without changing the time delay
1.25ms - 20.00ms	Sets the time delay between the audio output of the control head speaker and the main unit speaker.

Name and function of each component

Control Head (front)



① VOL/SQL knob

Rotate the **VOL/SQL** Knob to adjust the audio volume level.

VOL/SQL knob (Left): Left Side Band

VOL/SQL knob (Right): Right Side Band

Press the **VOL/SQL** knob, then rotate the **VOL/SQL** knob to adjust the squelch level. The squelch level may be adjusted to mute the background noise when no signal is present.

Press and hold the **VOL/SQL** knob, the communication mode changes:

AMS → DN → FM → AMS ...

② DIAL knob

Change the frequency or select the memory channel.

DIAL knob (Left): Left Side Band

DIAL knob (Right): Right Side Band

- Each time the Left or Right DIAL knob is pressed, the operating band switches between "Left" and "Right". The band displayed with large numbers is called the "Main Band", and the band that is displayed in small numbers is the "Sub Band".
- In VFO mode, the frequency may be changed in 1MHz increments after pressing the knob.
- In Memory Mode, press and then turn the knob to select in 10 channel steps.

③ TX/BUSY indicator

The current operating mode is indicated by the color of the LED.

Green: Receiving (Analog FM, AM mode)

Green (blinks): while receiving a signal that does not match the DCS/CTCSS tones.

Blue: Receiving (Digital C4FM mode)

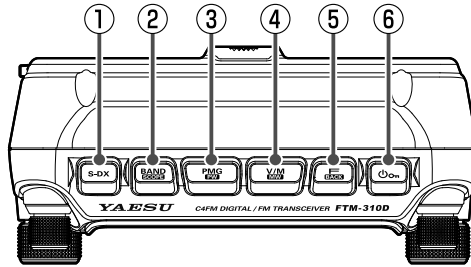
Red: During transmit

④ Speaker

The 3W high output front speaker at the bottom of the control-head, ensures clear and powerful audio.

⑤ Display

Control Head (top)



① **S-DX** key

Enables the Super DX function and increases sensitivity. Installation of the “SPU-1”, provides even greater noise reduction and clearer audio.

② **BAND GROUP** key

VFO mode

• Press:

Each key press switches the operating frequency band.

Band	Selectable Frequency Range
AIR	108MHz - 137MHz
144MHz/VHF	137MHz - 174MHz
VHF/UHF	174MHz - 400MHz
430MHz/UHF	400MHz - 550MHz

• Press and hold:

Displays the scope screen with the current frequency as the center and the status of the upper and lower channels (received signal strengths) in a graph.

Press the key again to return to the normal screen.

Memory mode

• Press:

Each time the key is pressed, only memory channels of the same frequency band are automatically recalled in a group as shown below.

- M-ALL** All memory channels
- M-AIR** AIR band memory channels
- M-VHF** 144MHz band memory channel
- M-UHF** 430MHz band memory channel
- OTHER** 174MHz - 400MHz band memory channels
- M-GRP** Channels, regardless of the band, can be registered in advance and called up as frequently used memory channels in the M-GRP.

• Press and hold:

Displays the scope screen with the current memory channel at the center and the received signal strength status of the upper and lower channels in a graph.

③ **PMG** key

• Press:

Displays PMG (Primary Memory Group). (see page 16)

Press and hold the Right **DIAL** knob to switch between auto mode and manual mode.

In manual mode, while receiving the channel selected with the **DIAL** knob, other channels are also scanned and a channel with a signal is heard at the same time. Transmission is fixed to the channel selected with the **DIAL** knob.

In Auto mode, the PMG channels are scanned and up to two channels with signals are simultaneously received. When a signal disappears, scanning resumes and up to two channels are always heard at the same time. Transmission is automatically performed on the channel that received the signal.

Press the key again to cancel PMG mode.

When the PMG function is active, the **PMG** key illumination changes to amber.

• Press and hold:

Register the displayed frequency in PMG.

Press and hold in VFO mode or memory mode to register the current frequency in PMG.

Up to 5 channels can be registered for PMG regardless of the frequency band.

④ **V/M** key

• Press:

Each key press switches between VFO mode and memory mode.

When a memory channel is recalled, the memory channel number is displayed, such as “M-ALL 001”. The last operated memory channel is recalled.

• Press and hold:

Press and hold the key to display the memory channel list screen.

Writing to memory or recalling and editing of stored memory channel.


⑤  **key**

• **Press:**

Display the CFL (Customized Function List) screen. Rotate the Right **DIAL** knob to select an item and perform the functions and make settings.

• **Press and hold:**

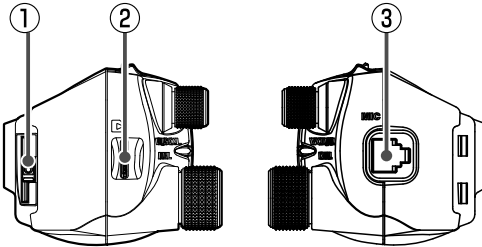
To enter set-up menu. The Set Mode permits configuring the various functions according to individual operating needs and preferences. (Refer to page 72).

⑥  **key**

Press and hold this key to switch the power ON or OFF.

When the power is ON, press this key briefly to engage, or release the key lock.

Control Head (Left and right side)



① **Release knob**

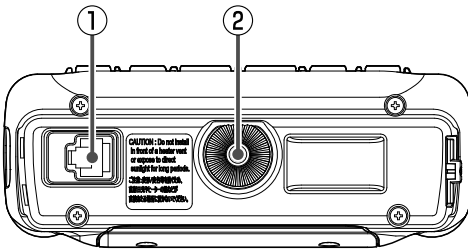
Press to release the control panel from the transceiver.

② **micro-SD card slot**

Insert a commercially available micro SD card to backup the various radio settings, memory channels, and update the firmware.

③ **MIC jack**

Control Head (rear)



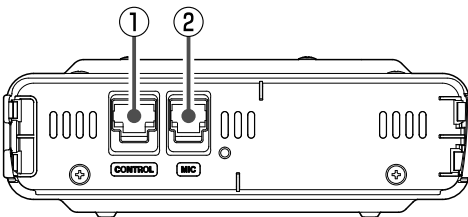
① **CONTROL jack**

Plug in the control cable into this jack to connect with the main body.

② **Screw hole for bracket**

Attach the optional control head bracket.

Main body (Front)



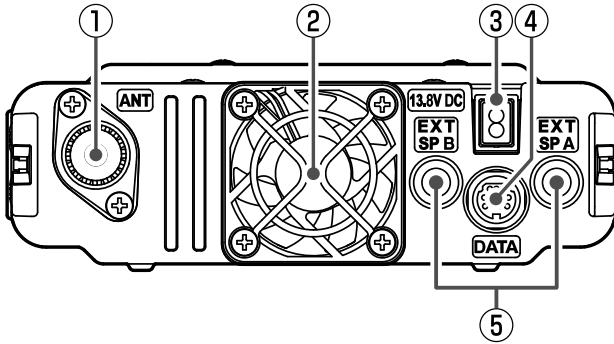
① **CONTROL jack**

Plug the control cable into this jack to connect with the control panel.

② **MIC jack**

Connect the cable of the included DTMF microphone SSM-85D or the optional microphone MH-42C6J.

Main body (rear)



① ANT terminal

Connect the co-axial cable for the antenna.

② Cooling fan

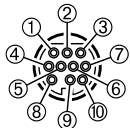
③ 13.8V DC

Connect the provided DC power supply cable (with fuse attached).

④ DATA Jack

Use a Clone cable (CT-166) to connect to another **FTM-310DR/DE**. All data stored in one **FTM-310DR/DE** can be transferred to another **FTM-310DR/DE** by utilizing the handy "Cloning" feature.

Refer to the Advanced Manual which may be downloaded from the Yaesu website.



① PKD (packet data input)

② GND

③ PKS (PTT)

④ RX 9600bps (9600 bps packet data output)

⑤ RX 1200bps (1200 bps packet data output)

⑥ PK SQL (squench control)

⑦ TXD (serial data output [transceiver → PC])

⑧ RXD (serial data input [transceiver ← PC])

⑨ CTS (data communication control)

⑩ RTS (data communication control)

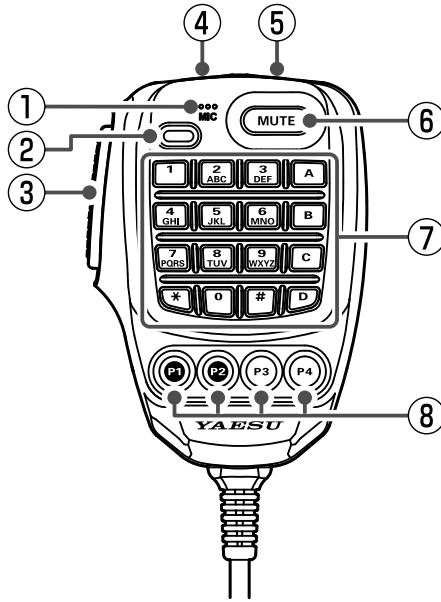
⑤ EXT SP jack

For the operation when external speakers are connected to each jack (3.5mm), see the following:

	AESS	External Speaker A	External Speaker B	Internal Speaker
Connect to A only	Disabled	Main band and Sub band audio	-	-
	Enabled			
Connect to B only	Disabled	-	Sub band audio	Main band audio
	Enabled	-	Main band and Sub band audio	-
Connect to both A and B	Disabled	Main band audio	Sub band audio	-
	Enabled	-	Main band and Sub band audio	-

The front speakers will output audio even if an external speaker is connected. To mute front speaker sound, change the setup menu [43 FRONT SP MUTE] to "AUTO MUTE".

Microphone (SSM-85D)



① MIC

Speak into the microphone during transmission.

② TX LED

Lights red while pressing PTT switch.

③ PTT

Press and hold the PTT switch to transmit, and release it to receive.

Press this key during the set mode to exit the set mode.

④ DWN

- Press this key to move the frequency or memory channel lower by one step, press and hold it to start scanning.
- On the memory channel list screen, press to select memory channels in 10 channel steps.
- On the Setup Menu screen, press to jump to the previous category of the Setup Menu.

⑤ UP

- Press this key to move the frequency or memory channel up by one step, press and hold it to start scanning.
- On the memory channel list screen, press to select memory channels in 10 channel steps.
- On the Setup Menu screen, press to jump to the next category of the Setup Menu.

⑥ MUTE

Press this key to mute the receive audio. Press it again to unmute the audio.

⑦ DTMF keypad

Press these keys during transmit to enter and send a DTMF sequence. The following operations can be performed during receive.



DTMF cannot be sent while transmitting using the 2nd PTT (see next page) assigned to a program key (P1/P2/P3/P4).

0 - 9 : Enter the frequency or memory channel number.


A : The operation band switches to Left Side band.

B : The operation band switches to Right Side band.

C : Adjust the squelch level.

D : The band scope function operates.

* : Each press switches between VFO mode and memory mode.

: This key has the same function as the  key on the controller.

VFO mode:

Each press changes the operating frequency band.

AIR → 144MHz/VHF → VHF/UHF → 430MHz/UHF

Memory mode:

Each time the key is pressed only memory channels of the same frequency band are automatically recalled as a group, as shown below:


M-ALL → **M-AIR** → **M-VHF** → **M-UHF** → **OTHER** → **M-GRP**

⑧ Program keys (P1/P2/P3/P4)

The default function settings of the [P1] / [P2] / [P3] / [P4] keys are shown in the table below.

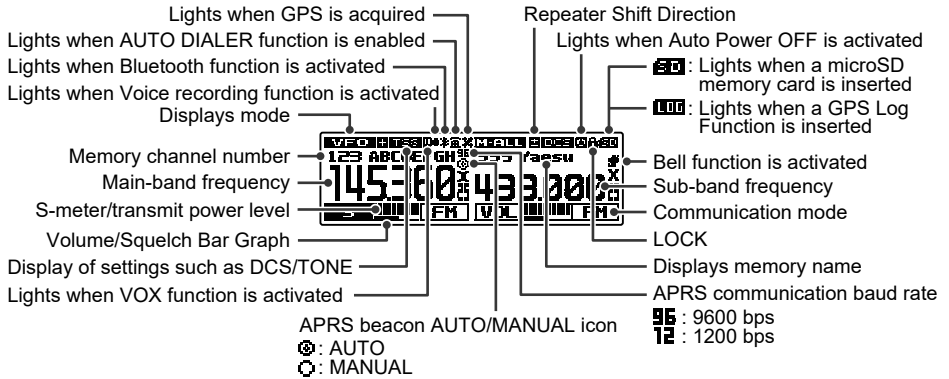
Key	Default Settings	Function
P1	2nd PTT	Transmit on the SUB Band frequency (The band displayed with small numbers)
P2	HOME CH	Recalls the HOME channel
P3	D_X	Press to select communication mode Press and hold to activate the WIRES-X feature
P4	WX (T-CALL)	Switches operation to the Weather Channel Bank (USA version) Transmits the T-CALL(1750 Hz) (European version)

The functions of the [P1] / [P2] / [P3] / [P4] keys can be assigned by the following operations:

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**30 MIC PROGRAM KEY**], then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select a key to assign a function [**P1**] / [**P2**] / [**P3**] / [**P4**] then press the Right **DIAL** knob.
5. Rotate the Right **DIAL** knob to select a function (see the table below) then press the Right **DIAL** knob.

Function	Description
OFF	(disable the P key)
2nd PTT	Transmit on the SUB Band frequency (The band displayed with small numbers)
GM	Press to GM Function Press and hold to DG-ID setting screen
REC/STOP	Voice recording function "REC" / "STOP"
SCAN	Starts or stops the scanning function
HOME CH	Recalls the HOME channel
RPT SHIFT	Sets the repeater shift direction
REVERSE	Reverses the transmit and receive frequencies in repeater mode or split memory.
TX POWER	Selects the transmit power output level
SQL OFF	Opens the squelch (SQL off)
T-CALL	Transmits the T-CALL(1750 Hz)
VOICE	Announces the current frequency (requires optional FVS-2)
D_X	Press to select communication mode Press and hold to activate the WIRES-X feature
WX	Switches operation to the Weather Channel Bank
STN LIST	Displays the APRS function station list
MSG LIST	Displays the message list of the APRS function
REPLY	Enters the APRS function reply message write mode
MSG EDIT	Enters the APRS function message write mode
DW	Operation setting of dual receive function

Display



VFO VFO mode

M-ALL Recalls all memory channels regardless of frequency band

M-AIR Recalls only memory channels in the AIR band (108 - 137MHz).

M-VHF Recalls only memory channels in the 144MHz band (137 - 174MHz).

M-UHF Recalls only memory channels in the 430MHz band (400 - 550MHz).

OTHER Recalls only VHF and UHF memory channels (174 - 400MHz).

M-GRP Channels, regardless of the band, can be registered in advance and called up as frequently used memory channels in the M-GRP.

PMG PMG (Primary Memory Group) Function

HOME HOME Channel

PMS Programmable Memory Scan (PMS)



Appears when the VOX function is enabled.



Appears when the Voice recording function is activated.



Appears when the recording pauses.



Appears when the Bluetooth function is activated.
 Appears: Bluetooth device is connected.
 Blinks: Bluetooth device not connected.



Appears when the DTMF Autodialer function is activated.



Appears when the GPS Satellites are acquired.



Repeater minus (-) shift



Repeater plus (+) shift



Split operation



Appears when the APO (Automatic Power-Off) function is enabled.



Appears when the lock function is enabled.



Appears when a microSD card is inserted.



Appears when the GPS Log function is enabled.



Bell function is activated.



Skip Memory Channel
(Permits designating undesired channels to be skipped during scanning.)



Tone Encoder (tone frequency is displayed)



Tone Squelch (tone frequency is displayed)



Reverse Tone (tone frequency is displayed)



DCS (Digital Code Squelch) (DCS code is displayed)



No-communication Squelch



Pager (EPCS)

The following can be set when the squelch expansion (see page 75) is "ON":



Send the DCS code only during transmission. (DCS code is displayed)



Send the CTCSS tone signal during transmit, and wait for the DCS code in receive mode. (tone frequency is displayed)



Send the DCS code during transmit, and wait for the CTCSS tone signal in receive mode. (tone frequency is displayed)



FM (Analog) mode



AM (Analog) mode



V/D mode (Simultaneous voice and data communication mode)



Voice FR mode (Voice full-rate mode)



Data FR mode (High speed data communication mode)



AMS (Automatic Mode Select) FM (Analog) mode



AMS (Automatic Mode Select) DN mode



AMS (Automatic Mode Select) VW mode



AMS (Automatic Mode Select) DW mode

*When AMS (Automatic Mode Select) function is activated, the indicator is shown with a bar appearing above the mode. The transceiver automatically switches to the DW mode during image transmission.



S meter (Displays received signal strength in 10 levels)



PO meter (Displays transmit output in 3 levels when transmitting)



Volume level



SQL level



Appears when the Super DX function is enabled.



Appears when the ASP function is enabled (with SPU-1 installed)



Appears when the ASP Auto Mode function is enabled (with SPU-1 installed)

Descriptions of Main Screens

● Normal screen (VFO screen)



Main-band and Sub-band are displayed in a Left-Right fashion.

Both bands are received simultaneously.

● Mono Band screen (VFO screen)




Mono-band operation

Only one band is displayed large.

*Simultaneous reception is not possible when using mono band.


● PMG screen

Press the  key to display the PMG (Primary Memory Group) screen.

The PMG function, which displays the receive status of the registered channels in a bar graph, can register up to 5 channels by simply pressing and holding the  key for the current display frequency, ether of the VFO or the memory channel.



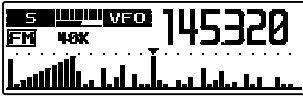
• The PMG screen auto mode and manual mode can be switched by pressing and holding the Right DIAL knob.

• Press and hold the  key to switch the operating channel.

● **Band Scope screen**

Press and hold the **[BAND SCOPE]** key to display the Band Scope screen.

The strengths of received signals above and below the current frequency or memory channel are shown in a graph while scanning at high speed. The audio of the center frequency is heard without interruption.



- Rotate the **DIAL** knob to change the frequency or memory channel.
- In VFO mode 47 or 23 channels can be searched. In memory mode 23 or 13 channels can be searched by the Band Scope (See “Change the number of channels displayed during scope operation” (see page 14).

● **Function List screen**

Press the **[F BACK]** key to display the “Function List” screen that displays only the registered items from the Setup Menu (see page 72). To return to the normal operation screen from the Function List, press the **[F BACK]** key.



By default, the following 5 setup items are registered in the Function List. Setup Menu items can be registered, changed, or canceled at any time.

M->V	GM	WIRES-X
KEYPAD	RPT ARS	RPT REV
TX PWR	-	-

NOTE: The “M->V”, “GM” and “WIRES-X” cannot be changed or unregistered.

● **Setup Menu screen**

Press and hold the **[F BACK]** key to display the Setup Menu screen. The Setup Menu allows selecting various functions from the displayed list and then setting the parameters of each function according individual preferences.

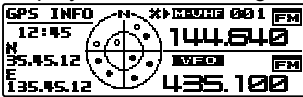


Press any key or **DIAL** knob, other than the **[F BACK]** or **[ON/OFF]** key, to save the settings and return to normal operation.

● **GPS Information screen**

Press and hold the **[F BACK]** key → **[8 GPS INFORMATION]** → Press the Right **DIAL** knob.

Displays the status of signals received from GPS satellites and related information.



To return to normal operation, repeat the above steps again.

Safety Precautions (Be Sure to Read)

Be sure to read these important precautions, and use this product safely.

Yaesu is not liable for any failures or problems caused by the use or misuse of this product by the purchaser or any third party. Also, Yaesu is not liable for damages caused through the use of this product by the purchaser or any third party, except in cases where ordered to pay damages under the laws.

Types and meanings of the marks



DANGER

This mark indicates an imminently hazardous situation, which, if not avoided, could result in death or serious injury.



WARNING

This mark indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.




CAUTION


This mark indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury or only property damage.

Types and meanings of symbols



These symbols signify prohibited actions, which must not be done to use this product safely. For example:  indicates that the product should not be disassembled.



These symbols signify required actions, which must be done to use this product safely. For example:  indicates that the power plug should 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.



Do not operate the device when flammable gas is generated.
Doing so may result in fire and explosion.



Never touch the antenna during transmission.
This may result in injury, electric shock and equipment failure.



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.



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.





















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.

-  **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.
-  **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.
-  **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.

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:

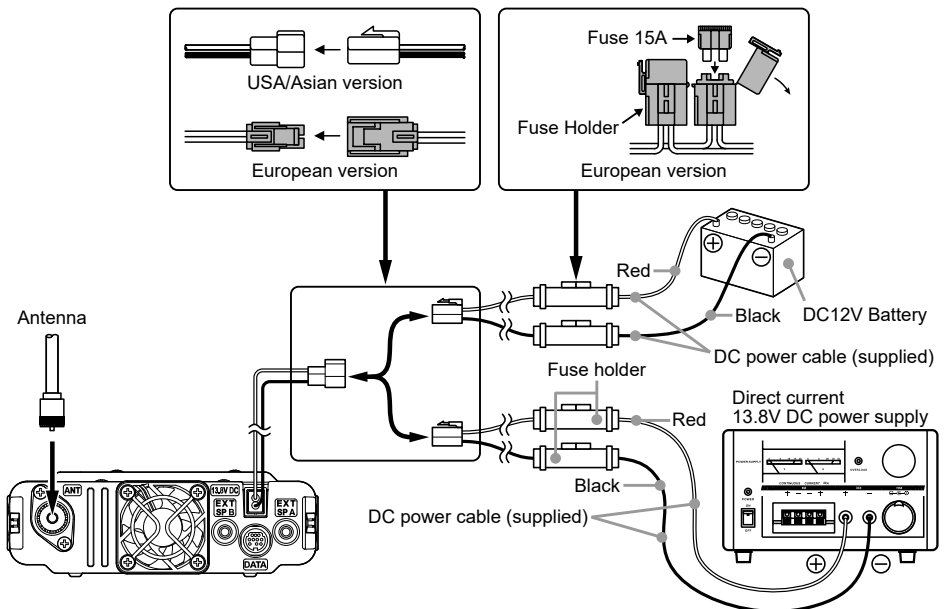
- Use an antenna that is suitable for the installation conditions and application objective.
- Use an antenna that is suitable for the operating frequency band.
- Use an antenna and a coaxial cable with a characteristic feed point impedance of 50Ω .
- Adjust the VSWR (Voltage Standing Wave Ratio) until 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.

Connection of Antenna and Power Cables

Please follow the outline in the illustration regarding the proper connection of antenna coaxial cables and Power Supply.

Cautions

- Do not use a DC power supply cable other than the one that is provided.
- Do not use the DC power supply cable with the fuse holder cut OFF.
- Use an external power source capable of supplying DC 13.8 V, a current capacity of 15A or more.

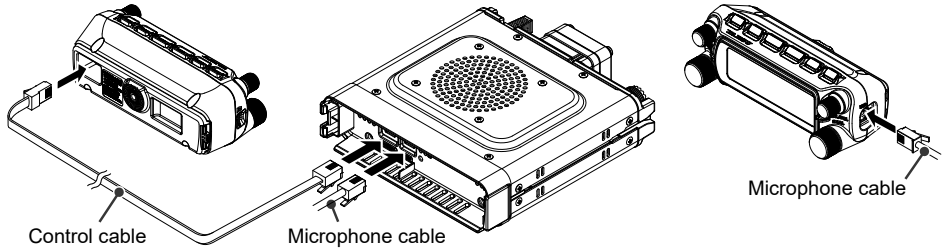


Installing the Transceiver/Microphone

The control head and main body are connected with a control cable.

When needed, use the optional Control Cable 20ft (6m) to connect the main body to the “CONTROL” terminal of the control head.

Connect the supplied microphone SSM-85D to the “MIC” terminal of the transceiver or control head.



Install the main body using the supplied bracket

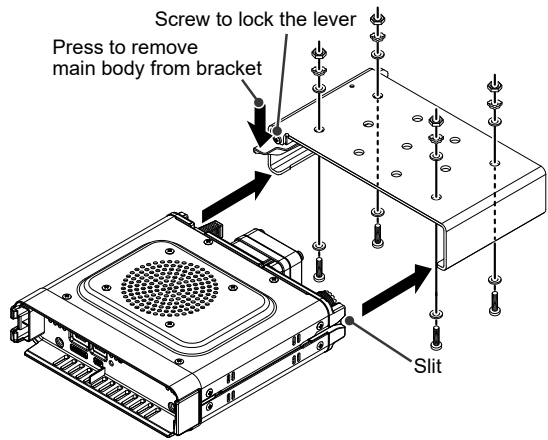
1. Select the installation location.

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

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

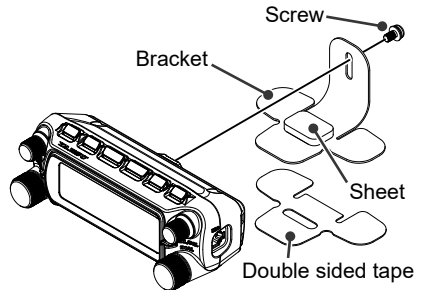
The bracket can be mounted on either the top or bottom side of the radio body.

3. Insert the grooves on both sides of the main body into the bracket until they click and lock. Tighten the screw against the lever to lock the transceiver in the bracket.
4. To remove the main body from the bracket, loosen the locking screw, and then pull the transceiver out while pressing the lever indicated by the arrow below.



● Using the optional Dash Mount Bracket “MMB-103”

- Screw, sheet and double-sided tape are included with the bracket.
- The bracket can be formed by hand to match the location where the front panel is installed.



Using a Micro SD Memory Card

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

- Backing up the transceiver data and information
- Saving memory information
- Update the firmware

Usable microSD Memory Cards

This transceiver only supports the following capacity of microSD and microSDHC 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.

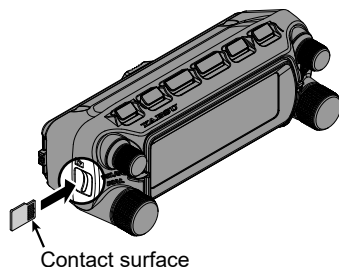
Mounting and Dismounting microSD Memory Card

1. Turn the transceiver **OFF**.
2. Insert a microSD memory card into the slot on the left side of the control head.

With the terminal surface of the microSD card facing the front of the control head, push it in gently until it clicks.

3. Turn the transceiver **ON**.

When the memory card is properly detected,  lights on the display.



● Removing the microSD memory card


To remove the microSD memory card (inserted in step 2 above), push the memory card in until a clicking sound is heard, then remove the memory card.

Formatting a Micro SD Memory Card

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



- A microSD memory card that was used in another device may not function properly, for example, it may not be recognized by the **FTM-310DR/DE**, or reading and writing may take an unusually long time. Use of the SD Memory Card Formatter provided by the SD Association may improve this. The SD Memory Card Formatter can be downloaded from this URL (<https://www.sdcard.org/downloads/formatter/index.html>).
- Formatting a microSD memory card erases all data saved on it. Before formatting the card, be sure to check for data and save it before formatting.

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**110 SD FORMAT**], then press the Right **DIAL** knob.
“FORMAT?” appears on the LCD.
3. Rotate the Right **DIAL** knob to select [**OK**], then press the Right **DIAL** knob.
4. When formatting is completed, a beep sounds and “**Completed**” appears on the LCD.

Functions to use as needed

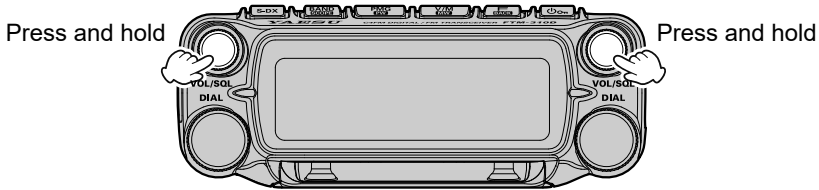
Selecting the Communication Mode

● Using AMS (Automatic Mode Select) function

The **FTM-310DR/DE** 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 key repeatedly or touch the mode icon to display “**DN**”* or “**VW**”* on the display. When a signal is received, the communication mode is automatically switched and the communication mode display changes.

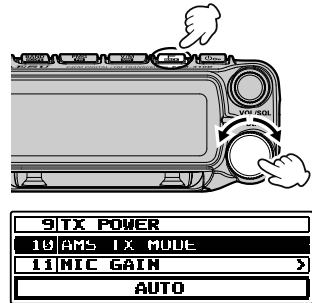
*The display differs depending on the received signal.



● Setting the transmit mode when using the AMS function

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

1. Press and hold the key.
2. Rotate the Right **DIAL** knob to select [**10 AMS TX MODE**].
3. Press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select to the desired transmit mode as follows:
5. When set to “TX FM FIXED” or “TX DN FIXED” and the AMS transmission mode is fixed, the “bar” at the top of the communication mode icon flashes.
6. Press any key or **DIAL** knob, other than the or key, to save the settings and return to normal operation.



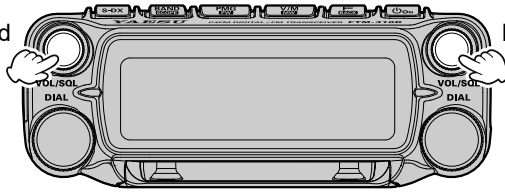
Transmit Mode	Receive and Transmit
AUTO (default)	Receive: Automatically selects the receive mode corresponding to the received signal. Transmit: Automatically transmits in the communication mode selected by the AMS function.
TX FM FIXED	Receive: Automatically selects the receive mode corresponding to the received signal. Transmit: Always transmits in the analog FM mode.
TX DN FIXED (TX DIGITAL)	Receive: Automatically selects the receive mode corresponding to the received signal. Transmit: Always transmits in the DN mode.

Fixing the Communication Mode

To fix the transmit operation mode, press the key or touch the mode icon to select the communication mode.

When the AMS function is OFF, the “bar” above the mode icon disappears.

Press and hold



Press and hold

Communication Mode	Icon	Description of Modes
V/D mode (Voice & Data are transmitted simultaneously)		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*1 (Voice Full Rate Mode)		High speed data communication using entire 12.5 kHz band. Enables high-quality voice communication.
FM mode		Analog communication using FM mode.
AM mode (receive only)*2		The AM mode is for receive only.

*1 When the Set Mode [15 DIGITAL VW] is set to “ON” (factory default is “OFF”), the Voice FR mode (VW) may be selected.

*2 When the Set Mode [17 RX MODE] is set to “AUTO” (factory default setting), AM mode is automatically selected within the AIR band.



The transceiver automatically switches to the Data FR mode (DW) mode during image transmission.

Changing the Transmit Power Level

With the factory settings, the transmit power level changes from “HIGH” to “LOW” to “MID” when the microphone [P3] key is pressed. The transmit power level can also be changed using the function List.

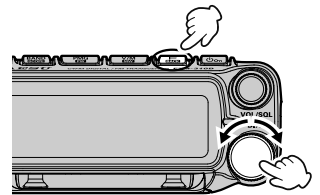
1. Press the key.
2. Rotate the Right **DIAL** knob to select [TX PWR], then press the Right **DIAL** knob.
Or press and hold the key, then rotate the Right **DIAL** knob to select [9 TX POWER], then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select transmit power output.

“HIGH” → “LOW” → “MID”

HIGH: 55W (144MHz), 50W (430MHz)

MID: 25W

LOW: 5W



M->V	GM	WIRES-X
KEYPAD	RPT ARS	RPT REV
TX PWR		
HIGH		

4. Press any key or **DIAL** knob, other than the or key, to save the settings and return to normal operation.

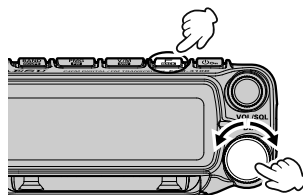


The transmit power output can be set individually for each frequency band and memory channel in each of Main-band and Sub-band.

Setting the Skip Band

Set the band selected when the **BAND SKIP** key is pressed. By storing frequently used frequencies in the memory channel before setting the band skip, can be recall the memory that stores the frequencies of the bands that cannot be selected.

1. Press and hold the **F BAND SKIP** key.
2. Rotate the Right **DIAL** knob to select **[25 BAND SKIP]**.
3. Press the Right **DIAL** knob.



24 BEEP
25 BAND SKIP >
26 RPT ARS
>

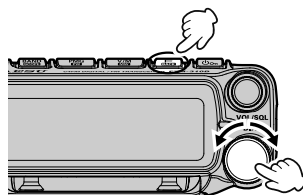
4. Rotate the Right **DIAL** knob to select the band to set and press the Right **DIAL** knob.
5. Rotate the Right **DIAL** knob to set "ON" (selectable) or "OFF" (not selectable).
6. Press any key or **DIAL** knob, other than the **F BAND SKIP** or **ψ ON** key, to save the settings and return to normal operation.

25 BAND SKIP >	
AIR	OFF
VHF	ON
UHF	ON

Changing the Frequency Step

The **DIAL** knob rotation frequency step may be changed. Normally, use the factory default setting of "AUTO".

1. Press and hold the **F BAND SKIP** key.
2. Rotate the Right **DIAL** knob to select **[34 STEP]**, then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to set the frequency step.
4. Press any key or **DIAL** knob, other than the **F BAND SKIP** or **ψ ON** key, to save the settings and return to normal operation.



33 TIME ZONE
34 STEP
35 CLOCK TYPE
AUTO



- The default setting, of the frequency step is set to "AUTO", which automatically provides a suitable frequency step according to the frequency band.
- The frequency steps that can be selected depend on the frequency band.

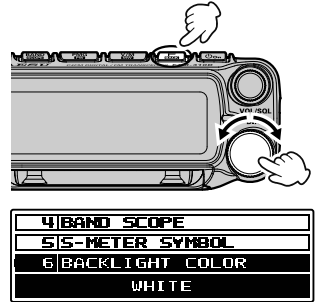
Change the display color

The display color can be selected from “AMBER” and “WHITE”.

1. Press and hold the **[BACK]** key.
2. Rotate the Right **DIAL** knob to select **[6 BACKLIGHT COLOR]**, then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select the display color.

AMBER ↔ WHITE

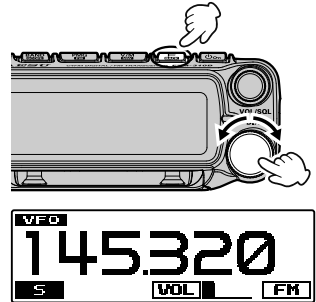
4. Press any key or **DIAL** knob, other than the **[BACK]** or **[On]** key, to save the settings and return to normal operation.



MONO Band Display

The “dual band display” shows the two bands on the left and right of the screen. Operation can be changed to a “mono band display” that operates on one band.

1. Press and hold the **[BACK]** key.
2. Rotate the Right **DIAL** knob to select **[18 SUB BAND]**, then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select **[SUB BAND]**, then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select “OFF”.
5. Press any key or **DIAL** knob, other than the **[BACK]** or **[On]** key, to save the settings and return to normal operation.

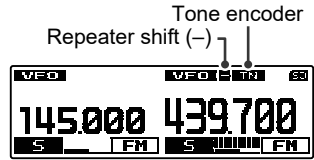


Repeater Operation

Communicating Via the Repeater



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

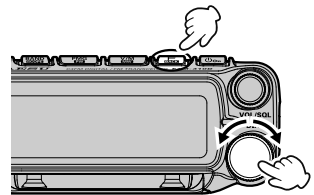
1. Set the receive frequency to the repeater frequency
“**-**” or “**+**” appears on top of the display.
2. “**-**” or “**+**” and “**TN**” icons may automatically appear above the frequency.
3. Speak into the microphone while pressing and holding the PTT switch.



● Reverse function

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  key.
2. Rotate the Right **DIAL** knob to select [RPT REV], then press the Right **DIAL** knob.
Or press and hold the  key, then rotate the Right **DIAL** knob to select [29 RPT REVERSE], then press the Right **DIAL** knob.
 - The transmit and receive frequencies are temporarily reversed (“reverse” state).
 - In the “reverse” state, the “**-**” or “**+**” blinks on the display.
3. To release the reverse state, repeat the above steps again.



M->V	GM	WIRES-X
KEYPAD	RPT ARS	RPT REV
TX PWR		
REVERSE		



- The repeater settings may be changed from the Setup Menu.
Setup Menu [27 RPT SHIFT]: Allows setting the repeater shift direction.
Setup Menu [28 RPT SHIFT FREQ]: Allows changing the repeater shift offset.
Setup Menu [47 TONE SQL FREQ]: CTCSS Tone frequency
- Function Menu [RPT ARS]: The ARS function may be set to OFF

● Tone Calling (1750 Hz)

If your transceiver is FTM-310DE (European version), press and hold in the [P4] key on the microphone (in factory default setting) to generates a 1750Hz burst tone to access the European repeater. The transmitter will automatically be activated, and a 1750Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release the switch, and use the switch for activating the transmitter thereafter. If you need to access the repeaters which requires a 1750Hz burst tone for access by the FTM-310DR (USA versions), you can set the program key on the microphone to serve as a “T-CALL” key instead. To change the configuration of this switch, use setup menu [30 MIC PROGRAM KEY].

Using the Memory

The **FTM-310DR/DE** incorporates a Large number of memory channels that can register the operating frequency, communication mode, and other operational information.

- 999 Memory Channels
 - 4 Home Channels
 - 50 pairs PMS Memory Channels
- The memory auto grouping (MAG) function can automatically recall a list of memory channels from the same frequency band as a group.
- The PMG (Primary Memory Group) function displays the status of registered frequently used frequencies (received signal strength) in a bar graph.

The operating frequency and other operational information can be registered to each regular memory channel, home channel, or PMS memory channel:


- Operating frequency
- Frequency Step
- Transmitter output
- Memory tag
- Repeater Shift
- Tone information
- DCS information
- Memory channel skip information

NOTE

Back up the stored contents to a microSD memory card. For details on backing up to a microSD card. See the Advanced Manual for details on backing up to a microSD card.

Writing to memory


1. Set the frequency to write to memory.

2. Press and hold the  key.

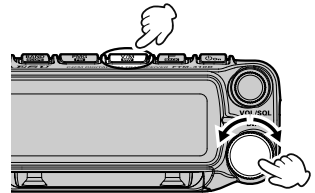
The memory channel list appears.

The memory channel list can also be displayed by the following operations:



Press the  key → Select **[KEYPAD]** → Press the Right **DIAL** knob → Select **[MEM LIST]** → Press the Right **DIAL** knob

The last used memory channel is selected.



The lowest available number is selected. To select another channel, rotate the Right **DIAL** knob to select the memory channel number to be written.

HOM	145.000	
001	145.240	
007	----	
008	----	

- Rotate the Left **DIAL** knob, or press the [UP] or [DWN] key on the microphone to fast-forward in 10-channel steps.
- Press the number keys on the microphone to quickly select a memory channel as shown in the example below:

Press the [1] key: Memory channel **100**

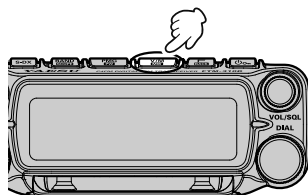
Press the [A] key: PMS Memory channel **L01**

- When **[HOM]** at the top of the memory channel list is selected, the HOME channel of the current frequency band can be overwritten.



For already written memory channels, the writing frequency is displayed.

- Press and hold the **V/M** key.
If the memory channel already contains frequency data, “**OVER WRITE?**” will appear on the screen. Press and hold the **V/M** key to overwrite the memory channel.

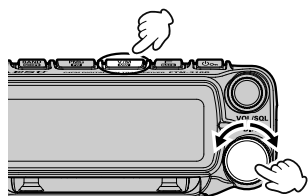


- Press the **V/M** key, and the screen returns to the previous display.

Recall memory (There are three ways)

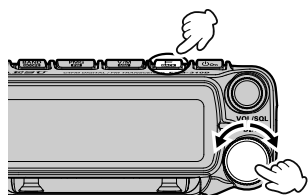
(1) Press the **V/M** key

- Press the **V/M** key.
The last used memory channel is recalled.
- Rotate the **DIAL** knob to select the memory channel to recall.
Press and hold then turn the **DIAL** knob to select in 10 channel steps.
- Press the **V/M** key again to return to VFO mode.



(2) Recall a memory from MEMORY CH LIST

- Press the **F** key.
- Rotate the Right **DIAL** knob, select [KEYPAD], then press the Right **DIAL** knob to display the direct frequency input screen.
- Rotate the Right **DIAL** knob to select [MEM LIST] then press the Right **DIAL** knob to display the memory channel list.



The memory channel list can also be displayed by the following operations.

Press and hold the **F** key → Select [21 MEMORY LIST] → Press the Right **DIAL** knob

FREQUENCY				
1	2	3	4	5
6	7	8	9	0
MEM CH		MEM LIST		←

- Rotate the Right **DIAL** knob, select the memory channel to recall.

- Rotate the Left **DIAL** knob, or press the [UP] or [DWN] key on the microphone to fast-forward in 10-channel steps.
- Press the number keys on the microphone to quickly select a memory channel as shown in the example below:

HOM 145.000	
001 145.240	
002 145.360	
003 143.240	


HOM 145.0	MR
001 145.0	WRITE
002 145.0	EDIT
003 143.0	GRP ON

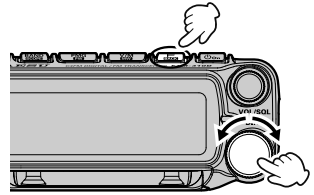
- Press the [1] key: Memory channel 100
Press the [A] key: PMS Memory channel L01
- Press the Right **DIAL** knob. A pop-up with [MR] highlighted appears. Press the Right **DIAL** knob.
The selected memory channel will be recalled.

MEM L	VFO	EQ
002	145360	433000
S	FM	S FM

(3) Recalling a memory by directly entering the channel number

● Recalling a memory on the keypad screen

1. Press the  key.
2. Rotate the Right **DIAL** knob, select [**KEYPAD**], then press the Right **DIAL** knob to display the direct frequency input screen.



3. Rotate the Right **DIAL** knob to select [**MEM CH**] then press the Right **DIAL** knob to display the memory channel number input screen.
4. Rotate the Right **DIAL** knob to select a memory channel number, then press the Right **DIAL** knob.



(**Example**) When recalling memory channel “123”.

Rotate the **DIAL** knob to select [1] → Press the **DIAL** knob



Rotate the **DIAL** knob to select [2] → Press the **DIAL** knob



Rotate the **DIAL** knob to select [3] → Press the **DIAL** knob

(**Example**) When recalling memory channel “16”.

Rotate the **DIAL** knob to select [1] → Press the **DIAL** knob



Rotate the **DIAL** knob to select [6] → Press the **DIAL** knob



Press and hold the Right **DIAL** knob



● Recall a memory by directly inputting channels using the numeric keys on the microphone

Press the numeric keys “0” to “9” in the memory mode to enter the memory channel.

(**Example**) When recalling memory channel “123”.

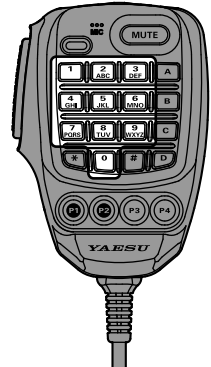
Press the [1] → [2] → [3] key.

(**Example**) When recalling memory channel “16”.

Press the [1] → [6] key.



Press and hold any numeric key.

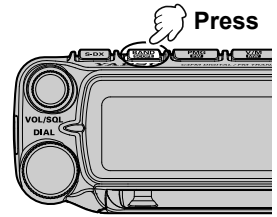


Press the **PTT** switch while entering a number to cancel the entry.

Recall only memories in the same frequency band (Band) using the memory auto grouping (MAG) function

With the memory auto grouping (MAG) function, only memory channels in the same frequency band (Band) can be called.

In the memory mode, each time the **BAND GROUP** key is pressed, only memory channels of the specified frequency band are automatically recalled as a group, as shown below:



- When **M-ALL** is selected, the MAG function is turned OFF and all memory channels can be recalled.
- **M-GRP** allows grouping frequently used memory channels regardless of frequency band.
- If there is nothing registered in M-GRP (Memory Group), **M-GRP** and “-----” will be displayed.

Group	Selectable Memory Channels
M-ALL	All memory channels.
M-AIR	AIR band (108 - 137MHz) memory channels only.
M-VHF	144MHz band (137 - 174MHz) memory channels only.
M-UHF	430MHz band (400 - 550MHz) memory channels only.
OTHER	174MHz to 400MHz Memory channels.
M-GRP	Frequently used memory channels regardless of the frequency band, can be registered in advance, and called up in the M-GRP (Memory Group).

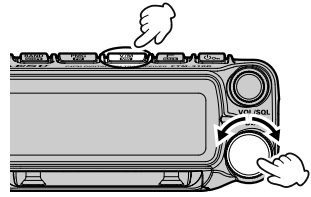
i Refer to the next page for instructions to register with M-GRP.

Registering frequently used memory channels in M-GRP (Memory Group)

1. Press and hold the  key in VFO or memory mode.

The memory channel list is displayed.


2. Rotate the Right **DIAL** knob to select the memory channel to be registered in the M-GRP.



HOM	145.000	
001	145.240	
002	145.360	
003	-----	


3. A pop-up screen will appear, then rotate the Right **DIAL** knob to select **[GRP ON]**.
4. Press the Right **DIAL** knob to register to the M-GRP (Memory Group).

HOM	145.0	NR
001	145.2	WRITE
002	145.3	EDIT
003	---	GRP ON

-  The memory channel numbers registered in the M-GRP are displayed in negative and positive inversion.

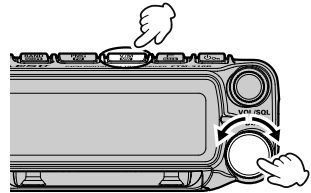
HOM	145.000	
001	145.240	
002	145.360	
003	-----	

Unregistering memory from M-GRP (Memory Group)

1. Press and hold the  key.

The memory channel list is displayed.

2. Rotate the Right **DIAL** knob to select the channel to be unregistered.
3. Press the Right **DIAL** knob.



HOM	145.000	
001	145.240	
002	145.360	
003	-----	


4. A pop-up screen will appear, then rotate the Right **DIAL** knob to select **[GRP ON]**.
5. Press the Right **DIAL** knob to unregister it from the M-GRP (Memory Group).

HOM	145.0	NR
001	145.2	WRITE
002	145.3	EDIT
003	---	GRP ON

Edit memory

● Edit memory tag


Memory name tags, such as a call sign or broadcast station name may be assigned to the memory channels and home channels. Input a memory tag using up to 8 characters. Alphabetic characters (upper and lowercase), Numbers and Symbols may be entered to the memory name tag.

1. Press and hold the  key.

The memory channel list appears. The lowest available number is selected.

The memory channel list can also be displayed by the following operations:



Press the  key → Select [KEYPAD] → Press the Right **DIAL** knob → Select [MEM LIST] → Press the Right **DIAL** knob

The last used memory channel is selected.


2. Rotate the Right **DIAL** knob to select the memory channel for editing the memory tag, then press the Right **DIAL** knob.


- Rotate the Left **DIAL** knob, or press the [UP] or [DWN] key on the microphone to fast-forward in 10-channel steps.


3. A popup will appear. Rotate the Right **DIAL** knob to select [EDIT], then press the Right **DIAL** knob. The memory information appears.

4. Rotate the Right **DIAL** knob to select [TAG], then press the Right **DIAL** knob.

- The character input screen is displayed. Rotate the Right **DIAL** knob to select a character, and press the Right **DIAL** knob to enter the character.

 : displays the alphabet keypad input screen.


 : displays the numeric keypad input screen.

 : displays the symbols keypad input screen.

 : moves the cursor to the left.

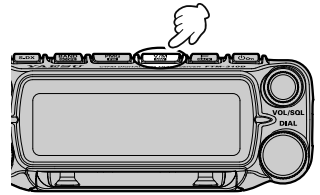
 : enter a space at the cursor position.

 : moves the cursor to the right.

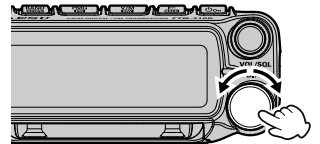
 : erases the character to the left of the cursor and moves the cursor to the left.

- See “Text input screen” on page 82 to input a memory tag.

5. When input is complete, press and hold the Right **DIAL** knob to save the characters.
6. Press and hold the Right **DIAL** knob.
7. A confirmation pop-up appears. Select [OK] then press the Right **DIAL** knob to complete the memory tag entry.



001	145.240	
002	145.360	
003	143.240	
004	---	---



001	145.2	MR	
002	145.3	WRITE	
003	143.2	EDIT	
004	---	GRP ON	

RX FREQ	145.360
TX FREQ	---
TAG	
SCAN	YES

YAESUI															
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X	Y	Z						
abc	123	#*^	←		→										

When the memory is called up, pressing the **DIAL** knob briefly will switch the display.



TAG display



Frequency display

● Clearing Memories

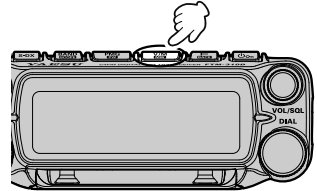
1. Press and hold the key.
The memory channel list appears. The lowest available number is selected.

The memory channel list can also be displayed by the following operations:



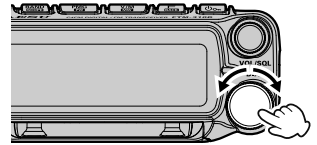
Press the key → Select **[KEYPAD]** → Press the Right **DIAL** knob → Select **[MEM LIST]** → Press the Right **DIAL** knob

The last used memory channel is selected.



001	145.240	
002	145.360	
003	433.240	
004	----	

2. Rotate the Right **DIAL** knob to select the memory channel from which the data is to be cleared, and press the Right **DIAL** knob.
 - Rotate the Left **DIAL** knob, or press the **[UP]** or **[DWN]** key on the microphone to fast-forward in 10-channel steps.



3. A popup will appear. Rotate the Right **DIAL** knob to select **[DELETE]** then press the Right **DIAL** knob. Confirmation screen “**DELETE?**” is displayed.
4. Rotate the Right **DIAL** knob to select **[OK]**, then press the Right **DIAL** knob.

001	145.	WRITE	
002	145.	EDIT	
003	433.	GRP ON	
004	----	DELETE	

001	145.240	
002	DELETE?	
003	OK	CANCEL
004	----	

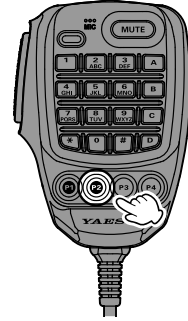


Data on memory channel 001, and the Home channel may not be cleared.


Recalling the Home Channels


● Recall with the programmable key on the microphone

1. Press the [P2]* key on the microphone.
 - * This is the factory setting. This function can also be assigned to the [P1], [P3] or [P4] key (see page 28).
2. Press the [P2] key again, to return to the previous frequency.




● Recall from the Set Up Menu



1. Press and hold the  key.
2. Rotate the Right **DIAL** knob, to select [20 HOME CH], then press the Right **DIAL** knob.
 - "HOME" and the home channel frequency of the currently selected band appears on the LCD.

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

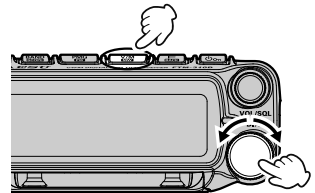
Changing the Home Channel Frequency

1. Set the frequency and the operating mode to be stored as a home channel.
2. Press and hold the  key.
 - The memory channel list appears.

The memory channel list can also be displayed by the following operations:

 Press the  key → Select [KEYPAD] → Press the Right **DIAL** knob → Select [MEM LIST] → Press the Right **DIAL** knob

The last used memory channel is selected.




3. Rotate the Right **DIAL** knob to select [HOM] displayed at the top of the memory channel list.
4. Press the Right **DIAL** knob to display a popup.
5. Rotate the Right **DIAL** knob to select [WRITE], then press the Right **DIAL** knob.
 - Confirmation screen "OVER WRITE?" is displayed.
6. Rotate the Right **DIAL** knob to select [OK], then press the Right **DIAL** knob.
7. The contents of the home channel are changed and the previous screen returns.

HOM: 145.000	
001 145.240	
002 145.360	
003 143.240	

HOM: 145.3	WR	
001 145.3	WRITE	
002 145.3	EDIT	
003 143.3		


Split Memory

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

1. Register the receive frequency to a memory channel first.
For additional details on registering to a memory channel, refer to page 43.
To edit a memory channel that has already been written, go to step 2.
2. Press and hold the  key.
The memory channel list appears.

The memory channel list can also be displayed by the following operations:



Press the  key → Select [KEYPAD] → Press the Right **DIAL** knob → Select [MEM LIST] → Press the Right **DIAL** knob

The last used memory channel is selected.

3. Rotate the Right **DIAL** knob to select the channel number that the receive frequency was registered to on step 1, and press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select [EDIT], then press the Right **DIAL** knob.

001	145.2	NR	
002	145.2	WRITE	
003	433.2	EDIT	
004	---	GRP ON	

5. Rotate the Right **DIAL** knob to select [TX FREQ], then press the Right **DIAL** knob.

RX FREQ	145.360
TX FREQ	---
TAG	
SCAN	YES


6. Set the transceiver to the desired transmit frequency.

433.2				
1	2	3	4	5
6	7	8	9	0

RX FREQ	145.360
TX FREQ	433.360
TAG	
SCAN	YES

7. Press and hold the Right **DIAL** knob.
8. Confirmation screen is displayed, press the Right **DIAL** knob.

RX FREQ	145.360	
TX	OK	CANCEL
T1		
SCAN	YES	

9. Press the  key, to save the settings and return to normal operation.
When recalling the split memory “+” is displayed on the LCD.

MEM B	VFO	50
002		
145360	433240	
S	FM	S FM

While operating the split memory, to reverse the transmit and receive frequencies temporarily:



Press the  key → Select [RPT REV] → Press the Right **DIAL** knob

When reversing the frequencies, “+” will blink.


Scanning Function

The **FTM-310DR/DE** supports the following three scanning functions:

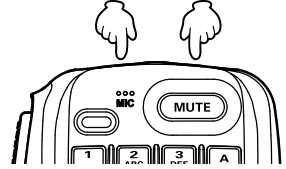
- VFO Scan
- Memory Scan
- Programmable Memory Scan (PMS)

VFO Scan / Memory Scan

To find frequencies where there are signals in VFO mode or Memory mode:

1. Press the  key to select the “VFO mode” or “Memory mode”.
2. Press and hold the microphone **[UP]** or **[DWN]** switch to start scanning.


Or press and hold the  key → **[53 SCAN]** → Press the Right **DIAL** knob.



- 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.
- When a signal is received, the scan pauses, the frequency flashes, and the scan starts again after about 3 seconds. In the USA version, the scan will continue to pause while receiving the signal.

● Stop scanning


1. Press the **PTT** or the **[UP]** / **[DWN]** keys on the microphone.

Or press and hold the  key → **[53 SCAN]** → Press the Right **DIAL** knob.

- If the scan has paused on a signal, rotating the **DIAL** knob will cause scanning to resume instantly.
- If the transceiver is turned **OFF** while scanning, when the transceiver is turned **ON**, scanning will resume.
- If you call the Function List or Setup Menu during scanning, the **SCAN** item is automatically selected and you cannot select any other item.



Setting the Receive Operation When Scanning Stops

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select **[57 SCAN RESUME]**, then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select the hold time after the scan is paused:

• BUSY



The signal is received until the signal fades out. Two seconds after the signal fades out, scanning resumes.

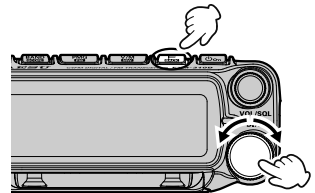
• HOLD

Scanning stops and tuning remains on the current receive frequency (Scanning does not resume).

• 1 sec / 3 sec / 5 sec

The signal is received for a specified period of time, and then scanning resumes.
Factory default setting: **BUSY**

4. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.




55 DUAL RX INTERVAL
56 PRIORITY REVERT
57 SCAN RESUME
3 sec





The above settings are common for VFO scan, memory scan and programmable memory scan (PMS).

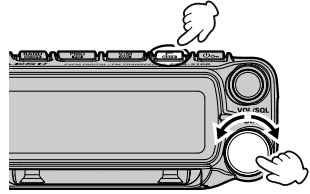
Skip Memory Channels

Each memory channel can be set to be skipped during memory scan.

1. Press and hold the  key.
The memory channel list appears.

The memory channel list can also be displayed by the following operations:

-  Press the  key → Select **[KEYPAD]** → Press the Right **DIAL** knob → Select **[MEM LIST]** → Press the Right **DIAL** knob
The last used memory channel is selected.



2. Rotate the Right **DIAL** knob to select the memory channel number that you do not want to scan, and press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select **[EDIT]**, then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select **[SCAN]**, then press the Right **DIAL** knob to select **[NO]**.
5. Press and hold the Right **DIAL** knob.
6. When the confirmation screen is displayed, press the Right **DIAL** knob.


001	145.3	NR	
002	145.3	WRITE	
003	433.3	EDIT	
004	---	GRP ON	

RX FREQ	145.360
TX FREQ	---.---
TAG	
SCAN	NO

RX FREQ	145.360		
TX	OK	CANCEL	-
TAG			
SCAN	NO		


When the memory channel set as the skip memory is called, the **"X"** icon is displayed.

MEM1	VFO	60	
002			
145360	X	433.000	
S	FM	S	FM

-  To cancel the skip memory, set it to "YES" in step 4 above.

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.

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

Bluetooth Operation (Requires optional BU-5)

The **FTM-310DR/DE** can be equipped with the Bluetooth function by installing the optional Bluetooth unit "BU-5". Remote operation is possible using the optional Bluetooth headset (SSM-BT20) or a commercially available Bluetooth headset.



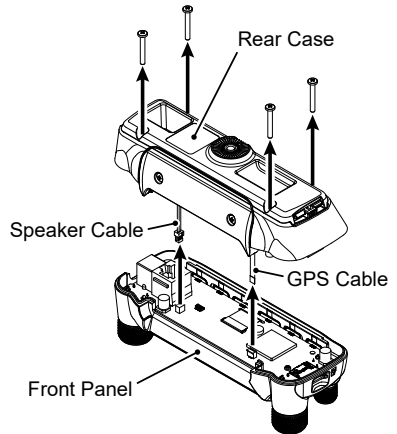
The operation of all commercially available Bluetooth headsets cannot be guaranteed.

Installing the Bluetooth unit "BU-5"

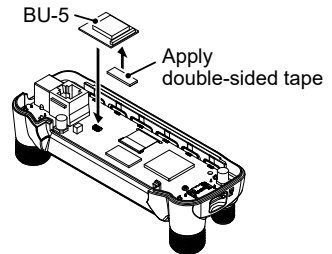


Avoid touching the electronic components with your hands as the semiconductors may be damaged by static electricity.

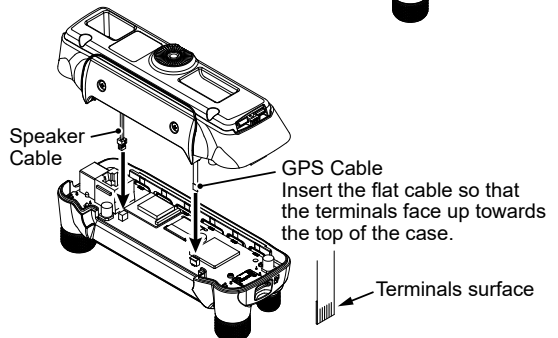
1. Turn the transceiver OFF.
2. Unplug the control cable from the front panel.
3. Remove the 4 screws from the front panel and then carefully lift the back case of the front panel.
4. Unplug the speaker cables and GPS cable extending from the socket on the board inside the front panel.




5. Apply double-sided tape to BU-5. Double-sided tape is included with the BU-5.
6. Align the BU-5 connector with the connector on the board and install.



7. Plug in the speaker cables extending from the front panel to the original connector on the board.
8. Plug in the GPS cable extending from the front panel to the original connector on the board.
9. Carefully attach the back cover and secure it with the 4 screws.



● **Subsequent Bluetooth headset connection when the power is turned ON**

- When the power is turned **OFF** while the Bluetooth headset is connected, the next time the power is turned **ON**, the same Bluetooth headset is searched for and automatically connected when found.
- If the Bluetooth headset cannot be found, the “” icon blinks on the screen. If the power of the same Bluetooth headset is turned **ON** in this state, it will connect automatically. If not, turn the **FTM-310DR/DE** and Bluetooth headset **OFF** and then **ON** again.
- To connect to other Bluetooth headsets, refer to “Connect with another Bluetooth headset” on page 58.

**Transmit operation 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 engage the **FTM-310DR/DE** in transmit, and then a call can be made using the Bluetooth headset.

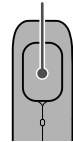
Press the “Call button”* again to return the **FTM-310DR/DE** to receive.

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

SSM-BT20: When the **Multi-Function** Key is pressed, a beep will sound and the **FTM-310DR/DE** will continuously transmit.

Press the **Multi-Function** Key again, a beep will sound and the **FTM-310DR/DE** will return to receive mode.

Press briefly to transmit



Hands-free VOX operation with a Bluetooth headset


When **FTM-310DR/DE VOX** (automatic voice transmission) function is turned **ON**, the Bluetooth headset can perform hands-free operation and transmit automatically just by talking. Turn the VOX function **ON** according to “VOX Operation” instructions.

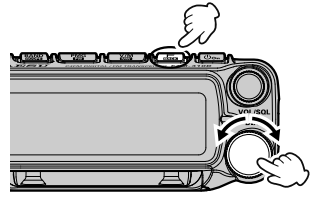


The VOX function is commonly used for the Bluetooth headset and microphone.

If you do not use the Bluetooth headset and do not want to use the **VOX** function with the microphone, set this to “**OFF**”.

Connect with another Bluetooth headset

1. Turn the Bluetooth headset you are currently using OFF.
2. Press and hold the  key.
3. Rotate the Right **DIAL** knob to select [**111 Bluetooth**], then press the Right **DIAL** knob.




111 Bluetooth	>
112 VOICE MEMORY	>
113 FVS REL	>
	>

4. Rotate the Right **DIAL** knob to select [**DEVICE**], then press the Right **DIAL** knob.
5. Rotate the Right **DIAL** knob to select [**NEW**], then press the Right **DIAL** knob.

111 Bluetooth	
Bluetooth	ON
DEVICE	SSM-BT20
AUDIO	AUTO

- The search starts, and the model name of the found Bluetooth device is displayed in the list.
6. When the headset to be connected is displayed, rotate the Right **DIAL** knob to select the Bluetooth headset to be connected.
 7. Press the Right **DIAL** knob to stop searching.
 8. [**CONNECT**] appears highlighted. Press the Right **DIAL** knob to connect.

● Delete all registered (paired) Bluetooth devices from the list

1. Turn the Bluetooth headset you are currently using OFF.
2. Press and hold the  key.
3. Rotate the Right **DIAL** knob to select [**111 Bluetooth**], then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select [**DEVICE**], then press the Right **DIAL** knob.
5. Rotate the Right **DIAL** knob to select [**DEL ALL**], then press the Right **DIAL** knob.

ALL Bluetooth headsets are deleted from the device list.

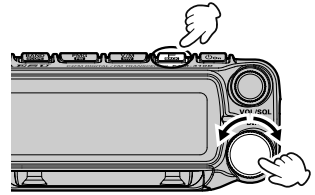


All registered Bluetooth headsets are deleted. Headsets cannot be deleted individually.

Bluetooth received audio output

When a Bluetooth headset is connected, the received audio can automatically be output from the headset only, or from both the headset and the transceiver speaker.

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**111 Bluetooth**], then press the Right **DIAL** knob.





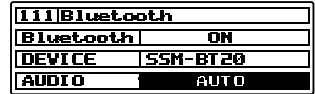
3. Rotate the Right **DIAL** knob to select [**AUDIO**], then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select "AUTO" or "FIX".

AUTO : The received audio comes from only the Bluetooth headset.

FIX : The received audio comes from both the Bluetooth headset and the speaker of this transceiver.

Factory default value: "AUTO".


5. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.



VOX Operation

Using a Bluetooth headset, you can transmit hands-free automatically, just by speaking into the microphone.

Setting VOX function

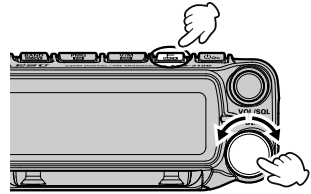
1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [12 VOX], then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select "LOW" or "HIGH".

OFF : VOX function **OFF**

LOW : VOX function **ON** (VOX Gain Level "LOW")



HIGH : VOX function **ON** (VOX Gain Level "HIGH")

When set to "LOW" or "HIGH", the sound is automatically transmitted by voice from the connected Bluetooth headset. When not connected to a Bluetooth headset, the sound from the microphone is automatically transmitted.



12 VOX	>
13 AUTO DIALER	
14 TOT	
	>

12 VOX	
VOX	HIGH
DELAY	0.5sec
VOX MIC	FRONT


4. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to 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 (Voice Operated Transmit) delay time

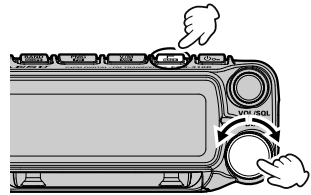
During transmissions using the **VOX** (Voice Operated Transmit) function, set the time to return to receive when speaking is paused:

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [12 VOX], then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select [DELAY], then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select the delay time (the transmit-receive delay after the cessation of speech).

0.5sec / 1.0sec / 1.5sec / 2.0sec / 2.5sec / 3.0sec

Factory default value: "0.5sec".

5. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.



12 VOX	>
13 AUTO DIALER	
14 TOT	
	>

12 VOX	
VOX	HIGH
DELAY	0.5sec
VOX MIC	FRONT

Dual Receive Function

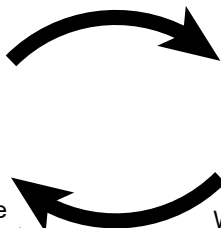
While receiving on the VFO or Memory Channel, the transceiver checks for signals on the HOME channel once every 5 seconds. When a signal is received on the HOME channel, the priority scan pauses, allowing reception of the signal. When there is no signal on the HOME channel for about 5 seconds, the transceiver will resume Priority Scan.

The transceiver monitors signals on the frequency registered to the Priority HOME Channel, once approximately every 5 seconds.

VFO or Memory channel



The transceiver returns to the previous frequency quickly and continues to receive mode when there is no signal.






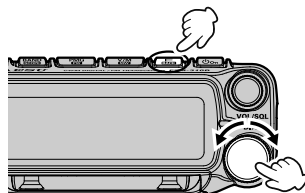
HOME channel (Priority Channel)



When the transceiver receives a signal on the frequency registered to the priority memory channel, dual reception stops and signal receiver switches to priority memory channel.

Activating Priority Scan

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [54 DUAL RECEIVE MOD], then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select [PRIORITY SCAN], then press the Right **DIAL** knob.
4. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.
5. Dual receive function is activated.



Disable the Priority Scan function

To cancel Priority Scan, just repeat the above procedures, selecting "OFF" in step 3 above.

Using the Voice Recorder


With the voice recording function, the received audio of the other station, and/or the transmit audio of this unit is recorded on the MicroSD memory card. The recorded file can be played back with the **FTM-310DR/DE** or the MicroSD memory card can be taken out and used on a PC. Once recording is started, it continues until recording is stopped, or the capacity of the MicroSD card is full.

● About the file

- The audio file is saved in the “**VOICE**” folder on the MicroSD card.
- The file is a Wave sound format (extension: wav).
- The file name is “YYYYMMDDmmhhss.wav” (YYYY: year, MM: month, DD: day, hh: hour, mm: minute, ss: second) depending on the date and time when the recording started.

• When using the microSD memory card for the first time, please refer to “Formatting a Micro SD Memory Card” on page 37 for formatting.

• Since the date and time information is used for the voice recording function names and file timestamps when recording, it is recommended to set the date and time by following the procedure below:



Press and hold the  key → [31 DATE & TIME ADJUST]






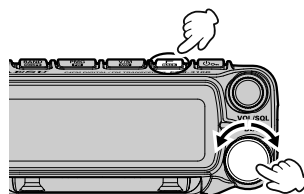
Recording the receive audio

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [41 REC/STOP], then press the Right **DIAL** knob.

“**REC START**” is displayed, and the recording function starts.

3. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.

- “” is displayed at the top of the LCD and the unit enters the recording standby mode. When a signal is received, recording starts automatically.
- During recording, the “” indication changes to “”.
- With the factory default settings, the “**MAIN-band**” received audio is recorded.
- Recording will be paused about 3 seconds after the squelch of the band that is recording is closed. Recording will resume when a signal is received.
- The band or bands to be recorded, and whether or not to include the transmit audio in the recording may be selected in the set mode.




Recording is stopped when the transceiver is turned OFF.

● Disable the recording function

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [41 REC/STOP], then press the Right **DIAL** knob.
 - “**REC STOP**” is displayed and the recording function is stopped.
 - When a new recording is started, a new file will be created.

Setting the Recording function


The band or bands to be recorded, and whether or not to include the transmit audio in the recording may be selected:

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**40 RECORDING**], then press the Right **DIAL** knob.
3. Press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select the band to record.

MAIN : Record the MAIN-band received audio



SUB : Record the SUB-band received audio

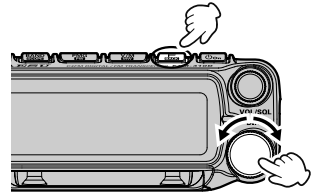
MAIN+SUB : Record both MAIN-band and SUB-band received audio

5. Press the  key.
6. Rotate the Right **DIAL** knob to select [**MIC**], then press the Right **DIAL** knob.
7. Rotate the Right **DIAL** knob to select “**ON**” or “**OFF**”.

ON : Record both transmit and receive audio

OFF : Record only the receive audio

8. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.



40 RECORDING	>
41 REC/STOP	
42 REAR SP OUT	
>	

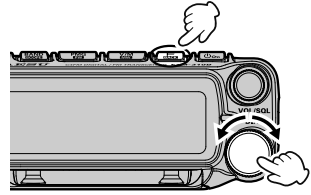
40 RECORDING	
BAND	MAIN
MIC	OFF

Playback the recorded audio



Playback is not possible during recording, so stop recording and follow the steps below to play back.

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [64 LOG LIST], then press the Right **DIAL** knob.



62 RANGE	RINGER
63 RADIO	ID
64 LOG	LIST
➤	

3. Rotate the Right **DIAL** knob to select [VOICE], then press the Right **DIAL** knob.
The recorded file will be displayed in a list.
4. Rotate the Right **DIAL** knob to select the file to play-back.

62 RANG	LOG	
63 RADI	VOICE	
64 LOG	MESSAGE	➤
	PICT	

LOG VOICE		
20250801123456	12:34	
20250731093456	07:31	
20250725183456	07:25	

- Press the Left **DIAL** knob, then rotate the Left **DIAL** knob to select [END], and press the Left **DIAL** knob to display the Oldest file.
- Press the Left **DIAL** knob, then rotate the Left **DIAL** knob to select [TOP], and press the Left **DIAL** knob to display the latest file.

LOG VOICE		
20250801123456	12:34	
20250731093456	07:31	
DEL	TOP	END

LOG VOICE		
20250801123456	12:34	
20250731093456	07:31	
DEL	TOP	END

5. Press the Right **DIAL** knob.
 - Playback will begin
 - The receiver audio will not be heard during playback
 - Play back while recording is not possible.
 - Rotate the Right **DIAL** knob to select [||], then press the Right **DIAL** knob to pause playback.
 - Rotate the Right **DIAL** knob to select [◀◀] or [▶▶], then press the Right **DIAL** knob, to rewind or fast forward 5 seconds at a time.

● Delete files

1. Rotate the Right **DIAL** knob in step 3 to select the file to be deleted, and then press the Left **DIAL** knob.
2. Rotate the Left **DIAL** knob to select "DEL", then press the Left **DIAL** knob.
3. Rotate the Left **DIAL** knob to select "OK", then press the Left **DIAL** knob.

Using the Voice Guide unit FVS-2

The receive audio can be recorded and then played back later using the optional voice guide unit “FVS-2”. The frequency of the operating band can also be announced by voice when the announce function is set to ON.

Mounting the voice guide unit “FVS-2”



Avoid touching the electronic components with your hands as the semiconductors may be damaged by static electricity.

1. Turn the transceiver OFF.
2. Unplug the control cable, microphone, and DC power supply cables from the main chassis.
3. Remove the eight screws from the main body, four on top and two each at the sides.



※: Please note that the 2 screws on the front panel side of the top cover are longer than the other 6 screws.

4. Carefully lift the top cover of the main body.



Do not lift the top cover by force. This may result in cables connected between the circuit boards and the speaker inside the cover to be cut.

5. Unplug the speaker cables extending from the top cover from the socket on the board inside the main body before removing the cover.



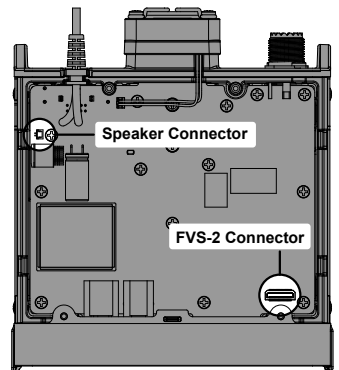
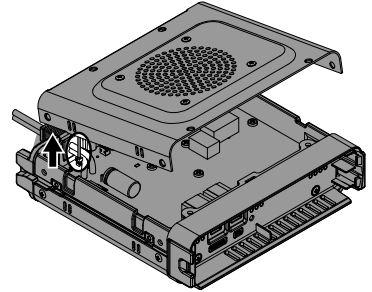
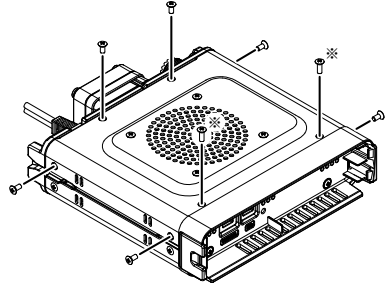
Hold the connector when unplugging the cable without pulling on the cable itself.

6. Refer to the figure on the right to mount the FVS-2.




Check the direction of the connector and plug the FVS-2 in all the way to the back.

7. Plug in the speaker cables extending from the main body top cover to the original connector on the board.
8. Attach the main body top cover and secure it using the eight screws.





Setting the voice memory operation

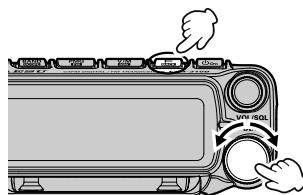
1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [112 VOICE MEMORY], then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select [PLAY/REC], then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select recording operation.

FREE 5min: A total of 5 minutes of audio in 8 recording areas can be recorded.



LAST 30sec: The last 30 seconds will be recorded.

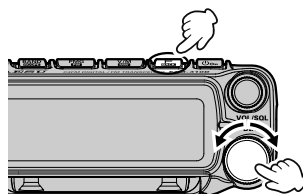
Factory default value: FREE 5min

5. Press any key or **DIAL** knob, other than the  or  key, to save the settings and return to normal operation.




Recording the receive audio

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [113 FVS REC].
3. Press the Right **DIAL** knob.
 - The recording will be started.
 - The “RECORDING” display will blink while recording.
4. Press any key or **DIAL** knob, other than the Right **DIAL** knob or  key, to return to the operation screen while still recording.

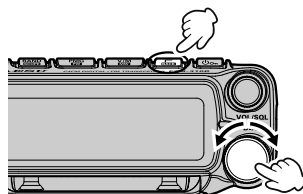


Recording is stopped when the transceiver is turned OFF.


Disable the recording function

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [116 FVS STOP].
3. Press the Right **DIAL** knob.



The recording will stop.

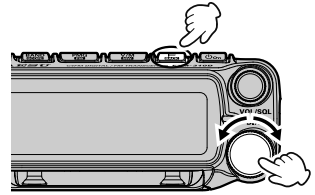


Playback the recorded audio

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**114 TRACK SELECT**], then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select the track number to be replayed.

When “**ALL**” is selected, all the recorded tracks will be replayed in sequence.

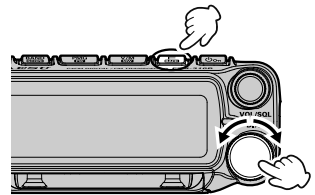
4. Press the  key.
5. Rotate the Right **DIAL** knob to select [**115 FVS PLAY**], then press the Right **DIAL** knob.
 - Replay will be started.
 - The “PLAYING” display will blink while in playback.
6. Press any key or **DIAL** knob, other than the Right **DIAL** knob or  key, to return to the operation screen, while still in playback.



Stop playback

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**116 FVS STOP**], then press the Right **DIAL** knob.


The playback will stop.




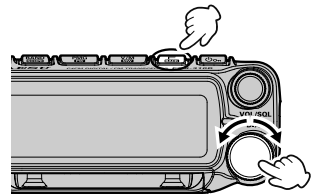
Delete files



All recorded audio will be erased. When there are two or more recordings, individual tracks cannot be erased.

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select [**117 FVS CLEAR**], then press the Right **DIAL** knob.

The confirmation screen will be displayed.
3. Rotate the Right **DIAL** knob to select [**OK**], then press the Right **DIAL** knob.
 - Erasing will be started.
 - When erasing is complete, the blinking “ERASING” will change to a steady “ERASE”.
4. Press any key or **DIAL** knob, other than the Right **DIAL** knob or  key, to return to the normal operation.




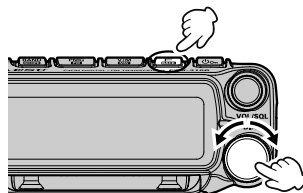
Voice announcement of the operating frequency

Setting the announce function operation


Set the following voice announcement parameters:


- Automatically announce the frequency or not
- Announce the frequency in English or Japanese
- Voice announcement audio level
- Mute the receive audio during a voice announcement.

1. Press and hold the  key.
2. Rotate the Right **DIAL** knob to select **[112 VOICE MEMORY]**, then press the Right **DIAL** knob.
3. Rotate the Right **DIAL** knob to select **[ANNOUNCE]**, then press the Right **DIAL** knob.
4. Rotate the Right **DIAL** knob to select the condition for reading out the frequency.



OFF: The frequency is not announced.

MANUAL: To announce the frequency, press and hold the  key → **[118 VOICE GUIDE]** → Press the Right **DIAL** knob.

AUTO: The frequency is announced when changing bands, switching between VFO mode and Memory mode, or it is announced by pressing and holding the  key → **[118 VOICE GUIDE]** → Press the Right **DIAL** knob.



Factory default value: **AUTO**

5. Press the Right **DIAL** knob.
6. Rotate the Right **DIAL** knob to select **[LANGUAGE]**, then press the Right **DIAL** knob.
7. Rotate the Right **DIAL** knob to select the language in which the frequency is announced.

The setting will switch between “ENGLISH” and “JAPANESE”.

Factory default value: **ENGLISH**

8. Rotate the Right **DIAL** knob to select **[VOLUME]**, then press the Right **DIAL** knob.
9. Rotate the Right **DIAL** knob to select the announcement volume.

The setting will switch between “HIGH”, “MID” and “LOW”.


Factory default value: **HIGH**

10. Press the Right **DIAL** knob.
11. Rotate the Right **DIAL** knob to select **[RX MUTE]**, then press the Right **DIAL** knob.
12. Rotate the Right **DIAL** knob to select ON/OFF.

ON: The receive audio will be muted during a voice announcement or replaying recorded audio.

OFF: The receive audio will not be muted during a voice announcement or replaying recorded audio.

Factory default value: **ON**

13. Press any key or **DIAL** knob, other than the Right **DIAL** knob or  key, to return to normal operation.

Weather Broadcast Reception

The **FTM-310DR/DE** includes a unique feature which allows reception of weather broadcasts in the 160MHz frequency range. Ten standard Weather Broadcast channels are preloaded into a special memory bank.

To listen to a Weather Broadcast Channel (Example: When “WX” is assigned to [P4]):

1. Press the Microphone **[P4]** key to recall the Weather Broadcast channels.
Turn the **DIAL** knob to select the desired Weather Broadcast channel.

CH	Frequency	CH	Frequency
1	162.550MHz	6	162.500MHz
2	162.400MHz	7	162.525MHz
3	162.475MHz	8	161.650MHz
4	162.425MHz	9	161.775MHz
5	162.450MHz	10	163.275MHz



In the USA model, the **[P4]** key one of the programmable keys, is assigned (default setting) as the “WX Broadcast” one-touch access key. Please note that if you change/assign another function to the **[P4]** key, one-touch access to the WX channel will be unavailable.

2. To scan the other channels for activity, press the Microphone **PTT** switch.
3. To exit to normal operation, press the **[P4]** key again. Operation will return to the VFO or Memory channel in operation before you began Weather Broadcast operation.

Severe Weather Alert Feature

In the event of extreme weather disturbances, such as storms and hurricanes, NOAA (the National Oceanic and Atmospheric Administration) sends a weather alert accompanied by a 1050Hz tone and subsequent weather report on one of the NOAA weather channels. You may enable this feature via Setup Menu Item **[52 WX ALERT]**.

WIRES-X function

WIRES (Wide-coverage Internet Repeater Enhancement System) is an Internet communication system which expands the range of amateur radio communications by connecting with a local **WIRES-X** Node station. The **FTM-310DR/DE** can communicate and exchange data via the internet with **WIRES-X** nodes worldwide. Use the News Station function to write (upload) and read (download) digital data (text, images and audio). When connected to a **WIRES-X** node station or room, the node name, room name, call sign of the other station, distance, and direction, are all displayed on this screen.



For details, refer to the separate WIRES-X Instruction Manual which is available on the Yaesu website.

APRS (Automatic Packet Reporting System) function

The **FTM-310DR/DE** uses a GPS receiver to acquire and display its position location information. The **APRS** feature uses the location information to transmit the position information, data and messages, using the format developed by Bob Bruninga WB4APR. Upon receiving an APRS report from a remote station, the direction and distance to the remote station from your station, the speed of the remote station, and other data sent by the remote station may be displayed on the LCD of your transceiver.

Setting several station parameters, such as the call sign and symbol is required before using the **APRS** function (initial settings).



For details, refer to the **APRS** Function Instruction Manual which is available on the Yaesu website.

GM (Group Monitor) function

Automatically listens for stations operating with GM function on the same frequency, that are within the communication range, and displays the call sign, direction, distance, within / outside.



For details, refer to the **GM** Function Instruction Manual which is available on the Yaesu website.



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

GPS Function

The **FTM-310DR/DE** is equipped with a GPS (Global Positioning System) receiver. When receiving signals from GPS satellites, the current position (latitude, longitude, altitude) can be calculated and displayed within a tolerance of several meters. In addition, GPS receives the exact time from the satellite atomic clock.

Tone squelch feature

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

DCS (Digital Code squelch) feature

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

PAGER (EPCS) feature

This new feature allows calling specified stations only, by using a pager code that combines two **CTCSS** tones. Even when the person who is called is not near the transceiver, the information is displayed on the LCD to indicate that a call was received. When the call is received, the bell sounds.

DG-ID (Digital Group ID) feature

DG-ID (Digital Group ID) function allows using the two-digit ID numbers to communicate only with specific group members.


DP-ID (Digital Personal ID) feature

DP-ID (Digital Personal ID) feature opens the speaker audio only when a **C4FM** signal set to the same **DP-ID** in the Digital Mode is received.

Using Setup Menu


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

Setup Menu Operation

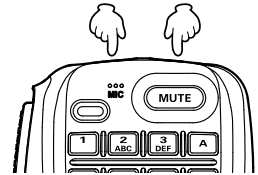
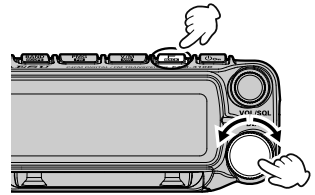
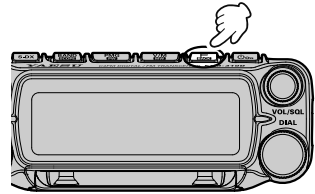
1. Press and hold the  key.


The SETUP MENU screen will be displayed.

2. Rotate the Right **DIAL** knob to select the desired item in the Setup Menu, then press the Right **DIAL** knob.

- Press the  key to return to the previous screen.
- Rotate the Left **DIAL** knob, or press the [UP] / [DWN] key on the microphone to scroll through the 12 categories in the Setup Menu (See below):

DISPLAY ↔ TX ↔ RX ↔ **MEMORY** ↔ **CONFIG** ↔
↔ **AUDIO** ↔ **SIGNALING** ↔ **SCAN** ↔ **DIGITAL** ↔
↔ **GM** ↔ **WIRES-X** ↔ **DATA** ↔ **APRS** ↔
↔ **SD CARD** ↔ **OPTION** ↔ **CLONE/RESET**




3. Press the Right **DIAL** knob.
4. When there is no deeper level of menu items, go to step 5.
When there is a deeper level of menu items, press the Right **DIAL** knob to select the desired item, then press the Right **DIAL** knob.
5. Rotate the Right **DIAL** knob to change the setting value.
6. Press any key or **DIAL** knob, other than the Right **DIAL** knob or  key, to return to the normal operation.

Tables of Setup Menu Operations

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
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DISPLAY

1 KEYPAD	Enter frequency directly or display memory channel list.	-
2 LCD DIMMER	Sets the display and key button brightness.	MAX / MID / OFF
3 LCD CONTRAST	Sets the screen contrast.	1 - 5 - 9
4 BAND SCOPE	Scope Display width setting.	WIDE / NARROW
5 S-METER SYMBOL	Selects the S- & TX PO meter Symbol.	
6 BACKLIGHT COLOR	Set the display color.	AMBER / WHITE
7 COMPASS	Set the compass display of the APRS pop-up screen.	NORTH UP / HEADING UP
8 GPS INFORMATION	GPS Information screen display.	-

TX

9 TX POWER	Set the transmit power level.	LOW / MID / HIGH
10 AMS TX MODE	Set the AMS transmission mode.	AUTO / TX FM FIXED/ TX DN FIXED
11 MIC GAIN	Microphone sensitivity setting.	MIN / LOW / NORMAL / HIGH / MAX
12 VOX	VOX function settings.	VOX: OFF / LOW / HIGH DELAY: 0.5s / 1.0s / 1.5s / 2.0s / 2.5s / 3.0s VOX MIC: FRONT / REAR
13 AUTO DIALER	DTMF code automatic transmit setting.	ON / OFF
14 TOT	TX time out setting.	OFF / 1min / 2min / 3min / 5min / 10min / 15min / 20min / 30min (3min: USA version)
15 DIGITAL VW	Turn the VW mode selection ON or OFF.	ON / OFF

RX

16 FM BANDWIDTH	Set the FM transmit modulation level.	WIDE / NARROW
17 RX MODE	Select the receive mode.	AUTO / FM / AM
18 SUB BAND		
SUB BAND	Sub Band ON/OFF.	OFF / ON
SUBBAND MUTE	Sub Band mute setting	OFF / ON
19 AUDIO EQUALIZER		
FRONT TONE	Adjust the sound quality of the Control head speaker.	OFF / FLAT / HI PITCH / LO PITCH / BPF
REAR TONE	Adjust the sound quality of the Main body speaker.	FLAT / HI PITCH / LO PITCH / BPF / 1kHz LPF / 700Hz LPF
AESS PHASE	Sets the time delay between the audio output of the control head speaker and the main unit speaker.	OFF / 1.25ms to 20.00ms (10.00ms)

MEMORY

20 HOME CH	Recall the home channel.	-
21 MEMORY LIST	Displays the Memory channel list screen.	-
22 MEMORY LIST MODE	Displays a list of memory channels in memory mode.	ON / OFF
23 PMG		
PMG TIMER	Scan resume time after there is no signal when receiving in PMG mode simultaneously.	0.5sec / 1sec / 2sec

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
PMG CLEAR	Cancel the registration of all PMG channels.	–
PMG HOLD	Select the holding time of the previously received signals bar graph.	2sec / 5sec / 10sec / 20sec / 30sec

CONFIG

24 BEEP	Beep volume setting.	OFF / LOW / HIGH
25 BAND SKIP	Set the frequency bands that can be selected.	AIR: ON / OFF VHF: ON / OFF UHF: ON / OFF OTHER: ON / OFF
26 RPT ARS	Repeater auto shift setting.	OFF / AUTO
27 RPT SHIFT	Repeater shift direction setting.	AUTO / -RPT / +RPT
28 RPT SHIFT FREQ	Repeater TX offset setting.	0.00MHz to 99.95MHz
29 RPT REVERSE	Reverses the transmit and receive frequencies while working through a repeater.	NORMAL / REVERSE
30 MIC PROGRAM KEY	Microphone P1 / P2 / P3 / P4 keys programable settings.	OFF / 2nd PTT / GM / REC/STOP / SCAN / HOME CH / RPT SHIFT / REVERSE / TX POWER / SQL OFF / T-CALL / VOICE* / D_X / WX / STN LIST / MSG LIST / REPLY / MSG EDIT / DW (*requires optional FVS-2) P1: 2nd PTT P2: HOME CH P3: D_X P4: WX (T-CALL: European version)
31 DATE & TIME ADJUST	Set the date and time.	–
32 DATE & TIME FORMAT	Set the date and time display formats.	Date: mmm/dd/yyyy / yyyy/mmm/dd / dd/mmm/yyyy / yyyy/dd/mmm Time: 24hour / 12hour
33 TIME ZONE	Time zone setting.	UTC -14:00 to ±0:00 to +14:00
34 STEP	Frequency tuning step.	AUTO / 5.00 kHz / 6.25 kHz / (8.33 kHz) / 10.00 kHz / 12.50 kHz / 15.00kHz / 20.00kHz / 25.00 kHz / 50.00 kHz / 100 kHz (8.33kHz: only for Air band)
35 CLOCK TYPE	Clock shift setting.	A / B
36 UNIT	Display unit setting.	METRIC / INCH (Depends on the transceiver version)
37 APO	Automatic power OFF time setting.	OFF / 0.5hour to 2.0hour (0.5 hour steps) 2.0hour to 12.0hour (1.0 hour steps)
38 GPS DATUM	GPS function positioning selection.	WGS-84 / TOKYO MEAN
39 GPS LOG	GPS access time setting.	OFF / 1sec / 2sec / 5sec / 10sec / 30sec / 60sec

AUDIO

40 RECORDING	Voice record function settings.	BAND: MAIN / SUB / MAIN+SUB MIC: ON / OFF
41 REC/STOP	Start and stop recording.	–
42 REAR SP OUT	Output level of the main body speaker	0% to 100%
43 FRONT SP MUTE	Front speaker operation settings when external speakers are connected.	CONTINUE / AUTO MUTE

SIGNALING

44 DTMF	Load DTMF Autodialer Memories.	–
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Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
45 DTMF MEMORY	Set the DTMF auto dialer channel and code (16 characters).	1 to 9
46 SQL TYPE	Select a squelch type.	OFF / 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.
47 TONE SQL FREQ or DCS CODE	Set the CTCSS Tone Frequency or the DCS code.	CTCSS: 67.0Hz to 254.1Hz (100Hz) DCS: 023 to 754
48 SQL EXPANSION	Separate squelch type setting for transmit and receive.	ON / OFF
49 PAGER CODE	Pager individual code settings.	RX-CODE 1: 01 - 05 - 50 RX-CODE 2: 01 - 47 - 50 TX-CODE 1: 01 - 05 - 50 TX-CODE 2: 01 - 47 - 50
50 PR FREQUENCY	User programmed reverse tone frequency.	300Hz - 1500Hz - 3000Hz
51 BELL RINGER	Recall sound length setting.	OFF / 1time / 3times / 5times / 8times / CONTINUOUS
52 WX ALERT	Weather alert operation setting.	ON / OFF

SCAN		
53 SCAN	Engages the Scan operation.	–
54 DUAL RECEIVE MODE	Dual receive operation setting.	OFF / PRIORITY SCAN
55 DUAL RX INTERVAL	Dual receive reception interval setting. (Only enabled when "41 DUAL RECEIVE MODE" is set to "PRIORITY SCAN".)	0.5sec / 1.0sec / 2.0sec / 3.0sec / 5.0sec / 7.0sec / 10sec
56 PRIORITY REVERT	The transmission operation during dual receive always transmits on the home channel.	OFF / ON
57 SCAN RESUME	Set the resume operation after scanning stops on a signal.	BUSY / HOLD / 1sec / 3sec / 5sec

DIGITAL		
58 DIGITAL POPUP	Information screen popup time.	OFF / 2sec / 4sec / 6sec / 8sec / 10sec / 20sec / 30sec / 60sec / CONTINUE
59 LOCATION SERVICE	Set whether to send your current location in digital mode.	OFF / ON
60 STANDBY BEEP	Standby Beep setting.	OFF / ON

GM		
Refer to the separate Operating Manual GM Edition for details on the functions.		
61 DP-ID LIST	Displays the DP-ID list screen.	–
62 RANGE RINGER	Set the bell sound when checking for stations within sphere of communications.	OFF / ON
63 RADIO ID	Specific transceiver ID is displayed.	– (cannot be edited)
64 LOG LIST	Display a list of recorded voices, received messages and images.	–

WIRES-X		
Refer to the separate Operating Manual WIRES-X Edition for details on the functions.		
65 RPT/WIRES FREQ	Set the frequency to be used for Repeater / WIRES-X.	MANUAL / PRESET

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
FREQUENCY	Register the WIRES-X preset frequency.	Preset frequency: 146.550MHz 446.500MHz
66 SEARCH SETUP	Set the WIRES ROOM selection method.	HISTORY / ACTIVITY
67 EDIT CATEGORY TAG	Edit the category tag.	C1 to C5
68 DELETE ROOM/NODE	Delete a registered category.	C1 to C5
69 WIRES DG-ID	Set the DG-ID number for WIRES-X.	AUTO / 01 to 99

DATA

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

APRS

Refer to the separate Operating Manual APRS Edition for details on the functions.

74 APRS DESTINATION	Model code display Non-editable.	APY310 (FIX)
75 APRS FILTER	Filter function settings.	Mic-E: ON / OFF POSITION: ON / OFF WEATHER: ON / OFF OBJECT: ON / OFF ITEM: ON / OFF STATUS: ON / OFF OTHER: ON / OFF RANGE LIMIT: OFF / 1 / 10 / 100 / 1000 / 3000 (km / mi) ALTNET: ON / OFF
76 APRS MESSAGE TEXT	Standard message text input.	1 to 8 channels
77 APRS MODEM	Set APRS function ON/OFF.	OFF / ON
78 APRS MUTE	Set audio mute for APRS band.	OFF / ON

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
79 APRS POPUP	Beacons and messages Pop-up display time setting.	BEACON: OFF / 3sec / 5sec / 10sec / HOLD CALL 3sec / CALL 5sec CALL 10sec / CALL HOLD MESSAGE: OFF / 3sec / 5sec / 10sec / HOLD CALL 3sec / CALL 5sec CALL 10sec / CALL HOLD MYPACKET: OFF / ON
80 APRS RINGER	Set bell sound when beacons are received.	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: OFF / 1 / 5 / 10 / 50 / 100 (km / mi) MSG VOICE: ON / OFF
81 APRS RINGER (CS)	Call sign setting for CALL RINGER.	1 - 8 stations
82 APRS TX DELAY	Data transmit delay time setting.	100ms / 150ms / 200ms / 250ms / 300ms / 400ms / 500ms / 750ms / 1000ms
83 APRS UNITS	APRS display unit settings.	POSITION: dd°mm.mm' / dd°mm'ss" 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* *(Depends on the transceiver version)
84 BEACON INFORMATION	Transmit beacon information settings.	AMBIGUITY: OFF / 1 digit / 2 digits / 3 digits / 4 digits SPEED/COURSE: ON / OFF ALTITUDE: ON / OFF
85 BEACON STATUS TEXT	Status text input settings.	SELECT: OFF / TEXT 1 - 5 TX RATE: 1/1 - 1/8 / 1/2(FREQ)- 1/8(FREQ) TEXT 1 - 5: NONE / FREQUENCY / FREQ & SQL & SHIFT

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
86 BEACON TX SET	Beacon automatic transmit / Manual transmit switch.	AUTO: OFF / ON / (SmartBeaconing)* INTERVAL: 30sec / 1min / 2min / 3min / 5min / 10min / 15min / 20min / 30min / 60min PROPORTIONAL: ON / OFF DECAY: ON / OFF LOW SPEED: 1 - 3 - 99 (km/h / mph / knot) RATE LIMIT: 5sec - 30sec - 180sec * The option in the parentheses is available when the "101 SmartBeaconing" is TYPE1, TYPE 2 or TYPE 3, and the "97 MY POSITION SET" is GPS.
87 DIGI PATH	Digital repeater route setting.	OFF / WIDE1-1 / WIDE1-1, WIDE2-1 / PATH 1 / PATH 2 / PATH 3 / PATH 4 / FULL 1 / FULL 2
88 DIGI PATH 1	Digital repeater route address setting.	ADDRESS 1: - ADDRESS 2: -
89 DIGI PATH 2		
90 DIGI PATH 3		
91 DIGI PATH 4		
92 DIGI PATH FULL 1		
93 DIGI PATH FULL 2		
94 CALLSIGN (APRS)	My call sign setting.	***** - **
95 MESSAGE GROUP	Group filter setting 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?-----
96 MESSAGE REPLY	Set automatic response to received messages.	REPLY: OFF / ON CALLSIGN: *****_* REPLY TEXT: -
97 MY POSITION SET	My position setting.	GPS / MANUAL
98 MY POSITION	My position manual setting.	LATITUDE: N 0°00. 00' (° 00") LONGITUDE: E 0°00. 00' (° 00")
99 MY SYSBOL	My symbol setting.	ICON 1: [>] Car ICON 2: [R] REC.Vehicle ICON 3: [-] House QTH (VHF) USER: [YY] Yaesu Radios
100 POSITION COMMENT	Set position comment.	Off Duty / En Route / In Service / Returning / Committed / Special / Priority / Custom 0 to Custom 6 / EMERGENCY!

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
101 SmartBeaconing	Smart beaconing settings.	STATUS: OFF / TYPE1 / TYPE2 / TYPE3 * For details on the following setting items for each type, refer to the APRS Instruction Manual. LOW SPEED, HIGH SPEED, SLOW RATE, FAST RATE, TURN ANGLE, TURN SLOPE, TURN TIME
102 SORT FILTER	Sort function / Filter function settings.	SORT: TIME / CALLSIGN / DISTANCE FILTER: ALL / MOBILE / FREQUENCY/ OBJECT/ITEM / DIGIPEATER/ VoIP / WEATHER / YAESU/ OTHER PACKET / CALL RINGER / RANGE RINGER / 1200 bps / 9600 bps
103 VOICE ALERT	Voice alert function settings.	VOICE ALERT: NORMAL / TONE SQL / DCS / RX-TSQL / RX-DCS TONE SQL: 67.0Hz - 254.1Hz (100.0Hz) DCS: 023 - 754
104 STATION LIST	Displays the APRS Station list screen.	-
105 MESSAGE LIST	Displays the APRS Message list screen.	-
106 BEACON TX SELECT	Beacon automatic transmit / Manual transmit switch.	MANUAL / AUTO / (SmartBeaconing)* * The option in the parentheses is available when the "101 SmartBeaconing" is TYPE1, TYPE 2 or TYPE 3, and the "97 MY POSITION SET" is GPS.
107 BEACON TX	Manual beacon transmission (one time)	-

SD CARD

108 BACKUP

WRITE TO SD	Saves the transceiver setting information to a microSD memory card.	
ALL	Copies all data.	
MEMORY	Copies only the memory channels.	
SETUP	Copies only the set-up menu settings.	
READ FROM SD	Loads the information to the transceiver from a microSD memory card.	
ALL	Copies all data.	
MEMORY	Copies only the memory channels.	
SETUP	Copies only the set-up menu settings.	
109 SD INFORMATION	Displays the total capacity and free space of the microSD Card.	-
110 FORMAT	Initializing the micro-SD card.	-

OPTION

111 Bluetooth (Requires optional Bluetooth Unit BU-5)		
Bluetooth	Bluetooth headset setting.	OFF / ON
DEVICE	Bluetooth device list.	-

Menu Number / Item	Description	Selectable options (Options in bold are the default settings)
AUDIO	Set whether received audio is heard from both the Bluetooth headset and the transceiver speaker, or only from the connected Bluetooth device.	AUTO / FIX
112 VOICE MEMORY (Requires optional Voice Guide Unit FVS-2)		
PLAY/REC	Recording operation settings.	FREE 5min / LAST 30sec
ANNOUNCE	Setting conditions for frequency announcement.	OFF / MANUAL / AUTO
LANGUAGE	Setting the language to announce.	ENGLISH / JAPANESE
VOLUME	Setting the announcement volume.	HIGH / MID / LOW
RX MUTE	Setting to mute received audio during announcements and playback.	ON / OFF
113 FVS REC	Start recording the received audio.	–
114 TRACK SELECT	Selecting the audio track to play.	ALL / 1 - 8
115 FVS PLAY	Start playing the recorded sound	–
116 FVS STOP	Stop recording / playing	–
117 FVS CLEAR	Erase all recorded audio	–
118 VOICE GUIDE	The frequency of the operating band will be announced.	–

CLONE/RESET		
119 This → Other	Send all settings to other FTM-310DR/DE	–
120 Other → This	Receive all settings from other FTM-310DR/DE	–
121 CALLSIGN	My call sign setting. (10 characters)	*****
122 MEMORY CH RESET	Erase registered memory channels.	–
123 APRS RESET	Return APRS settings to default.	–
124 CONFIG SET	Save configuration.	–
125 CONFIG RECALL	Recall configuration.	–
126 SOFTWARE VERSION	Display the software version.	Main Ver. / Sub Ver.
127 FACTORY RESET	Return all settings to factory default.	–


Restoring to Defaults (Reset)

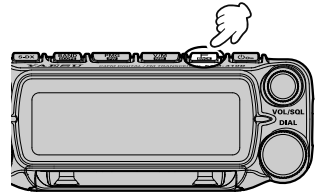
Caution

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


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

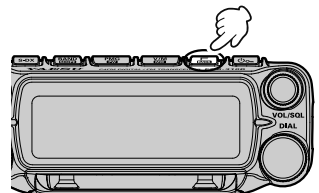
1. Press and hold the  key.
The SETUP MENU screen will be displayed.
2. Rotate the the Right **DIAL** knob to select [**127 FACTORY RESET**], then press the Right **DIAL** knob.
“FACTORY RESET” appears on the LCD.
3. Rotate the Right **DIAL** knob to select [**OK**].
To cancel the resetting, select [**CANCEL**], then press the Right **DIAL** knob.
4. Press the Right **DIAL** knob to reset all.



Memory Channels Reset

To erase only the registered all memory channels.

1. Press and hold the  key.
The SETUP MENU screen will be displayed.
2. Rotate the the Right **DIAL** knob to select [**122 MEMORY CH RESET**], then press the Right **DIAL** knob.
“MEMORY CH RESET” appears on the LCD.
3. Rotate the Right **DIAL** knob to select [**OK**].
To cancel the resetting, select [**CANCEL**], then press the Right **DIAL** knob.
4. Press the Right **DIAL** knob to delete all memory contents.

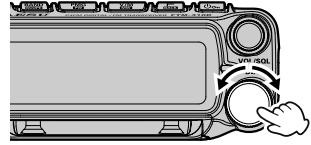


Text input screen

The keyboard screen is displayed when entering memory channel tag.

● Character input method

1. Rotate the Right **DIAL** knob to select a character, then press the Right **DIAL** knob.
2. The selected character is entered and the cursor moves right in the text input area.
3. Repeat steps 1 to enter additional characters.
4. When input is complete, press and hold the Right **DIAL** knob to save the characters.



- abc** / **ABC** : displays the alphabet keypad input screen.
- 123** : displays the numeric keypad input screen.
- #%^** : displays the symbols keypad input screen.
- <=>** : moves the cursor to the left.
- ␣** : enter a space at the cursor position.
- >=>** : moves the cursor to the right.
- ⌫** : erases the character to the left of the cursor and moves the cursor to the left.

Alphabet Input

Rotate the Right **DIAL** knob to select **ABC** or **abc**, and each time the Right **DIAL** knob is pressed, the input switches between capital and small letters.

1 byte letters



2 byte letters



Numbers and Symbols Input

Rotate the Right **DIAL** knob to select **123**, then press the Right **DIAL** knob.



Symbols Input

Rotate the Right **DIAL** knob to select **#%^**, then press the Right **DIAL** knob.



● General

Frequency Range	: TX 144 - 148MHz or 144 - 146MHz 430 - 450MHz or 430 - 440MHz (Depends on the transceiver version)
	: RX 108 - 137MHz (AIR Band) 137 - 174MHz (144MHz HAM / VHF Band) 174 - 400MHz (VHF Band / UHF Band) 400 - 550MHz (430MHz HAM / UHF Band)
Channel Steps	: 5 / 6.25 / 8.33 / 10 / 12.5 / 15 / 20 / 25 / 50 / 100kHz (8.33kHz: only for Air band)
Mode of Emission	: F1D, F2D, F3E, F7W
Frequency Stability	: ± 2.5 ppm (-4°F to +140°F [-20°C to +60°C])
Antenna Impedance	: 50 Ω
Supply Voltage	: Nominal 13.8V DC, negative ground
Current Consumption (approx.)	: 0.5A (Receive) 11A (55W TX, 144MHz) 10A (50W TX, 430MHz)
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 5.23" (139 x 42 x 133mm) (w/o Fan) Controller 5.82" x 2.2" x 2.2" (148 x 56 x 56mm) (w/o Knob)
Weight (approx.)	: 2.64lbs (1.2kg) (with Radio Unit, Controller, Control Cable)

● Transmitter

RF Power Output	: 55W (144MHz), 50W (430MHz) / 25W / 5W
Modulation Type	: F1D, F2D, F3E: Variable Reactance Modulation F7W: 4FSK (C4FM)
Maximum Deviation	: ± 5 kHz
Spurious Emission	: At least 60dB below
Microphone Impedance	: 2k Ω
DATA Jack Impedance	: 10k Ω

● Receiver

Circuit Type	: Double-Conversion Super heterodyne
Intermediate Frequency	: 1st: MAIN Band 56.75MHz 1st: SUB Band 55.85MHz 2nd: MAIN Band, SUB Band 450kHz
Sensitivity	: 0.8 μ V typ for 10dB SN (108 - 137MHz, @AM) 0.2 μ V for 12dB SINAD (137 - 150MHz, @FM) 0.25 μ V for 12dB SINAD (150 - 174MHz, @FM) 0.3 μ V typ for 12dB SINAD (174 - 222MHz, @FM) 0.25 μ V typ for 12dB SINAD (222 - 300MHz, @FM) 0.8 μ V typ for 10dB SN (300 - 336MHz, @AM) 0.25 μ V typ for 12dB SINAD (336 - 420MHz, @FM) 0.2 μ V for 12dB SINAD (420 - 550MHz, @FM) 0.19 μ V typ for BER 1% (Digital Mode)
Selectivity (-6 dB/-60 dB)	: NFM, AM 12 kHz / 30 kHz
AF Output	: 3W (8 Ω , THD10%, 13.8 V) Front Speaker 3W (8 Ω , THD10%, 13.8 V) Internal Speaker 3W (8 Ω , THD10%, 13.8 V) External Speaker
AF Output Impedance	: 8 Ω
Strength of secondary radio waves:	4 nW and below

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

About internal spurious signals

Certain frequency combinations of signals received simultaneously, may cause some effect on the receiver mixer and IF circuits due to the high frequency of the internal oscillator. However, this is not a malfunction (refer to the calculation formulas below: n is any integer). Depending on the combination of the frequencies received at the same time, there may also be fluctuations in the receiver sensitivity.

- Reception frequency = 16MHz x n times
- Reception frequency = 12MHz x n times
- Reception frequency = 56.3MHz x n times
- Reception frequency = 45.9MHz x n times
- Reception frequency = 19.2MHz x n times
- MAIN Band frequency = (SUB Band frequency \pm 55.85MHz) \times n times
- SUB Band frequency = (MAIN Band frequency \pm 56.75MHz) \times n times

YAESU LIMITED WARRANTY

Limited Warranty is valid only in the country/region where this product was originally purchased.

On-line Warranty Registration:

Thank you for buying YAESU products! We are confident your new radio will serve your needs for many years! Please register your product at www.yaesu.com - Owner's Corner

Warranty Terms:

Subject to the Limitations of the Warranty and the Warranty Procedures described below, YAESU MUSEN hereby warrants this product to be free of defects in materials and workmanship in normal use during the "Warranty Period." (the "Limited Warranty").

Limitations of Warranty:

- A. YAESU MUSEN is not liable for any express warranties except the Limited Warranty described above.
- B. The Limited Warranty is extended only to the original end-use purchaser or the person receiving this product as a gift, and shall not be extended to any other person or transferee.
- C. Unless a different warranty period is stated with this YAESU product, the Warranty Period is three years from the date of retail purchase by the original end-use purchaser.
- D. The Limited Warranty is valid only in the country/region where this product was originally purchased.
- E. During the Warranty Period, YAESU MUSEN will, at its sole option, repair or replace (using new or refurbished replacement parts) any defective parts within a reasonable period of time and free of charge.
- F. The Limited Warranty does not cover shipping cost (including transportation and insurance) from you to us, or any import fees, duties or taxes.
- G. The Limited Warranty does not cover any impairment caused by tampering, misuse, failure to follow instructions supplied with the product, unauthorized modifications, or damage to this product for any reasons, such as: accident; excess moisture; lightning; power surges; connection to improper voltage supply; damage caused by inadequate packing or shipping procedures; loss of, damage to or corruption of stored data; product modification to enable operation in another country/purpose other than the country/purpose for which it was designed, manufactured, approved and/or authorized; or the repair of products damaged by these modifications.
- H. The Limited Warranty applies only to the product as it existed at the time of the original purchase, by the original retail purchaser, and shall not preclude YAESU MUSEN from later making any changes in design, adding to, or otherwise improving subsequent versions of this product, or impose upon YAESU MUSEN any obligation to modify or alter this product to conform to such changes, or improvements.
- I. YAESU MUSEN assumes no responsibility for any consequential damages caused by, or arising out of, any such defect in materials or workmanship.
- J. TO THE FULLEST EXTENT PERMITTED BY LAW, YAESU MUSEN SHALL NOT BE RESPONSIBLE FOR ANY IMPLIED WARRANTY WITH RESPECT TO THIS PRODUCT.
- K. If the original retail purchaser timely complies with the Warranty Procedures described below, and YAESU MUSEN elects to send the purchaser a replacement product rather than repair the "original product", then the Limited Warranty shall apply to the replacement product only for the remainder of the original product Warranty Period.
- L. Warranty statutes vary from state to state, or country to country, so some of the above limitations may not apply to your location.

Warranty Procedures:

1. To find the Authorized YAESU Service Center in your country/region, visit www.yaesu.com. Contact the YAESU Service Center for specific return and shipping instructions, or contact an authorized YAESU dealer/distributor from whom the product was originally purchased.
2. Include proof of original purchase from an authorized YAESU dealer/distributor, and ship the product, freight prepaid, to the address provided by the YAESU Service Center in your country/region.
3. Upon receipt of this product, returned in accordance with the procedures described above, by the YAESU Authorized Service Center, all reasonable efforts will be expended by YAESU MUSEN to cause this product to conform to its original specifications. YAESU MUSEN will return the repaired product (or a replacement product) free of charge to the original purchaser. The decision to repair or replace this product is the sole discretion of YAESU MUSEN.

Other conditions:

YAESU MUSEN'S MAXIMUM LIABILITY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. IN NO EVENT SHALL YAESU MUSEN BE LIABLE FOR LOSS OF, DAMAGE TO OR CORRUPTION OF STORED DATA, OR FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES, HOW EVER CAUSED; INCLUDING WITHOUT LIMITATION TO THE REPLACEMENT OF EQUIPMENT AND PROPERTY, AND ANY COSTS OF RECOVERING, PROGRAMMING OR REPRODUCING ANY PROGRAM OR DATA STORED IN OR USED WITH THE YAESU PRODUCT.

Some Countries in Europe and some States of the USA do not allow the exclusion or limitation of incidental or consequential damages, or a limitation on how long an implied warranty lasts, so the above limitation or exclusions may not apply. This warranty provides specific rights, there may be other rights available which may vary between countries in Europe or from state to state within the USA.

This Limited Warranty is void if the label bearing the serial number has been removed or defaced.

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.

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-310DR

Manufacturer: YAESU MUSEN CO., LTD.

Address of Manufacturer: Omori Bell port D building 3F, 6-26-3 Minamioi,
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

EU Declaration of Conformity

We, Yaesu Musen Co. Ltd of Tokyo, Japan, hereby declare that this radio equipment FTM-310DE 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 – Condition of use

This transceiver operates on frequencies that are regulated. Use of the Transmitter in the EU countries shown in the accompanying table is not permitted without authorization. Users should consult their local spectrum management authority for licensing conditions applicable to this equipment.

					
AT	BE	BG	CY	CZ	DE
DK	ES	EE	FI	FR	EL
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

Radio for Professionals

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