YAESU

The radio

HF/VHF/UHF ALL MODE TRANSCEIVER

FTX-1

Operation Manual

About this Manual

The FTX-1 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 FTX-1, 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 FTX-1, be sure to read this manual.

How to read this operation manual

Two methods are used to select an item displayed on the FTX-1 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.

i This icon indicates helpful notes, tips and information.

Table of Contents

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

⚠	**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.

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 the 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

Supplied Accessories

- Microphone
- DC Power Cord
- Spare Fuse
- Operation Manual
- World Map
- Sticker

Installation and Interconnections

Antenna Considerations

The FTX-1 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, to maintain the impedance presented to the FTX-1 antenna connector for an SWR of 1.5 or less. Careful preparation of the antenna 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 / Power Cable Connections

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

Use the DC power cable supplied with the FTX-1 to make the power connections to the power supply.

HF/50MHz 144/430MHz

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).

13.8V DC, xxA
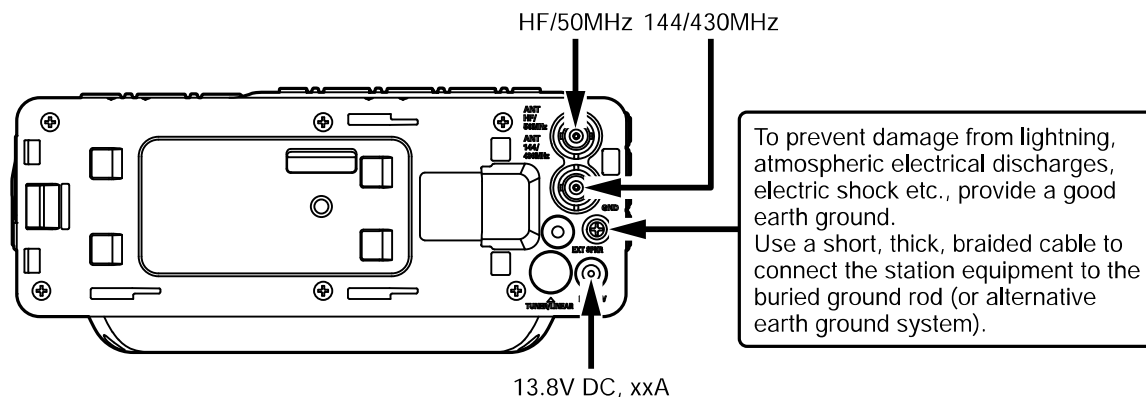
Microphone Connections

① FAST
② GND
③ PTT
④ MIC
⑤ MIC GND
⑥ +5V
⑦ UP
⑧ DOWN

6
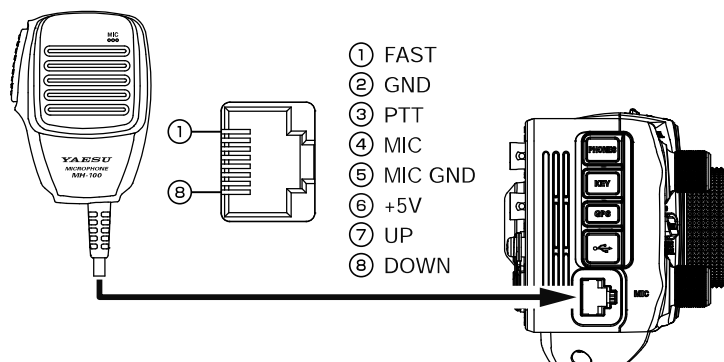
Installing the Battery Pack / Charging the Battery Pack

SBR-52LI

USB Type-C

USB Power Delivery (15V / 1.5A)

Red: Charging
Red (blink): Abnormal
Turn OFF: Charging completed
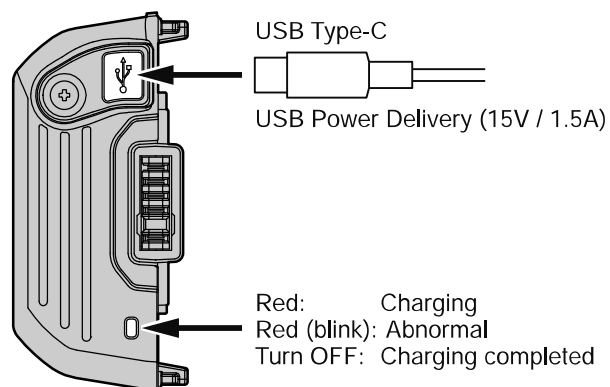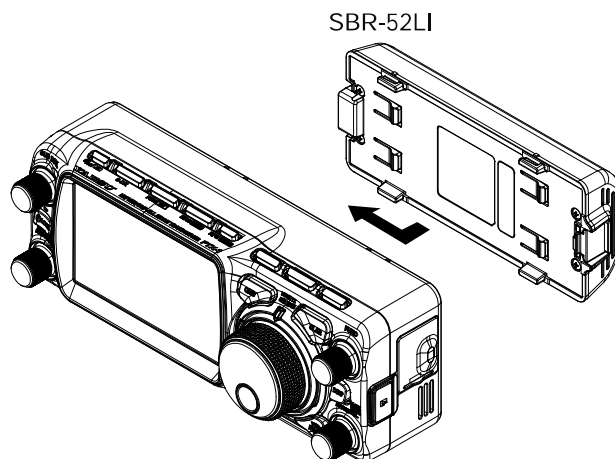
Power Amplifier Connections

SPA-1
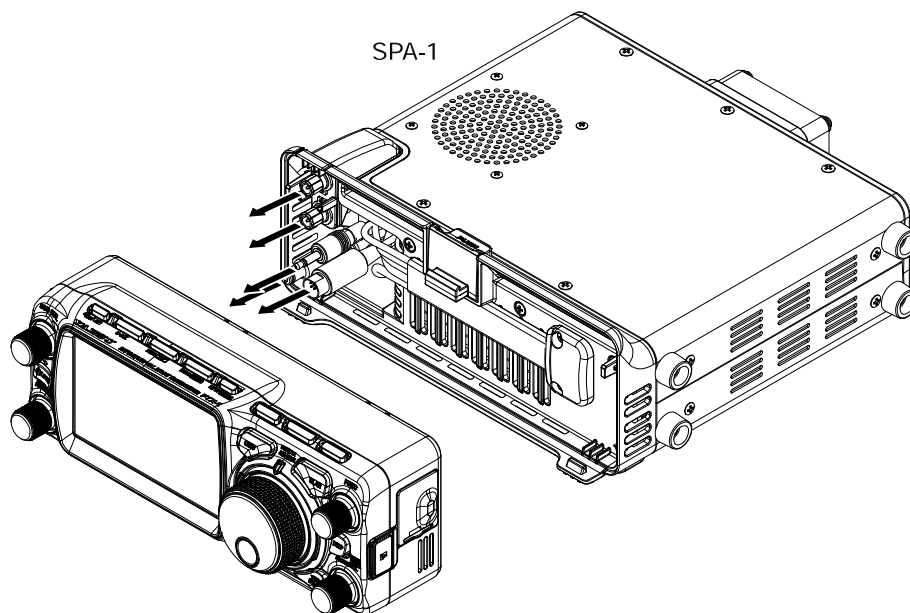
Front Panel Controls & Switches
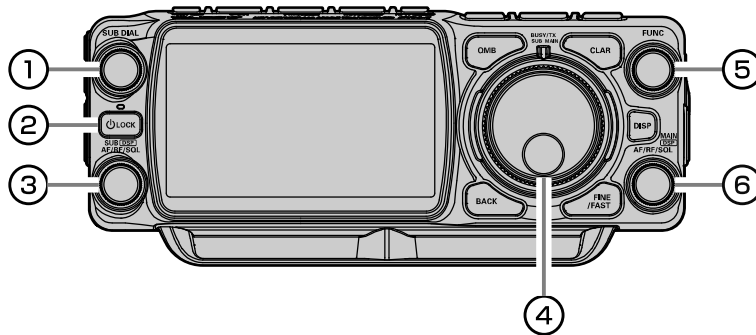
① SUB DIAL
Change the frequency of the SUB-Band.
Each press key between Main-band and Sub-band.

② ON/OFF (LOCK) Switch
Press and hold this switch for one second to turn the transceiver ON or OFF.
When the power is ON, press this button briefly to engage, or release the DIAL lock.

③ AF/RF/SQL/DSP (SUB band)
AF
Sets the audio level for SUB-Band.
RF
The RF Gain control provides manual adjustment of the gain levels for the receiver RF and IF stages, to account for noise and signal strength conditions at the moment.
SQL
The squelch system allows the back-ground noise to be muted when no signal is being received.
DSP
Press and hold this knob, enable the SHIFT, WIDTH, NOTCH, CONTOUR or APF (see below).

④ MAIN DIAL
Change the frequency of the MAIN-Band.
Rotate the MAIN DIAL knob to tune within the band, and begin normal operation.

⑤ 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.

⑥ AF/RF/SQL/DSP (MAIN band)
AF
Sets the audio level for MAIN-Band.
RF
The RF Gain control provides manual adjustment of the gain levels for the receiver RF and IF stages, to account for noise and signal strength conditions at the moment.
SQL
The squelch system allows the back-ground noise to be muted when no signal is being received.
DSP
Press and hold this knob, enable the SHIFT, WIDTH, NOTCH, CONTOUR or APF (see below).

DSP interference removal functions

SHIFT

IF SHIFT permits moving the Digital filter passband higher or lower, without changing the pitch of the incoming signal, and thus reduce or eliminate interference.

WIDTH

The IF WIDTH tuning system allows you to vary the width of the DSP IF passband, to reduce or eliminate interference.

NOTCH

The IF NOTCH filter is a highly effective system that allows removing an interfering beat note or other carrier signal from within the receiver passband.

CONTOUR

The CONTOUR filter system provides a gentle perturbation of the IF filter passband.

APF

During CW operation, when interference or noise is present, the center frequency is automatically set to the PITCH frequency, making it easier to hear the desired signal
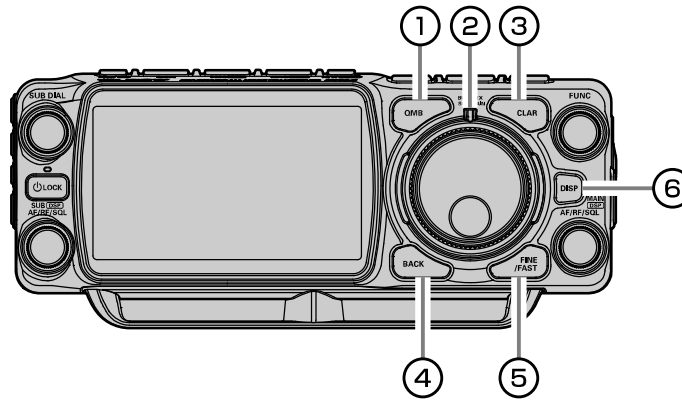
① QMB (Quick Memory Bank)

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

QMB Channel Storage

> ℹ The initial number is 5 QMB memories, but this can be increased to 10 channels.

1. Tune to the desired frequency on the VFO mode.
2. Press and hold the [QMB] key. The "beep" will confirm that the VFO contents have been written to the currently available QMB memory.

> ℹ
> • Repeated pressing and holding of the [QMB] key will write the VFO contents to successive QMB memories.
> • Once all five (or ten) QMB memories have data on them, previous data will be over-written on a first-in, first-out basis.

QMB Channel Recall

1. Press the [QMB] key.
   The current QMB channel data will be shown on the frequency display area.
   The "VFO" or "Memory Channel number" will be replaced by "QMB".
2. Repeatedly pressing the [QMB] key will step through the QMB channels:
   Press the [V/M(MW)] key to return to the VFO mode.

Changing the number of QMB channels

The QMB channels can be selected from "5 channels" or "10 channels".

1. Press the [FUNC] knob.
2. Select [OPERATION SETTING] → [BAND/SCAN] → [QMB CH].
3. Select "5ch" or "10ch".
4. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
   Touch [BACK] several times to return to normal operation.

② BUSY/TX indicator

This indicator glows green when the squelch opens, and glows red during transmit.

③ CLAR (Clarifier)

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.

The display will indicate "CLAR RX" → "CLAR TX" → "CLAR RXTX" in red, each time the [CLAR] key is pressed, and the clarifier will activate.

Turning the MAIN dial changes the clarifier offset frequency.

To turn the clarifier OFF, repeatedly press the [CLAR] key until the Clarifier status is not displayed.

To clear out the programmed clarifier offset altogether, and reset it to "zero," press and hold the [CLAR] key.

RX Clarifier

If the transmit frequency of the contact station deviates, this receiver clarifier frequency can be changed leaving this transmit frequency unchanged.

1. Press the [CLAR] key.
2. Rotate the MAIN dial knob to change only the receive frequency.

> ℹ Offsets of up to ±9990Hz may be set using the Clarifier.

3. To cancel Clarifier operation, press the [CLAR] key three times.
● Since the offset amount is memorized, when the clarifier function is operated again, the same offset amount is set.

TX Clarifier

The transmit frequency can be changed without moving the receive frequency of the transceiver.

Normally, the clarifier is used to move only the receive frequency and compensate for the deviation of the transmission frequency of the contact station, however alternatively, only the transmit frequency can be moved without changing the transmitter.

When responding to an operator that is called by a large number of stations such as in a contest, etc., the response rate may increase if the transmit frequency is moved slightly.

1. Press the [CLAR] key twice.
2. Rotate the MAIN dial knob to change only the transmit frequency.

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i • The "CLAR TX" will appear in the display, and the programmed offset will be applied to the transmit frequency.
• Offsets of up to ±9990Hz may be set using the Clarifier.

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3. To cancel Clarifier operation, press the [CLAR] key twice.

To clear out the programmed clarifier offset altogether, and reset it to "zero", press and hold the [CLAR] key.

④ BACK

Press the this key to return to the previous screen.

⑤ FINE/FAST

FINE Tuning (Tuning of 1Hz)

In the LSB, USB, CW-L, CW-U, DATA-L, DATA-U, RTTY-L, RTTY-U or PSK mode, the frequency can be adjusted in 1 Hz steps.

● The AM, AM-N, FM, FM-N, DATA-FM and D-FM-N modes may be adjusted in 10 Hz steps.

1. Press the [FINE/FAST] key.
   The "FINE" indicator lights in the display.
2. Rotate the MAIN dial knob.
3. Press the [FINE/FAST] key again to return to the original frequency step.

FAST Tuning (Tuning of 10 times)

The frequency can be adjusted in 10 times steps.

1. Press and hold the [FINE/FAST] key.
   The "FAST" indicator lights in the display.
2. Rotate the MAIN dial knob.
3. Press the [FINE/FAST] key to return to the original frequency step.

⑥ DISP

Switches the Operation screen each time the key is pressed.

Press and hold the [DISP] key to hide all displays on the screen.

Press the any key or konb to show the hidden displays.

Top Panel Controls & Switches
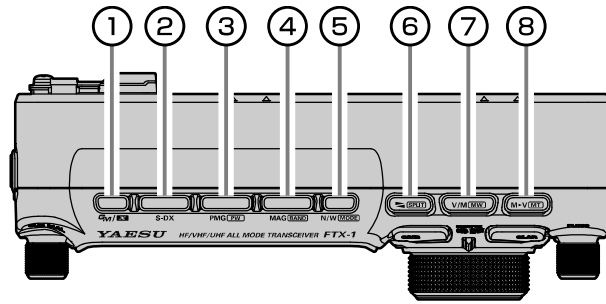
① GM/X

Turn the GM (group monitor) function ON/OFF.

② S-DX

Enables the Super DX function and increases sensitivity.

③ PMG(PW)

Press

Displays PMG (Primary Memory Group).

Press and hold

Register the displayed frequency in PMG.

④ MAG(BAND)

Press

DEach key press switches the operating frequency band.

Press and hold

The operation band selection screen appears on the display, so touch the desired band. When you touch it, the band will be confirmed for about 1 second and then return to the operating screen.

⑤ N/W(MODE)

This key is used to set the DSP (digital) IF filters to Narrow bandwidth. Press this key again to return the bandwidth control to the WIDTH system.

Press and hold the this key or touch the operation mode area, the operation mode selection screen appears on the display, so touch the desired mode or rotate the [FUNC] knob to select the desired mode.

ℹ	• Touch [PRESET] to display the settings that apply to the FT8 operation. • When changing modes from SSB to CW, the frequency will shift on the display, even though the actual tone that is heard does not change. This shift represents the BFO offset between the "zero beat" frequency and the audible CW pitch (tone). The pitch is programmed via Menu item "CW FREQ DISPLAY".

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⑥ ➤ (SPLIT)

A powerful capability of the FTX-1 is its flexibility in Split Frequency operation using the Main-Band and SUB-Band frequency registers. This makes the FTX-1 especially useful for high-level DX-peditions. The Split operation capability is very advanced and easy to use.

1. Set the MAIN-Band frequency to the desired transmit frequency.
2. Press and hold the [SPLIT] key, and then set the desired receive frequency.

During Split operation, the MAIN-Band register will be used for reception, while the SUB-Band register will be used for transmission. Press and hold the [SPLIT] key again to cancel Split operation.

⑦ V/M(MW)

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

⑧ M ▶ V

Data saved in a memory channel can be transferred to the VFO.
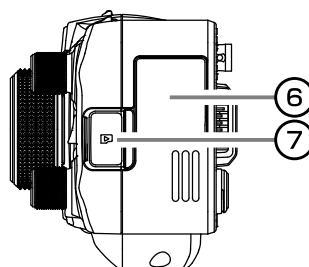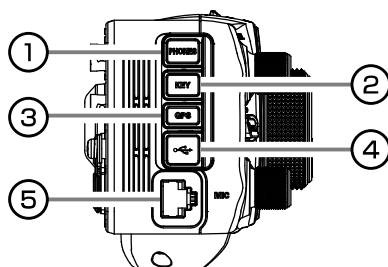
① PHONES Jack

Connect headphones to this standard ϕ3.5 stereo jack.

Inserting a headphone plug into this jack will deactivate the internal and external speakers.

> ⚠ When wearing headphones, we recommend that you turn the AF Gain levels down to their lowest settings before turning power ON, to minimize the impact on your hearing caused by audio "pops" during switch-on.

```
AUDIO (VFO-A/B)
AUDIO (VFO-A/B)
                    GND
```
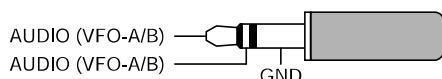
② KEY Jack

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
NC
        GND
```
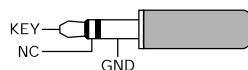
When connecting a single straight key

```
DOT
DASH
        COMMON
```

When connecting an electronic keyer paddle

③ GPS Jack

This jack connects an optional GPS Unit.

④ USB (Type-C)

Connecting to a computer from this jack with a commercially available USB cable allows remote control by CAT commands from a computer.

⑤ MIC

This 8-pin jack accepts input from a microphone utilizing the traditional YAESU HF transceiver pinout.

```
① FAST
② GND
③ PTT
④ MIC
⑤ MIC GND
⑥ +5V
⑦ UP
⑧ DOWN
```
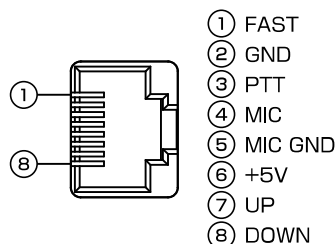
⑥ Bluetooth Unit

Installing the optional Bluetooth unit.

⑦ micro-SD card slot

A commercially available micro SD card may be used to save transceiver settings, to save the memory contents, to screen capture and to update the firmware.

> ⚠ • The micro-SD card is not provided with the product.
> • Not all micro-SD cards sold commercially are guaranteed to work with this transceiver.

Rear Panel
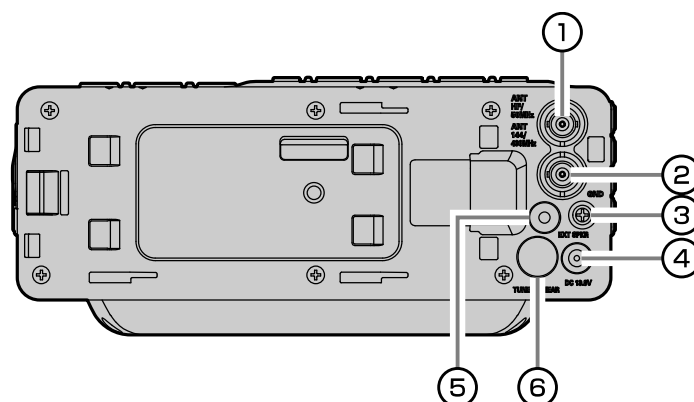
① ANT (HF/50MHz)
This is the BNC-type coaxial connnector for the HF band to 50MHz antennas (50 ohms).

② ANT (144/430MHz)
This is the BNC-type coaxial connnector for the 144MHz band and 430MHz band antennas (50 ohms).

③ GND
Use this terminal to connect the transceiver to a good earth ground, for safety and optimal performance.

④ DC 13.8V
This is the DC power supply connection for the transceiver.

Use the supplied DC cable to connect directly to a DC power supply.

⑤ EXT SPKR
This 3.5-mm, 2-contact, jack provides audio output for a external loudspeaker.

SIGNAL   GND
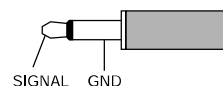
⑥ TUNER/LINEAR
This 10-pin output jack is used to connect to the External Automatic Antenna Tuner or a Linear Amplifier.

MH-100 Microphone Switches

① **PTT** Switch

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

② **Microphone**

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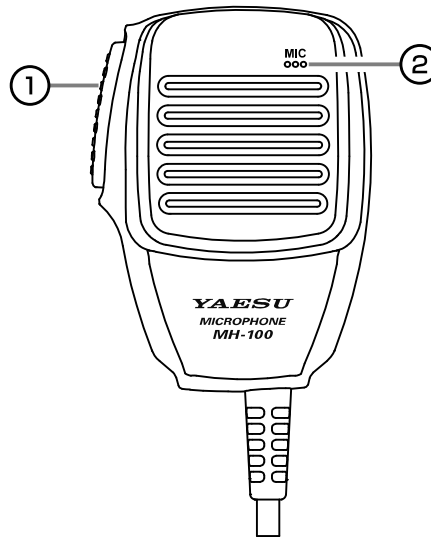
Display Indications

Meter Display

S-Meter

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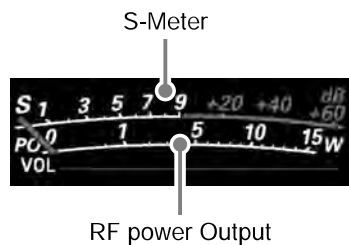
When the meter display screen is touched, the transmit meter selection screen is shown (the default setting is "PO").

Touch the meter area

⬇

Compression level

RF power Output   Relative ALC voltage

Standing Wave Ratio   Final amplifier drain voltage
Final amplifier drain current
Final amplifier temperature
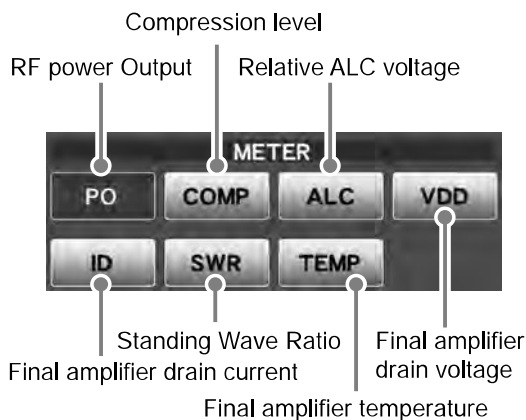
Operation MODE Display

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

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

Frequency Display

Displays the transmit and receive frequencies.

Keyboard Frequency Entry

1. Touch the "Hz" area of the frequency display.
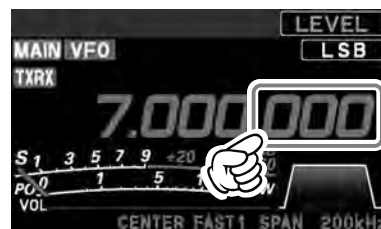
2. Enter the frequency using the numeric keys.

Erases the rightmost digit.

The entered frequency is confirmed.

The display returns to the previous screen when back is touched.

Clear all entered numbers.
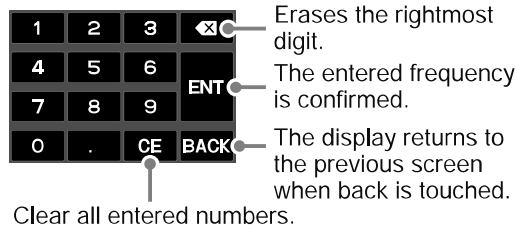
- If there is no operation within 10 seconds, the input will be canceled.

3. Touch [ENT] to confirm.
   - A short-cut for frequencies ending in zero - touch [ENT] after the last non-zero digit.

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 5 seconds, the frequency will be fixed.

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

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.
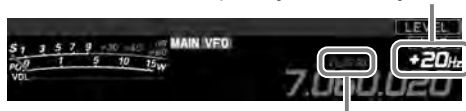
CLAR RX : Changes only the receive frequency while leaving the transmit frequency as it is.
CLAR TX : Changes only the transmit frequency while leaving the receive frequency as it is.
CLAR RXTX : • After changing the receive frequency with the clarifier, pressing the [CLAR] key twice will set the transmit 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" 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.
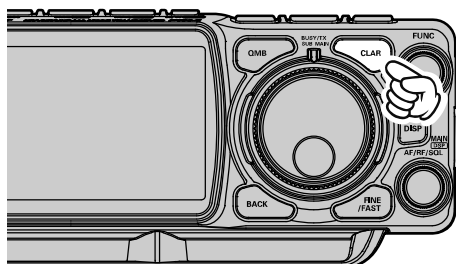
Filter Function Display

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

Passband status of DSP filter
(SHIFT, WIDTH)
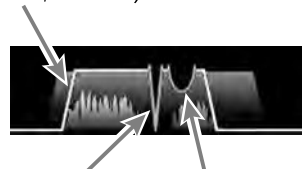
State of NOTCH   State of CONTOUR

SSB Mode   CW Mode

DSP filter bandwidth

RTTY Mode   PSK/DATA Mode

Turn the spectrum display OFF

To display only the Digital 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.
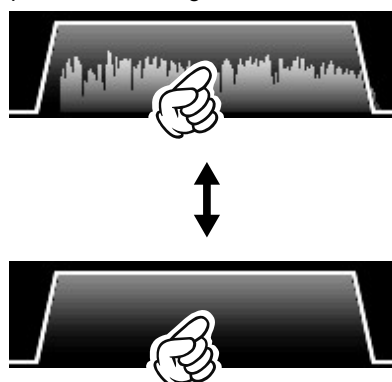
Important Receiver Settings

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)

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.
Touch [ATT] to turn the ATT ON or OFF.
The ATT is only available in the HF - 50MHz band.

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.
The IPO is only available in the HF - 50MHz band.

ℹ️
- 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 djustment 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

ℹ️
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

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❗
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 FTX-1.

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 FTX-1 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.
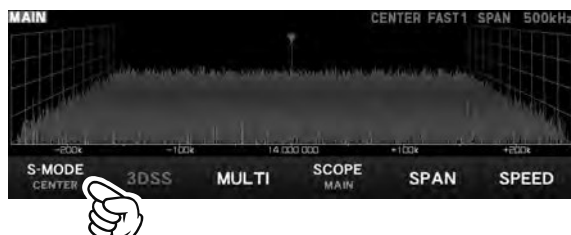
ℹ️
- When the display area is touched, the receive frequency is moved to that point.
- In CENTER mode, the frequency touched becomes the center.
- In CURSOR and FIX mode, the marker and the receive frequency move to the touched position.

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.

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

To use Fixed Mode, enter the start frequency of the scope.

3DSS

Switch between the 3DSS display and the waterfall display.
The display will change each time it is touched:
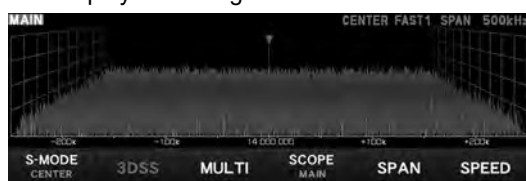
3DSS type
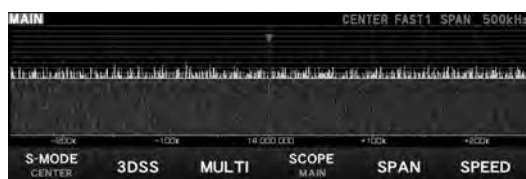
Waterfall type

MULTI

In addition to the scope display, the oscilloscope and AF-FFT are also presented.
Touch again to return to the original screen.

Touch this area to set the attenuator.

Touch this area to set the level and sweep speed.

SPAN

Set the frequency span (display range) of the scope screen. After touching, select the desired span.

ℹ️
The display level changes when SPAN is changed, so reset the optimum display level with [LEVEL] each time.

SPEED

Sets the Scope Display sweep speed. After touching, select the desired speed.

STOP : Touch [STOP] to temporarily hold the 3DSS display and waterfall display operations. Touch [STOP] again or another speed, to release the hold.

Set with the FUNC knob

Operate the [FUNC] knob to make the following settings related to the display.

LEVEL   : Adjust the LEVEL of the scope for the best image on the screen.
PEAK   : Adjust the color density with respect to the signal level on the scope screen in 5 steps (LV1 to LV5).
MARKER   : ON/OFF Marker indicates the transmit and receive frequency position within the Scope Display image.
COLOR   : Changes the scope screen display color from 11 types.
CONTRAST : Adjust the TFT display contrast (difference between light and dark) in 21 steps.
DIMMER   : Adjust the TFT display brightness in 21 steps.
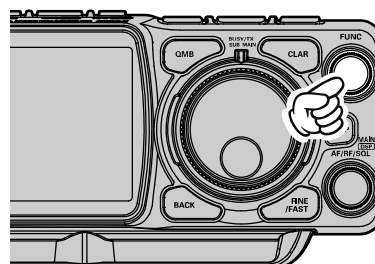
The last function used is retained in the [FUNC] knob so it can be easily set by operating the [FUNC] knob. Normally, it is suggested to utilize the [FUNC] knob as the [LEVEL] knob for the spectrum scope.

LEVEL

Adjust the level to make it easier to distinguish between the desired signal and noise. The display level changes depending on antenna gain, condition, frequency band, SPAN and so on.

Always adjust the LEVEL for the best image on the screen.

Press the [FUNC] knob then touch [LEVEL], and then turn the [FUNC] knob to select the desired level.
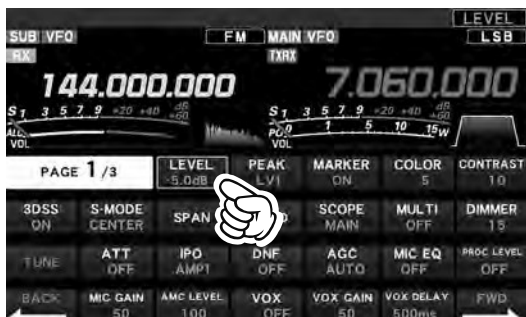
i
• On the 3DSS screen, weak signals may be more easily observed by adjusting the LEVEL so that the noise level can be seen only a little, so always adjust the LEVEL and use it at the optimum position.
• Be sure to make adjustments when changing bands or changing SPAN.
• If the level is changed, the signal strength also appears to change, but it does not affect the actual signal input level.

PEAK

The color density may be adjusted to the level of the signal. Touch PEAK and then select the desired color concentration.

Press the [FUNC] knob then touch [PEAK], and then turn the [FUNC] knob to select the desired level.

LV1 :   Thin
LV2 :   ↑
LV3 :   Normal
LV4 :   ↓
LV5 :   Dark

MARKER

Displays markers that indicates the position of the current receive and the transmit frequencies in the spectrum.

Press the [FUNC] knob then touch [MARKER] to turn the MARKER ON or OFF. Normally leave it ON.

COLOR

The display color of the scope screen can be changed.

Press the [FUNC] knob then touch [COLOR], then touch the desired color from the color selection screen.

The Display Color selection screen will disappear automatically after about 5 seconds.

Adjust contrast

Adjust the contrast of the TFT display.

Press the [FUNC] knob then touch [CONTRAST], and then turn the [FUNC] knob to adjust the contrast.

Adjusting the brightness (DIMMER)

Adjust the brightness of the TFT display.

Press the [FUNC] knob then touch [DIMMER], and then turn the [FUNC] knob to adjust the brightness.

Voice Communications (SSB and AM)

When transmitting in SSB or AM mode

The FTX-1 transmit audio circuit can be set to the optimum operating level by individually adjusting the input and output gains of the microphone amplifier.

> **i** The AMC (Automatic Microphone Gain Control) regulates the microphone audio so that distortion does not occur, even if excessive audio is input.

1. Adjust Microphone gain

Touch the Meter Display and then touch "ALC" to select the ALC Meter.
1. Press the [FUNC] knob.
2. Touch [MIC GAIN].
3. Key TX and adjust the [FUNC] knob to set the input level of the Microphone Amplifier to the position where the ALC Meter needle does not exceed the ALC zone on the audio peaks.
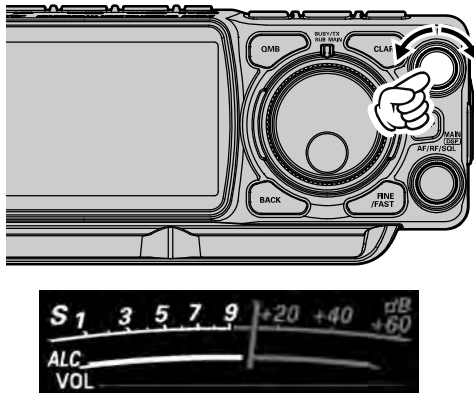
2. Adjust the AMC gain

Touch the Meter Display and then touch "COMP" to select the COMP Meter.
1. Press the [FUNC] knob.
2. Touch [AMC LEVEL].
3. Activate the transmit and speak into the microphone while adjusting the AMC level with the [FUNC] knob.
   • Adjust the AMC to a point where the COMP Meter deflection does not exceed "10dB" on the audio peaks.
Setup is completed.

> **!** The AMC function only works in LSB, USB, AM, AM-N, DATA-L, DATA-U and PSK modes.
> It does not work in other modes.

Speech Processor

The FTX-1 Speech Processor is designed to increase "talk power" by increasing the average power output of the transmitted SSB signal.

> **!** The speech processor function only works in LSB/USB mode. It does not work in other modes.

1. Adjust the MIC gain.
2. Press the [FUNC] knob.
3. Touch [PROC LEVEL].

4. Touch the Meter area on the display to select the "COMP" meter.
   The transmit meter becomes the "COMP" meter.
5. Press the PTT switch on the microphone, and speak into the microphone in a normal voice level.
6. Adjust the [FUNC] knob to set the compression level within 10 dB.
   • The Transmit Monitor is a helpful aid to verify proper adjustment of the Compression level.
   • The "PROC" indicator lights in the display.
Rotate the [FUNC] knob to the left to turn the speech processor function "OFF".

> **i** The speech processor can distort the transmit waveform when used to increase the average TX power, so it is not used in normal communication.

RF Power output control

Turn the [FUNC] knob to adjust the RF power output.

1. Press the [FUNC] knob.
2. Touch [RF POWER].

3. Rotate the [FUNC] knob to adjust the RF power.

> **!** When transmitting in the AM mode, set a maximum (carrier) power output of 2.5 Watts.

● Setting of maximum transmission output

The maximum transmit power can be set for each of the HF Bands, the 50MHz band 144MHz band, 430MHz band and the AM mode. Set it according to operating conditions, when high transmit power is not needed.

1. Press the [FUNC] knob.
2. Select [OPERATION SETTING] → [TX GENERAL].
3. Rotate the [FUNC] knob to select the item you want to set.

HF MAX POWER (HF band)
(The setting range is 0.5 to 10 W)

50M MAX POWER (50 MHz band)
(The setting range is 0.5 to 10 W)

70M MAX POWER (70 MHz band)
(The setting range is 0.5 to 5 W)

144M MAX POWER (144 MHz band)
(The setting range is 0.5 to 10 W)

430M MAX POWER (430 MHz band)
(The setting range is 0.5 to 10 W)

AM HF/50 MAX POWER (AM mode)
(The setting range is 0.5 to 2.5 W)

50M V/U MAX POWER (AM mode)
(The setting range is 0.5 to 2.5 W)

4. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
5. Touch [BACK] several times to return to normal operation.

MONI (Monitor)

Use the Monitor feature to listen to the quality of the transmitted signal.

1. Press the [FUNC] knob.
2. Touch [MONI LEVEL].

3. Rotate the [FUNC] knob to adjust the Monitor level.

> **!** Transmit audio monitor is not activate in the FM, FM-N, DATA-FM and D-FM-N modes.

● If you are using the speaker for monitoring, instead of headphones, excessive advancement of the Monitor level can cause feedback to occur. Additionally, this feedback can cause the VOX system to hang up in a loop, making it impossible to return to receive. Therefore, we recommend the use of headphones, if at all possible, or the minimum usable setting of the Monitor level, if the speaker must be used.

4. To cancel the monitor function, turn the [FUNC] knob to set "MONI LEVEL" to "OFF".

● Because the Monitor feature samples the transmitter IF signal, it can be very useful for checking the adjustment of the Speech Processor or Parametric Equalizer on SSB, and for checking the general signal quality on AM.

CW Mode Operation

The impressive CW operating capabilities of the FTX-1 permit operating with an Electronic Keyer Paddle, a "Straight Key", or a computer based keying device.

1. Before starting, connect the key cable to the left side of the panel KEY jack.
2. Set the operating mode to CW-U.
   The normal "CW" mode utilizes USB-side carrier injection.
3. Rotate the Main Tuning Dial knob to select the desired operating frequency.
4. Press the [FUNC] knob.
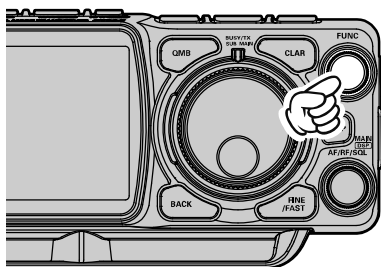
5. Touch [BK-IN] to turn ON the BK-IN function.
6. Touch [MONI LEVEL] and then turn the [FUNC] knob to adjust the volume of the monitor.
7. When using the keyer paddle, press the [FUNC] knob and then touch [KEYER] to turn ON the Electronic Keyer.
8. When the key or the keyer paddle is pressed, the transmitter will automatically be engaged.

   • Press [FUNC], then touch [CW SPEED], and rotate the [FUNC] knob to set the desired sending speed.
   • As shipped from the factory, the FTX-1 CW TX/RX is configured for "Semibreak-in" operation. However, using Menu item "CW BK-IN TYPE", this setup may be changed to full break-in (QSK) operation, wherein the switching is quick enough to hear incoming signals in the spaces between the dots and dashes of the transmission. This may prove very useful during contest and traffic handling operations.

Adjusting the Sidetone Audio level

The CW sidetone audio level may be adjusted by press the [FUNC] knob, then touch [MONI LEVEL], and then rotating the [FUNC] knob.

CW Delay Time Setting

During semi-break-in (not QSK) operation, the hang time of TX, after the transmitting ends may be adjusted to a comfortable value corresponding with the sending speed.

1. Press the [FUNC] knob, then touch [BK-DELAY].
2. Start sending and rotate the [FUNC] knob to adjust the hang time for comfortable operation.
3. Approximately 1 second after selection, the settings are saved and the normal operation screen returns.

CW Spotting (Zero-Beating)

"Spotting" (zeroing in on another CW station) is a handy technique to ensure the transceiver and the other station are operating precisely on the same frequency.

The Tuning Offset Indicator in the display may also be moved to adjust the receiver frequency to center on the incoming station with the CW pitch corresponding to that of the transmit signal.

| i | Turn OFF the Tuning Offset Indicator using Menu item "CW INDICATOR". |

Setting of the Electronic Keyer

Adjusting the Keyer Speed

Keyer speed can be adjusted by rotating the [FUNC] knob.

Press [FUNC], then touch [CW SPEED], and rotate the [FUNC] knob to set the desired sending speed (4 wpm - 60 wpm).
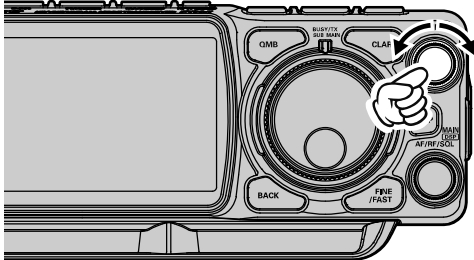
Setting the Keyer Weight (Dot/Dash) Ratio

This Menu item may be used to adjust the dot/dash ratio for the built-in Electronic Keyer. The default weighting is 3:0 (a dash is three times longer than a dot).

1. Press the [FUNC] knob.
2. Select [CW SETTING]→[KEYER]→[CW WEIGHT].
3. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to set the weight to the desired value. The available adjustment range is a Dot/Dash ratio of 2.5 - 4.5 (default value: 3.0).
4. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
5. Touch [BACK] several times to return to normal operation.

Reversing the Keyer Polarity

The Keyer polarity can be reversed easily in the Menu mode without changing the keyer connections (the default setting is "NOR"). Example: for left-handed operators in a contest.

> ❗ In the Keyer modes described on the chart at the right, BUG and OFF modes are not changed.

1. Press the [FUNC] knob.
2. Select [CW SETTING] → [KEYER].
3. Select [KEYER DOT/DASH].
4. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to set the "REV".
5. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
6. Touch [BACK] several times to return to normal operation.

Selecting the Keyer Operating Mode

The configuration of the Electronic Keyer may be customized for the FTX-1. This permits utilization of Automatic Character Spacing (ACS), if desired. This allows the use of an electronic keyer via the front jack and a computer-driven keying line via the rear panel.

1. Press the [FUNC] knob.
2. Select [CW SETTING]→[KEYER].
3. Select [KEYER TYPE].
4. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to set the keyer to the desired operating mode, see the table below.
5. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
6. Touch [BACK] several times to return to normal operation.

OFF	The built-in Electronic Keyer is turned OFF ("straight key" mode).
BUG	Dots will be generated automatically by the keyer, but dashes must be sent manually.
ELEKEY-A	A code element ("Dot" or "Dash" side) is transmitted upon releasing both sides of the paddle.
ELEKEY-B	Releasing both sides of the paddle transmits the currently generated "Dash" side followed by "Dot" side (or reverse order).
ELEKEY-Y	Pressing both sides of the paddle transmits the currently generated "Dash" side followed by "Dot" side (or reverse order). While transmitting the "Dash" side, the first transmitted "Dot" side will not be stored.
ACS	Same as "ELEKEY" except that the spacing between characters is precisely set by the keyer to be the same length as a dash (three dots in length).

FM Mode Operation

Repeater Operation

The FTX-1 may be operated on 29MHz, 50MHz, 144MHz and 430MHz repeaters.

1. Set the operating mode to FM.
2. Set to the desired repeater output frequency (downlink from the repeater).
3. Press the [FUNC] knob.
4. Select [RADIO SETTING] → [MODE FM] → [RPT SHIFT].
5. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select the desired repeater shift direction. The selections are:

   "–" → "SIMP" → "+" → "ARS"

   ● To program the proper repeater shift, use Menu items "RPT SHIFT(28MHz)", "RPT SHIFT(50MHz)", "RPT SHIFT(144MHz)" and "RPT SHIFT(430MHz)"as appropriate.
6. Rotate the [FUNC] knob to select [SQL TYPE].
7. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select "ENC".
8. Rotate the [FUNC] knob to select [TONE FREQ].
9. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select the desired CTCSS Tone to be used. A total of 50 standard CTCSS tones are provided (see the CTCSS Tone Frequency Chart).
10. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
11. Touch [BACK] several times to return to normal operation.

Press and hold the microphone PTT switch to begin transmitting.

Tone Squelch Operation

The "Tone Squelch" may be activated to keep the receiver silent until an incoming signal modulated with a matching CTCSS tone is received. The receiver squelch will then open in response to reception of the required tone.

1. Set the operating mode to FM.
2. Set the transceiver to the desired frequency.
3. Press the [FUNC] knob.
4. Select [RADIO SETTING] → [MODE FM] → [SQL TYPE].
5. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select "TSQ".
6. Rotate the [FUNC] knob to select [TONE FREQ] .
7. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select the desired CTCSS Tone to be used. A total of 50 standard CTCSS tones are provided (see the CTCSS Tone Frequency Chart).
8. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
9. Touch [BACK] several times to return to normal operation.

CTCSS Tone Frequency (Hz)											
67.0	69.3	71.9	74.4	77.0	79.7	82.5	85.4	88.5	91.5	94.8	97.4
100.0	103.5	107.2	110.9	114.8	118.8	123.0	127.3	131.8	136.5	141.3	146.2
151.4	156.7	159.8	162.2	165.5	167.9	171.3	173.8	177.3	179.9	183.5	186.2
189.9	192.8	196.6	199.5	203.5	206.5	210.7	218.1	225.7	229.1	233.6	241.8
250.3	254.1	-	-	-	-	-	-	-	-	-	-
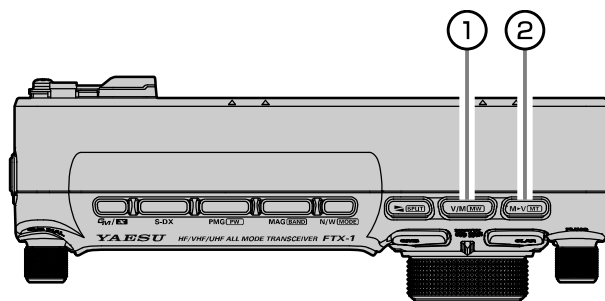
① V/M (MW)

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

Memory Storage

1. Set the frequency, mode, and status, as desired.
2. Press and hold the [V/M (MW)] key.
   The memory channel list will be displayed.
3. From the channel list, touch and select the desired memory channel
   Alternately, the memory channel may be selected by rotating the [FUNC] knob.

M-001	7.050.000	LSB		NAME	MODE
M-002	14.195.000	USB		SCAN MEMORY	FREQ
M-003	21.150.000	USB		SPLIT MEMORY	DELETE
M-004	--.---.--	--------		M-GRP	BACK

4. Press and hold the [V/M (MW)] key to store the frequency and other data into the selected memory channel.
   ● This method may also be used to overwrite the contents previously stored to a memory channel.
5. Touch [BACK], the memory is stored and the screen returns to normal.

> ⚠ The information saved in the memory may be lost due to incorrect operation, static electricity or electrical noise. Data may also be lost due to component failures and repairs. Make sure to write down the information registered in the memories on a piece of paper or by using a SD card.

② M►V (MT)

Data saved in a memory channel can be transferred to the VFO.

Moving Memory Data to the VFO register

The contents of the currently selected Memory Channel may be transferred into the VFO register:

1. Press and hold the [V/M (MW)] key while operating in either VFO mode, or memory channel mode.
   The memory channel list will be displayed.
2. From the channel list, touch the memory channel to select it and transfer it to the VFO.
   Alternately, the memory channel may be selected by rotating the [FUNC] knob.
3. Press the [M►V] key, the data in the selected memory channel will now be transferred to the MAIN-Band VFO, press and hold the [M►V] key, the data in the selected memory channel will now be transferred to the SUB-Band VFO.

Transfer last used memory to VFO

When in VFO mode, the last used VFO memory may be copied to VFO.

Press the [M►V] key → Copy to the upper VFO

Recall a Memory Channel other than the last used VFO frequency

Rotate the [FUNC] knob to select a memory
1. Press the [V/M（MW）] key.
2. Rotate the DIAL knob, to select the desired memory channel.

Touch the display to select a memory
1. Press and hold the [V/M（MW）] key.
   The memory channel list will be displayed.

M-001	7.050.000	LSB		NAME	MODE
M-002	14.195.000	USB		SCAN MEMORY	FREQ
M-003	21.150.000	USB		SPLIT MEMORY	DELETE
M-004	---.---.---	-------		M-GRP	BACK

2. From the channel list, touch and select the desired memory channel.
   Alternately, the memory channel may be selected by rotating the [FUNC] knob.
3. Press the [FUNC] knob.
4. To exit from memory mode and return to the VFO mode, press the [V/M（MW）] key.

Memory Tune Operation

The frequency may be freely tuned off from any memory channel in a "Memory Tune" mode, this is similar to VFO operation. So long as you do not over-write the contents of the current memory, Memory Tune operation will not alter the contents of the memory channel.

1. Press the [V/M（MW）] key to recall any memory channel.
2. Press and hold the [M►V].
   The "**MT**" notation will appear instead of the Memory channel number "nnn".
3. Rotate the DIAL knob; you will now observe that the memory channel frequency is changing.
4. Press and hold the [M►V] key to return to the originally memorized frequency of the current memory channel.

Erasing Memory Channel Data

The contents written to the memory channel may be erased.

1. Press and hold the [V/M (MW)] key.
   The memory channel list will be displayed.
2. From the channel list, touch and select the memory channel to be erased.
   Alternately, the memory channel may be selected by rotating the [FUNC] knob.
3. Touch [DELETE] to clear the contents of the selected memory channel.

M-001	7.050.000	LSB		NAME	MODE
M-002	14.195.000	USB		SCAN MEMORY	FREQ
M-003	21.150.000	USB		SPLIT MEMORY	DELETE
M-004	---.---.---	-------		M-	BACK

4. Touch [BACK] to erase the contents of the selected memory channel.

> ⚠ Memory channels "M-001" (and "5-01" through "5-15") cannot be erased.

60-Meter (5 MHz) Band

Memory channels "5-01" through "5-15" are pre-programmed, at the factory, with the permitted frequencies in the 5 MHz band, and the USB, CW-U or DATA-U mode is automatically selected on these channels.

These channels appear after the "last" PMS channel ("P-50U").

Channel Number	Frequency
5-01	5.332.000 MHz (USB)
5-02	5.348.000 MHz (USB)
5-03	5.358.500 MHz (USB)
5-04	5.373.000 MHz (USB)
5-05	5.405.000 MHz (USB)
5-06	5.332.000 MHz (CW-U)
5-07	5.348.000 MHz (CW-U)
5-08	5.358.500 MHz (CW-U)
5-09	5.373.000 MHz (CW-U)
5-10	5.405.000 MHz (CW-U)
5-11	5.332.000 MHz (DATA-U)
5-12	5.348.000 MHz (DATA-U)
5-13	5.358.500 MHz (DATA-U)
5-14	5.373.000 MHz (DATA-U)
5-15	5.405.000 MHz (DATA-U)

The multiple settings required for FT8 operation may be set with one touch of [PRESET]. In addition, the FT8 settings can be returned to the prior settings with one touch.

1. Touch the operation mode area, or press and hold the [N/W(MODE)] key.
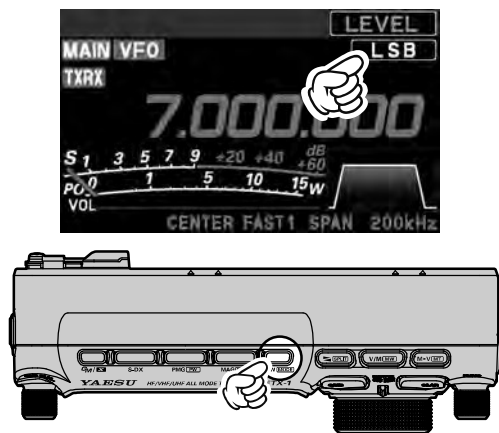
2. The operation MODE selection screen appears on the display, then touch [PRESET], or rotate the [FUNC] knob to select [PRESET] then press the [FUNC] knob.

Touch [PRESET] or select [PRESET] via the [FUNC] knob, the settings will be confirmed and then the operating screen will return.

3. Touch [PRESET] again, the [PRESET] settings are canceled and the original settings are restored.

The color of the [PRESET] shows the current state.

Blue: Enable the [PRESET] settings
Gray: Disable the [PRESET] settings

• Change the [PRESET] setting

Five channels of the 15 listed in the table below are registered in [PRESET]. These settings may be changed as needed.

Function	Available Settings (Default: Bold)
CAT-1 RATE	4800bps / 9600bps / 19200bps / **38400bps** / 115200bps
CAT-1 TIME OUT TIMER	**10msec** / 100msec / 1000msec / 3000msec
CAT-1 CAT-3 STOP BIT	**1bit** / 2bit
AGC FAST DELAY	20msec - **160msec** - 4000msec (20msec/step)
AGC MID DELAY	20msec - **500msec** - 4000msec (20msec/step)
AGC SLOW DELAY	20msec - **1500msec** - 4000msec (20msec/step)
LCUT FREQ	OFF / **100Hz** - 1000Hz (50Hz/step)
LCUT SLOPE	6dB/oct / **18dB/oct**
HCUT FREQ	OFF / 700Hz - **3200Hz** - 4000Hz (50Hz/step)
HCUT SLOPE	6dB/oct / **18dB/oct**
USB OUT LEVEL	0 - **50** - 100
TX BPF SEL	**50-3050Hz** / 100-2900Hz / 200-2800Hz / 300-2700Hz / 400-2600Hz
MOD SOURCE	MIC / USB / Bluetooth / **AUTO**
USB MOD GAIN	0 - **50** - 100
RPTT SELECT	OFF / **RTS** / DTR

1. Touch and hold [PRESET], the operation mode selection screen appears on the display.

2. Touch the PRESET 1 to 5 settings to be changed.
3. Touch the desired item, or rotate the [FUNC] knob to select the desired item, then press the [FUNC] knob.
4. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value setting that is to be changed.
5. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
6. Touch [BACK] twice to return to the operation MODE selection screen. After about 5 seconds, the operation screen will return.

VFO and Memory Scanning

Either the VFO or the memory channels of the FTX-1 may be scanned, and the receiver will halt scanning on any frequency with a signal strong enough to open the receiver squelch.

In the SSB/CW and SSB-based Data modes, the decimal points in the frequency display area will blink and the scanner will slow down (but does not stop).

VFO/Memory Scan

1. Set the frequency or Memory channel at which scanning is to begin.
2. Press the [FUNC] knob.
3. Touch [SCAN] will start the scanning.
   - If the scanner halts on an incoming signal, the decimal point between the "MHz" and "kHz" digits of the frequency display will blink.
   - The operation when a signal is received during scanning varies depending on the mode type.

Other than LSB, USB CW-L, CW-U	Scanning will pause.
LSB, USB CW-L, CW-U	Scanning speed will be slower, but scanning will not be paused.

   - If the scan has paused on a signal, rotate the DIAL knob will cause scanning to resume instantly.
   - If the Main Tuning Dial knob is rotated while scanning is in progress, the VFO scanning or memory channel scanning will continue up or down in accordance with the direction of the DIAL KNOB rotation. (In other words, if the dial is rotated to the left when scanning toward a higher frequency or memory channel number, the direction of the scan will reverse.)

To cancel scanning, press the PTT switch, or press any key on the front panel of the transceiver.

If the microphone PTT button is pressed during scanning, the scanner will halt at once. However, pressing the PTT button while scanning will not cause transmission.

Band Stack Operation

The FTX-1 employs a triple band-stack VFO selection technique that permits storing up to three favorite frequencies and modes onto each band VFO register.

A typical setup, for the 14MHz band, might be arranged like this:
1. Program 14.0250 MHz, CW-U Mode, then press and hold the [BAND] key then touch [14].
2. Program 14.0800 MHz, RTTY-L Mode, then press and hold the [BAND] key then touch [14].
3. Program 14.1950 MHz, USB Mode, then press and hold the [BAND] key then touch [14].

With this configuration, press and hold the [BAND] key, then touching [14] will step sequentially through the three Band Stack VFOs.

TOT (Time Out Timer)

The "Time-Out Timer" (TOT) shuts the transmitter OFF after continuously transmitting for the programmed time.
1. Press the [FUNC] knob.
2. Select [OPERATION SETTING] → [GENERAL] → [TX TIME OUT TIMER].
3. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select the TOT countdown time (1 -30 min or OFF).
4. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
5. Touch [BACK] several times to return to normal operation.

i The beep sounds at about 10 seconds before returning to receive mode automatically.

Operation on Alaska Emergency Frequency: 5167.5kHz

Section 97.401(d) of the regulations governing amateur radio in the United States permit emergency Amateur communications on the spot frequency of 5167.5 kHz by stations in (or within 92.6 km of) the state of Alaska. This frequency is only to be used when the immediate safety of human life and/or property are threatened, and is never to be used for routine communications.
The FTX-1 is capable of transmitting and receiving on 5167.5 kHz under such emergency conditions. Use the Setting Menu to activate the Alaska Emergency Frequency feature:

1. Press the [FUNC] knob.
2. Select [OPERATION SETTING]→[TX GNRL]→[EMERGENCY FREQ TX].
3. Rotate the [FUNC] knob, or touch "<" or ">" on either side of the value to select "ON".
4. Press the [FUNC] knob, or wait for about 3 seconds to save the setting.
5. Touch [BACK] several times to return to normal operation.
   Emergency communication on this spot frequency is now possible.
6. Press the [V/M(MW)] key, as necessary, to enter the Memory mode.
7. Rotate the DIAL knob to select the emergency channel ("EMG"), which is found between channels "5-15" and "M-001".

Resetting the Microprocessor

Memory channels, setting menus, and various settings can be initialized and returned to their factory defaults.

RESET ——— CALIBRATION
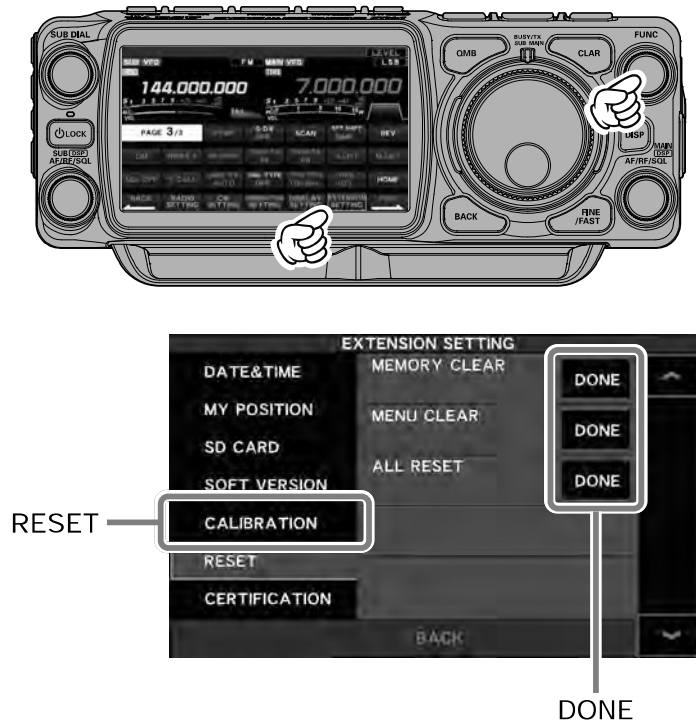
DONE

1. Display the reset item selection screen.

   Press the [FUNC] knob → touch [EXTENSION SETTING] → touch [RESET]

2. Touch "DONE" of the item you want to reset (see below).
   Or Select an item with the [FUNC] knob and press the [FUNC] knob.
   A confirmation screen for reset execution is displayed.

   ### MEMORY CLEAR (Memory Reset)
   Only the contents of the memory channel are initialized (factory default).
   All stored information will be erased, but channel M-001 will return to the initial setting of 7.000.000 MHz, LSB.

   ### MENU CLEAR (Setting Menu Reset)
   Only the contents of the setting menu are returned to their default values (factory default).

   ### ALL RESET (All Reset)
   Initializes all settings of this unit, including various settings, memories, and setting menus, and restores the factory settings.

3. Touch [OK] or select [OK] with the [FUNC] knob and press the [FUNC] knob to execute the reset.
   To cancel the reset, touch [CANCEL] or select [CANCEL] with the [FUNC] knob and press the [FUNC] knob.

4. The power is turned OFF once and then turned ON automatically.
   The reset is complete.

General

Tx Frequency Range:	1.8MHz - 54MHz, 144MHz - 148MHz, 430MHz - 450MHz
	(Amateur bands only)
Rx Frequency Range:	30kHz - 174MHz, 400MHz - 470MHz
Emission Modes:	A1A (CW), A3E (AM), J3E (LSB, USB), F3E (FM), F7W (C4FM), F1D, F2D
Frequency Steps:	1*/5/10/20Hz (CW, SSB, AM), 5/10/20Hz, 5kHz (FM) (*FINE tuning "ON")
Antenna Impedance:	50Ω, unbalanced
Operating Temperature Range:	+14°F to +122°F (-10°C to +50°C)
Frequency Stability:	±0.5ppm (after 1 minute @ +14°F to +122°F [-10°C to +50°C])
Supply Voltage:	DC13.8V ± 15% (Negative Ground)
Power Consumption (approx.)	Rx 0.6A (no signal)
	Rx 0.9A (signal present)
	Tx 3A (10W), 2.5A (6W)
Dimensions (WxHxD):	8.4" x 3.5" x 2" (213 x 89 x 50mm)
Weight (approx.):	2.75 lbs (1.25kg)

Transmitter

Power Output:	0.5 - 10W (0.5 - 2.5W AM carrier)
Modulation Types:	J3E (SSB): Balanced
	A3E (AM): Low-Level (Early Stage)
	F1D, F2D, F3E (FM): Variable Reactance
	F7W (C4FM): 4-level FSK
Maximum FM Deviation:	±5.0kHz / ±2.5kHz
Harmonic Radiation:	Better than -50dB (1.8MHz - 30MHz Amateur bands)
	Better than -63dB (50MHz Amateur band)
	Better than -60dB (144MHz, 430MHz Amateur bands)
SSB Carrier Suppression:	At least 60dB below peak output
Undesired Sideband Suppression:	At least 60dB below peak output
Bandwidth:	3kHz (LSB, USB), 500Hz (CW), 6kHz (AM), 16kHz (FM/C4FM)
Audio Response (SSB):	Not more than -6dB from 300 to 2700Hz
Microphone Impedance:	600Ω (200 to 10kΩ)

Receiver

Circuit Type:	Direct Sampling Superheterodyne
Intermediate Frequencies:	96kHz
Sensitivity (typ):	SSB/CW (BW: 2.4kHz, 10dB S+N/N)

	1.8MHz - 30MHz	0.16µV (IPO: AMP2)
	50MHz - 54MHz	0.125µV (IPO: AMP2)
	144MHz - 148MHz	0.125µV (AMP ON)
	430MHz - 450MHz	0.125µV (AMP ON)

AM (BW: 6kHz, 10dB S+N/N, 30% modulation @400Hz)

	0.5MHz - 1.8MHz	6.3µV
	1.8MHz - 30MHz	2µV (IPO: AMP2)
	50MHz - 54MHz	1µV (IPO: AMP2)
	144MHz - 148MHz	1.0µV (AMP ON)
	430MHz - 450MHz	1.0µV (AMP ON)

FM (BW: 12kHz, 12dB SINAD, 3.5kHz DEV @1kHz)

	28MHz - 30MHz	0.25µV (IPO: AMP2)
	50MHz - 54MHz	0.2µV (IPO: AMP2)
	144MHz - 148MHz	0.225µV (AMP ON)
	430MHz - 450MHz	0.225µV (AMP ON)

Selectivity (typ):	Mode	−6dB	−60dB
	CW (BW=0.5kHz)	0.5kHz or better	0.75kHz or less
	SSB (BW=2.4kHz)	2.4kHz or better	3.6kHz or less
	AM (BW=6kHz)	6kHz or better	15kHz or less
	FM (BW=12kHz)	12kHz or better	25kHz or less

Image Rejection:	70dB or better (1.8MHz - 30MHz Amateur bands)
	60dB or better (50MHz Amateur band)
Maximum Audio Output:	2.0W (4Ω, THD10%) Internal Speaker
	0.5W (4Ω, THD10%) External Speaker
Audio Output Impedance:	4 to 16Ω (4Ω: nominal)
Conducted Radiation:	Less than 4nW

Specifications are subject to change, in the interest of technical improvement, without notice or obligation, and are guaranteed only within the amateur bands.

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.
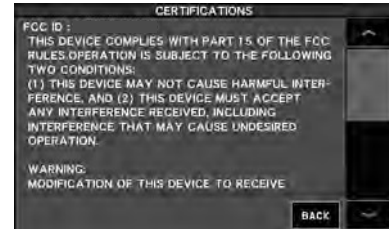
Display the Certifications of FCC and CANADA

1. Turn the transceiver OFF.
2. While holding the [DISP] key in, press and hold in the front panel Power switch to turn the transceiver ON.
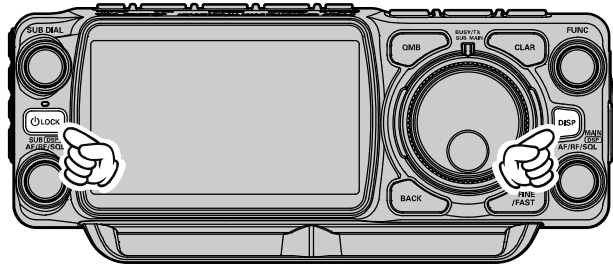
The Certifications of FCC and CANADA are displayed.

3. Touch [**BACK**] to return to the "**EXTEN-SION SETTING**" screen.
4. Touch [**BACK**] several times to return to normal operation.

YAESU

Declaration of Conformity

Type of Equipment:	HF/VHF/UHF ALL MODE TRANSCEIVER
Brand Name:	YAESU
Model Number:	FTX-1
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

FCC Statements

Federal Communications Commission (FCC) Statement

15.105(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.

15.19
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.

15.21
You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.27
The shielded USB cable must be used with the device.

FCC RF Radiation Exposure Statement:
1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. For portable operation, this device has been tested and meets FCC RF exposure guidelines. When used with an accessory that contains metal may not ensure compliance with FCC RF exposure guidelines.

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)

YAESU
Radio for Professionals