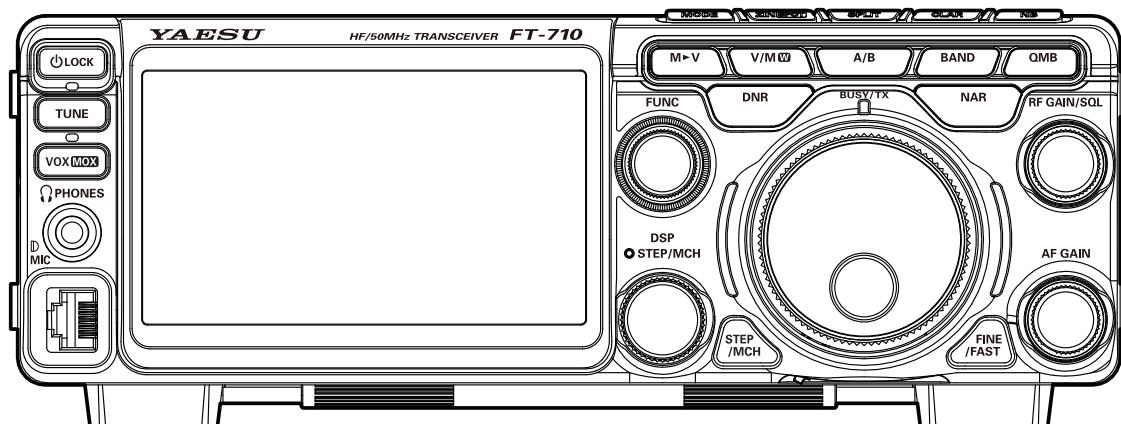




**HF/50MHz TRANSCEIVER**  
**FT-710**

## Operation Manual





## About this Manual

The FT-710 is a leading-edge transceiver with a number of new and exciting features, some of which may be unfamiliar to you. In order to gain the most enjoyment and operating efficiency from the FT-710, we recommend that you read this manual in its entirety, and keep it handy for reference as you explore the many capabilities of this new transceiver.

Before using the FT-710, be sure to read this manual.

### How to read this operation manual

Two methods are used to select an item displayed on the FT-710 Function Screen: **Operate by touching the item directly on the display**; and **Turn the [FUNC] knob to select the item and then press the [FUNC] knob**.

Subsequently, in this manual, the operations that can be performed either by touching the Function Screen, or by turning and pressing the **[FUNC] knob** are abbreviated to **“Select [DISPLAY SETTING] → [DISPLAY] → [LED DIMMER]”**; as described in the following:

**Example:** How to adjust the brightness of the LED

1. Press the [FUNC] knob to display the function screen.
2. Touch [DISPLAY SETTING] on the function screen, or rotate the [FUNC] knob to select [DISPLAY SETTING] and then press the [FUNC] knob.
3. Touch [DISPLAY] on the display or rotate the [FUNC] knob to select [DISPLAY] and then press the [FUNC] knob.
4. Touch the setting section of [LED DIMMER] on the display, or rotate the [FUNC] knob to select [LED DIMMER] and then press the [FUNC] knob.
5. Rotate the [FUNC] knob, or touch “<” or “>” on either side of the value to adjust the brightness.

The following notations are also used in this manual:



This icon indicates cautions and alerts the user should be aware of.



This icon indicates helpful notes, tips and information.

# Table of Contents

Safety Precautions .....	4	Changing the number of .....	28
Accessories & Options .....	6	QMB channels .....	28
Supplied Accessories .....	6	RX Clarifier .....	30
Available options .....	6	TX Clarifier .....	30
Installation and Interconnections .....	7	Adjusting the Noise Blanker Level .....	31
Antenna Considerations .....	7	Adjusting the Noise Attenuation .....	31
Antenna Connections .....	7	Reduces longer duration pulse noise .....	31
Power Cable Connections .....	7	Voice Communications (SSB and AM) .....	32
Microphone, Headphone, Key, Keyer and FH-2		When transmitting in SSB or AM mode .....	32
Connections .....	8	Speech Processor .....	32
Linear Amplifier Interconnections .....	9	RF Power output control .....	32
VL-1000 Linear Amplifier Interconnections.....	9	MONI (Monitor) .....	33
Display connections .....	9	Parametric Microphone Equalizer .....	34
Rear Panel.....	10	Setup the .....	34
SSM-75E Microphone Switches .....	11	Parametric Microphone Equalizer .....	34
Display Indications.....	12	Activate the .....	34
Keyboard Frequency Entry.....	14	Parametric Microphone Equalizer .....	34
Tuning in 1 MHz or 1 kHz Steps.....	14	Using the Automatic Antenna Tuner .....	36
When the clarifier function is active .....	14	ATU Operation .....	36
Turn the spectrum display OFF .....	16	CW Mode Operation .....	37
ATT (Attenuator).....	17	Adjusting the Sidetone Audio level .....	37
IPO .....	17	CW Delay Time Setting .....	37
DNF (Digital NOTCH Filter).....	17	CW Spotting (Zero-Beating) .....	37
AGC (Automatic Gain Control).....	17	CW Decode .....	37
CENTER/CURSOR/FIX .....	18	Setting of the Electronic Keyer .....	38
CENTER.....	18	Adjusting the Keyer Speed .....	38
CURSOR.....	18	Setting the Keyer Weight .....	38
FIX.....	19	(Dot/Dash) Ratio .....	38
3DSS .....	19	Reversing the Keyer Polarity .....	38
MULTI.....	19	Selecting the Keyer Operating Mode .....	38
EXPAND .....	20	Contest Memory Keyer .....	39
SPAN.....	20	Message Memory .....	39
SPEED .....	20	Storing a Message into Memory .....	39
LEVEL .....	21	Message Memory Programming .....	39
PEAK.....	21	(Using your Paddle) .....	39
MARKER .....	21	Checking the CW Memory Contents .....	40
COLOR.....	21	On-The-Air CW Message Playback .....	40
Adjust contrast.....	21	TEXT Memory .....	41
Adjusting the brightness (DIMMER) .....	21	Text Memory Storage .....	41
Other display settings.....	22	Text Message Programming .....	41
Screen Saver.....	22	Checking the CW Memory Contents .....	42
Inputting the Call Sign .....	22	On-The-Air CW Message Playback .....	42
Front Panel Controls & Switches.....	24	FM Mode Operation .....	43
Adjusts the VOX GAIN .....	24	Repeater Operation .....	43
Adjusts the VOX Delay Time .....	24	Tone Squelch Operation .....	43
Adjusts the VOX anti-trip sensitivity .....	25	Memory Operation .....	44
Adjusting the DNR Level .....	26	Memory Storage .....	44
Switching the operation of the .....	27	Erasing Memory Channel Data .....	44
[RF GAIN/SQL] knob.....	27	Check Memory Channel Status .....	44
QMB Channel Storage .....	28	Memory Tune Operation .....	44
QMB Channel Recall.....	28	Moving Memory Data to the VFO register.....	44

Labeling Memories .....	45
Displaying the Memory Tag .....	45
Scan Skip Setting .....	45
60-Meter (5 MHz) Band.....	45
(U.S. and U.K. Version only) .....	45
<b>VFO and Memory Scanning .....</b>	<b>46</b>
VFO/Memory Scan.....	46
<b>Other Functions .....</b>	<b>47</b>
Band Stack Operation .....	47
TOT (Time Out Timer) .....	47
Screen capture .....	47
Using the SD Card .....	48
SD Cards that can be used .....	48
Installing the SD card .....	48
Removing the SD card .....	48
Formatting a SD card .....	48
Saving Memory data and Setting Menu data	49
Reading Memory and Set Menu data.....	50
Display the SD Card Information.....	50
<b>Optional Accessories .....</b>	<b>51</b>
FC-40 External Automatic Antenna Tuner (for Wire Antenna).....	51
Interconnections to FT-710.....	51
Setup the transceiver .....	52
Tuning Operation.....	52
FH-2 Remote Control Switches.....	53
<b>Resetting the Microprocessor.....</b>	<b>54</b>
<b>Specifications .....</b>	<b>55</b>
General.....	55
Transmitter .....	55
Receiver .....	56
<b>YAESU LIMITED WARRANTY .....</b>	<b>57</b>

# Safety Precautions

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

## Type and meaning of the marks

 <b>DANGER</b>	This mark indicates an imminently hazardous situation, which, if not avoided, could result in death or serious injury.
---	--

 <b>WARNING</b>	This mark indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
--	--

 <b>CAUTION</b>	This mark indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury or only property damage.
--	---

## Type and meaning of symbols

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

For example,  signifies that disassembly is prohibited.

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

## **DANGER**

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

This may exert an impact on electronic and medical devices.

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

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

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

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

 **Never touch the antenna during transmission.**

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

 **Do not operate the device when flammable gas is generated.**

Doing so may result in fire and explosion.

 **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 due to thunder.

 **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.

 **Do not use fuses other than those specified.**

Doing so may result in fire 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 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 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.

#### **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 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.

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

This may result in hearing impairment.

#### **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 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.**

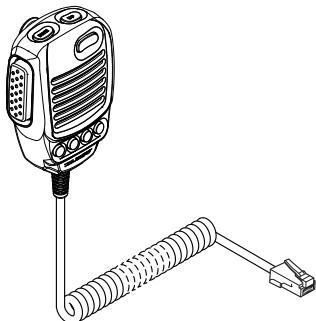
If not, this may result in equipment failure.

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

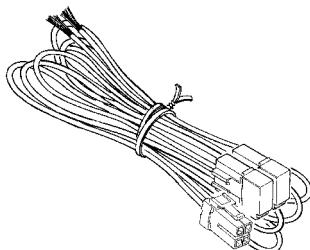
If not, this may result in equipment failure.

# Accessories & Options

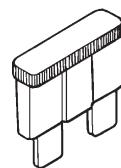
## Supplied Accessories



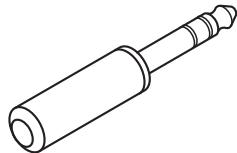
Hand Microphone SSM-75E



DC Power Cord



Spare Fuse (25A)



6.3 mm 3-contact Plug

- Operation Manual
- World Map
- Sticker

## Available options

• Hand Microphone (equivalent to the supplied microphone)	SSM-75E
• Reference Microphone	M-1
• Dual Element Microphone	M-100
• Desktop Microphone	M-90D
• Microphone Stand Kit	M-90MS
• Desktop Microphone	M-70
• Lightweight Stereo Headphone	YH-77STA
• External Automatic Antenna Tuner	FC-40
• Active Tuning Antenna (Automatic Type)	ATAS-120A
• Antenna Base Kit (for ATAS-120A)	ATBK-100
• Active Tuning Antenna (Manual Type)	ATAS-25
• Remote Control Keypad	FH-2

# Installation and Interconnections

## Antenna Considerations

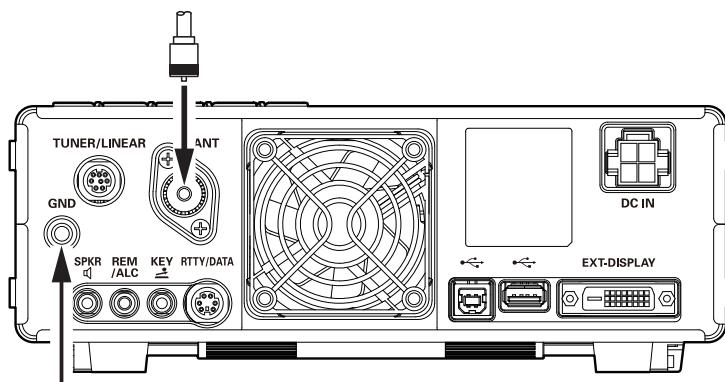
The FT-710 is designed to connect to a 50 Ohm resistive impedance antenna at the Amateur operating frequencies. Select an appropriate antenna (dipole antenna, YAGI antenna, cubical quad antenna, etc.) that is suitable for the chosen operation and bands.

Construct the antenna and coaxial cable, or use a suitable antenna tuner, to maintain the impedance presented to the FT-710 antenna connector for an SWR of 1.5 or less. Careful preparation of the antenna and/or tuner will permit maximum performance, and protect the transceiver from damage.

High transmitter RF voltages may be present on the antenna; install it so it will not be easily touched when in operation.

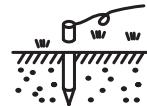
## Antenna Connections

Carefully follow the illustration regarding the proper connection of antennas and coaxial cables.



To prevent damage from lightning, atmospheric electrical discharges, electric shock etc., provide a good earth ground.

Use a short, thick, braided cable to connect the station equipment to the buried ground rod (or alternative earth ground system).

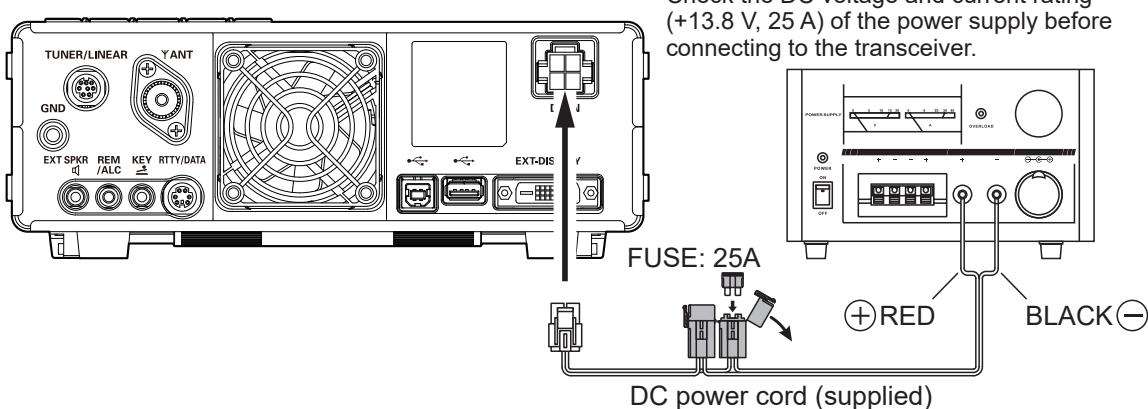


## Power Cable Connections

Carefully follow the illustrations regarding the proper connection of the DC power cable.

Use the DC power cable supplied with the FT-710 to make the power connections to the power supply.

Check the DC voltage and current rating (+13.8 V, 25 A) of the power supply before connecting to the transceiver.



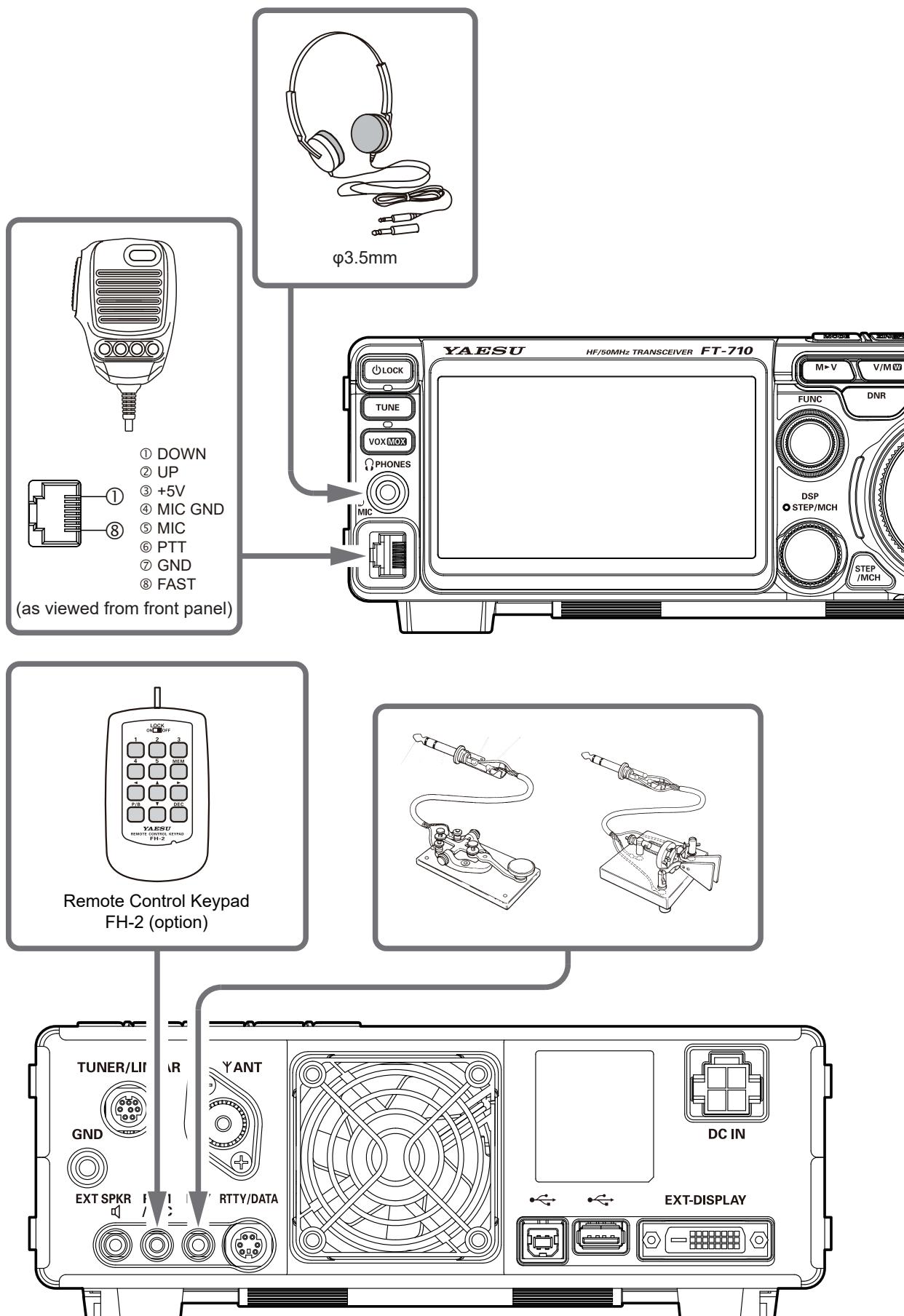
### Installation guidelines

- Ensure adequate ventilation around the transceiver, to prevent heat build-up and possible reduction of performance due over heating.
- Do not install the transceiver in a mechanically unstable location, or where objects may fall onto it from above.
- To minimize the possibility of interference to home entertainment devices, take all precautionary steps including separation of TV/FM anten-

nas from Amateur transmitting antennas to the greatest extent possible. Keep the transmitting coaxial cables separated from cables connected to home entertainment devices.

- The AC Power Cord connected to a socket-outlet with earthing connection. A socket-outlet with earthing connection shall connect to protective earthing conductor.

## Microphone, Headphone, Key, Keyer and FH-2 Connections



Key-up voltage is approximately +5.0 V DC, and key-down current is approximately 3 mA.

# Linear Amplifier Interconnections

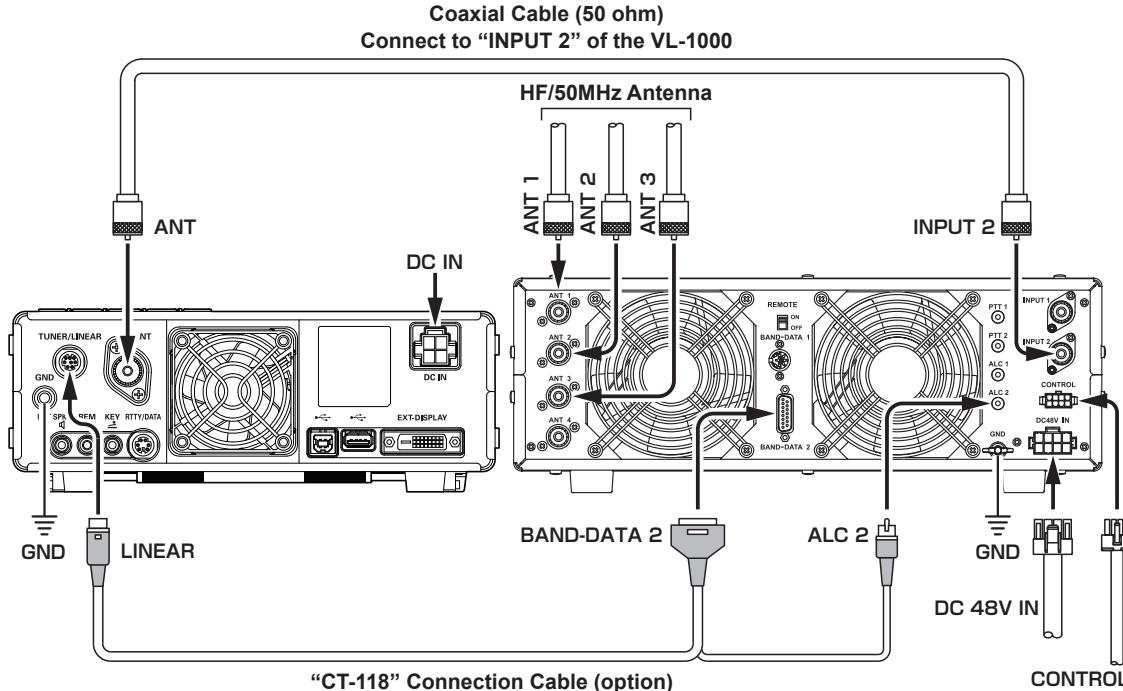


Be sure that both the FT-710 and VL-1000 are turned OFF, and then follow the installation recommendations contained in the bellow illustration.

## • VL-1000 Linear Amplifier Interconnections



- Refer to the VL-1000 Operating Manual for details regarding amplifier operation.
- Do not attempt to connect or disconnect coaxial cables when your hands are wet.

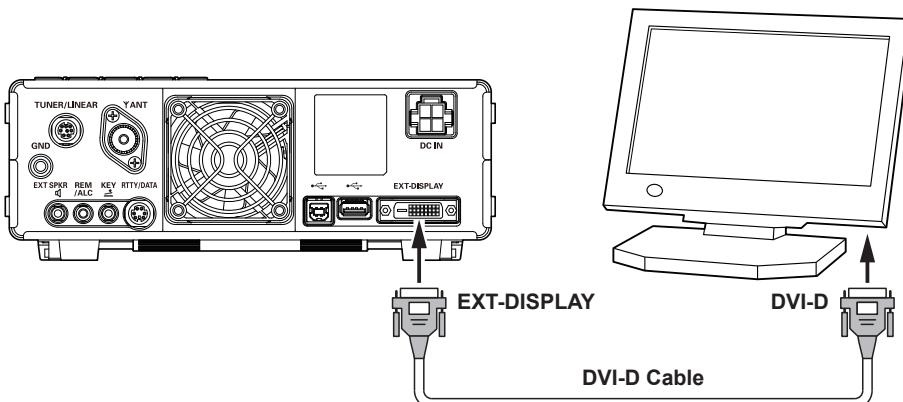


# Display connections

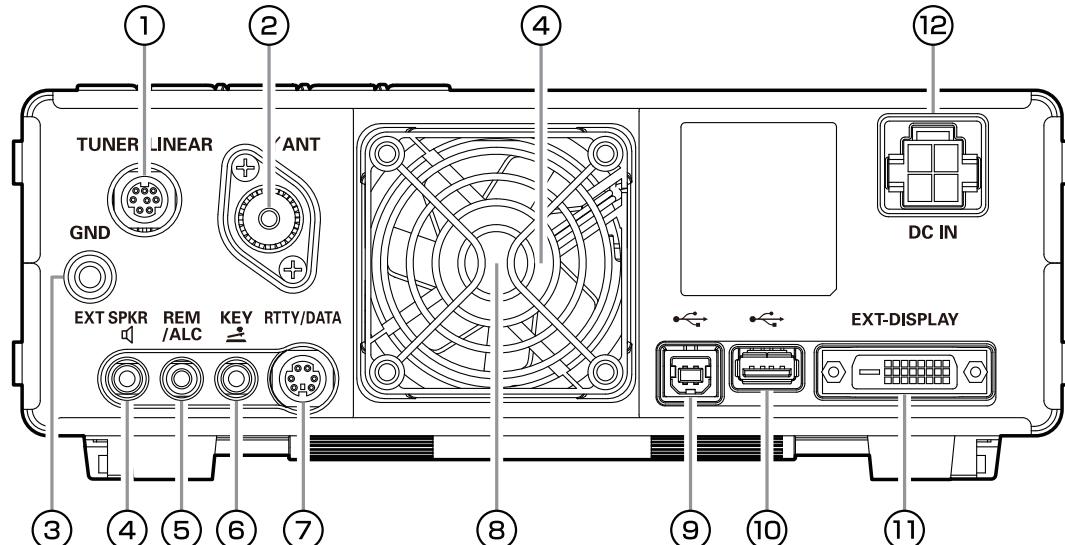
The video digital output of the FT-710 transceiver can be shown on a large monitor. Use a commercially available DVI-D cable to connect a display monitor directly to the "EXT-DISPLAY" terminal (DVI-D) on the back of the FT-710.



The DVI-D cable can be used with either single link or dual link.

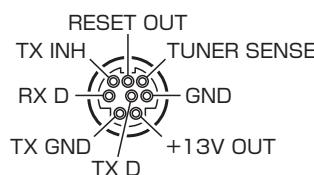


# Rear Panel



## ① TUNER

This 8-pin output jack is used for connection to the FC-40 External Automatic Antenna Tuner.



## ② ANT

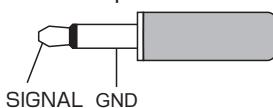
Connect the main antenna here, using type-M (PL-259) connectors and coaxial feed lines. The internal antenna tuner affects only the antenna connected here, and only during transmission.

## ③ GND

Use this terminal to connect the transceiver to a good earth ground, for safety and optimal performance. Use a large diameter, short braided cable to make ground connections.

## ④ EXT SPKR

This 3.5-mm, 2-contact, jack provides audio output for an external loudspeaker. The impedance at the jack is 4-8 Ohms. The volume varies according to the setting of the front panel [AF] knob.



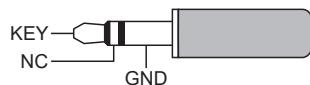
**!** Inserting a plug into the jack alters the internal loudspeaker configuration.

## ⑤ REM/ALC

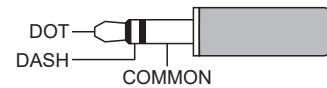
By plugging the FH-2 Remote Control Keypad into this jack, direct access to the FT-710 CPU is provided for control functions of the contest memory keying, and also frequency and function control.

## ⑥ KEY

This 3.5-mm, 3-contact jack accepts a CW key or keyer paddle. A two-contact plug cannot be used in this jack. Key-up voltage is +5.0 V DC, and key-down current is 3 mA.



When connecting a single straight key



When connecting an electronic keyer paddle

## ⑦ RTTY/DATA

This 6-pin input/output jack accepts AFSK input from a Terminal Node Controller (TNC); it also provides fixed level receiver audio output, and FSK keying line.



## ⑧ Cooling FAN

## ⑨ USB

Connecting to a computer from this jack with a commercially available USB cable allows remote control by CAT commands from a computer. The jack can also be used for input and output of audio signals and transmitter control. A USB driver is required for remote control from a computer. Download the driver from the Yaesu website (<http://www.yaesu.com>).

## ⑩ USB Jack

Connect a USB A type keyboard or mouse. They can be used to select items on the screen or to enter characters.

## ⑪ EXT-DISPLAY

DVI-D connector for connecting an external monitor.

When using an external monitor, set the setting menu item "EXT DISPLAY" to "ON".

**!** Connect a monitor that supports 800 x 480 resolution or 800 x 600 resolution.

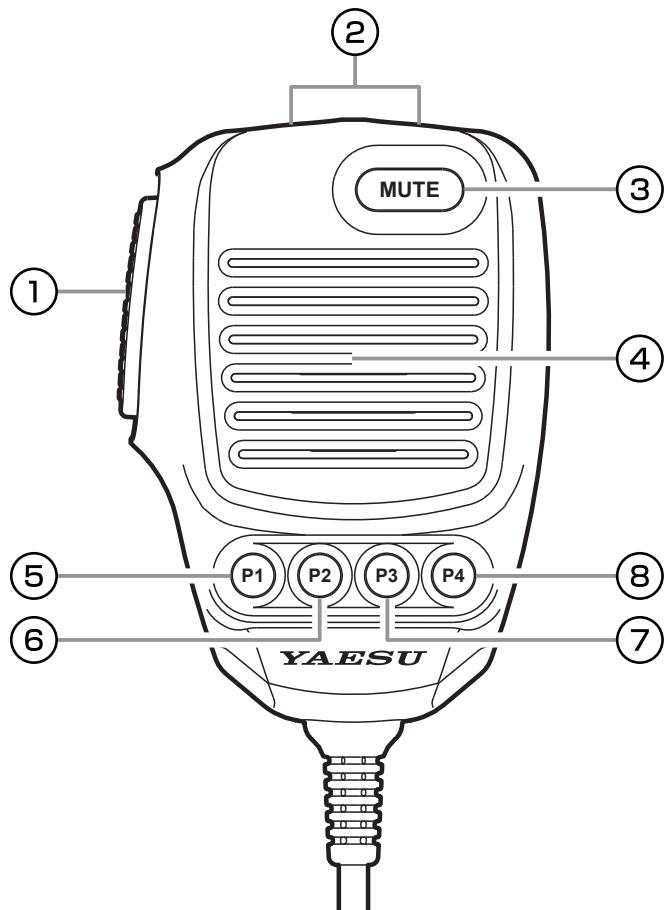
## ⑫ DC IN

This is the DC power supply connection for the transceiver.

Use the supplied DC cable to connect directly to a DC power supply, which must be capable of supplying at least 25 A @ 13.8 VDC.



# SSM-75E Microphone Switches



## ① PTT Switch

Switches Transmit/Receive.  
Press to transmit and release to receive.

## ② DWN / UP Key

The [UP]/[DWN] keys may also be used to manually scan the frequency upward or downward.

- The amount of frequency change depends on the operation mode (default setting: see table below).

Operating Mode	UP	DWN
LSB / USB / CW-L / CW-U DATA-L / DATA-U RTTY-L / RTTY-U / PSK	+10Hz	-10Hz
AM / AM-N / FM / FM-N DATA-FM / D-FM-N	+10kHz	-10kHz

- The frequency change can be changed in the setting menu.

Operating Mode	Memu Item	Step
LSB / USB CW-L / CW-U	SSB/CW DIAL STEP	5/10 (Hz)
DATA-L / DATA-U RTTY-L / RTTY-U PSK		
AM / AM-N	AM CH STEP	2.5/5/9/10/ 12.5/25 (kHz)
FM / FM-N DATA-FM D-FM-N	FM CH STEP	5/6.25/10/ 12.5/20/25 (kHz)

## ③ MUTE Key

While pressing the MUTE key, the receiver audio from the speaker will be muted.

## ④ Microphone

Speak into the microphone in a normal tone of voice with the microphone 5 cm away from the mouth.

## ⑤ P1 key

This key toggles the ON/OFF lock for the MAIN Dial knob. When "Lock" is ON, the MAIN Dial knob can still be turned, but the frequency will not change, and "LOCK" appears in the frequency display.

It is the same function as the [LOCK] key on the front panel of the transceiver.

## ⑥ P2 key

The current operation status can be stored in a dedicated memory channel (QMB: Quick Memory Bank) with one touch.

It is the same function as the [QMB] key on the front panel of the transceiver.

## ⑦ P3 key

Pressing this key momentarily, exchanges the VFO-A and VFO-B frequency data.

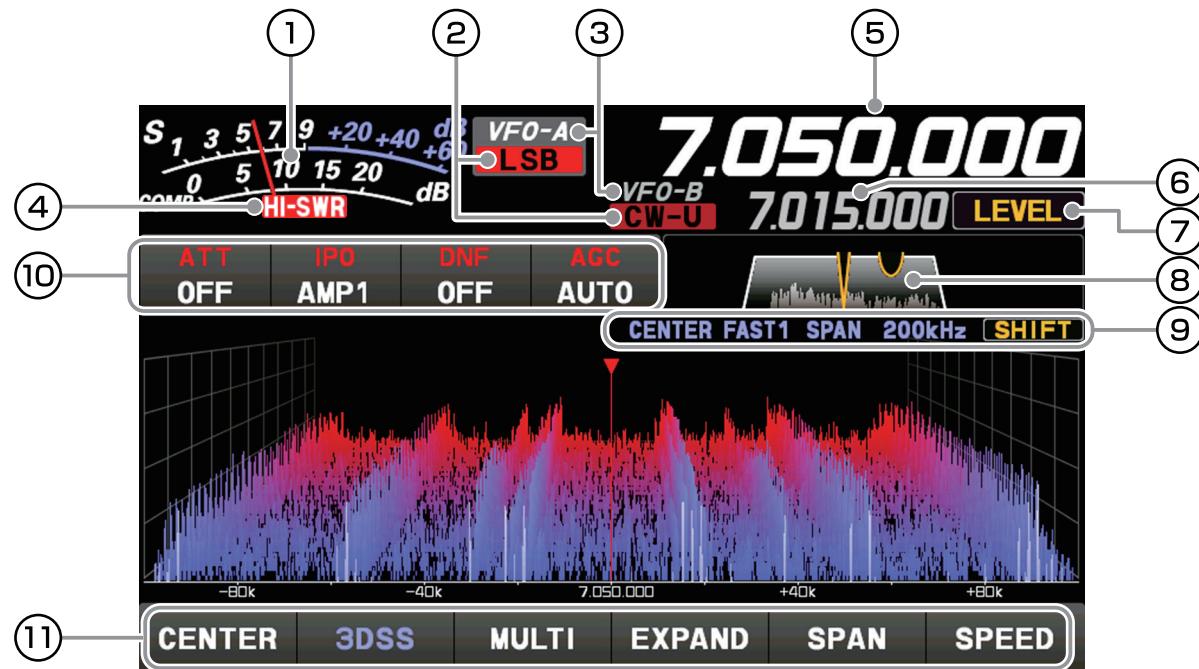
It is the same function as the [A/B] key on the front panel of the transceiver.

## ⑧ P4 key

This key toggles frequency control between VFO and the memory system.

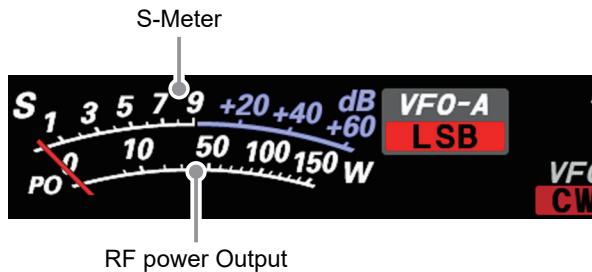
It is the same function as the [V/M] key on the front panel of the transceiver.

# Display Indications

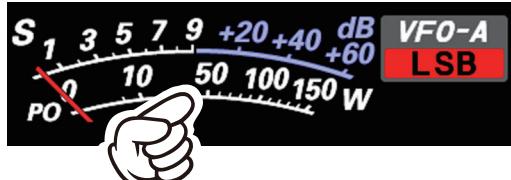


- ① It operates as an S meter in receive. In transmit, select the desired meter from: PO, COMP, ALC, VDD, ID, and SWR.
- ② Displays the current operation mode.
- ③ In VFO mode, “VFO-A” or “VFO-B” is displayed. In memory mode, the type and channel number of the recalled memory are displayed.
- ④ This display warns of an abnormality in the antenna system. If it lights up, check the antenna system immediately.
- ⑤ Displays the transmit/receive frequency of VFO-A.
- ⑥ Displays the transmit/receive frequency of VFO-B. While the clarifier function is operating, the offset (difference between the receive frequency and the transmit frequency) is displayed.
- ⑦ The functions that operate when the [FUNC] knob is turned are displayed.
- ⑧ Displays the passband status of the DSP filter.
- ⑨ Displays the mode, the sweep speed, and span width (display range) of the scope screen.
- ⑩ Displays the setting status of assorted important receiver operations. The setting can be changed by touching it.
- ⑪ Touch the scope screen keys to switch the display mode of the screen between the 3DSS display and waterfall display, to display the oscilloscope and AF-FFT, to switch the display area of the scope screen, to set the frequency span (display range), or to switch the sweep speed.

## ① Meter Display



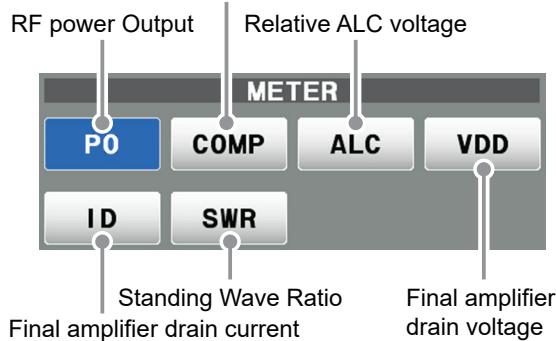
When the meter display screen is touched, the transmit meter selection screen is shown (the default setting is "PO").



Touch the meter area

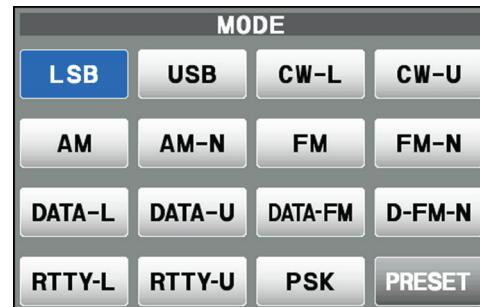


AMC gain control display  
(Displays compression level during speech processor operation)  
Make adjustments by pressing the [FUNC] knob → → touch [COMP] → rotate the [FUNC] knob.



## ② Operation MODE Display

Displays the current operating mode. When touched the operation mode selection screen is displayed. Touch the desired operation mode to select it.



Touch [PRESET] to display the settings that apply to the FT8 operation.

## ③ Operation status Display

**VFO-A:** Lights in VFO-A mode.  
**VFO-B:** Lights in VFO-B mode.  
**M-xx:** Displays the selected channel number in memory mode.  
**MT:** Lights up during memory tuning operation.  
**QMBxx:** Lights up during operation with quick memory.  
**M-Pxx:** Lights up during programmable memory scan operation.  
**EMG:** Emergency call set frequency call lights up.

## ④ HI-SWR Display



This is a warning notification of an abnormality in the antenna system.

If "HI-SWR" lights up, immediately check if for any abnormality in the antenna system.

## ⑤ Frequency Display (VFO-A)

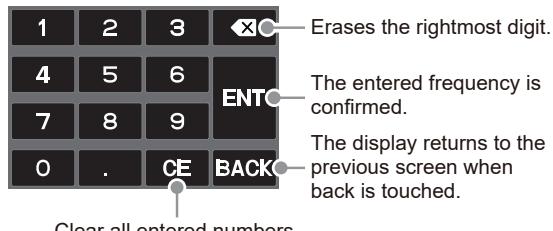
Exhibits the transmit and receive frequencies of VFO-A.

### • Keyboard Frequency Entry

1. Touch the "Hz" area of the frequency display.



2. Enter the frequency using the numeric keys.



Clear all entered numbers.

- If there is no operation within 10 seconds, the input will be canceled.
- 3. Touch [ENT] to confirm.

• A short-cut for frequencies ending in zero - touch [ENT] after the last non-zero digit.

#### Example:

To enter 7.00.000MHz

[0]→[7]→[ENT] or [7]→[.]→[ENT]

To enter 7.03.000MHz

[7]→[.]→[0]→[3]→[ENT]

### • Tuning in 1 MHz or 1 kHz Steps

To temporarily set the dial knob to 1MHz or 1kHz steps, touch the "MHz" or "kHz" area of the frequency display.



Touch "MHz" or "kHz" area of the frequency display to confirm. If there is no operation within 3 seconds, the frequency will be fixed.



Touch the Scope Screen, to easily move to the touched frequency.

## ⑥ Frequency Display (VFO-B)

Exhibits the transmit and receive frequencies of VFO-B.

When the clarifier function is active, the offset frequency is displayed.

### • When the clarifier function is active

The clarifier is used to adjust the transceiver receive frequency to match the other station transmit frequency and improve the audio; or to shift the transmit frequency of this station when the transmit frequency of the contact station is shifted.

When the receive frequency is offset by +20 Hz.



CLAR RX : Changes only the receive frequency while leaving the transmit frequency as it is.

CLAR TX : Changes only the transmit frequency while leaving the receive frequency as it is.

CLAR RXTX : • After changing the receive frequency with the clarifier, pressing the [CLAR] key will set the transmit frequency to match the receive frequency.  
• After changing the transmit frequency with the clarifier, pressing the [CLAR] key will set the receive frequency to match the transmit frequency.

Press the [CLAR] key, the display will show "CLAR RX", "CLAR TX" or "CLAR RXTX" in red and the clarifier will be active.

Rotate the DIAL knob to change the offset frequency of the clarifier.

To cancel Clarifier operation, press the [CLAR] key several times.

## ⑦ Operation of the display [FUNC] knob

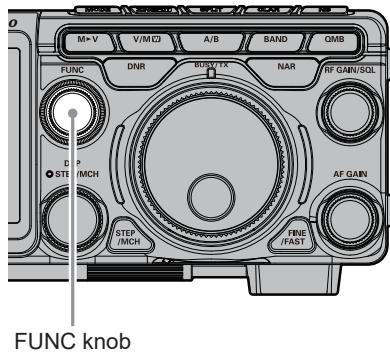
Displays the multiple functions that may be operated when the [FUNC] knob is pressed.

Normally, it is recommended to adjust the level of the spectrum scope with the [LEVEL] knob.

The last used function is recalled when the [FUNC] knob is pressed. Therefor you can easily call up and then set a function by turning the [FUNC] knob.

To change the function of the [FUNC] knob, touch the desired item that appears on the function screen when the [FUNC] knob is pressed, or turn the [FUNC] knob to select an item and then press the [FUNC] knob.

Operation of the FUNC knob



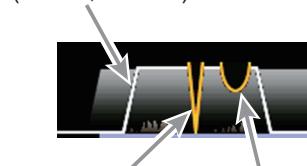
The following settings and operations can be performed with the [FUNC] control.

<b>LEVEL</b>	: Adjust the reference level to make it easier to distinguish the scope display target signal from the noise.
<b>PEAK</b>	: Adjust the Peak Signal Color Density.
<b>MARKER</b>	: ON/OFF Marker indicates the transmit and receive frequency position within the Scope Display image.
<b>COLOR</b>	: Changes the scope display color.
<b>CONTRAST</b>	: Adjust the contrast of the TFT display.
<b>DIMMER</b>	: Adjust the brightness of the TFT display.
<b>M-GROUP</b>	: Memory group selection.
<b>MIC GAIN</b>	: Adjusts the microphone gain.
<b>MIC EQ</b>	: Three-Band Parametric Microphone Equalizer is turned ON/OFF.
<b>PROC LEVEL</b>	: Adjusts the Speech Processor Gain.
<b>AMC LEVEL</b>	: Adjusts the AMC (Automatic Microphone Gain Control) Gain.
<b>VOX GAIN</b>	: VOX gain setting.
<b>VOX DELAY</b>	: VOX delay setting.
<b>ANTI VOX</b>	: Anti-VOX Settings.
<b>RF POWER</b>	: Transmit power setting.
<b>MONI LEVEL</b>	: Monitor level adjustment.
<b>KEYER</b>	: Built-in electronic keyer is turned ON/OFF.
<b>BK-IN</b>	: CW Break-in function is turned ON/OFF.
<b>CW SPEED</b>	: Adjusts the desired sending speed.
<b>CW PITCH</b>	: Adjusts the CW tone when receiving the CW signal and the side tone monitor.
<b>BK-DELAY</b>	: Adjust the hang time after the CW transmitting ends.

## ⑧ Filter Function Display

Displays the passband status of the DSP filter. The operation of WIDTH, SHIFT, NOTCH, CONTOUR etc. can be observed.

Passband status of DSP filter  
(SHIFT, WIDTH)



State of NOTCH      State of CONTOUR

Touch the filter display to reveal and check the setting value of the last used function from SHIFT, WIDTH, NOTCH, CONTOUR, and APF. The setting may be changed by turning the knob of the active function.

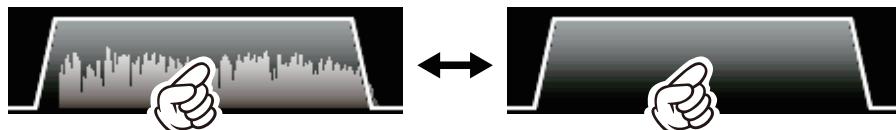
**Example:** When the last function used is the NOTCH function

Touch the filter display to display the NOTCH function setting value.

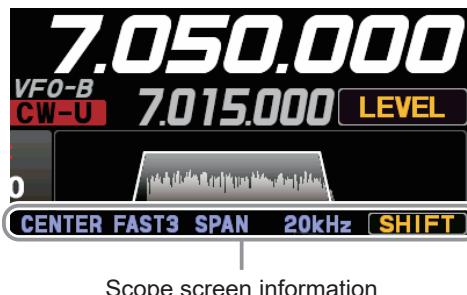


### • Turn the spectrum display OFF

To display only the DSP filter bandwidth information, press and hold the spectrum area of the filter function display to clear the spectrum view. To display it, press and hold again.



## ⑨ Information displayed on the scope screen



Scope screen information

**CENTER** : The receive frequency is always shown at the center of the screen and spectrum display. The band spectrum is shown within the range set by "SPAN".

The CENTER mode is convenient for monitoring the signal activity around the operating frequency.

**CURSOR** : Monitors the spectrum within the range set with "SPAN". When the frequency (marker) exceeds the upper limit or the lower limit of the range, the screen is automatically scrolled and the status beyond the setting range can be observed.

**FIX** : Enter the start frequency of the scope.

**SLOW1** : sweep speed Slow

**SLOW2** : sweep speed ↑

**FAST1** : sweep speed Normal

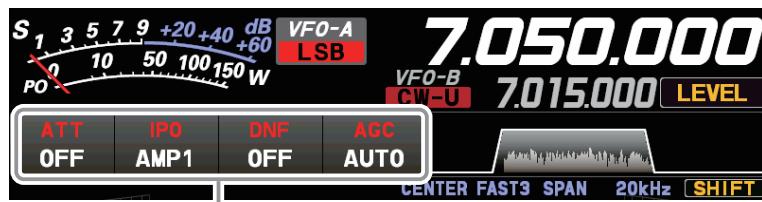
**FAST2** : sweep speed ↓

**FAST3** : sweep speed Fast

**SPAN nnnkHz** : Scope Screen frequency span (display range).

## ⑩ Important Receiver Settings

The status of various operations that are important during receive, are shown at the bottom of the display. To change a setting, touch the appropriate location on the display.



Important setting items when receiving

### • ATT (Attenuator)

Displays the current ATT (Amount of receive input signal attenuation).

When the desired signal is extremely strong or the noise level is high on a low frequency band, activate the attenuator to reduce the incoming signal or noise from the antenna.

After touching [ATT], touch the desired attenuation amount.

The attenuator is set independently for each operation band.

OFF	Attenuator is Off
6dB	The incoming signal power is reduced by 6dB (Signal voltage reduced to 1/2)
12dB	The incoming signal power is reduced by 12dB (Signal voltage reduced to 1/4)
18dB	The incoming signal power is reduced by 18dB (Signal voltage reduced to 1/8)

### • IPO

The IPO (Intercept Point Optimization) function can establish the gain of the RF amplifier section to accommodate the connected antenna and the received signal conditions. IPO can be selected from three operating conditions.

**AMP1:** One stage RF amplifier is connected.

This is a well-balanced operation of receiver sensitivity and characteristics (Approximately 10 dB gain).

**AMP2:** Two RF amplifiers are connected in series to give top priority to sensitivity (Approximately 20 dB gain).

**IPO:** The received signal is input to the IF mixer without passing through the RF amplifier. This can greatly improve receiving, especially in the harsh low band signal environment.

After touching [IPO], touch the desired operating condition.

- IPO is set independently for each operation band.
- Normally, select "AMP1".
- The IPO can not only attenuate the input signal but also improve the intermodulation characteristics. It is most effective to operate the IPO first, and then use the ATT if the signal is still too strong. The noise level can be attenuated and S/N greatly improved.



### • DNF (Digital NOTCH Filter)

The Digital NOTCH Filter (DNF) is an effective beat-canceling filter that can null out a number of interfering beat notes inside the receiver passband.

Because this is an Auto-Notch feature, there is no adjustment knob associated with this filter.

### • AGC (Automatic Gain Control)

Displays the currently selected AGC setting.

The AGC system is designed to help compensate for fading and other propagation effects. The AGC characteristics can be individually set for each operating mode. The basic objective of AGC is to maintain a constant audio output level once a certain minimum threshold of signal strength is achieved.

After touching [AGC], touch the desired time constant.

- AGC can be set for each operation band.
- The "AUTO" selection mode selects the optimum receiver-recovery time for the reception mode.

Operating Mode	AUTO AGC Selection
LSB / USB / AM / AM-N	SLOW
CW-L / CW-U / FM / FM-N DATA-FM / D-FM-N	FAST
RTTY-L / RTTY-U DATA-L / DATA-U / PSK	MID

Normally, AGC is set to "AUTO", which automatically selects the time constant according to the received signal type, but when receiving a weak signal or when there is noise and fading, the AGC action may be changed according to the reception condition at that time. Change the time constant to make received signals most audible.

Several aspects of AGC performance may be configured via the Menu. However, because AGC can have such a profound impact on overall receiver performance, we generally do not recommend any changes to the AGC Menu selections until you are thoroughly familiar with the performance of the FT-710.

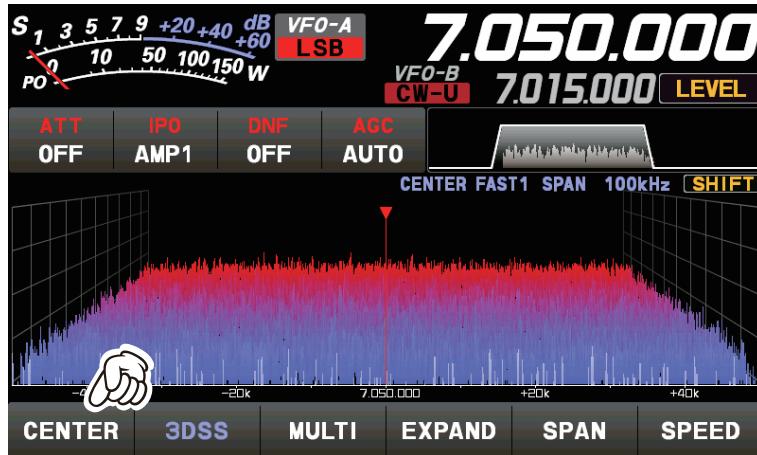


## 11 Scope Display Setting

In addition to the conventional two-dimensional waterfall spectrum display, Yaesu has added the 3-Dimension Spectrum Stream (3DSS) color display. The constantly changing band conditions and signals are depicted in real time and color. The frequency span is shown on the horizontal X axis, the vertical Y axis depicts the signals and their strengths, and the time is represented on the receding Z axis. The FT-710 operator can intuitively grasp the band and signal conditions at any instant.

### • CENTER/CURSOR/FIX

Switches the Spectrum Scope operation each time the key is touched.

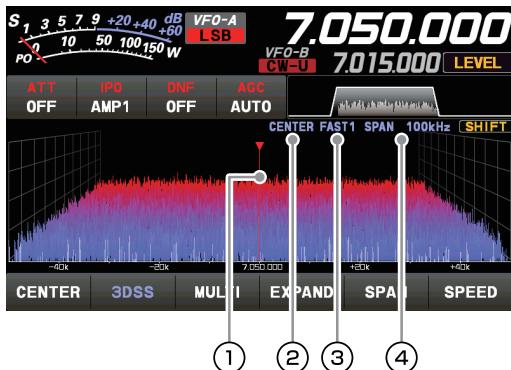


**i**

- When the display area is touched, the receive frequency is moved to that point.
- In CENTER mode, the frequency touched becomes the center.
- In CURSOR and FIX mode, the marker and the receive frequency move to the touched position.

### • CENTER

The receive frequency is always shown at the center of the screen and spectrum display. The band spectrum is shown within the range set by "SPAN". The CENTER mode is convenient for monitoring the signal activity around the operating frequency.

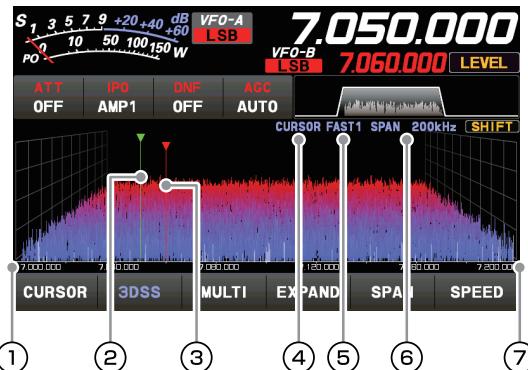


① Marker\*  
② Current display mode (CENTER)  
③ Sweep Speed  
④ Scope Screen frequency span (display range).

\*At factory shipment, marker display is ON.

### • CURSOR

Monitors the spectrum within the range set with "SPAN". When the frequency (marker) exceeds the upper limit or the lower limit of the range, the screen is automatically scrolled and the status beyond the setting range can be observed.



① The lower limit frequency of the display area.  
② Marker\* (Receive Frequency)  
③ Marker\* (Transmit Frequency)  
④ Current display mode (CURSOR)  
⑤ Sweep Speed  
⑥ Scope Screen frequency span (display range).  
⑦ The upper limit frequency of the display area.

\*At factory shipment, marker display is ON.