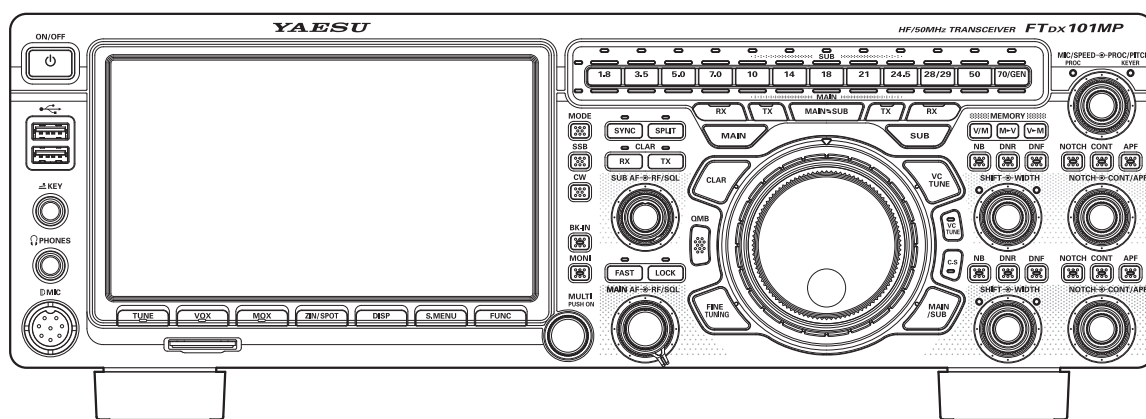




HF/50MHz TRANSCEIVER

FTDx101MP

Operation Manual



About this Manual

The FTDX101MP 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 FTDX101MP, 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 FTDX101MP, be sure to read this manual.

How to read this operation manual

Two methods are used to select an item displayed on the FTDX101MP Function Screen: **“Operate by touching the item directly on the display”**; and **“Turn the [MULTI] knob to select the item and then press the [MULTI] knob”**.

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

Example: How to adjust the brightness of the display

1. Press the [FUNC] key to display the function screen.
2. Touch [DISPLAY SETTING] on the function screen, or rotate the [MULTI] knob to select [DISPLAY SETTING] and then press the [MULTI] knob.
3. Touch [DISPLAY] on the display or rotate the [MULTI] knob to select [DISPLAY] and then press the [MULTI] knob.
4. Touch the setting section of [TFT DIMMER] on the display, or rotate the [MULTI] knob to select [TFT DIMMER] and then press the [MULTI] knob.
5. Rotate the [MULTI] knob 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.

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General Description

Hybrid SDR configuration

In addition to the narrow band SDR receiver that boasts awesome basic performance, the FTDX101MP has a hybrid SDR configuration utilizing an integrated direct sampling SDR receiver, which permits visualization of the spectrum of the entire band in real time.

By adopting the hybrid SDR method, and utilizing the features of the direct sampling method, wide-view displays of the information in the entire band in real time, and improved performance of the entire receiving circuit with the narrow band SDR technology down conversion method are possible.

Comes equipped with three types of roofing filters

This transceiver is equipped with three types of roofing filters for 600 Hz, 3 kHz and 12 kHz bandwidths. These narrow band filters are especially useful on a very crowded band during contests, because they can dramatically attenuate powerful out-of-band signals in the first IF stage, and thus reduce their impact in the second stage. Further, the excellent dynamic range and IP3 characteristics optimize the processing of all signals ranging from faint to powerful.

Adopts 3DSS/Hybrid Dual SDR Display

In addition to the conventional waterfall display, a 3DSS (3 Dimensions Spectrum Stream) image method has been newly adopted. The 3DSS image uses the horizontal axis (X axis) for frequency, the vertical axis (Y axis) for signal intensity, and the Z axis for time. Compared to the conventional waterfall method, the signal strength is displayed in three dimensions as well as in color, recognition of changes in the band conditions is instant, convenient and intuitive.

The 3DSS waterfall display has a choice of the mono display that displays only the MAIN frequency band; or the dual display that illustrates both the MAIN and SUB frequency bands.

The Hybrid Dual SDR Display presents two SDR outputs, narrow band SDR and direct sampling SDR, combined the same screen. Since the display color of each SDR output can be changed, the band received by the narrow band SDR receiver can be viewed while also observing the condition of the entire band.

High-brightness TFT full-color display with touch-panel functionality

The FTDX101MP is equipped with a 7-inch full-color TFT display. Operating functions, including the receiving band noise and signal interference reduction tools, are graphically displayed. Even while involved in rigorous operations, such as DXpeditions and contests, the operator may instantly grasp the status of each function.

Filter Function Display monitors the status of the passband

In the upper part of the display, an S meter and a filter function display present the state of the pass-band. They are arranged independently for the MAIN Band and SUB Band respectively. In addition to the operating state of the interference removal functions, the filter function information is displayed. Not only can you grasp the operating status of WIDTH, SHIFT, NOTCH and CONTOUR at a glance, you can also view the status of the RF spectrum in the passband.

RF Pre-selector, Continuously Variable RF, & VC-TUNE

The newly developed VC tuning circuit drives a variable capacitor with a high-precision stepping motor and is comparable with a μ -Tuning mechanism, it achieves remarkable interference reduction characteristics with significant downscaling and maximum attenuation of -70 dB. When compared with the conventional preset method, which switches a coil and a capacitor with a relay, the high-precision stepping motor continuously follows the frequency inside the pass-band, there is no sense of discomfort as there is with relay switching. Even when there are multiple powerful signals in the band, fine adjustment to the optimal tuning point is possible.

Two selectable RF Stages amplify the desired signals from low band to high band

Push-pull RF amplifier AMP1, and AMP2 are low noise negative feedback RF amplifiers that may be selected or combined in series as is needed for various low-band, high-band, frequency and noise conditions. In addition, the IPO (Intercept Point Optimization) function maximizes the dynamic range and enhances the close multi-signal and inter-modulation characteristics of the receiver. The influence of strong broadcasting stations, especially in the low bands, can be minimized.

WIDTH and the continuously variable Bandwidth SHIFT features permit elimination of interfering signals

The WIDTH feature allows the bandwidth to be narrowed by rotating the WIDTH knob. The SHIFT feature, can eliminate interference in one side of the passband. Often, weak signals disappear due to interfering signals (including pile-ups). The interfering signals may be extracted, leaving only the desired signal, because of the unique DSP sharp filtering characteristics.

CONTOUR feature is renowned for effective noise reduction

Rather than using the DSP extremely sharp attenuation characteristics, the CONTOUR circuit provides gentle shaping of the DSP passband filter, and can thus attenuate or peak bandwidth components in segments. The interfering signal can be naturally shaped without having part of the signal suddenly disrupted. The contour function is very effective in making the desired signal rise out of the interference.

DNR (Digital Noise Reduction) by DSP digital processing

The incorporated digital noise reduction circuit may be set to the optimal working algorithm by varying the 15 step parameters according to the noise type.

NOTCH feature can eliminate an unwanted heterodyne, and the DNF feature can instantly attenuate multiple heterodyne signals

When interfering beat signals are present in the receiver passband, the IF NOTCH feature can significantly eliminate a narrow portion of the passband and remove the interfering signal. Moreover, when there are multiple interfering signals, the DSP DNF (Digital Notch Filter) Automatic Tracking System can be effective, even when an interfering frequency is changing.

ABI (Active Band Indicator)

Band keys are arranged in a row at the top above the main dial so that the operation status of the MAIN and SUB Bands can be checked at a glance. The band selected on the MAIN side is white, the band selected on the SUB side is blue. The white and blue correspond to the colors of the MAIN and SUB Band Switches.

When transmitting, the LED on the transmission band turns red. It is possible to instantly distinguish which band is transmitting and thus prevent erroneous operation.

Additionally, when the band key is pressed and held, the LED lights up in orange, so you can use this to display a band connected with an antenna, display a band to be operated with a DXpedition, etc., or as a MEMO.

MPVD (MULTI PURPOSE VFO OUTER DIAL)

A large multi-functional ring, cut from high-grade aluminum is placed on the outside of the Main Dial. It is frequently used for the SUB VFO dial, VC tune, Clarifier or a CS (Custom select) function. The operator may assign favorite functions to the MPVD that can then be operated with one touch. The ring can be used to adjust important functions without releasing your hand from the Main Dial. This feature can be a great convenience in the ever-changing shortwave radio communications.

Reliable High-output Final Amplifier Stage

FTDX101MP power amplifier utilizes push-pull VRF150 MOS FET devices, operating at 50V, with excellent linearity, low distortion and high withstand voltage, and by optimizing the bias circuit for the optimal operating points, a high-quality and stable out put with low-distortion is realized.

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 operate the device when flammable gas is generated. Doing so may result in fire and explosion.
	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.		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 transmit in crowded places in consideration of people who are fitted with medical devices such as heart pacemakers. Electromagnetic waves from the device may affect the medical device, resulting in accidents caused by malfunctions.		Do not touch any liquid leaking from the liquid display with your bare hands. There is a risk of chemical burns occurring when the liquid comes into contact with the skin or gets into the eyes. In this case, seek medical treatment immediately.
	Never touch the antenna during transmission. This may result in injury, electric shock and equipment failure.		

WARNING

	Do not use voltages other than the specified power supply voltage. Doing so may result in fire and electric shock.		When smoke or strange odors are emitted from the radio, turn off the power and disconnect the power cord from the socket.
	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.		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.
	Do not dismantle or modify the device. This may result in injury, electric shock and equipment failure.		Keep the power plug pins and the surrounding areas clean at all times. This may result in fire, liquid leak, overheating, breakage, ignition etc.
	Do not 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.		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.
	Do not use fuses other than those specified. Doing so may result in fire 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.

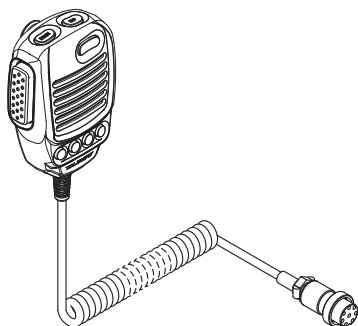


Do not use a microphone other than those specified when connecting a microphone to the device.

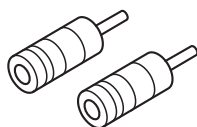
If not, this may result in equipment failure.

Accessories & Options

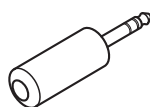
Supplied Accessories



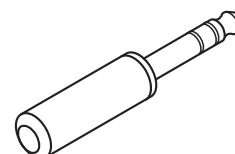
Hand Microphone SSM-75G



RCA Plug



3.5 mm 3-contact Plug



6.3 mm 3-contact Plug

- AC Cord
- External Power Supply with Speaker FPS-101
- Operation Manual
- World Map
- Sticker
- Circuit Diagrams

Available options

- | | |
|---|-----------------|
| • Hand Microphone (equivalent to the supplied microphone) | SSM-75G |
| • Reference Microphone | M-1 |
| • Dual Element Microphone | M-100 |
| • Ultra-High-Fidelity Desktop Microphone | MD-200A8X |
| • Desktop Microphone | MD-100A8X |
| • Lightweight Stereo Headphone | YH-77STA |
| • External Speaker | SP-101 |
| • External Automatic Antenna Tuner | FC-40 |
| • Remote Control Keypad | FH-2 |
| • Linear Amplifier/AC Power Supply | VL-1000/VP-1000 |
| • VL-1000 Linear Amplifier Connection Cable | CT-178 |

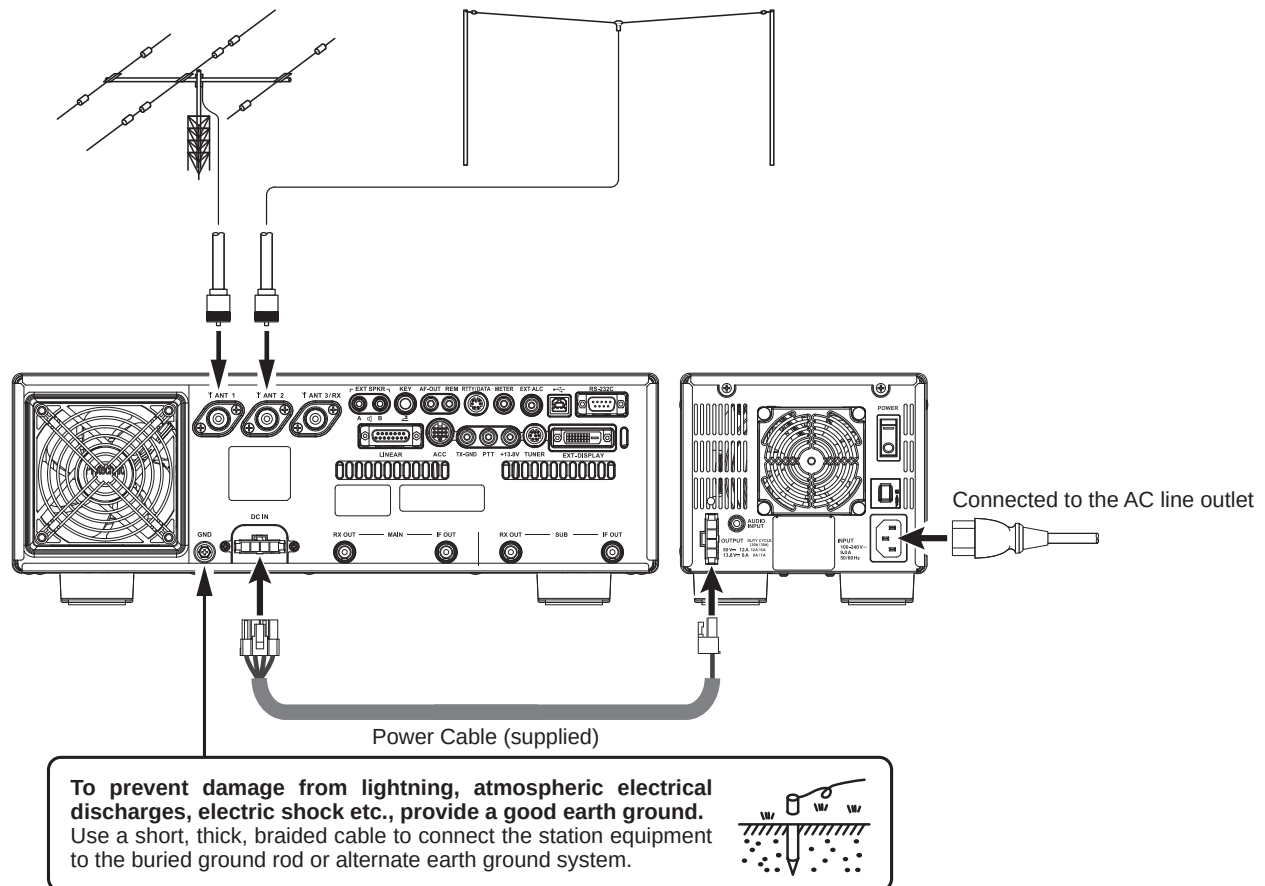
Please contact YAESU for the following options.

- | | |
|---|----------|
| • VC-Tuning Unit (for SUB Band) | VCT-101 |
| • CW Narrow Filter (C/F: 9.005MHz, B/W: 300Hz, for MAIN Band) | XF-128CN |
| • CW Narrow Filter (C/F: 8.900MHz, B/W: 300Hz, for SUB Band) | XF-129CN |
| • SSB Narrow Filter (9.005MHz, B/W: 1.2kHz, for MAIN Band) | XF-128SN |
| • SSB Narrow Filter (8.900MHz, B/W: 1.2kHz, for SUB Band) | XF-129SN |

Installation and Interconnections

Antenna and FPS-101 Power Supply Connections

Refer to the illustration for guidelines in connecting the antennas and the FPS-101 Power Supply.



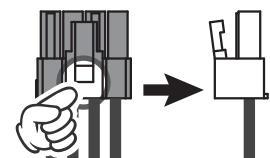
Installation guidelines

- Do not expose the transceiver to direct sunshine.
- Do not expose the transceiver to dust or high humidity.
- 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.
- When installing the FTDX101MP and FPS-101, be careful not to forcibly bend or pull the power cable.
- Do not place heavy objects on top of the power cable.
- Do not use a power cable other than the one that is provided.
- To minimize the possibility of interference to home entertainment devices, take all precautionary steps including separation of TV/FM antennas from Amateur transmitting antennas to the greatest extent possible. Keep the transmitting coaxial cables separated from cables connected to home entertainment devices.
- Make sure to turn the transceiver OFF and disconnect all cables before moving the FTDX101MP or FPS-101.

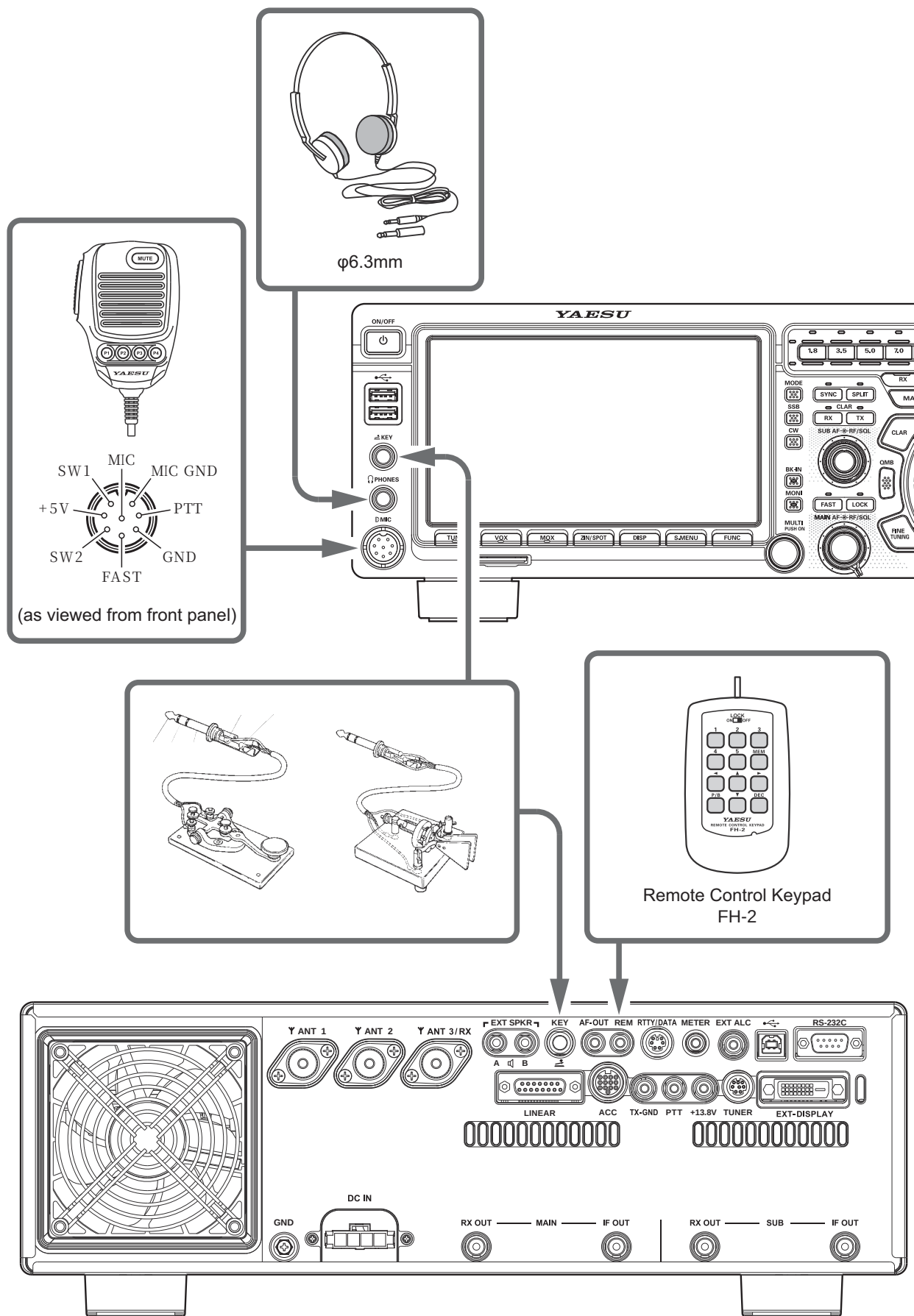
Caution

Be sure that both the transceiver Front Panel POWER switch and the FPS-101 Main Power switch are both turned OFF any time you plug or unplug the power cable to the FTDX101MP and FPS-101. This will avoid potentially damaging electrical spikes and electrical shock.

When disconnecting the power cable, hold the connector, press the lock tab to release it and pull the plug from the connector. Pulling the power cable without releasing the lock may cause a failure.



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



Key-up voltage on the front key jack is approximately +3.3 V DC, and key-down current is approximately 1 mA. Key-up voltage on the rear key jack is approximately +5.0 V DC, and key-down current is approximately 3 mA.

Linear Amplifier Interconnections

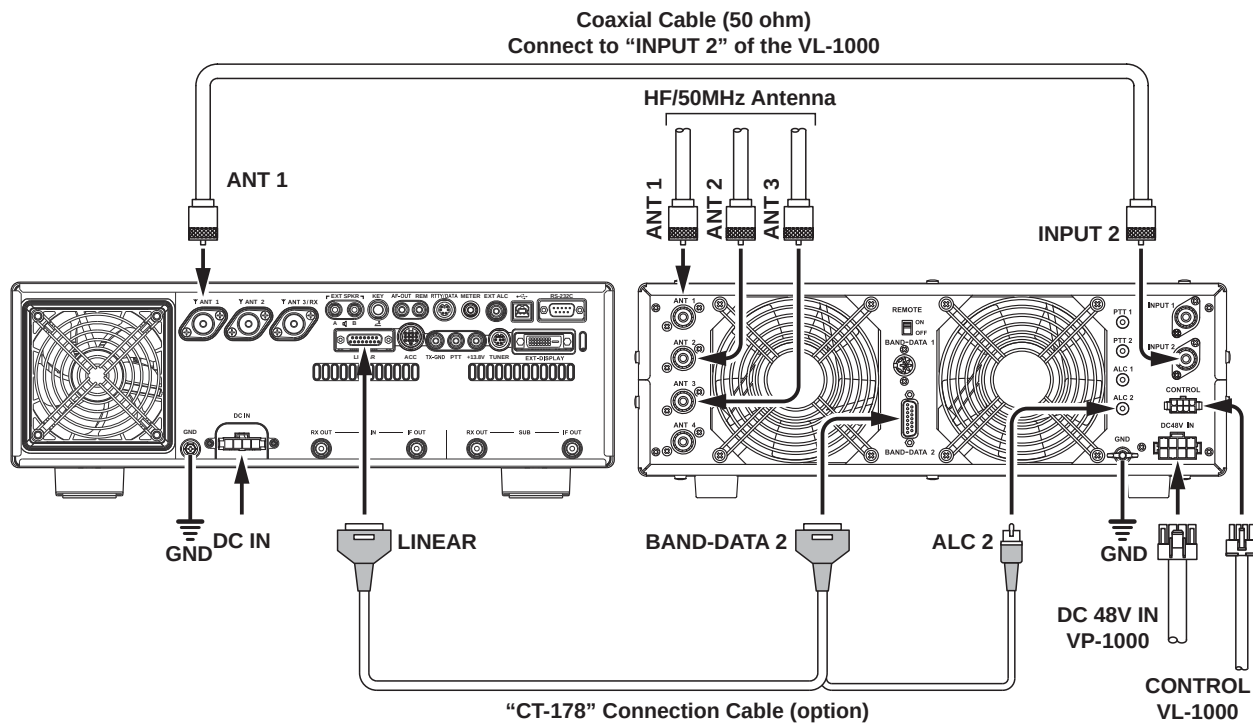
• VL-1000 Linear Amplifier Interconnections



Be sure that both the FTDX101MP and VL-1000 are turned OFF, and then follow the installation recommendations contained in the bellow illustration.



- 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.



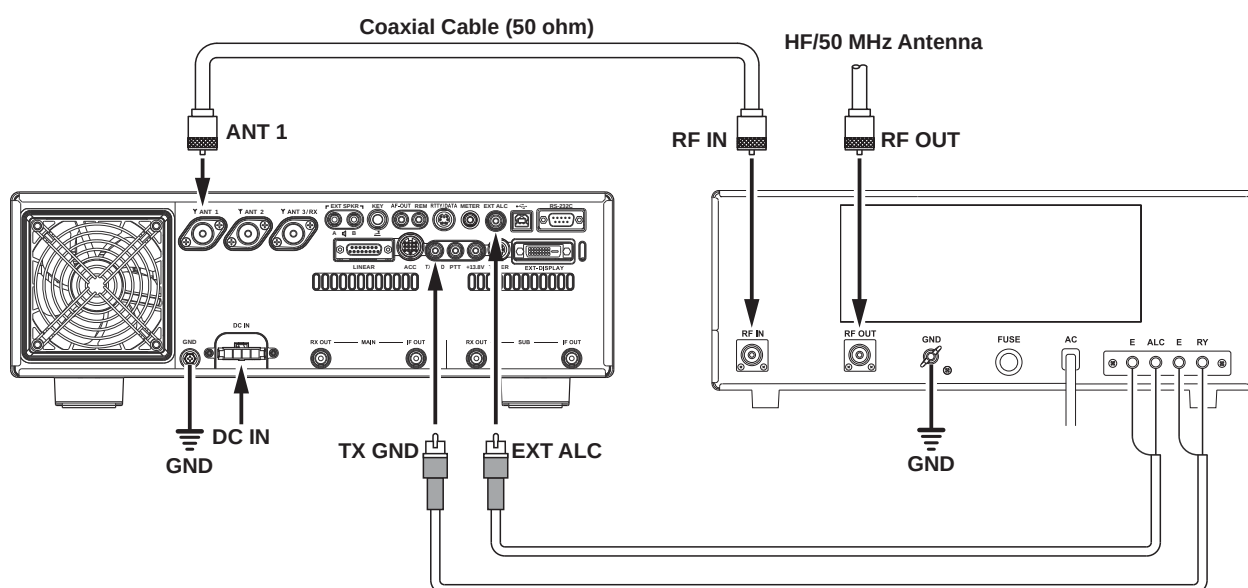
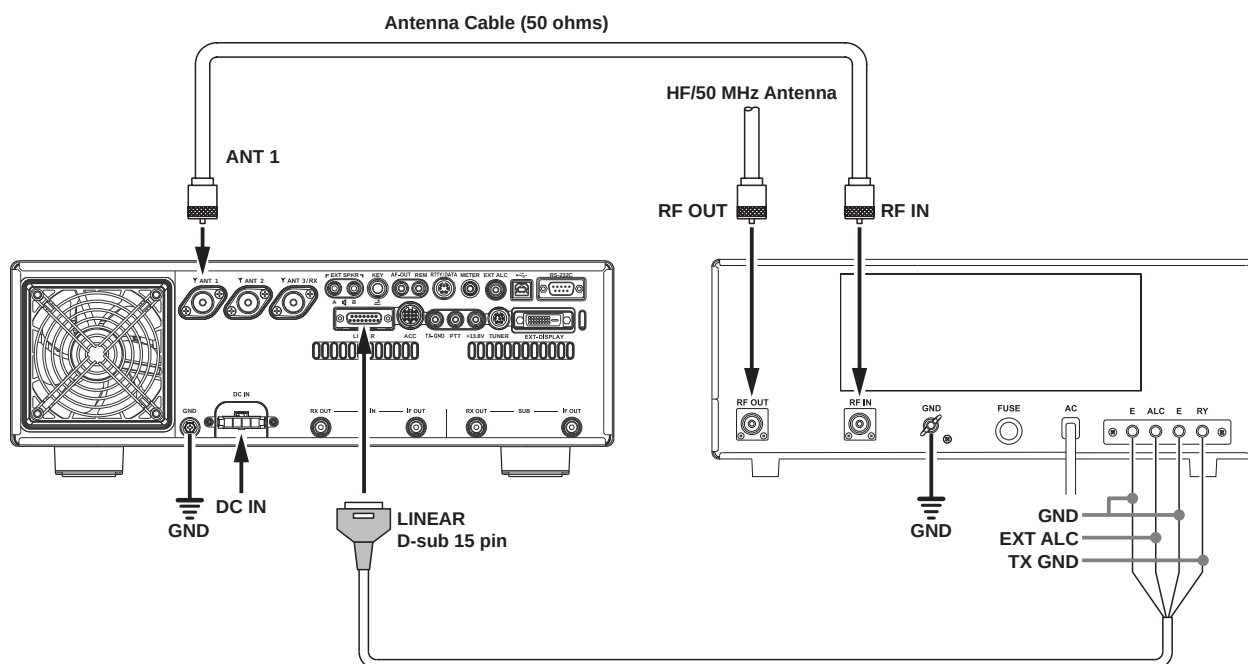
• Interfacing to Other Linear Amplifiers



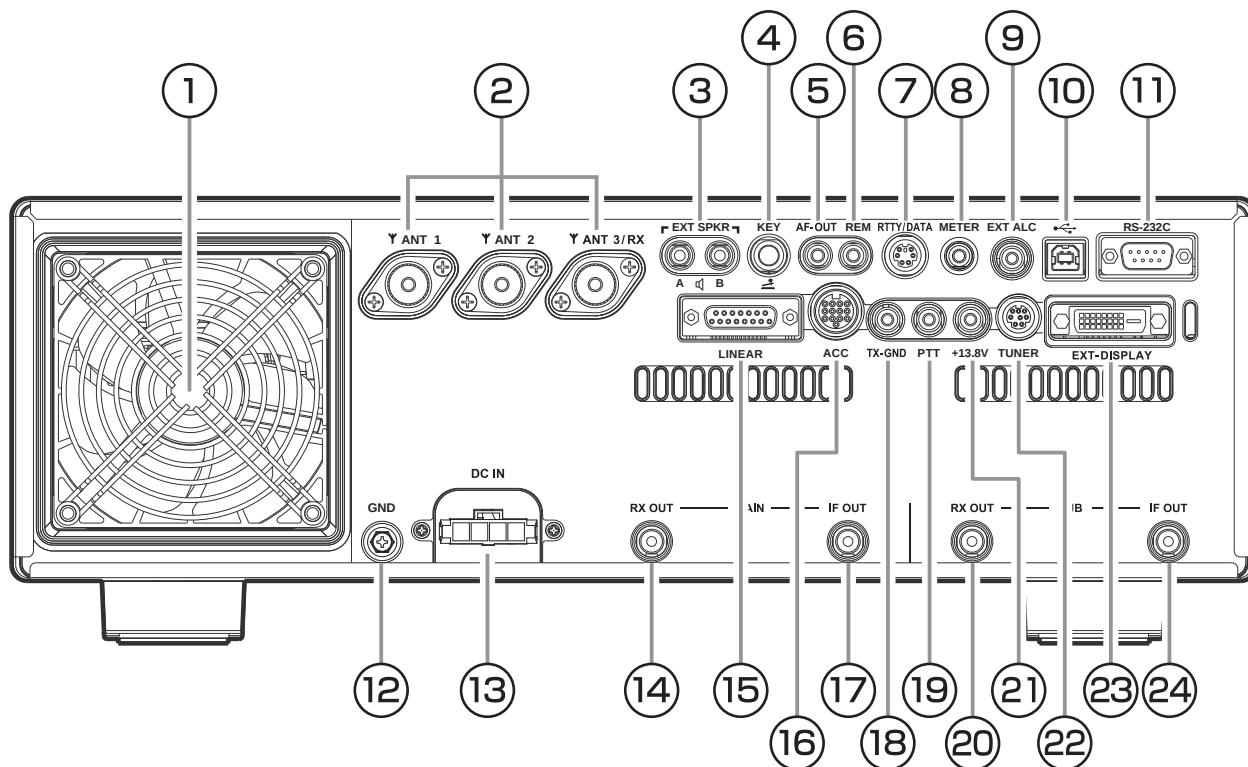
- The TX GND OUT pin (pin 2) of the LINEAR jack is a transistor “open collector” circuit. It is capable of handling positive relay coil voltages up to +60VDC at 200 mA or +30 VDC at 1 A.
- When using multiple linear amplifiers for different bands, you must provide external band switching of the “Linear Tx” relay control line from the “TX GND OUT” line at the LINEAR jack.



Do not exceed the maximum voltage or current ratings for the “TX GND OUT” pin (pin 2) of the LINEAR jack. This line is not compatible with negative DC voltages, or AC voltages of any magnitude.



Rear Panel



① Cooling FAN

② ANT 1, 2, 3/RX

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

③ EXT SPKR

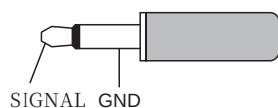
This 3.5-mm, 2-contact, jacks provide audio output for external loudspeakers. The impedances at the jacks are 4 - 8 Ohms, and the volume varies according to the setting of the front panel [AF] knob.



Inserting plugs into the jacks alters the internal loudspeaker configuration.

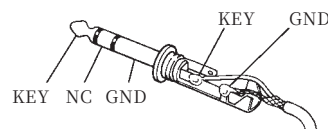
Depending on the plugs connected to the jacks, the configuration of the internal and external speakers varies.

	A	B	Internal Speaker
Connect to A only	MAIN and SUB audio	-	-
Connect to B only	-	MAIN audio	SUB audio
Connect to both A and B	SUB audio	MAIN audio	-

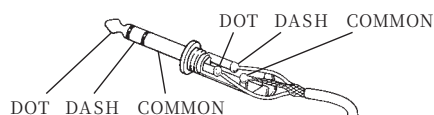


④ KEY

This 1/4-inch 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



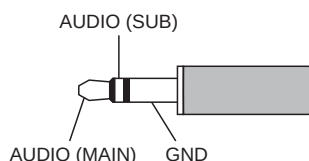
When connecting an electronic keyer paddle

⑤ AF-OUT

This 3.5-mm, 3-contact jack provides dual-channel low-level receiver output, for recording or external amplification.



The front panel [AF] knobs do not affect the signals at this jack (300 mVp-p at 10 k-ohms).



⑥ REM

By plugging the FH-2 Remote Control Keypad into this jack, direct access to the FTDX101MP CPU is provided for control functions of the contest memory keying, and also frequency and function control.

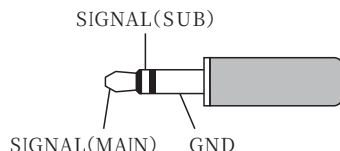
⑦ RTTY/DATA

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 METER

This 3.5-mm jack is to connect an external meter.



⑨ EXT ALC

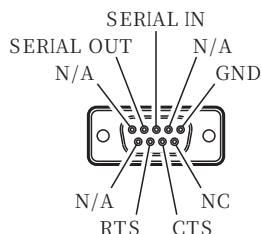
This RCA input jack accepts negative-going external ALC (Automatic Level Control) voltage from a linear amplifier to prevent over-excitation by the transceiver. Acceptable input voltage range is 0 to -4 VDC.

⑩ USB

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

⑪ RS-232C

This 9-pin serial DB-9 jack permits external computer control of the FTDX101MP. Connect a serial cable here and to the RS-232C COM port on your personal computer (no external interface is required).



⑫ 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.

⑬ DC IN

Connect this 4-pin connector to the DC 13.8 V and DC 50 V Output Jack on the FPS-101 Power Supply, using the supplied DC Power Cord. This connector provides +13.8 V DC supply voltage and +50 V DC supply voltage for the power amplifier of the FTDX101MP.



⑭ RX OUT (MAIN)

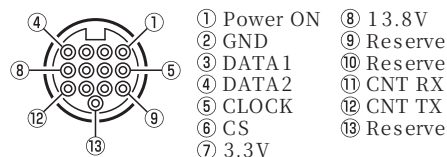
This RCA jack provides output of the RF signal. For connecting an external receiver and the like.

⑮ LINEAR

This 15-pin output jack provides band selection data, which may be used for control of optional accessories such as the VL-1000 Solid-state Linear Amplifier.

⑯ ACC

This 13-pin jack may be connected to an external device.



⑰ IF OUT (MAIN)

This RCA jack outputs the receiver 9.005 MHz IF signal. This signal does not pass through the roofing filter.

⑱ TX-GND

This RCA jack's center pin is closed to ground while the transceiver's transmitter is engaged. The transistor open collector circuit used for this jack is capable of switching a DC voltage of 60 V at 200 mA, or DC 30 V at up to 1Amp.

⑲ PTT

This RCA input jack may be used to provide manual transmitter activation using a foot switch or other switching device. Its function is identical to the [MOX] key on the front panel. Open-circuit voltage is 5 VDC, and closed-circuit current is 3 mA.

⑳ RX OUT (SUB)

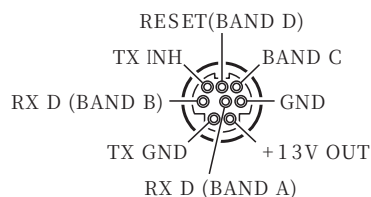
This RCA jack provides output of the RF signal. For connecting an external receiver and the like.

㉑ +13.8V

This RCA output jack provides regulated, separately fused 13.8 VDC at up to 200 mA, to power an external device such as a packet TNC. Make sure your device does not require more current (if it does, use a separate power source).

㉒ TUNER

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



㉓ EXT-DISPLAY

DVI-I connector for connecting an external monitor. When using an external monitor, set the setting menu item "EXT DISPLAY" (page 105) to "ON".

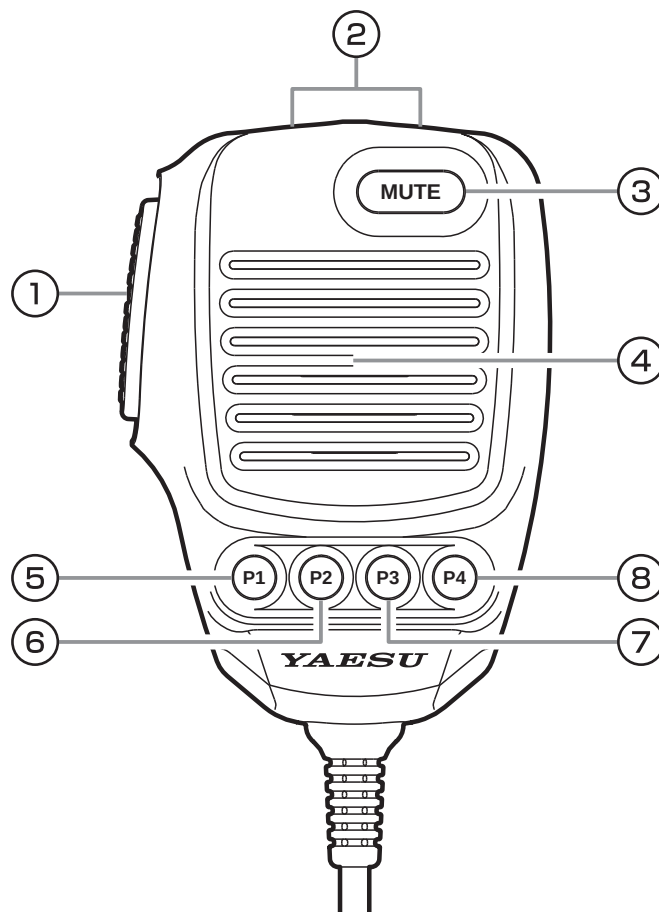


Connect a monitor that supports 800 x 480 resolution or 800 x 600 resolution.

㉔ IF OUT (SUB)

This RCA jack outputs the receiver 8.900 MHz IF signal. This signal does not pass through the roofing filter.

SSM-75G 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.

- Pressing the [FAST] key engages the "Fast" tuning selection.
- The amount of frequency change depends on the operation mode (default setting: see table below).

Operating Mode	UP	DWN
CW / SSB / RTTY DATA-L / DATA-U / PSK	+10Hz [+100Hz]	-10Hz [-100Hz]
AM / FM DATA-FM	+5kHz [+50kHz]	-5kHz [-50kHz]

Numbers in parentheses indicate steps when the [FAST] key is On.

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

Operating Mode	Memu Item	Step
SSB / CW RTTY / PSK DATA-L DATA-U	SSB/CW DIAL STEP (page 103)	5/10 (Hz)
AM	AM CH STEP (page 103)	2.5/5/9/10/ 12.5/25 (kHz)
FM DATA-FM	FM CH STEP (page 103)	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

Switches the operation to the MAIN band.
It is the same function as the [MAIN] key on the front panel of the transceiver.

⑥ P2 key

Switches the operation to the SUB band.
It is the same function as the [SUB] key on the front panel of the transceiver.

⑦ P3 key

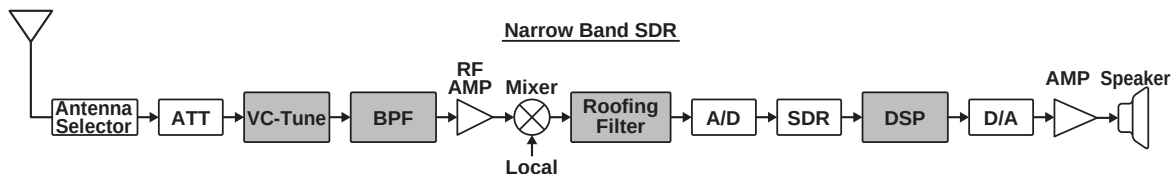
Switches transmission to the MAIN band.
It is the same function as the MAIN band [TX] key on the front panel of the transceiver.

⑧ P4 key

Switches transmission to the SUB band.
It is the same function as the SUB band [TX] key on the front panel of the transceiver.

Be sure to study this information to maximize the receiver performance of the high-class FTDX101MP shortwave transceiver.

Narrow band SDR receiver signal flow and the specific functions that affect receiver performance.



Use the VC TUNE

VC-Tune can attenuate interfering signals directly at the receiving frequency. VC-Tune can be turned ON to attenuate the strong jamming signals that cannot be removed even with the BPF. If there is no disturbing signal, turn it OFF. Operation is performed with the outside MPVD ring of the Main Dial.

BPF (Band Pass Filter)

BPF is selected automatically. When a frequency band is selected on the front panel, the BPF (Band Pass Filter) for that band is automatically connected to the antenna circuit.

Use the ROOFING FILTER

Roofing filters attenuate strong signals that are outside of the desired passband after converting to the 9MHz IF.

The roofing filter can attenuate unwanted frequency components. Touch [R.FIL] on the TFT screen to select the 3kHz filter for SSB, the 1.2kHz filter or the 600Hz filter for CW.

Use DSP interference removal functions

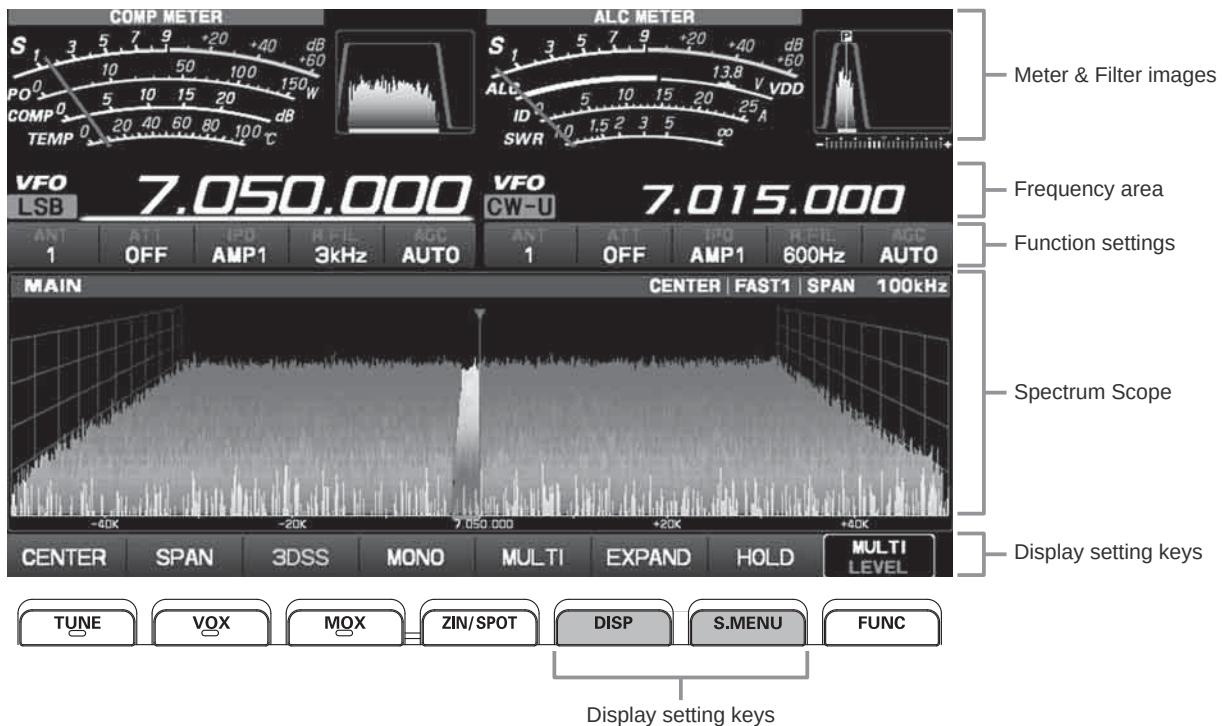
DSP interference removal functions include IF SHIFT, IF WIDTH, IF NOTCH, APF, CONTOUR, and DNR.

Use these functions to adjust for comfortable reception while listening to the received audio.

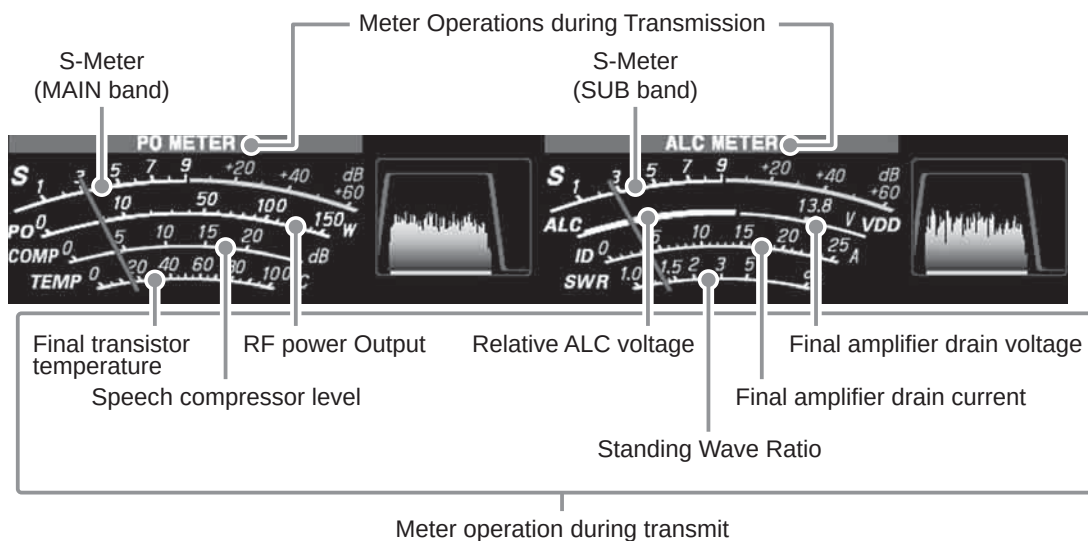


To change the sound quality of the received audio, use the CONTOUR function to easily improve the sound quality with high and low frequency cut or emphasis.

Display Indications



Meter Display

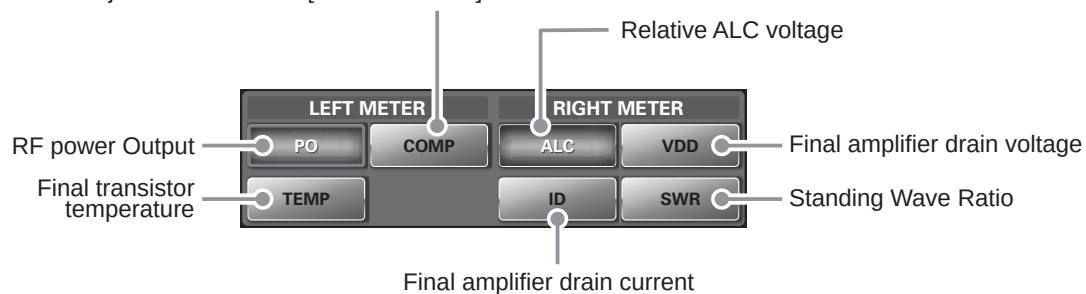


When the meter display screen is touched, the transmit meter selection screen is shown (the default default setting is "PO" on the left and "ALC" on the right).

AMC gain control display

(Displays compression level during speech processor operation)

Make adjustments with the [PROC / PITCH] control.

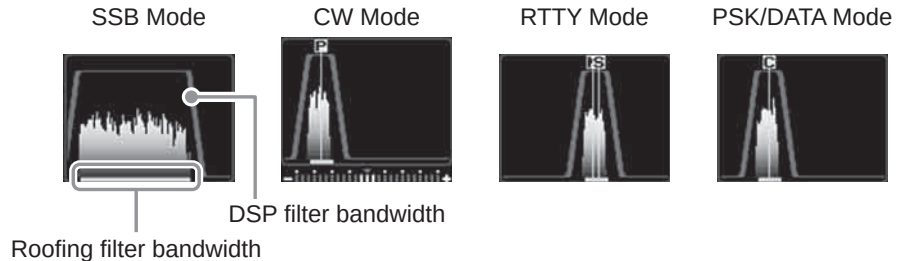


Filter Function Display

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

The current roofing filter bandwidth is displayed as a blue line below the filter function display.

The roofing filter is selected by touching [R. FIL].

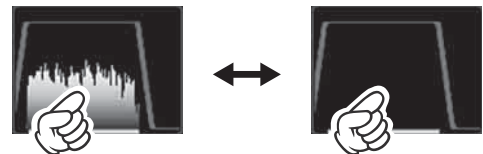


Touch the filter function display to toggle between “normal display” and “magnified display”. Touch again to return to the “normal display”.



• Display only DSP filter bandwidth information

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.



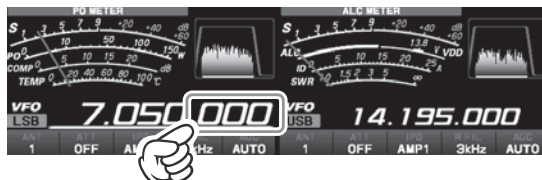
Frequency Display

The transmit and receive frequencies of the MAIN Band are shown on the left and the transmit and receive frequencies of the SUB Band are shown on the right.

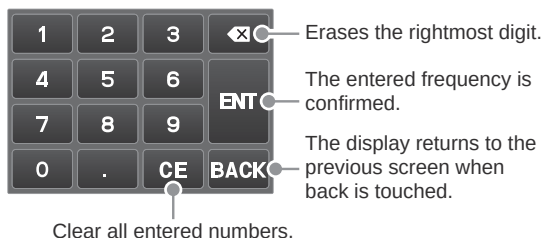
In split operation, the transmit frequency is displayed in red.

• Keyboard Frequency Entry

1. Touch the “Hz” area of the frequency display.



2. Enter the frequency using the numeric keys.



- 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 - press the [ENT] key after the last non-zero digit.

Example:

To enter 7.00.000MHz

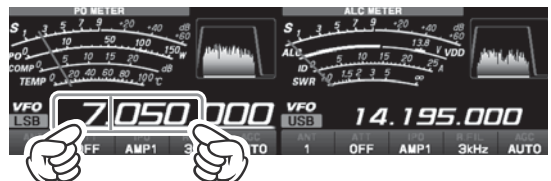
[0] → [7] → [ENT] or [7] → [.] → [ENT]

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 Frequency Display of the inactive band to change the Operating Band with one touch.
- Touch the Scope Screen, to easily move to the touched frequency.

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

ANT (Switching the Antenna)

The currently used antenna terminal number ("ANT 1" "ANT 2" "ANT 3 / RX") is displayed. After touching ANT, touch the desired number. The antenna can be set separately for each operation band.



The antenna terminal "ANT 3 / RX" can be set to "Receive Only" (Set Menu: "ANT 3 SELECT" page 97).

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)



- If the noise level is high or the received signal is extremely strong, the incoming signal level can be suppressed with the IPO/ATT settings. If the S-meter fluctuates S-3 or more in the noise level, or the received signal is extremely strong and it causes a high S-meter indication (+20dB or more), activate the attenuator.
- Since IPO does not only attenuate the incoming signal, but also improves the cross modulation characteristic, try to activate the IPO first. If the signal is still strong, also use the ATT. In this way, you can attenuate the incoming signal and noise effectively.

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.



R.FIL (Roofing Filter Switching)

Displays the bandwidth of the currently selected roofing filter.

Switches the crystal roofing filters of 300Hz, 600Hz, 1.2kHz*, 3kHz, and 12 kHz that are installed in this transceiver.

Normally, filters are automatically switched depending on the operation mode, however the filter may be changed according to the conditions or when an optional filter is installed.

Roofing filters are be set indelpendantly for each operation band.

*1.2kHz roofing filter is optional.

After touching [R. FIL], touch the desired filter.

If the optional 1.2kHz filter is not installed, "1.2kHz" will not be displayed.

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
SSB / AM	SLOW
CW / FM / DATA-FM	FAST
RTTY / PSK DATA-L / DATA-U	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



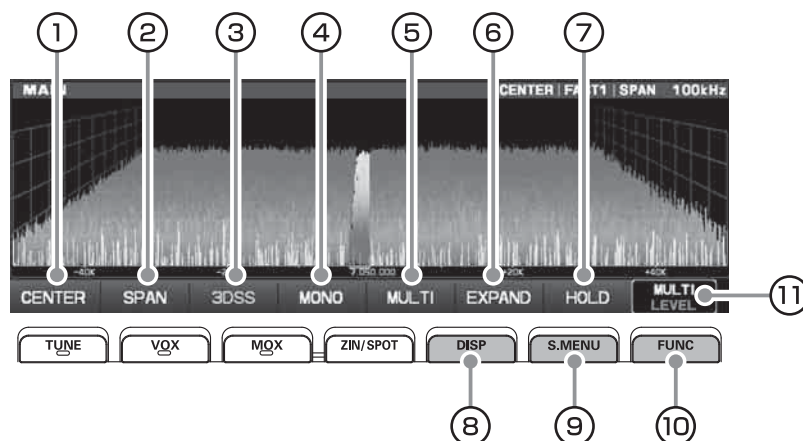
Several aspects of AGC performance may be configured via the Menu. However, because AGC can have such a profound impact on overall receiver performance, we generally do not recommend any changes to the AGC Menu selections until you are thoroughly familiar with the performance of the FTDX101MP.

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 FTDX101MP operator can intuitively grasp the band and signal conditions at any instant.



When VC Tune operates, the steep attenuation characteristics of VC Tune may cause some signals in the spectrum scope to be attenuated and disappear, or the screen may not look uniform, but this is not a malfunction.



① CENTER/CURSOR/FIX

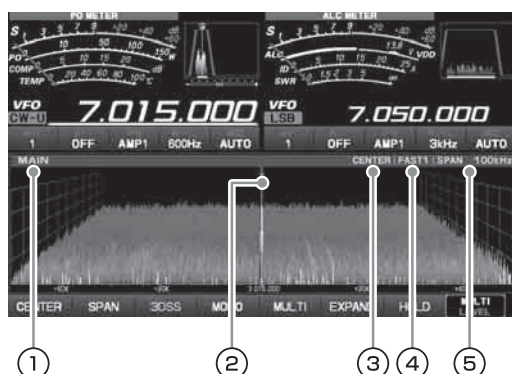
Switches the Spectrum Scope operation each time the key is touched.

- 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.
- Press and hold the [FAST] key in the CENTER and CURSOR modes, the Hz digit of the receive frequency will be "0".
- Press and hold the [FAST] key in FIX mode, the receive frequency returns to the start frequency of the display area.



• 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 situation around the operating frequency.

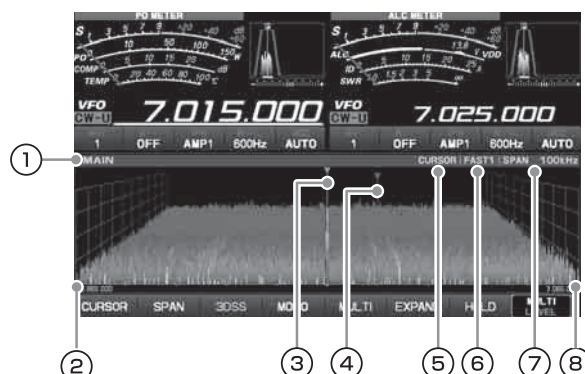


- ① MAIN or SUB
- ② Marker*
- ③ Current display mode (CENTER)
- ④ Sweep Speed
- ⑤ Scope Screen frequency span (display range).

*: 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 outside the setting range can be observed.

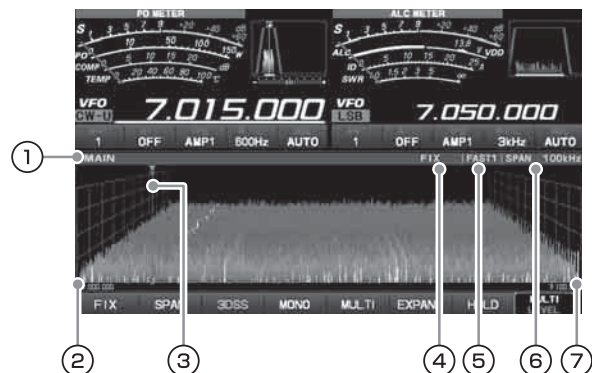


- ① MAIN or SUB
- ② The lower limit frequency of the display area.
- ③ Marker* (Receive Frequency)
- ④ Marker* (Transmit Frequency)
- ⑤ Current display mode (CURSOR)
- ⑥ Sweep Speed
- ⑦ Scope Screen frequency span (display range).
- ⑧ The upper limit frequency of the display area.

*: At factory shipment, marker display is ON.

• FIX

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



- ① MAIN or SUB
- ② Display area start frequency
- ③ Marker* (Reception Frequency)
- ④ Current display mode (FIX)
- 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.

FIX is displayed at the top of the scope screen. Press and hold [FIX] while FIX is displayed, the frequency input screen will be displayed, and the start frequency can be entered:

Example:

To enter 7.000.000 MHz

[0] → [7] → [ENT] or [7] → [.] → [ENT]

To enter 7.030.000 MHz

[7] → [.] → [0] → [3] → [ENT]



In FIX mode, If the [FAST] key is held, the receiver returns to the start frequency.

② SPAN

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



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

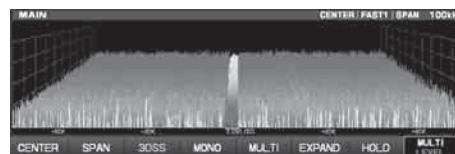
③ 3DSS

Switch between the 3DSS display and the waterfall display.

The display will change each time it is touched:



To adjust the level of the SUB band, press the [SUB] key to make the operation band a SUB band.

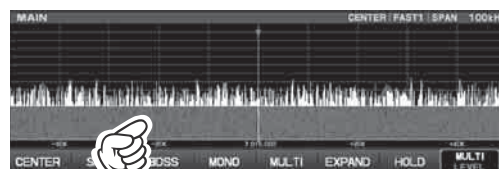


3DSS type



Waterfall type

Each time the Waterfall Display is touched, the size of the display changes as follows.



④ MONO (Dual/Mono Switching)

Touch to switch the display to "Mono" and show only the MAIN band.

Touch again to display both MAIN and SUB Bands.



Dual

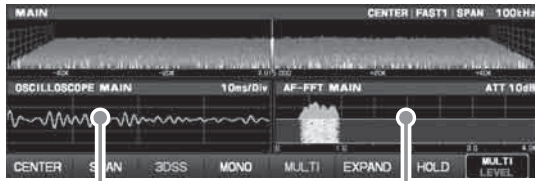


Mono

⑤ 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.

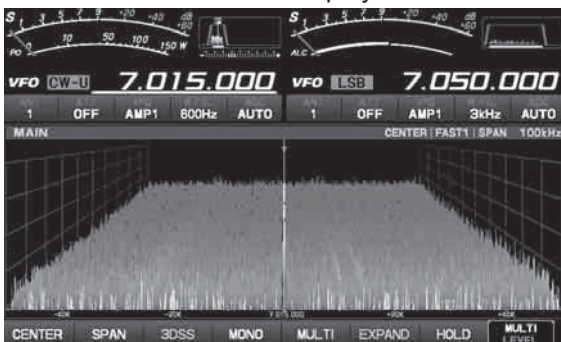
⑥ EXPAND

The display area of the scope screen may be expanded vertically.

Touch to expand the display. Touch again to return to the original.



Normal Display



Larger View

⑦ HOLD

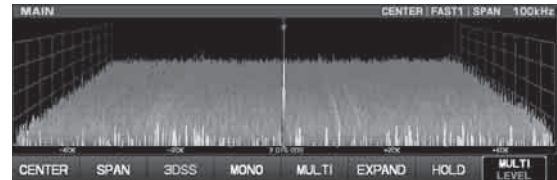
Temporarily stops the operation of the Scope Display and the Filter Function Display. Touch the display to enter HOLD state, touch it again to restore Scope operation.

During HOLD, "HOLD" flashes.

⑧ DISP

Each time the key is pressed, the Scope Screen Display changes as shown below.

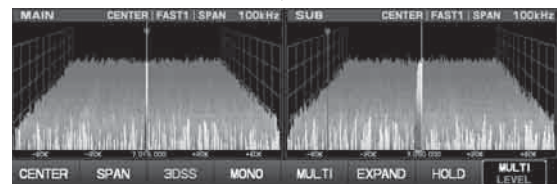
Press the [SUB] key to adjust the SUB band reference level.



Only "MAIN" or "SUB" will be displayed



Upper side: SUB, Lower side: MAIN



Left side: MAIN, Right side: SUB

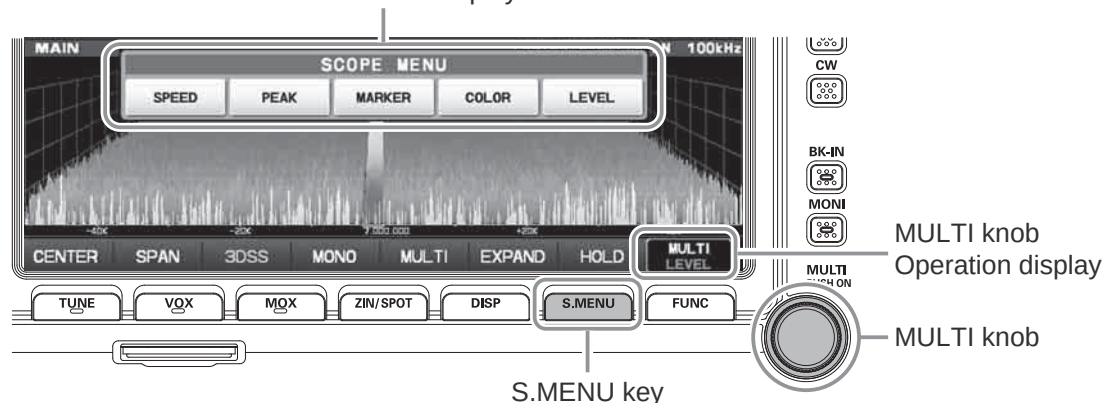


Left side: MAIN, Right side: SUB

9 S.MENU

On the SCOPE MENU screen, enter settings related to the Scope Display.
Press the [S.MENU] key to display the SCOPE MENU screen. Touch the desired item to set.

SCOPE MENU display



SPEED

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

SLOW1:	sweep speed	Slow
SLOW2:	sweep speed	↑
FAST1:	sweep speed	Normal
FAST2:	sweep speed	↓
FAST3:	sweep speed	Fast

PEAK

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

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.
Normally leave it ON.



Receive Frequency Transmit Frequency

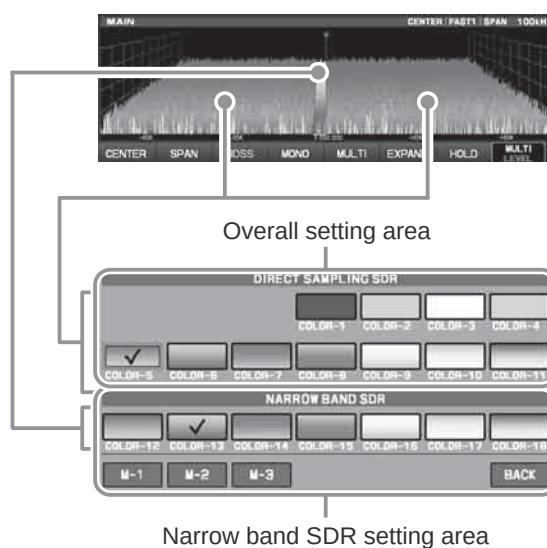
COLOR

Touch COLOR and select the desired color from the Display Color selection panel. The screen panel will disappear automatically after about 3 seconds. The color to be displayed for the Direct Sampling SDR, and for the Narrow Band SDR can be changed on the Color Selection Panel.

1. Press the [S.MENU] key to display the SCOPE MENU.
2. Touch [COLOR].
3. Touch the desired color from the selections on the screen.

To change the color of the Narrow Band SDR, touch and desired color block.

Favorite color combinations can be registered in the menu by pressing and holding M-1, M-2 or M-3. Even when the color is not changed, the Narrow Band SDR information is displayed.



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.

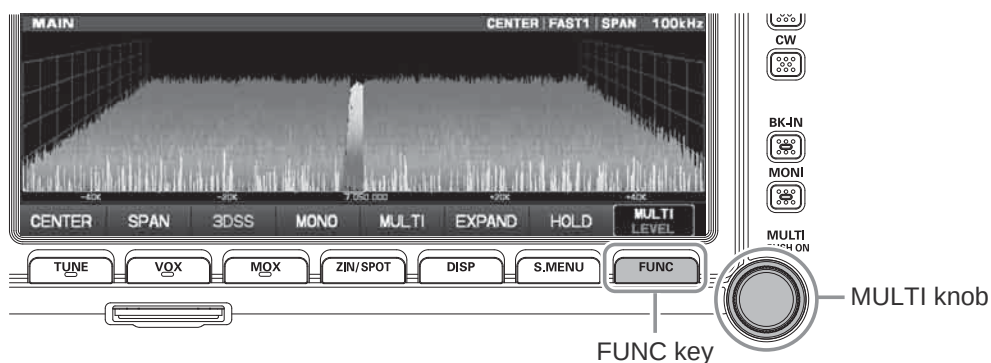
Always adjust the LEVEL for the best image on the screen.

Touch LEVEL, and then turn the [MULTI] knob to select the desired level.



- 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.

⑩ Function Menu Display



Press the [FUNC] key to call up the function screen for setting various functions. The setting menu (page 88) is also called from the function screen. Press again to return to the normal operation screen. Touch a MENU item, or rotate the [MULTI] control knob to make a selection.

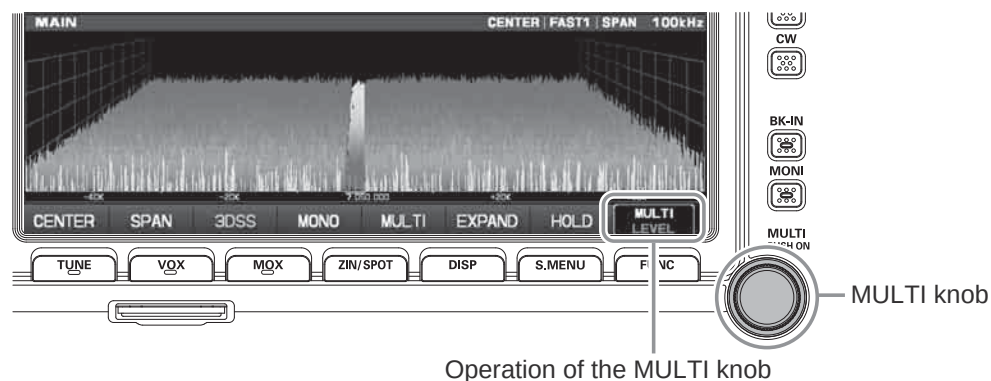


⑪ Operation of the Display MULTI Knob



[MULTI] displays the operation of the [MULTI] knob.

Normally, it is recommended to adjust the level of the spectrum scope as the [LEVEL] knob control of [S.MENU]. The last function used is stored in the [MULTI] control, it can easily set by operating the [MULTI] control.



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

SPEED*: Set Scope Sweep Speed.
PEAK*: Adjust the Peak Signal Color Density.
MARKER*: ON/OFF Marker indicates the transmit and receive frequency position within the Scope Display image.
COLOR*: Changes the scope display color.
LEVEL*: Adjust the reference level to make it easier to distinguish the scope display target signal from the noise.

*These items may be called up by pressing the [S.MENU] key.

RF POWER: Transmit power setting
MONI LEVEL: Monitor level adjustment
DNR LEVEL: DNR level setting
NB LEVEL: Noise blanker level setting
VOX GAIN: VOX gain setting
VOX DELAY: VOX delay setting
ANTI VOX: Anti-VOX Settings
STEP DIAL: Frequency change at predetermined frequency step
MEM CH: Memory channel selection
GROUP: Memory group selection
R. FIL: Roofing filter bandwidth selection

Other On-Screen Indications

BUSY:	Lights up while receiving a signal.	M-xx:	Displays the selected channel number in memory mode.
TX:	Lights up during transmission.	MT:	Lights up during memory tuning operation.
+:	Lights in plus shift (repeater operation).	QMB:	Lights up during operation with quick memory.
-:	Lights in negative shift (repeater operation).	PMS:	Lights up during programmable memory scan operation.
ENC:	Lights when the tone encoder is operating.	EMG:	Emergency call set frequency call lights up.
TSQ:	Lights during tone squelch operation.	LSB / USB / CW-L / CW-U / AM / AM-N / FM / FM-N / DATA-L / DATA-U / DATA-FM / D-FM-N / RTTY-L / RTTY-U / PSK:	Displays the selected radio emission type.
CLAR TRX:	Lights when the TRX clarifier is in operation.		
CLAR TX:	Lights up during TX clarifier operation.		
CLAR RX:	Lights up during RX clarifier operation.		
+ xxx Hz / -xxx Hz:	Displays the offset amount of the clarifier.		
HI-SWR:	A warning display to indicate an antenna system error.		
VFO:	Lights in VFO mode.		

About TFT Displays

FTDX101MP utilizes a TFT liquid-crystal display.

Although TFT liquid-crystal displays are made using very precise technology, they are prone to develop dead pixels (dark dot) or pixels that are always on (bright dot). Please understand that such phenomena do not constitute product defects or malfunctions. Rather, this phenomena occurs due to limitations in the manufacturing technology with respect to TFT liquid-crystal displays.

- Depending on the viewing angle, unevenness in color or brightness may occur. Please note that any unevenness observed is inherent to the construction of TFT liquid crystal displays and therefore does not constitute a product defect or malfunction.
- If your TFT liquid-crystal display becomes dirty, please use a dry soft cloth or tissue to wipe the display clean. Use of glass cleaner, household cleaners, organic solvents, alcohol, abrasives, and/or like substance may damage the TFT liquid-crystal display.

Screen Saver

A Screensaver, to prevent burning of the TFT screen will operate after a set time, if no transceiver function is operated.

1. Press the [FUNC] key.
2. Select [DISPLAY SETTING] → [DISPLAY] → [SCREEN SAVER].
3. Select the time until the screen saver is employed (default setting is 60 min).

OFF	Screensaver is not employed.
15min	Screensaver activates after 15 minutes.
30min	Screensaver activates after 30 minutes
60min	Screensaver activates after 60 minutes

4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

Adjust contrast

Adjust the contrast of the TFT display.

1. Press the [FUNC] key.
2. Select [DISPLAY SETTING] → [DISPLAY] → [TFT CONTRAST].
3. Turn the [MULTI] knob to adjust the contrast (default setting is 10).
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

Adjusting the brightness (Dimmer)

Adjust the brightness of the TFT display and LED indicators.

1. Press the [FUNC] key.
2. Select [DISPLAY SETTING] → [DISPLAY].
3. Select the item whose brightness you want to adjust.

TFT DIMMER	Display (default 15)
LED DIMMER	LED indicators (default 10)

4. Turn the [MULTI] knob and adjust the brightness.
5. Press the [FUNC] key to save the new setting and exit the Setting Menu.
6. Press the [FUNC] key to exit to normal operation.

Font setting for frequency display

The height of the frequency display can be varied.



BOLD (Default)



LIGHT

1. Press the [FUNC] key.
2. Select [DISPLAY SETTING] → [DISPLAY] → [FREQ STYLE].
3. Select "LIGHT" or "BOLD".
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

Inputting the Call Sign

Registered call signs names, and characters can be displayed on the opening screen when the power is turned ON.

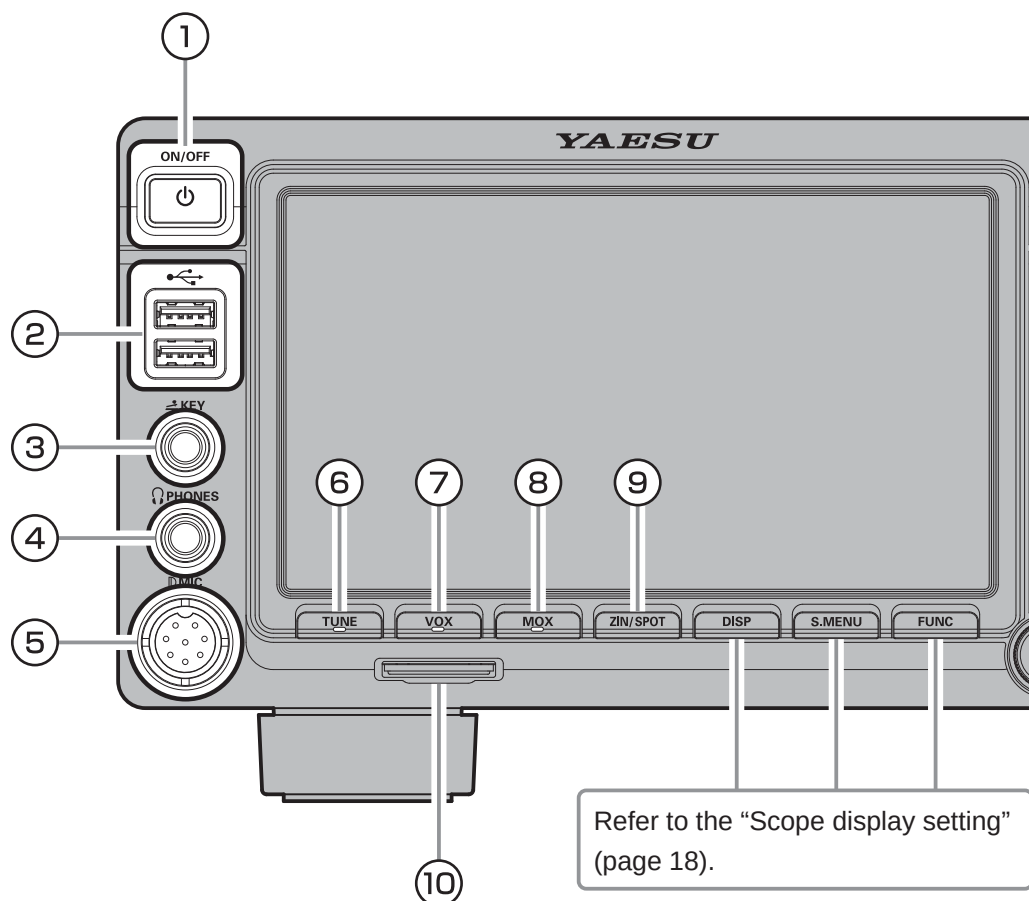
1. Press the [FUNC] key.
2. Select [DISPLAY SETTING] → [DISPLAY] → [MY CALL].
3. Touch a character key. The touched character will be displayed at the top of the screen. Enter each character of your call sign.
Up to 12 characters (letters, numbers, and symbols) can be entered.



Caps	The input switches between lower and upper-case letters each time this symbol is touched.
⌫	One character to the left of the cursor is erased when this symbol is touched.
BACK	The display returns to the previous screen when this symbol is touched.
⬅ / ➡	The cursor in the input field moves left or right when these symbols are touched.
Space	Insert space
ENT	The entered characters are confirmed and the display returns to the previous screen when this symbol is touched.

4. Touch [ENT].
5. Press the [FUNC] key to save the new setting and exit the Setting Menu.
6. Press the [FUNC] key to exit to normal operation.

Front Panel Controls & Switches



Refer to the "Scope display setting" (page 18).

① ON/OFF Switch

Press and hold this switch for one second to turn the transceiver ON or OFF.

② USB Jack

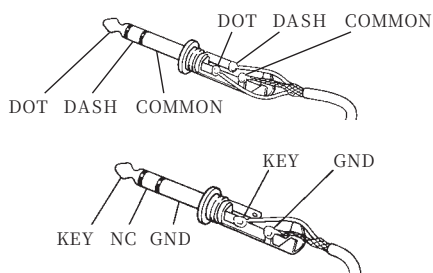
Connect a USB A type keyboard or mouse. They can be used to select items on the screen or to enter characters.

③ KEY

Connect a telegraph key or electronic keyer paddle to use for CW mode operation.



When connecting a key or other device to the KEY jack, use only a 3-contact ("stereo") 3.5 mm phone plug; a 2-contact plug will place a short between the ring and the (grounded) shaft of the plug, resulting in a constant "key-down" condition.



Key-up voltage is approximately +3.3 V DC, and key-down current is approximately 1 mA.

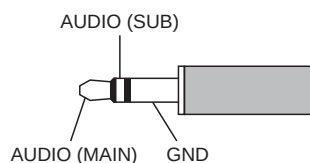
④ PHONES Jack

Connect headphones to this standard $\phi 6.3$ stereo jack.

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

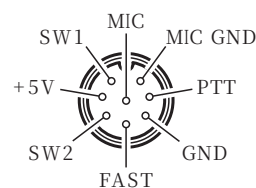


When wearing headphones, we recommend that you turn the AF Gain levels down to their lowest settings before turning power ON, to minimize the impact on your hearing caused by audio "pops" during switch-on.



⑤ MIC

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



⑥ TUNE

This is the ON/OFF switch for the FTDX101MP Automatic Antenna Tuner.

Press the [TUNE] key briefly to activate the antenna tuner. Press the [TUNE] key briefly again to disable the antenna tuner.

Press the [TUNE] key for about 1 second to start “automatic tuning”.



Since the transceiver transmits automatically during automatic tuning, make sure to connect an antenna or dummy load before tuning up.



When the antenna or dummy load does not match the impedance, “HI-SWR” will appear on the touch panel.

⑦ VOX

This key enables automatic voice-actuated transmitter switching. While VOX is activated, the LED inside this key glows orange.

1. Press the [VOX] key.
VOX feature is activated
2. Without pressing the PTT switch, speak into the microphone in a normal voice level. When you start speaking, the transmitter should be activated automatically.
When you finish speaking, the transceiver should return to the receive mode (after a short delay).

To cancel VOX and return to PTT operation, press the [VOX] key once more.

• Adjusts the VOX GAIN

The VOX Gain may be adjusted to prevent unintended transmitter activation in a noisy environment. To adjust the VOX Gain:

1. Press the [FUNC] key.
2. Touch [VOX GAIN] .
3. While speaking into the microphone, rotate the [MULTI] knob to the point where the transmitter is quickly activated by your voice, without background noise causing the transmitter to activate.

• Adjusts the VOX Delay Time

The “Hang-Time” of the VOX system (the transmit-receive delay after the cessation of speech) may also be adjusted.

To set a different delay time:

1. Press the [FUNC] key.
2. Touch [VOX DELAY] .
3. Rotate the [MULTI] knob while saying a brief syllable like “Ah” and listening to the hang time for the desired delay.

• Adjusts the VOX anti-trip sensitivity

The Anti-Trip setting sets the negative feedback of receiver audio to the microphone, to prevent receiver audio from activating the transmitter (via the microphone).

1. Press the [FUNC] key.
2. Touch [ANTI VOX] .
3. Rotate the [MULTI] knob to prevent receiver audio from activating the transmitter (via the microphone).

⑧ MOX

Pressing this key engages the PTT (Push to Talk) circuit to activate the transmitter.

⑨ ZIN/SPOT

ZIN

Press the [SELECT] switch momentarily to adjust the receiving frequency and zero-in automatically while receiving a CW signal.

SPOT

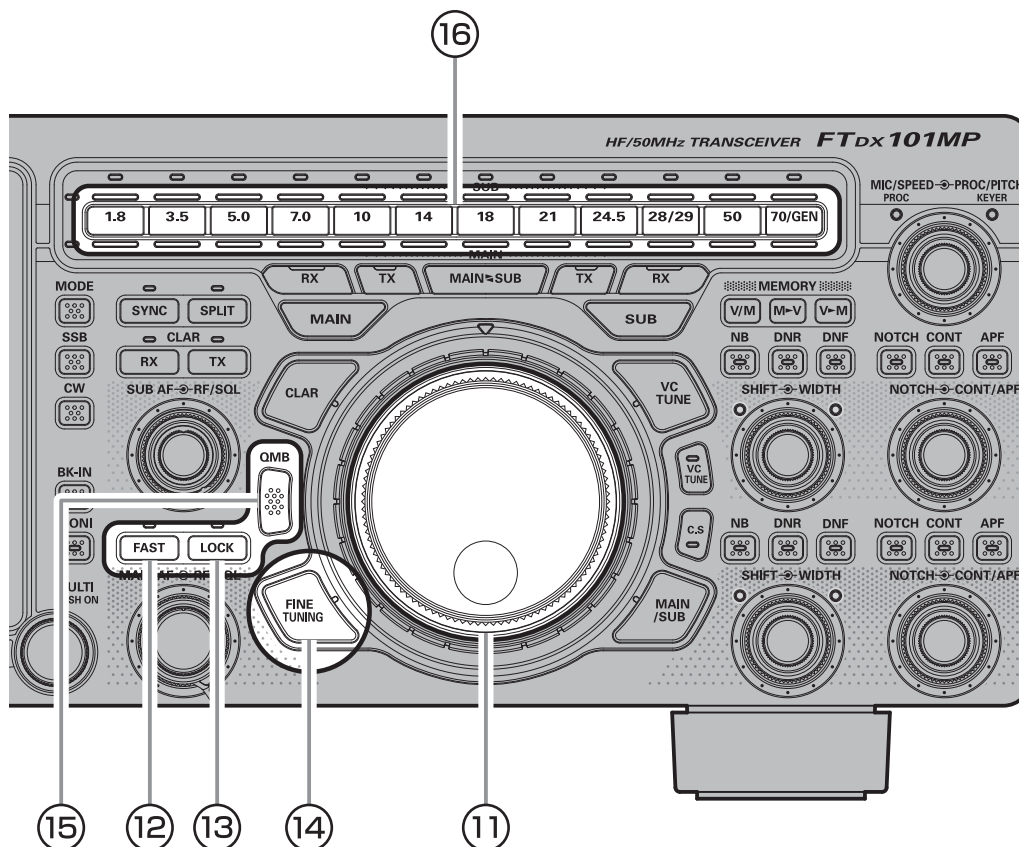
While pressing and holding [SPOT], the tone is output from the speaker. This tone corresponds to the pitch of your transmitted signal. If you adjust the receiver frequency until the pitch of the received CW signal matches that of the Spot tone, the transmitted signal will be precisely matched to that of the other station.

⑩ SD memory card slot

You can use the commercially available SD memory card to save various settings, save the memory contents, screen capture and update the firmware.



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



11 MAIN dial

The MAIN dial sets the operating frequency. Rotate the MAIN dial knob to tune within the band, and begin normal operation.

- Pressing the [FAST] key engages the “Fast” tuning selection.
- The amount of frequency change depends on the operation mode (default setting: see table below).

Operating Mode	1 Step	1 Dial Rotation
LSB / USB / CW DATA-L / DATA-U RTTY / PSK	10 Hz (100 Hz)	5 kHz (50 kHz)
AM / FM DATA-FM	100 Hz (1 kHz)	50 kHz (500 kHz)

Numbers in parentheses indicate steps when the [FAST] key is On.

*This setting may be changed to 5 Hz in Setting Menu.

SSB/CW mode

“SSB/CW DIAL STEP” (page 103)

RTTY/DATA mode

“RTTY/PSK DIAL STEP” (page 103)

Adjusting the Main tuning DIAL torque

The torque (drag) of the Main DIAL knob may be adjusted for operating preferences. Slide the lever on the bottom side of the transceiver clockwise to reduce the drag, or counter-clockwise to increase the drag.

12 FAST

Pressing this key will change the tuning of the MAIN Dial knob and [MULTI] knob (When STEP DIAL function is assigned) to a higher step rate.



In Spectrum Scope FIX mode, a long press makes the receiver frequency the start frequency with one touch.



When FINE TUNING is activated, the amount of frequency change of the Main dial does not become a higher step rate.

13 LOCK

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 “MAIN LOCK” appears in the frequency display.

14 FINE TUNING (Tuning of 1 Hz)

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

- The AM, FM, DATA-FM modes may be adjusted in 10 Hz steps.

1. Press the [FINE TUNING] key.
2. Rotate the MAIN dial knob.



While FINE TUNING is operating, the MAIN dial frequency change will not be 10 times faster, even if the FAST function is activated.

15 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

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



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

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



- 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:
3. Press the [V/M] key to return to the VFO mode.

• Confirm the contents of QMB

You can display the contents memorized in QMB on the screen to check the data.

1. Press the [FUNC] key.
2. Touch “QMB LIST”, the QMB list will be displayed.

QMB LIST					
1	3 550.000	LSB			BACK
2	21 150.000	USB			
3	14 195.000	USB			
4	7 050.000	LSB			
5					DELETE



On the list display screen, select the channel you want to delete, and then touch “DELETE” to clear the selected QMB.

• Changing the number of QMB channels

The QMB channels can be changed from “5 channels” or “10 channels”.

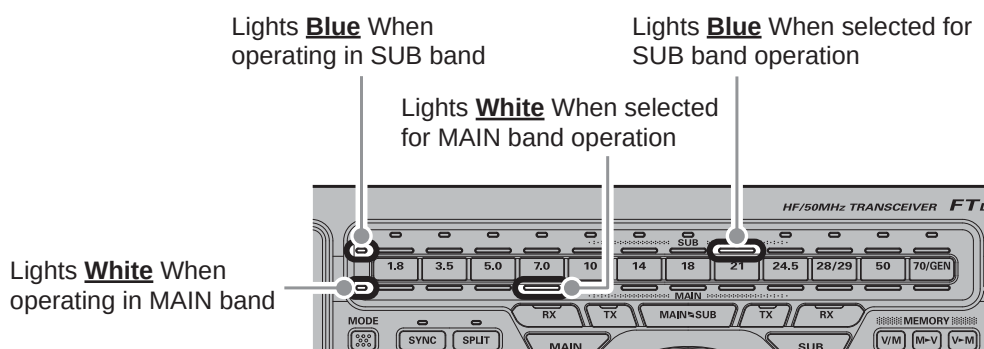
1. Press the [FUNC] key.
2. Select [OPERATION SETTING] → [GENERAL] → [QMB CH].
3. Select “5ch” or “10ch”.
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

16 BAND (Operating Band Selection)

Press the BAND key corresponding to the Amateur band that you wish to operate.
The Indicator of the MAIN band lights “White”, and the SUB band lights “Blue”.

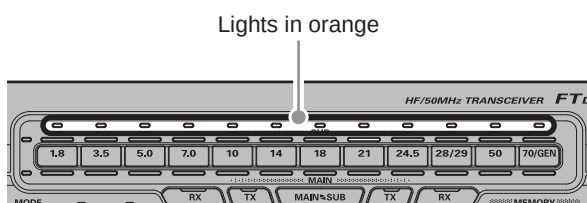
During transmit the indicator will light in “Red” to designate which band is transmitting.

Example: Setting the MAIN band to 7 MHz, and setting the SUB band to 21MHz.

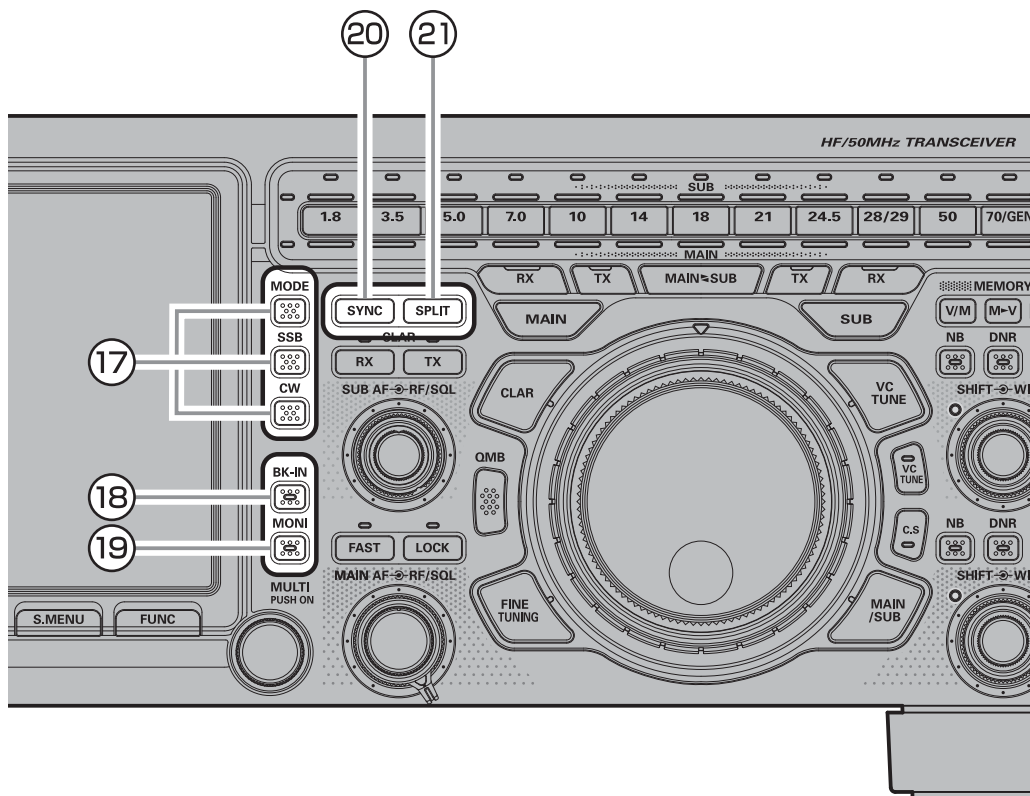


• Mark the operation band

Press and hold the desired band key, the orange Band Indicator will light.
Press and hold the key again to turn the Indicator OFF.

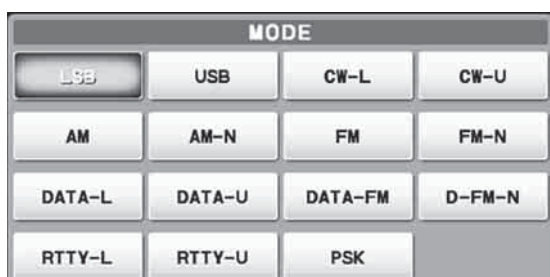


- The Band Indicator may be used to designate a connected antenna, a DXpedition, or contest operation band. Use it instead of MEMO.
- More than one band may be marked at the same time.



17 MODE/SSB/CW

Switch the operating mode.
Press and hold the [MODE] key, then touch the desired operating mode.
Press it briefly to set the previously selected operating mode.



Pressing the [SSB]/[CW] key repeatedly will toggle to the alternate mode.

In the LSB or USB mode, pressing the [SSB] key toggles between "LSB" and "USB" mode.

In the CW-L or CW-U mode, pressing the [CW] key toggles between "CW-L" and "CW-U" mode.

[SSB] key

USB → LSB → USB →

[CW] key

CW-U → CW-L → CW-U →



When changing modes from SSB to CW, the display 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" page 94).

18 BK-IN

This key turns the CW break-in capability ON or OFF. While CW break-in is activated, the LED inside this key glows orange.

19 MONI

Use the Monitor feature to listen to the quality of your transmitted signal. While activated, the LED inside this key glows orange.

1. Press the [MONI] key.
Monitor feature is activated.
When transmitting, the audio (side tone when in CW operation) is heard from the speaker.
2. Press and hold the [MONI] key and adjust the Monitor level with the [MULTI] knob.



Transmit audio monitor is not activate in the FM, 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.
- 3. To switch the Monitor OFF again, press the [MONI] key once more.
- 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.

20 SYNC

Change the frequency of the MAIN band with the MAIN dial, the frequency of the SUB band also changes in the same step. If you press and hold for a while, the SUB band frequency will be the same as the MAIN band.

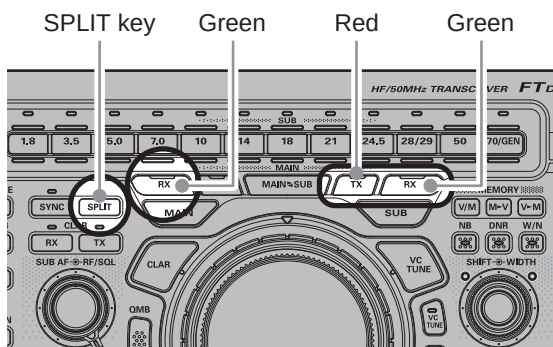
When this key is pressed and held, the frequency of the SUB band becomes the same frequency as the MAIN band.

②1 SPLIT

A powerful capability of the FTDX101MP is its flexibility in Split Frequency operation using the MAIN band and SUB band frequency registers. This makes the FTDX101MP 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 receive frequency.
2. Press the [SUB] key.
3. Set the SUB band frequency to the desired transmit frequency.
4. Press the [MAIN] key, then press the [SPLIT] key.

The LED indicators will appear as shown below:



During Split operation, the MAIN band register will be used for reception, while the SUB band register will be used for transmission. If you press the [SPLIT] key once more, Split operation will be cancelled.

- During Split operation, pressing the [MAIN↔SUB] key will reverse the contents of MAIN band and SUB band. Press the [MAIN↔SUB] key once more to return to the original frequency settings.
- The receive and transmit frequencies can be set to different bands or operation modes.
- When transmitting and receiving in the MAIN band, if you press this, the transmission frequency will be the frequency of the SUB band and the frequency of the SUB band and the SUB band frequency display will be red.

Press and hold to increase the SUB band transmission frequency by 5 kHz.

- [SYNC] key
The [SYNC] key can move the frequencies of the MAIN band and SUB band simultaneously.
Press and hold to adjust the SUB band frequency to the MAIN band frequency.

• Quick Split Operation

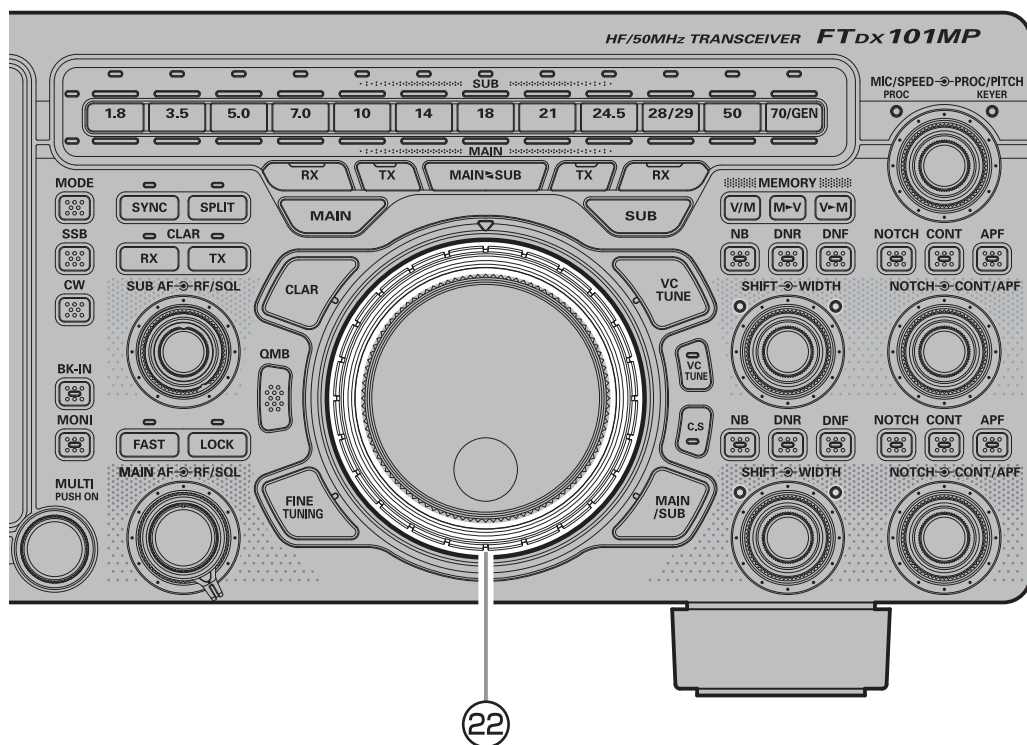
The Quick Split feature allows setting a one-touch offset of +5 kHz as compared to the MAIN band frequency, to be applied to the transceiver SUB band (transmit) frequency.

1. Start with regular transceiver operation on the MAIN band.
 2. Press and hold the [SPLIT] key to engage the Quick Split feature, which applies a frequency 5 kHz above the MAIN band frequency to the SUB band frequency register.
 3. Press and hold in the [SPLIT] key to increment the SUB band frequency another +5 kHz.
- The offset of SUB band from MAIN band is programmed via the Menu and is set to +5 kHz at the factory.
 - However, other offsets may be selected using menu item [QUICK SPLIT FREQ] (page 98).

• Direct input of offset frequency

The offset can be set to a frequency other than 5 kHz with the on-screen keyboard.

1. Set the MAIN band frequency to the desired receive frequency.
 2. Press the [FUNC] key.
 3. Select [OPERATION SETTING] → [GENERAL] → [QUICK SPLIT INPUT].
 4. Select "ON".
 5. Press the [FUNC] key to save the new setting and exit the Setting Menu.
 6. Press the [FUNC] key to exit to normal operation.
 7. Press and hold the [SPLIT] key.
 8. Enter the offset frequency with the keyboard on the screen, then touch [kHz].
- The frequency range that can be input is from -20 kHz to +20 kHz.

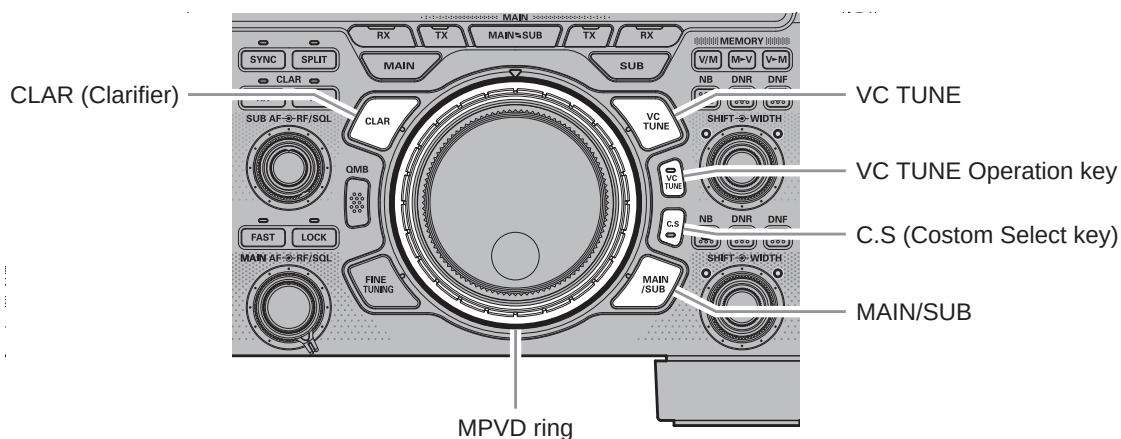


22 MPVD ring (MULTI PURPOSE VFO OUTER DIAL)

Select the MPVD operation by touching one of the keys: MAIN/SUB dial, VC TUNE, CLAR (Clarifier), C.S (Custom Select).

Change the function of the MPVD ring

The function of the MPVD ring can be changed simply by pressing the key below.



CLAR:	Acts as a clarifier knob.
VC TUNE:	Adjusts the tuning point when the VC tune function is activated.
C.S:	11 types of functions can be assigned in advance.
MAIN / SUB:	Operates as a dial to set the frequency of the SUB band when the operation band is the MAIN band, and as the frequency of the MAIN band when the operation band is the SUB band.

Clarifier

The clarifier is used to adjust the receiver frequency of this transceiver 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 [CLAR] key is pressed, the MPVD multi-function ring becomes the Clarifier Dial and “CLAR” is displayed in gray below the filter function display on the TFT display.

Turning the MPVD ring changes the clarifier offset frequency.

When the [CLAR RX] or the [CLAR TX] key is pressed, the display changes from gray to red and the Clarifier operates.

To turn the clarifier OFF, press the [CLAR RX] or the [CLAR TX] key again.

• RX Clarifier

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

1. Press the [CLAR] key on the top left of the MPVD ring to light the indicator.
2. Press the [CLAR RX] key.
3. Rotate the MPVD ring to change only the receive frequency.



When the receive frequency is offset by +20 Hz.

- The “CLAR RX” will appear in the display, and the programmed offset will be applied to the receive frequency.
- Offsets of up to ± 9990 Hz may be set using the Clarifier.

4. To cancel Clarifier operation, press the [CLAR RX] key.

- Since the offset amount is memorized, when the clarifier function is operated again, the same offset amount is set.

To clear out the programmed clarifier offset altogether, and reset it to “zero,” press and hold the [CLAR RX], [CLAR TX] or [CLAR] key.

• Adjust transmit frequency to the offset frequency

After changing the receiver frequency with RX Clarifier, the transmitter frequency can be set to the same frequency as the receiver.

1. After offsetting the receiver frequency, press the [CLAR TX] key.
The transmit frequency becomes the same as the receive frequency.
- “CLAR RX” of the display changes to “CLAR TRX”.
2. Press the [CLAR TX] key again, only the reception frequency returns to the offset state.
- “CLAR TRX” of the display changes to “CLAR RX”.

• 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 on the top left of the MPVD ring to light the indicator.
2. Press the [CLAR TX] key.
3. Rotate the MPVD ring to change only the transmit frequency.



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

4. To cancel Clarifier operation, press the [CLAR TX] key.

To clear out the programmed clarifier offset altogether, and reset it to “zero,” press and hold the [CLAR RX], [CLAR TX] or [CLAR] key.

• To offset the frequency with the TX Clarifier Adjust receive frequency

When the transmit frequency is offset with the TX Clarifier, it can be reset to the same frequency as the TX frequency offset from the receive frequency. After offsetting the transmit frequency, press the [CLAR RX] key.

The “CLAR TX” display changes to “CLAR TRX” and the receive frequency becomes the same as the transmit frequency.

VC TUNE

The VC tuning circuit drives the variable capacitor in the receiver RF front end with a high precision stepping motor, and effectively attenuates the strong intruding signals that are particularly problematic in the low band. If there are multiple disturbing signals, turning the MPVD ring allows fine tuning of the VC tuning point.

1. Press the [VC TUNE] operation key.
 - When the VC Tune is active, the LED lights red and a bar graph representing the position of the VC Tuning frequency is displayed in the filter function display.
 - The VC tune circuit will automatically align itself to the operating frequency.
2. To exit from VC tune operation, press the [VC TUNE] operation key.



When VC Tune operates, the display on the Scope Screen also changes significantly because the RF sensitivity changes greatly. Adjust the reference level with the [MULTI] knob or turn the MPVD ring to make fine adjustments.

• Fine tune the tuning point

1. Press the [VC TUNE] key (located at the upper right of the MAIN dial).
 2. Rotate the MPVD ring to peak the response (background noise) or reduce interference.
- Press and hold the [VC TUNE] operation key to re-center the filter response on the current operating frequency.



When VC Tune operates, the steep attenuation characteristics of VC Tuner may cause some signals in the Spectrum Scope to be attenuated and disappear, or the image may not appear uniform, however this is not a malfunction.



The VC tune function works only with amateur bands from 1.8 MHz band to 29 MHz.

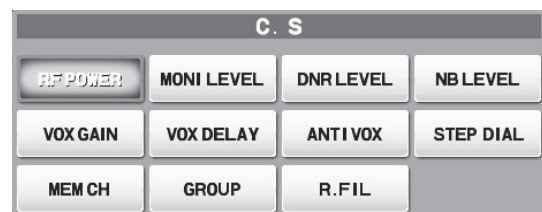
C.S (Custom Select)

By simply pressing the [C.S] key, the MPVD ring operates in the function that has been assigned to the [C.S] key (see below) (default setting is MEM CH).

RF POWER	Adjusts transmission output.
MONI LEVEL	Adjusts the Monitor level.
DNR LEVEL	DNR level adjustment.
NB LEVEL	NB level adjustment.
VOX GAIN	VOX gain adjustment.
VOX DELAY	VOX delay adjustment.
ANTI VOX	ANTI VOX adjustment.
STEP DIAL	Frequency change at a predetermined frequency step.
MEM CH	Selects the Desired memory channel.
GROUP	Selects the memory group.
R.FIL	Pass band width selection of Roofing filter.

• How to assign functions

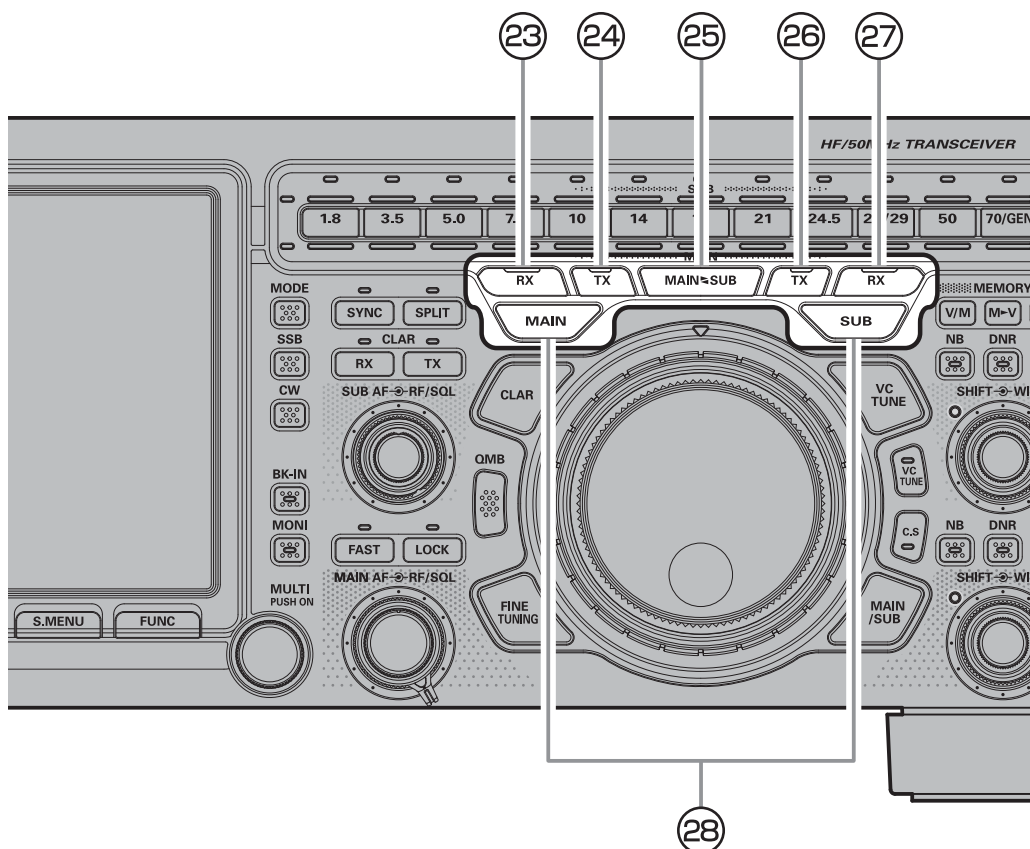
1. Press and hold the [C.S] key.
The function selection screen is displayed.



2. Touch the function you want to assign.

MAIN/SUB

When the MAIN/SUB key is pressed, the MPVD ring tunes the SUB band frequency. When operation is on the MAIN band. When operation is on SUB band. the ring tunes the frequency of the MAIN band.



23 RX (MAIN band)

Press this key to activate receive on the MAIN band frequency. The LED inside the key will glow green when the transceiver is receiving on the MAIN band frequency.

When pressed, the MAIN band received audio is muted and the indicator is turned OFF.



- When muted, the bandwidth color changes from red to gray.
- The receiver audio will disappear but the band information will be displayed.

24 TX (MAIN band)

When this key is pushed, the LED inside the key will glow red; and, when the PTT switch is pressed, the transceiver will transmit on the MAIN band frequency.



To transmit at the SUB band frequency, press the SUB band side [TX] key.

25 MAIN<=>SUB

Pressing this key momentarily, exchanges the MAIN band and SUB band frequency data. If pressed and hold, both the MAIN and SUB bands will be the operating band frequencies.

26 TX (SUB band)

When this key is pushed, the LED inside the key will glow red; and, when the PTT switch is pressed, the transceiver will transmit on the SUB band frequency.



To transmit at the MAIN band frequency, press the MAIN band side [TX] key.

27 RX (SUB band)

Press this key to activate receive on the SUB band frequency. The LED inside the key will glow green when the transceiver is receiving on the SUB band frequency.

When pressed, the SUB band received audio is MUTED and the indicator is turned OFF.



- When muted, the bandwidth color changes from red to gray.
- The receiver audio will disappear but the band information will be displayed.

28 Switching bands to operate Dial knobs etc.

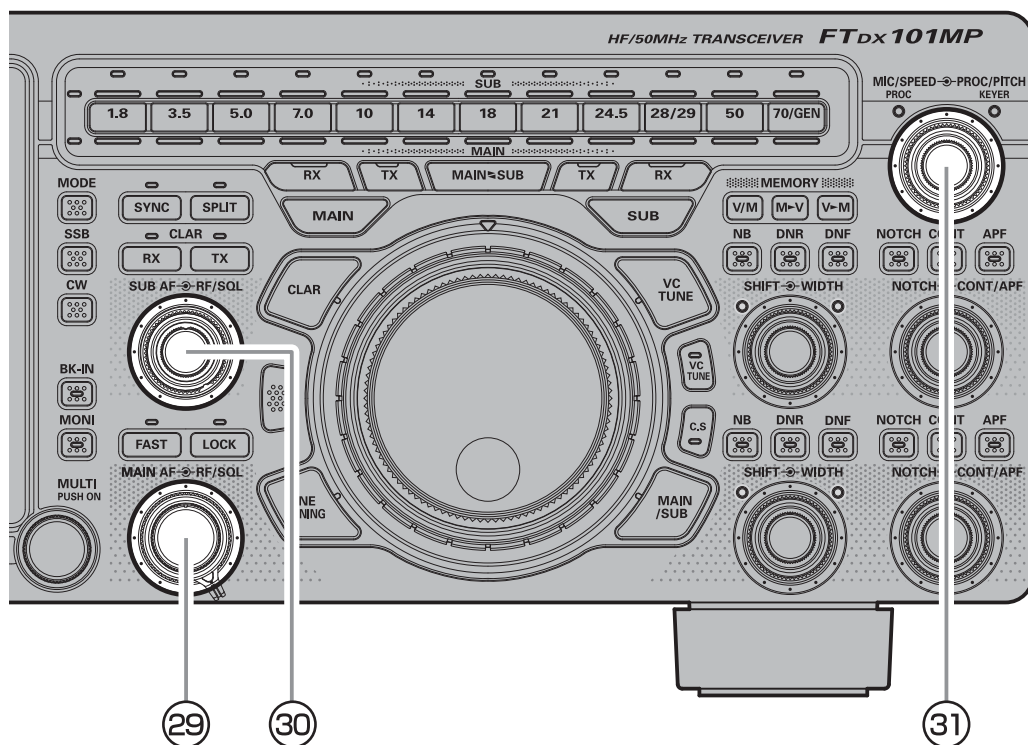
The MAIN band receiver (left side of the screen) and the SUB band receiver (right side of the screen) are completely independent dual receivers, with separate circuit configurations, different frequencies and operations.

Press the [MAIN] or [SUB] key to switch the receivers.

When the [MAIN] key appears in white, common dials and other knobs operate for the MAIN band. When the [SUB] key is shown in blue, common controls such as the dial controls operate for the SUB band.



The large frequency display with the underline is the current operating frequency.



②⑨ MAIN AF, RF/SQL

Inner Knob (MAIN AF)

The inner [MAIN AF] knob sets the audio level of the MAIN band receiver.

Outer Knob (RF/SQL)

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.

[RF/SQL] knob is normally left in the fully clockwise position.

The RF Gain function can be adjusted individually for MAIN band and SUB band.



- Before operation, set the operation of the [RF/SQL] control to "RF" (see below). The default setting is "RF".
- It does not operate in FM and DATA-FM mode.

SQL

The squelch system allows the back-ground noise to be muted when no signal is being received.

Normally, the squelch is not used during SSB or CW operation.



Before operation, set the operation of the [RF/SQL] control to "SQL". The default setting is "RF".

Rotate the [RF/SQL] knob to adjust the squelch until the noise disappears.



If the squelch knob is turned too far to the right, weak signals cannot be heard

• Switching the operation of the [RF/SQL] knob

1. Press the [FUNC] key.
2. Select [OPERATION SETTING]→[GENERAL] → [RF/SQL VR].
3. Select "RF" or "SQL".
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.



RF/SQL settings cannot be set separately for the MAIN band and the SUB band.

③⑩ SUB AF, RF/SQL

Inner Knob (SUB AF)

The inner [SUB AF] knob sets the audio level of the SUB band receiver.

It is similar to the MAIN Band knob operation.

Outer Knob (RF/SQL)

Adjusts the RF gain and the SQL (squelch).

It is similar to the MAIN Band knob operation.

③⑪ MIC/SPEED, PROC/PITCH

Inner Knob (MIC/SPEED)

Adjusts the microphone gain (microphone sensitivity) (0 to 100) in SSB and AM modes.

In CW mode, adjusts the keying speed of the built-in electronic keyer (4 WPM - 60 WPM).



When the knob is turned, the display will show the relative microphone gain or the keying speed for 1/2 second.

When pressed in SSB mode, turns the AMC or speech processor ON/OFF (page 48, 49).

When pressed in CW mode, the built-in electronic keyer is turned ON/OFF (page 58).

Outer Knob (PROC/PITCH)

In SSB mode, adjusts the level of AMC or the Speech Processor (1 to 100).

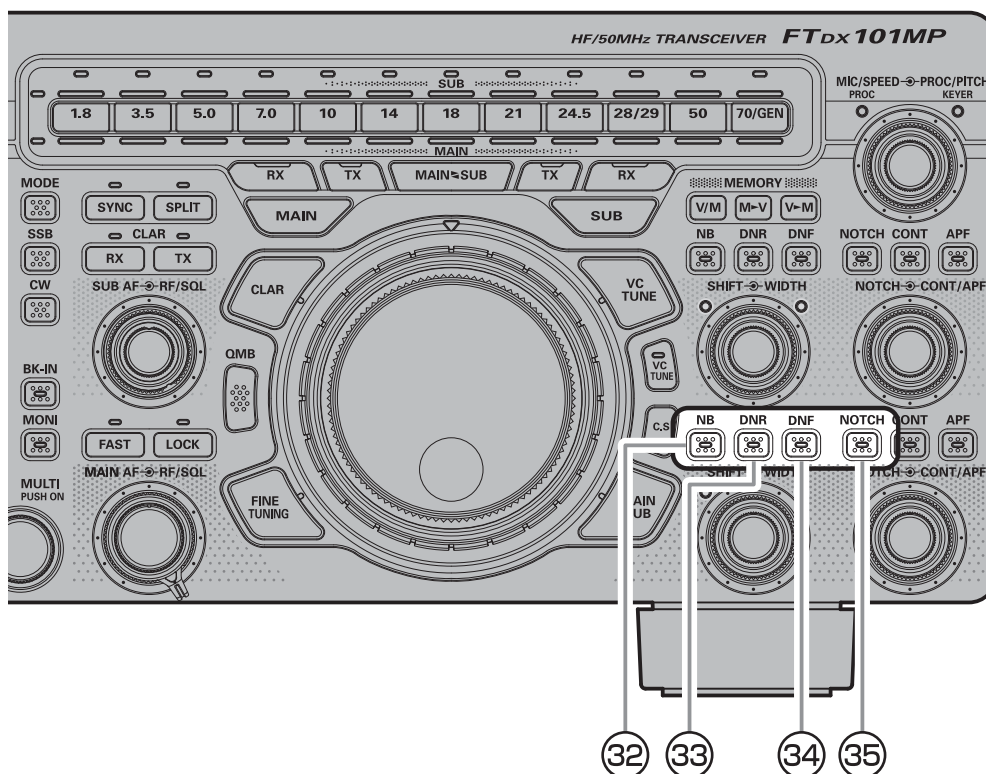
In CW mode, adjusts the CW tone (300 Hz to 1050 Hz) when receiving the CW signal and the side tone monitor.



When the outer [PROC/PITCH] knob is turned, the AMC level, Compression level or the Spot tone frequency setting will be shown for 1/2 second in the display.



Refer to "Voice Communications (SSB and AM)" on page 48 for the setting.



MAIN Band Operation

32 NB

The FTDX101MP includes an effective IF Noise Blanker, which can significantly reduce noise caused by automotive ignition systems. The NB function can be operated individually for MAIN band and SUB band.

1. Press the [NB] key.
2. Press and hold the [NB] key and adjust the NB level with the [MULTI] knob.

To disable Noise Blanker operation, press the [NB] key once more.



The NB function may be less effective on some other types of interference.

• Adjusting the Noise Attenuation

1. Press the [FUNC] key.
2. Select [OPERATION SETTING]→[GENERAL]→[NB REJECTION].
3. Rotate the [MULTI] knob to set the noise attenuation (10dB / 30dB / 40dB).
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

• Reduces longer duration pulse noise

Reduces long duration noise as well as pulse noise.

1. Press the [FUNC] key.
2. Select [OPERATION SETTING]→[GENERAL]→[NB WIDTH].
3. Rotate the [MULTI] knob to select the value that will reduce the noise.
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

• Set the MULTI knob to NB level adjustment knob

1. Press the [FUNC] key.
2. Touch [NB LEVEL].
The [MULTI] knob will operate as the NB level adjustment knob.

33 DNR (Digital Noise Reduction)

The Digital Noise Reduction (DNR) system is designed to reduce the level of ambient noise found on the HF and 50 MHz bands. The (DNR) system is especially effective during SSB operation. Any of 15 different noise-reduction algorithms can be selected; each of these algorithms was created to deal with a different noise profile. You will want to experiment with the DNR system to find the best setting corresponding to the noise currently being experienced.

The DNR function can be operated individually for MAIN band and SUB band.

1. Press the [DNR] key.
2. Press and hold the [DNR] key, then rotate the [MULTI] knob to choose one of 15 algorithms that best reduces the noise level.

To disable the DNR system, press the [DNR] key once more.

34 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.

The DNF function can be operated individually for MAIN band and SUB band.

Press the [DNF] key, activate the DNF function.

To disable the DNF system, press the [DNF] key once more.



If a very strong interfering carrier is encountered, we recommend using the IF NOTCH filter first, as it is the most effective notching tool in the receiver section.

35 NOTCH (IF NOTCH Filter)

The IF NOTCH filter is a highly effective system that allows you to slice out an interfering beat note or other carrier signal from inside the receiver passband.

The NOTCH function can be operated individually for MAIN band and SUB band.

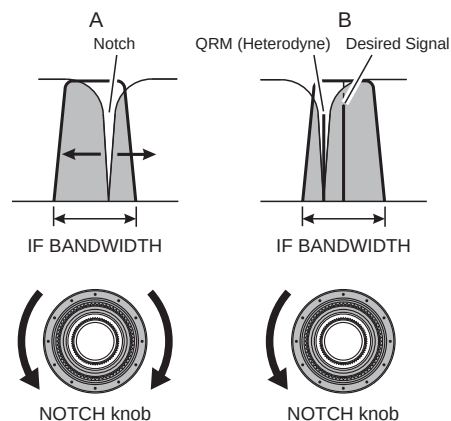
1. Press the [NOTCH] key.
 2. Rotate the [NOTCH] knob to adjust the “null” position of the Notch filter.
- The display will show the center frequency of the Notch for 1/2 second whenever the [NOTCH] knob is turned.
 - Press and hold the [NOTCH] knob to return the center frequency to its initial value and disable the NOTCH filter function.
 - On the filter function display area, you can check the position of the attenuation.

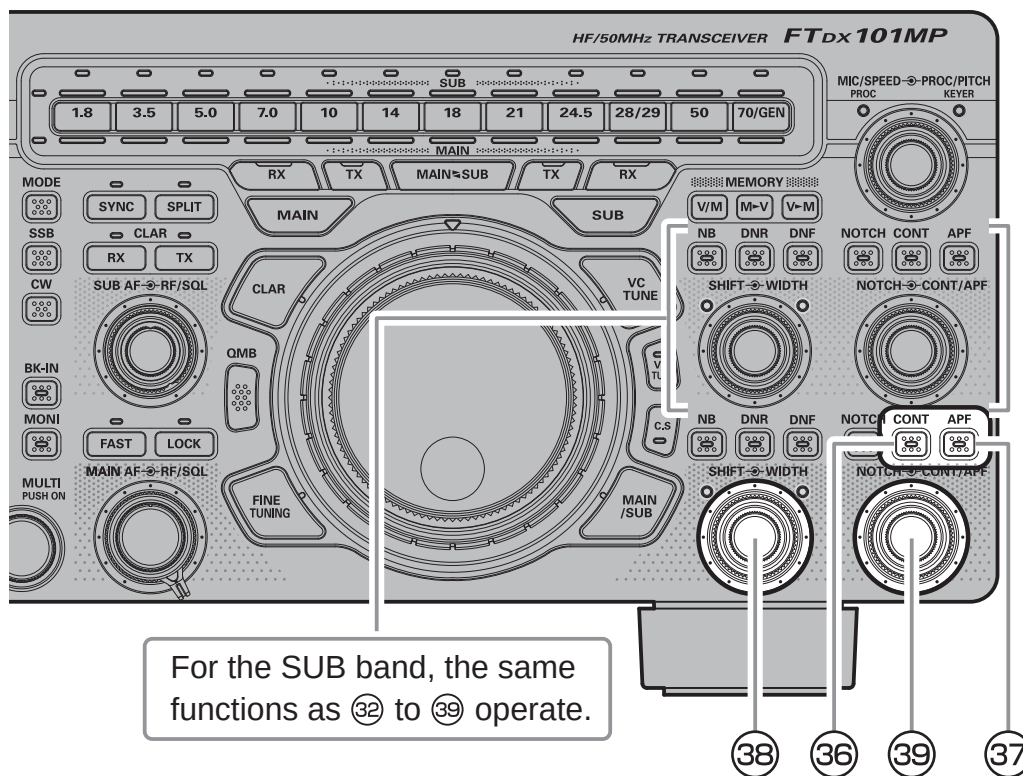
To cancel the NOTCH filter, press the [NOTCH] key momentarily.



The bandwidth of the NOTCH filter (either narrow or wide) may be adjusted using Menu item “IF NOTCH WIDTH” page 99. The factory default setting is “WIDE”.

The performance of the IF Notch filter is shown in Figure “A”, where the effect of rotation of the [NOTCH] knob is depicted. In Figure “B” you can see the notching effect of the IF Notch filter as you rotate the [NOTCH] knob to eliminate the incoming interference.





36 CONT (Contour)

The Contour filter system provides a gentle perturbation of the IF filter passband. The Contour is set to either suppress, or boost specific frequency components, and thus enhances the sound and readability of a received signal.

1. Rotate the [CONT/APF] knob to achieve the most natural-sounding audio reproduction of the incoming signal.
 - Rotate the [CONT/APF] knob, the center frequency (50 Hz - 3200 Hz) of the Contour is displayed.
 - Press and hold the [NOTCH] knob to return the center frequency to its initial value and disable the Contour function.
 - In the Filter Function Display, the attenuation in the passband can be observed.
2. To exit from Contour tuning, press the [CONT/APF] key momentarily.

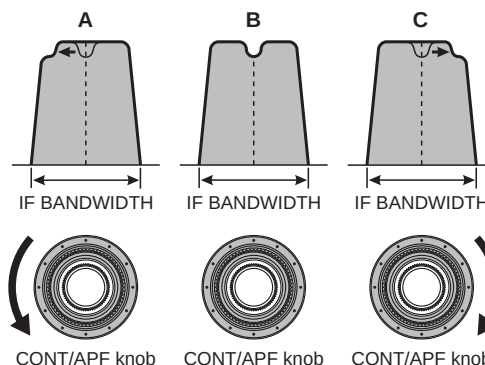
• Adjust the GAIN of the CONTOUR Circuit

1. Press the [FUNC] key.
2. Select [OPERATION SETTING]→[RX DSP]→[CONTOUR LEVEL].
3. Rotate the [MULTI] knob to set the CONTOUR circuit gain.
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

• Sets the Bandwidth (“Q”) of the CONTOUR Circuit

1. Press the [FUNC] key.
2. Select [OPERATION SETTING]→[RX DSP]→[CONTOUR WIDTH].
3. Rotate the [MULTI] knob to set bandwidth (“Q”) of the CONTOUR circuit.
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

Refer to Figure “B”, this illustrates an “indentation” of the Contour filter in the center of the passband. Counterclockwise rotation (to the left) of the [CONT/APF] knob causes the notch to move toward a lower frequency within the passband (fig. A), while clockwise rotation (to the right) causes the notch to move toward a higher frequency within the passband (fig. C). By removing interference or unwanted frequency components, it is possible to make the desired signal rise out of the background noise/interference, and enhance intelligibility.



37 APF (Audio Peak Filter)

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.

The APF function can be operated individually for MAIN band and SUB band.

1. Rotate the [CONT/APF] knob to the left or right to reduce any interference.
- Rotate the [CONT/APF] knob to display the center frequency (-250Hz - +250Hz) of the audio peak filter.
- Press and hold the [NOTCH] knob to restore the APF peak center frequency setting to "0 Hz", and disable the APF function.
- The display will show the peak position of the APF, while tuning the SHIFT knob.



The APF bandwidth can be selected from NARROW / MEDIUM / WIDE via the Menu item "APF WIDTH" (page 99).

2. To exit from APF operation, press the [APF] key again.

38 SHIFT, WIDTH

Inner Knob (SHIFT)

IF SHIFT permits moving the DSP filter passband higher or lower, without changing the pitch of the incoming signal, and thus reduces or eliminates interference. Because the tuned carrier frequency is not varied, there is no need to re-tune the operating frequency to eliminate the interference.

The total passband tuning range for the IF SHIFT system is ± 1.2 kHz.

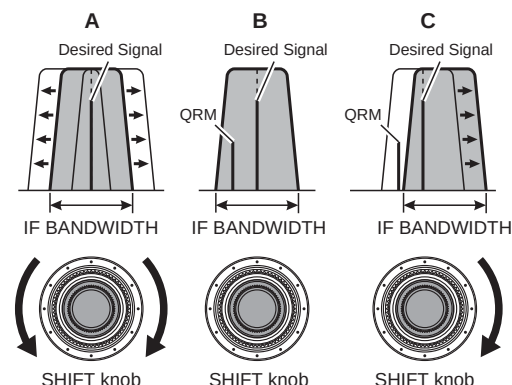
The SHIFT function can be operated individually for MAIN band and SUB band.

Rotate the [SHIFT] knob to the left or right to reduce interfering signals.

- Rotate the [SHIFT] knob to display the shift offset of the IF filter (-1200Hz to +1200Hz).
- Press and hold the [SHIFT] knob to quickly move the filter passband to center.
- On the filter function display area, you can observe the direction of the shift.
- While the SHIFT function is active, the indicator on the left side of the [SHIFT] knob will light.

Refer to Figure "A" and notice the depiction of the IF DSP filter as a thick line in the center of the passband.

In Figure "B", an interfering signal has appeared inside the original passband. In Figure "C", you can see the effect of rotating the [SHIFT] knob. The interference level is reduced by moving the filter passband so that the interference is outside of the passband.



Outer Knob (WIDTH)

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

Moreover, the bandwidth may actually be expanded from its default setting, should you wish to enhance incoming signal fidelity when interference on the band is low.

Rotate the [WIDTH] knob counter-clockwise to narrow the bandwidth and reduce interference.

- To increase the bandwidth, rotate the knob clockwise.
- Rotate the [WIDTH] knob, the IF filter bandwidth is displayed on the display.
- Press and hold the [SHIFT] knob to return the bandwidth of the IF filter to its initial value (see below).
- On the filter function display area, you can check the status of the bandwidth.
- While the WIDTH function is active, the indicator on the right side of the [WIDTH] knob will light.



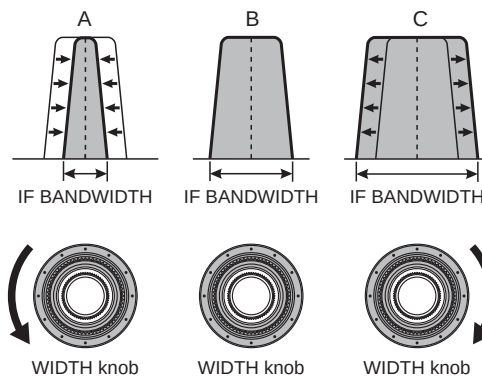
WIDTH and SHIFT can be adjusted alternately, while listening for the best reception point.

CONTOUR and NOTCH may be used together to effectively eliminate interference and increase intelligibility

Referring to Figure "B", you can see the default bandwidth of the SSB mode.

By rotating the [SHIFT] knob to the left, the bandwidth will narrow (see Figure "A"), while rotation of the [SHIFT] knob to the right, will increase the bandwidth as depicted in Figure "C".

The default bandwidths, and total bandwidth adjustment range, will vary according to the operating mode (see table below).



Operating Mode	IF BANDWIDTH
SSB (LSB/USB)	300 Hz - 3200 Hz (default: 3000 Hz)
CW (CW-L/CW-U), RTTY, PSK DATA (LSB/USB)	50 Hz - 3000 Hz (default: 500 Hz)
AM, FM-N, D-FM-N	9000 Hz
AM-N	6000 Hz
FM, DATA-FM	16000 Hz

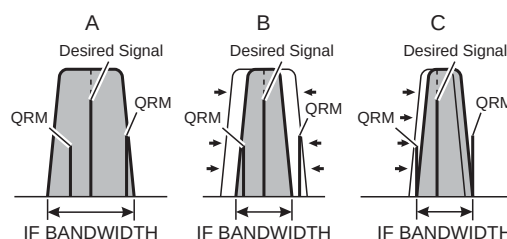
Using IF SHIFT and WIDTH Together

The IF SHIFT and Variable IF WIDTH features together form a very effective interference-fighting filtering system.

For example, in Figure "A", you can see how interference has appeared both on the high and low sides of the desired signal.

Rotate the [WIDTH] knob, the interference from one side can be eliminated (Figure "B"). Next, rotate the [SHIFT] knob to re-position the passband (Figure "C"), the interference on the opposite side can be removed, without re-introducing the interference previously eliminated in Figure "B".

For best interference reduction, the WIDTH and SHIFT features are the primary tools you should use, after narrowing the bandwidth (WIDTH) and/or adjusting the center of the passband (SHIFT). The Contour control may then yield additional signal-enhancement benefits on the net residual bandwidth. Even more, the IF NOTCH Filter (described later) may also be used, in conjunction with these filter systems, to significant advantage.



39 NOTCH, CONT/APF

Inner Knob (NOTCH)

Rotate the inner [NOTCH] knob to adjust the center frequency of the IF NOTCH filter. Press the [NOTCH] key to turn the IF NOTCH filter ON or OFF.

The null position of the IF NOTCH filter can be observed on the display.

Additionally, the display will show the center frequency of the IF NOTCH filter for 0.5 second whenever the [NOTCH] knob is turned.

Press and hold to reset NOTCH, CONTOUR, APF.

Outer Knob (CONT/APF)

The DSP CONTOUR operation can alter the profile of the passband to partially attenuate an in-band frequency component.

The CONTOUR operation can be switched ON/OFF with the [CONT] Key.

The influence of CONTOUR is depicted graphically on the display.

If there is interference or noise during CW operation, the APF center frequency is automatically set to the CW PITCH frequency as a “peak filter”, to make it easier to hear the desired signal.

APF operation is switched ON / OFF with the [APF] key.

The location of the APF peak frequency is graphically illustrated on the display.



When the knob is turned, the center frequency of NOTCH, the center frequency of CONTOUR, or the Peak Frequency shift width of the of the APF will be illustrated on the display for 0.5 seconds.

Voice Communications (SSB and AM)

When transmitting in SSB or AM mode

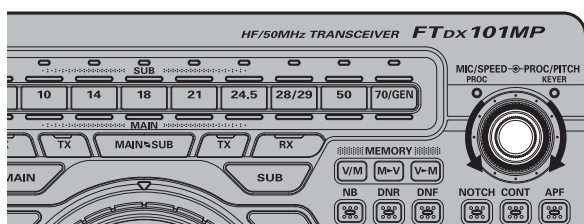
The FTDX101MP transmit audio circuit can be set to the optimum operating level by individually adjusting the input and output gains of the microphone amplifier.

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 on the right and then touch "ALC" to select the ACL Meter.

Key TX and adjust the [MIC/SPEED] 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

Press the [MIC/SPEED] control to activate the AMC function. While the AMC function is active, the indicator on the left side of the [MIC/SPEED] knob will light.

Touch the left side of the Meter Display, and then touch "COMP" to select the COMP meter.

Activate the transmit and speak into the microphone while adjusting the AMC level with the [PROC/PITCH] control.

- Adjust the AMC to a point where the COMP Meter deflection does not exceed "10 dB" on the audio peaks.

Setup is completed.

i Touch the [MONI] key listen to the quality of your transmitted signal (page 34).

i Normally, the AMC function is activated by pressing the [MIC/SPEED] Control Knob.

! The AMC function only works in SSB, AM, DATA-L and DATA-U modes. It does not work in other modes.

Verify AMC Function operation

1. Press the [FUNC] key.
2. Select [OPERATION SETTING] → [TX AUDIO] → [PROC TYPE].
3. Confirm that [AMC] is selected.
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

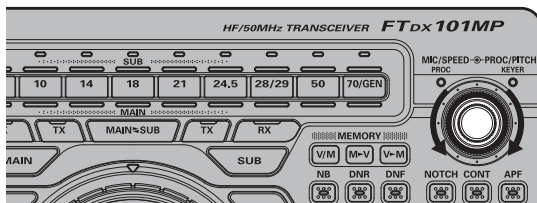
Speech Processor

The FTDX101MP 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 SSB mode.
It does not work in other modes.

1. Press the [FUNC] key.
2. Select [OPERATION SETTING] → [TX AUDIO] → [TX AUDIO] → [PROC TYPE].
3. Select [COMP].
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.
6. Adjust the MIC gain, as described in Parametric Microphone Equalizer on Parametric Microphone Equalizer (page 50).
7. Touch the left meter area on the display to select the “COMP” meter.
The transmit meter becomes the “COMP” meter.
8. Press the [MIC/SPEED] knob.
While the Speech Processor function is active, the indicator on the left side of the [MIC/SPEED] knob will light.
9. Press the PTT switch on the microphone, and speak into the microphone in a normal voice level.
10. Adjust the [PROC/PITCH] knob to set the compression level within 10 dB.



- The Transmit Monitor is a helpful aid to verify proper adjustment of the Compression level.

To switch the Speech Processor Off, press the [MIC/SPEED] knob once more.



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

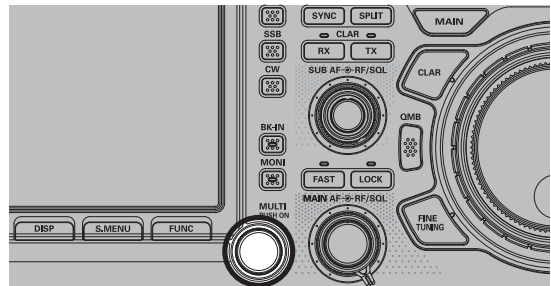


The AMC function does not operate when using the speech processor.

RF Power output control

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

1. Press the [FUNC] key.
2. Touch [RF POWER].
3. Rotate the [MULTI] knob to adjust the RF power.



When transmitting in the AM mode, set a maximum (carrier) power output of 50 Watts.

• Setting of maximum transmission output

The maximum transmit power can be set for each of the HF Bands, the 50 MHz band and the AM mode.

Set according to the operation situation, when you do not need large transmission output.

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

HF MAX POWER (HF band)

(The setting range is 5 to 200 W)

50M MAX POWER (50 MHz band)

(The setting range is 5 to 200 W)

70M MAX POWER (70 MHz band)

(The setting range is 5 to 50 W)

AM MAX POWER (AM mode)

(The setting range is 5 to 50 W)

4. Press the [FUNC] key to save the settings and return to the function screen.
5. Press the [FUNC] key to return to the normal operation screen.



Normally set to maximum output.

Parametric Microphone Equalizer

The FTDX101MP includes a unique Three-Band Parametric Microphone Equalizer that provides precise, independent control over the low, mid and treble ranges in the voice waveform. One group of settings may be utilized when the AMC or speech processor is Off, and an alternate group of settings when the AMC or Speech Processor is On (SSB mode only). The speech processor feature is described in the next chapter.



Parametric microphone equalizer function is activated only in SSB, AM and FM modes.

• Setup the Parametric Microphone Equalizer

1. Set the RF output power to minimum value.



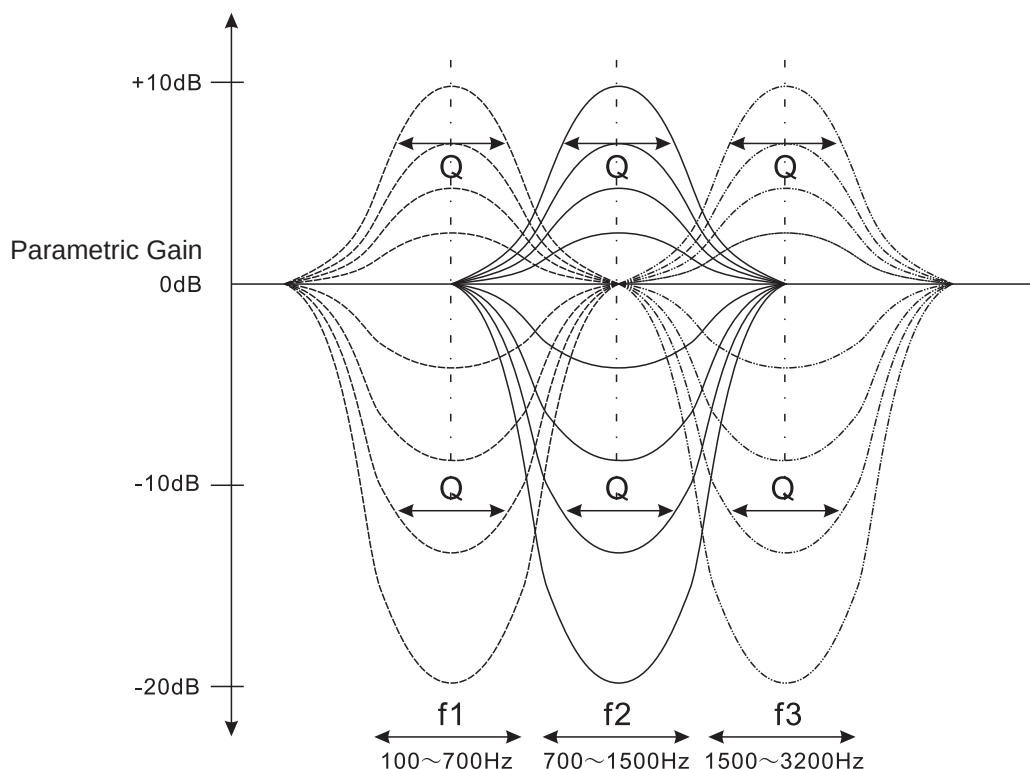
We recommend connecting a dummy load to one of the Antenna jacks, and monitoring the signal on a separate receiver, to prevent interference to other users.

2. Press the [FUNC] key.
3. Touch [MIC EQ] .
Parametric Microphone Equalizer function is activated.
 - To adjust the Parametric Microphone Equalizer with the AMC or speech processor engaged, press the [MIC/SPEED] knob to activated AMC or speech processor.
4. Press the [MONI] key, if you choose to listen on the FTDX101MP internal monitor.
5. Press the [FUNC] key.
6. Select [OPERATION SETTING]→[TX AUDIO].
7. Rotate the [MULTI] knob to find Menu items [PRMTRC EQ1 FREQ] through [PRMTRC EQ3 BWTH]; these parameters apply to the adjustment of the Parametric Microphone Equalizer when the AMC or speech processor is disabled.
Menu items [P PRMTRC EQ1 FREQ] through [P PRMTRC EQ3 BWTH] apply to the adjustment of the Parametric Microphone Equalizer when the AMC or speech processor is engaged.
8. Press the [MULTI] knob, then rotate the [MULTI] knob to adjust a particular Menu item.
9. Press and hold the PTT switch, and speak into the microphone while listening to the effect of the adjustments being made. Because the overall sound will change with each adjustment, make several passes through each adjustment area, to be sure that the optimum settings are achieved.
 - The best way to hear the effects of the adjustments is to wear headphones (connected to the monitor receiver) while listening to the transmitted signal.
10. When all adjustments are satisfactory, press the [FUNC] key to save the new settings and exit the Setting Menu.
11. Press the [FUNC] key to exit to normal operation.

• Activate the Parametric Microphone Equalizer

1. Adjust the MIC gain, as described on page 48.
2. Press the [FUNC] key.
3. Touch [MIC EQ] .
Parametric Microphone Equalizer function is activated.
 - If the Parametric Microphone Equalizer is used with the AMC or speech processor engaged, press the [MIC/SPEED] knob.
4. Press the PTT switch on the microphone, and speak into the microphone in a normal voice level.

To cancel the Parametric Microphone Equalizer function, repeat steps 2 and 3 above, and choose "OFF" in step 3.



3-Stage Parametric Equalizer Adjustments (Speech Processor: "OFF")

Center Frequency	PRMTRC EQ1 FREQ	(Low) "100" (Hz) - "700" (Hz) / OFF	OFF
	PRMTRC EQ2 FREQ	(Mid) "700" (Hz) - "1500" (Hz) / OFF	
	PRMTRC EQ3 FREQ	(High) "1500" (Hz) - "3200" (Hz) / OFF	
Parametric Gain	PRMTRC EQ1 LEVEL	(Low) "-10" (dB) - "+10" (dB)	+5
	PRMTRC EQ2 LEVEL	(Mid) "-10" (dB) - "+10" (dB)	
	PRMTRC EQ3 LEVEL	(High) "-10" (dB) - "+10" (dB)	
Q (Bandwidth)	PRMTRC EQ1 BWTH	(Low) "0" - "10"	10
	PRMTRC EQ2 BWTH	(Mid) "0" - "10"	
	PRMTRC EQ3 BWTH	(High) "0" - "10"	

3-Stage Parametric Equalizer Adjustments (AMC or Speech Processor: "ON")

Center Frequency	P PRMTRC EQ1 FREQ	(Low) "100" (Hz) - "700" (Hz) / OFF	OFF
	P PRMTRC EQ2 FREQ	(Mid) "700" (Hz) - "1500" (Hz) / OFF	
	P PRMTRC EQ3 FREQ	(High) "1500" (Hz) - "3200" (Hz) / OFF	
Parametric Gain	P PRMTRC EQ1 LEVEL	(Low) "-10" (dB) - "+10" (dB)	0
	P PRMTRC EQ2 LEVEL	(Mid) "-10" (dB) - "+10" (dB)	
	P PRMTRC EQ3 LEVEL	(High) "-10" (dB) - "+10" (dB)	
Q (Bandwidth)	P PRMTRC EQ1 BWTH	(Low) "0" - "10"	2
	P PRMTRC EQ2 BWTH	(Mid) "0" - "10"	1
	P PRMTRC EQ3 BWTH	(High) "0" - "10"	

Center Frequency: The center frequency of each of the three bands may be adjusted.

Gain: The amount of enhancement (or suppression) within each band may be adjusted.

Q: The bandwidth over which the equalization is applied may be adjusted.

Voice Memory

The Voice Memory capability of the FTDX101MP may be used to store and replay often repeated messages. The Voice Memory includes five memories, each capable of storing up to a maximum of 20 seconds of voice audio.

The Voice Memory may be operated from the Display Panel, or from the optional FH-2 Remote Control Keypad, which plugs into the rear panel REM jack.

• Recording Your Own Voice in Memory

1. Select the SSB or AM mode.
When using FH-2, go to step 4.
2. Press the [FUNC] key.
3. Touch [REC/PLAY].
4. Touch [MEM] on the display or press the [MEM] key on the FH-2.
A blinking "REC" will appear in the display.



If a [1] through [5] key (see next step) is not pressed within five seconds, the memory storage process will be cancelled.

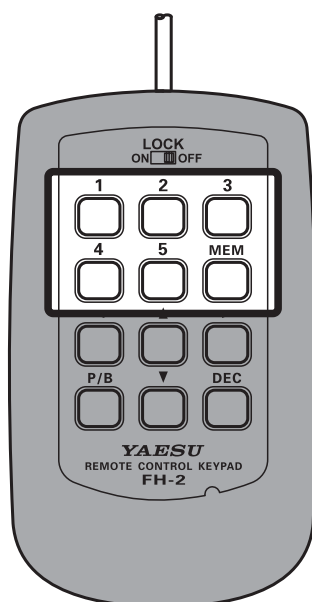
5. Touch [1] through [5] on the display or press any of the FH-2 keys numbered [1] through [5] to select that memory storage register.
6. Press the microphone PTT switch momentarily. The "REC" icon will glow steadily and recording will begin.
 - Remember that the time limit for recording any message is 20 seconds.
7. Touch [MEM] on the display or press the FH-2 [MEM] key to complete the message storage process.

• Checking the Recording

1. Be sure that [BK-IN] function is "OFF" so transmit will not be activated (the LED imbedded in the [BK-IN] key must be Off).
When using FH-2, go to step 4.
2. Press the [FUNC] key.
3. Touch [REC/PLAY].
4. Touch [1] through [5] on the display or press the FH-2 [1] through [5] key (whichever register was just recorded in). The "MSG" icon will appear in the display and the audio recorded in the Voice Memory will be heard.
 - To adjust the playback volume level, touch, [RX LEVEL] and turn the [MULTI] knob.

• Transmitting the Recorded Message

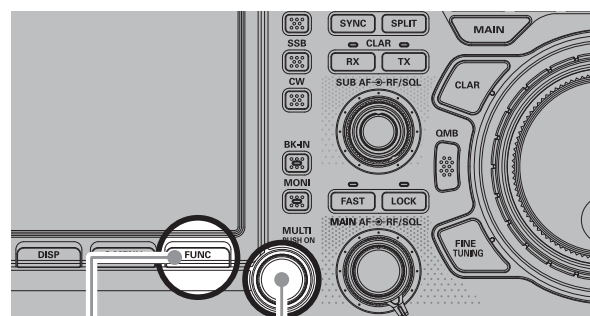
1. Select the SSB, AM or FM mode.
Be sure the [BK-IN] functions is "ON" so transmit will be activated (the LED imbedded in the [BK-IN] key must be On).
When using FH-2, go to step 4.
2. Press the [FUNC] key.
3. Touch [REC/PLAY].
4. Touch [1] through [5] on the display or press the FH-2 [1] through [5] key (whichever memory was recorded in). A "MSG" icon will appear in the display and the message will be transmitted.
 - To adjust the output level during transmit, touch [TX LEVEL] and turn the [MULTI] knob.



Adjustable Receiver Audio Filter

The FTDX101MP incorporates an adjustable receiver audio filter, that affords precision control of the low; lower and upper audio ranges independently.

1. Press the [FUNC] key.
2. Select [RADIO SETTING] .
3. Select the Mode and Menu Item you want to set (see table below).
4. Adjust the receiver audio response as desired.
5. Press the [FUNC] key to save the new setting and exit the Setting Menu.
6. Press the [FUNC] key to exit to normal operation.



Mode	Menu Item	Available Values	Default
MODE SSB	LCUT FREQ	OFF/100Hz - 1000Hz (50Hz step)	100Hz
	LCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
	HCUT FREQ	700Hz - 4000Hz (50Hz step)/OFF	3000Hz
	HCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
MODE AM	LCUT FREQ	OFF/100Hz - 1000Hz (50Hz step)	OFF
	LCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
	HCUT FREQ	700Hz - 4000Hz (50Hz step)/OFF	OFF
	HCUT SLOPE	6dB/oct / 18dB/oct	6dB/oct
MODE FM	LCUT FREQ	OFF/100Hz - 1000Hz (50Hz step)	300Hz
	LCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
	HCUT FREQ	700Hz - 4000Hz (50Hz step)/OFF	3000Hz
	HCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
MODE DATA	LCUT FREQ	OFF/100Hz - 1000Hz (50Hz step)	300Hz
	LCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
	HCUT FREQ	700Hz - 4000Hz (50Hz step)/OFF	3000Hz
	HCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
MODE RTTY	LCUT FREQ	OFF/100Hz - 1000Hz (50Hz step)	300Hz
	LCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct
	HCUT FREQ	700Hz - 4000Hz (50Hz step)/OFF	3000Hz
	HCUT SLOPE	6dB/oct / 18dB/oct	18dB/oct

Using the Automatic Antenna Tuner

The Automatic Antenna Tuner (ATU) is built into each FTDX101MP. The ATU is designed to ensure that a 50-Ohm antenna impedance load is presented to the final amplifier stage of the transmitter.



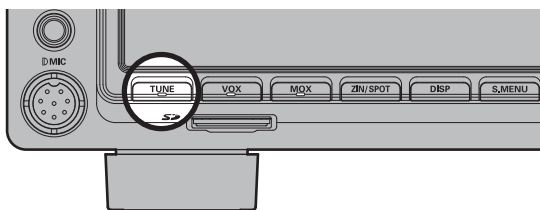
Because the FTDX101MP ATU is located inside transceiver, it can only adjust the impedance presented to the transceiver end of the coaxial cable feedline. It does not “tune” the SWR at the antenna feed point itself.

When designing and building an antenna system, we recommend that every effort be made to also ensure a low SWR at the antenna feed point.

• ATU Operation

1. Press the [TUNE] key momentarily to place the ATU in the transmit line (no adjustment or tuning will occur yet).

While the ATU function is activated, the LED inside the [TUNE] key glows orange.



- The momentary press of the [TUNE] key will turn the tuner ON, and the microprocessor will automatically select the tuning point closest to the current operating frequency.
2. Press and hold the [TUNE] key to begin automatic tuning.
 - The transmitter will be engaged, and the LED inside [TUNE] key will blink while tuning is in progress.
 - Always listen on the operating frequency before beginning the tuning process, to be sure tuning will not interfere with others who may already be using the frequency.
 - When the optimum tuning point has been achieved, the transceiver will return to receive, and the LED inside the [TUNER] key will again glow steadily (instead of blinking).
 3. To disengage the ATU from the transmit line, press the [TUNE] key momentarily.



The ATU microprocessor memories store the record of the capacitors and inductors selected to tune each 10 kHz window in which tuning has occurred. This eliminates the need to re-tune every time operation returns to a frequency on which the tuning process has already been completed.

Figure 1 depicts a situation where normal tuning via the ATU has been successfully completed, and the tuning data has been stored in the ATU memory. The antenna system SWR as seen by the transmitter is shown.

In Figure 2, the operator has changed frequency, and the “HI-SWR” icon has appeared. The operator presses and holds in the TUNE button for one second to begin impedance matching using the ATU.

If a high SWR condition exists (above 3:1), corrective action must be taken in the antenna system to bring the impedance closer to 50 Ohms. The ATU will refuse to memorize settings on frequencies where the SWR exceeds 3:1. A High SWR may indicate a mechanical failure in the feed system, and can lead to the generation of spurious signals causing TVI, etc.

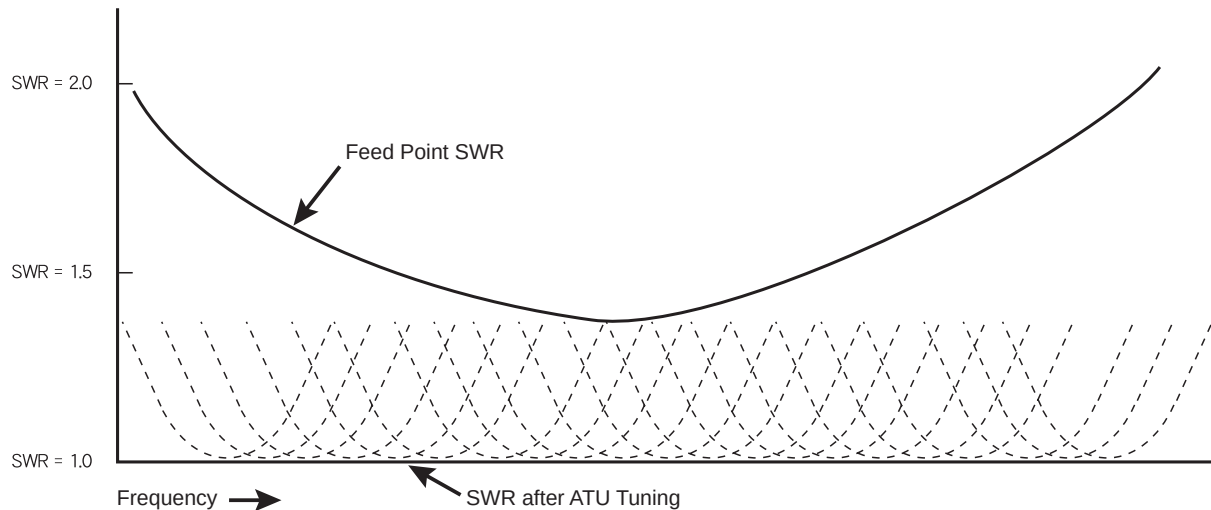


Figure 1

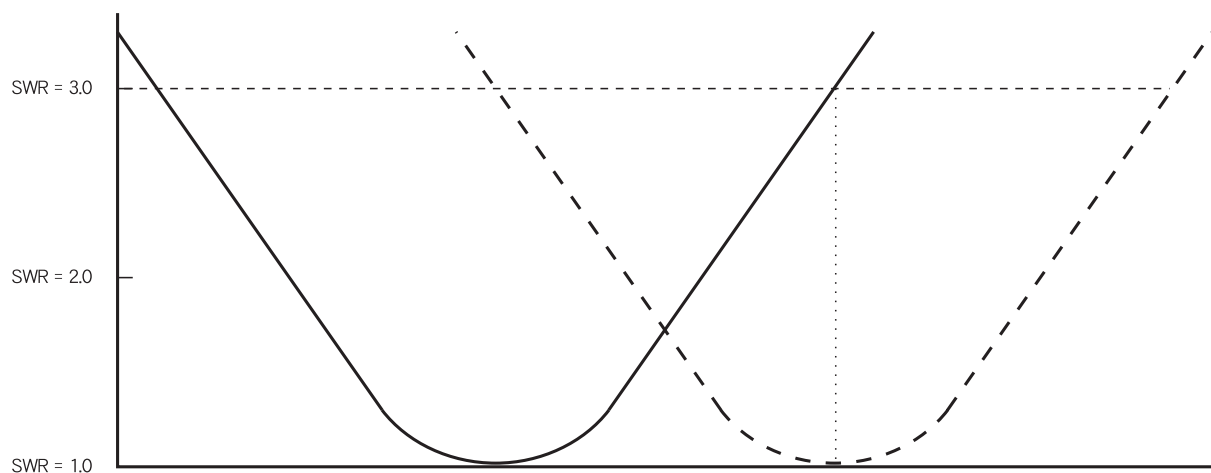


Figure 2

About ATU Memories

SWR (After tuning) Less than 2:1

The tuner settings are stored in the ATU memory.

SWR (After tuning) Greater than 2:1

Tuning data will not be retained in memory. If operation is returned to the same frequency, the tuning process must be repeated.

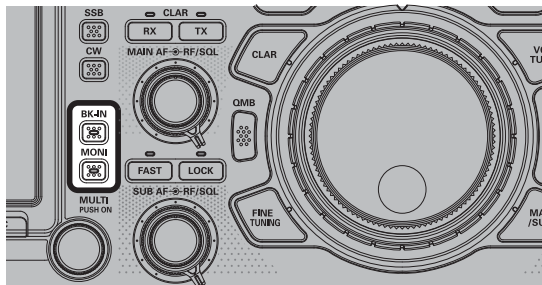
SWR (After tuning) Greater than 3:1

The “HI-SWR” icon will light up, and the tuner settings, if achieved, will not be memorized. Investigate the high SWR condition and resolve the problem before attempting further operation using this antenna.

CW Mode Operation

The impressive CW operating capabilities of the FTDX101MP permit operating with an Electronic Keyer Paddle, a “Straight Key”, or a computer based keying device.

1. Before starting, connect the key cable(s) to the front and/or rear panel KEY jack(s).
2. Press the [CW] key to engage CW mode.



3. Rotate the Main Tuning Dial knob to select the desired operating frequency.
4. Press the [BK-IN] key to engage automatic activation of the transmitter when you close the CW key.
The LED inside the [BK-IN] key glows orange.
5. Press the [MONI] key.
The LED inside the [MONI] key glows orange; and the CW monitor is activated.
6. When using the keyer paddle, press the [MIC/SPEED] knob.
The indicator on the right side of the the [MIC/SPEED] knob glows orange; and the built-in Electronic Keyer is activated.
7. When the key or the keyer paddle is pressed, the transmitter will automatically be engaged.

- Rotate the [MIC/SPEED] knob to set the desired sending speed.
- As shipped from the factory, the FTDX101MP CW TX/RX is configured for “Semibreak-in” operation. However, using Menu item “CW BK-IN TYPE” (page 93), 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.
- If the [BK-IN] key is set to Off, CW sending may be practiced with the sidetone only, without having the signal transmitted over the air.
- To enable the CW keying operation in LSB/USB mode and send CW signals without switching the transceiver to CW mode, change Menu item “CW AUTO MODE” (page 93).

Note: “CW AUTO MODE” operation Select CW mode, Press the BK-IN button, and then select the SSB mode (LSB or USB).

- The same operating frequency may be maintained and displayed when switching the transceiver between SSB and CW mode, by setting Menu item “CW FREQ DISPLAY” (page 94).
- By connecting the FTDX101MP to a computer, CW can be operated using free or commercially available software and setting Menu item “PC KEYING” (page 94).

• Adjusting the Sidetone Audio level

The CW sidetone audio level may be adjusted by pressing and holding the [MONI] key, and then rotating the [MULTI] 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] key.
2. Select [CW SETTING]→[MODE CW]→[CW BK-IN DELAY].
3. Start sending and rotate the [MULTI] knob to adjust the hang time for comfortable operation.
4. Press the [FUNC] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit to normal operation.

CW Decode

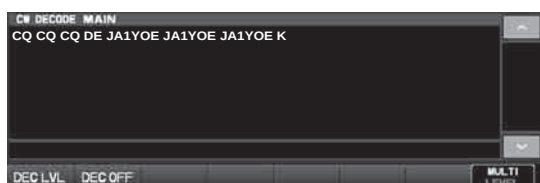
Alphanumeric Morse code can be decoded and displayed as text on the TFT Panel.



Interfering signals, noise, propagation phasing, and code inaccuracy, may prevent accurate message copy.

1. Press the [CW] key to set the operating mode to CW.
2. Turn the [MIC/SPEED] knob to closely match the speed of the received CW signal. If the speed is significantly different, it may not be deciphered correctly.
3. Press the [FUNC] key.
4. Touch [DECODE] .

The CW DECODE screen is displayed, and the decoded message text will appear on the screen.



- If extraneous characters are displayed, due to noise and clutter when a CW signal is not being received, touch [DEC LVL] and then rotate the [MULTI] knob to adjust the threshold level.
5. To cancel the CW decode function, touch [DEC OFF].

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.



Zero-In



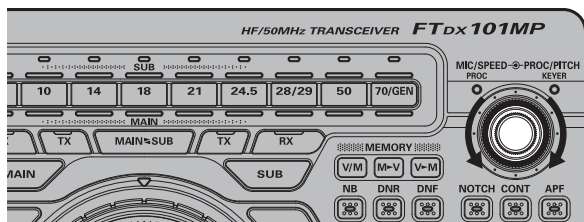
The turn OFF the Tuning Offset Indicator using Menu item “CW INDICATOR” page 94.

Setting of the Electronic Keyer

• Adjusting the Keyer Speed

Keyer speed can be adjusted by rotating the [MIC/SPEED] knob.

Rotate the [MIC/SPEED] 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 3:1 (a dash is three times longer than a dot).

1. Press the [FUNC] key.
2. Select [CW SETTING]→[KEYER]→[CW WEIGHT].
3. Rotate the [MULTI] knob 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] key to save the new setting and exit the Setting Menu.
5. Press the [FUNC] key to exit 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] key.
2. Select [CW SETTING]→[KEYER].
3. Select [F KEYER DOT/DASH] or [R KEYER DOT/DASH].
4. Select "REV".
5. Press the [FUNC] key to save the new setting and exit the Setting Menu.
6. Press the [FUNC] key to exit to normal operation.

• Selecting the Keyer Operating Mode

The configuration of the Electronic Keyer may be customized independently for the front and rear KEY jacks of the FT DX101D. This permits utilization of Automatic Character Spacing (ACS), if desired. This permits the use of an electronic keyer via the front jack and a straight key or computer-driven keying line via the rear panel jack.

1. Press the [FUNC] key.
2. Select [CW SETTING] → [KEYER].
3. Select [F KEYER TYPE] (for the front KEY jack) or [R KEYER TYPE] (for the rear-panel KEY jack).
4. To set the keyer to the desired operating mode, see the table below.
5. Press the [FUNC] key to save the new setting and exit the Setting Menu.
6. Press the [FUNC] key to exit 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). ACS OFF Morse "E" & "T" ACS ON Morse "E" & "T"