

# ***YAESU***

**The radio**

# ***FT2DR***

## **Operating Manual**

**144/430MHz  
DIGITAL/ANALOG  
TRANSCEIVER**

**C4FM FDMA**

**Before Using the Transceiver**

**Preparation**

**Basic Operation**

**Using the Memory**

**Appendix**

## Introduction

### Features of the FT2DR

- Digital communication (C4FM (Quaternary FSK), FDMA system).....xx
- Equipped with AMS (Automatic Mode Select) Function.....xx  
Automatically selects between 4 modes of transmission according to the signal being received.
- External power supply connection .....xx
- Simultaneous reception on two different bands,  
or within the same band (V+V/U+U) .....xx
- Independent switching keys for A-band and B-band and TX/BUSY display .....xx
- Wide-band reception over the range of 500 kHz to 999.900 MHz .....xx
- Waterproof design conforming to IPX5 equivalent, which protects the transceiver  
from rain and splashes.....xx
- Individual side keys.....xx
- 160x160 dot 8-gradation grayscale large LCD screen and touch panel.....xx
- WIRES-X connection support ..... See WIRES-X instruction manual\*
- Equipped with GM function ..... See GM function instruction manual\*
- Large-capacity 1588ch, with twenty-four 100ch memory banks .....xx
- Display memory tags comprised of up to 20 one-byte characters .....xx
- Convenient reception of preset receiver memory channels.....xx  
By selecting preset frequencies, you can receive shortwave broadcast,  
and international VHF radio stations with ease.
- A wide variety of scan functions.....xx
- Built-in GPS unit allowing display of your current location and heading  
information .....xx
- Ready for APRS® communication using the world standard 1200/ 9600bps AX25  
modem (B band only)..... See APRS instruction manual\*
- High-resolution band scope function to display ± 50 channels .....xx
- Equipped with the smart navigation function .....xx
- A variety of individual selective calling functions; such as tone squelch (CTCSS)  
and DCS functions .....xx
- Vibrator to alert you of signal reception, in addition to the audible bell.....xx
- New pager function for calling only specific stations.....xx
- Illumination by white LED for easy viewing of the LCD outdoors.....xx
- Battery save function to prolong the operating time of the battery.....xx
- Data terminal for communication with external equipment or firmware update .....xx
- Compatible with microSD memory cards.....xx
- Snapshot function (an optional camera microphone MH-85A11U is required) .....xx

\* WIRES-X, GM function and APRS instruction manuals are not included in the product package.

They are available and may be downloaded from the Yaesu.com website.

# Introduction

## Using the Touch Screen

### • Caution when Using the Touch Screen

You can perform various function operations simply by gently touching the LCD touch screen.


- Applying a LCD protective film to the touch screen may impact the ability of the touch screen to function properly.
- Refrain from attempting to manipulate the touch screen with your fingernails or a hard-pointed object such as a pen. Be careful not to apply excessive force when touching the touch screen. Doing so may scratch or damage your touch screen.
- The touch screen does not recognize common smartphone operations such as swiping, pinching in, and pinching out.


### • Touch Screen Upkeep

- For cleaning dust and smudges off your touch screen, turn off the power of your device, and then wipe the touch screen with a dry soft cloth.  
If the touch screen is very dirty, wet a soft cloth thoroughly, wring out excess water and then wipe the touch screen.
- When wiping the touch screen, be careful not to apply excessive force or scratch the surface with your fingernails.  
Screen scratches impair your view of the screen.

## How to Read This Manual

Common explanatory expressions used in this manual are as follows:

Press  .....Indicates to simply press a key or switch.

Press and hold  for over 1 second.....Indicates to press a key or switch for over 1 second.

Touch **[F MW]**.....Indicates to simply touch the touch screen.

Touch **[F MW]** for over 1 second .....Indicates touch the touch screen for over 1 second.

Select **[MODE]** .....Indicates to highlights an item.

The following symbols are also used in this manual.

**Caution**  ...Explains caution to observe during operation.

**Tip**  ...Explains operating suggestions or useful tips.


Before Using the Transceiver


# Safety Precautions (Be Sure to Read)


## Be sure to read the safety precautions to use this product safely.

We are not liable for failures and other problems caused due to misuse or use of this product by you or a third party as well as the damages caused through use of this product by you or a third party except in the case where we are ordered to pay for damages under the laws.



### Types and Meanings of Symbols



 **DANGER** Indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.

 **WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.


 **CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or only property damage.


### Types and Meanings of Legends


 Indicates a prohibited action, not to be done in order to use this product safely.  
For example,  indicates that the product should not be disassembled.


 Indicates a required action, to be done in order to use this product safely.  
For example,  indicates that the power plug should be removed.

## ||||| **DANGER** |||||


 **Do not use this product in “an area where use of it is prohibited”, e.g., inside the hospital, airplane, or train.”**  
This product can affect electronic or medical devices.


 **Do not use this product while riding a bicycle or driving a car. Accidents can result.**  
Be sure to stop the bicycle or car at a safe place before using this product.


 **Those who are carrying a medical device such as a cardiac pacemaker should not perform transmission near the device. When transmitting, use an external antenna and keep as far as possible away from the external antenna.**  
The radio wave emitted by the transmitter can cause the medical device to malfunction and result in an accident.


 **Do not use this product or the battery charger in a place where inflammable gas is generated.**  
A fire or explosion can occur.

## Safety Precautions (Be Sure to Read)

 **Do not perform transmission in a crowded place for the safety of persons using a medical device such as a cardiac pacemaker.**  
The radio wave emitted from this product can cause the medical device to malfunction and result in an accident.


 **Do not touch any material leaking from the battery pack with bare hands.**  
The chemical that has stuck to your skin or entered your eye can cause chemical burns. In such a case, consult the doctor immediately.


 **Do not solder or short-circuit the terminal of the battery pack.**  
A fire, leak, overheating, explosion, or ignition can result.  
Do not carry the battery pack together with a necklace, hair pin, or small metal objects. A short circuit can result.


 **If it starts thundering when the external antenna is used, immediately turn off this product and disconnect the external antenna from it.**  
A fire, electrical shock, or damage may result.





## WARNING


 **Do not power this transceiver with a voltage other than the specified power supply voltage.**  
A fire, electric shock, or damage may result.


 **Do not use the battery pack for any model other than the specified transceiver.**  
A fire, leak, overheating, explosion, or ignition can result.


 **This product has a waterproof structure and conforms to "IPX5" when the included antenna and battery pack are installed and rubber caps are securely attached to the MIC/SP jack, EXTDC IN jack, DATA terminal, and micro SD slot. If this transceiver gets wet, wipe it with a dry cloth, etc. do not leave it exposed to the moisture.**  
Leaving this product in a wet condition can degrade its performance, shorten its life, or cause a failure or electrical shock.


 **Do not make very long transmissions.**  
The main body of the transceiver may overheat, resulting in a failure or burns.

 **Do not disassemble or make any alteration to this product.**  
An injury, electric shock, or failure can result.

 **Do not handle the battery pack or charger with wet hands. Do not insert or remove the power plug with wet hands.**  
An injury, leak, fire, or failure can result.

 **If smoke or strange odor is emitted from the main body, battery pack, or battery charger, immediately turn the transceiver off; remove the battery pack, and remove the power plug from the outlet.**  
A fire, leak, overheating, damage, ignition, or failure can result. Contact the dealer from which you purchased this product or Yaesu Amateur Customer Support.

 **Do not use the battery pack which is externally damaged or deformed.**  
A fire, leak, heating, explosion, or ignition can result.

 **Do not use any battery charger which is not specified by Yaesu.**  
A fire or failure can result.

**Safety Precautions (Be Sure to Read)**



**Keep the terminals of the battery pack clean.**

If terminal contacts are dirty or corroded, a fire, leak, overheating, explosion, or ignition can result.



**If charging of the battery pack cannot be completed within the specified charging time, immediately remove the power plug of the battery charger from the outlet.**

A fire, leak, overheating, explosion, or ignition can result.

|||||  **CAUTION** |||||



**Do not dangle or throw this product by holding its antenna.**

This product can hit and injure someone. In addition, doing so can result in a transceiver failure or damage.



**Do not use the earpiece microphone, earphones, or headphones at an extremely high volume level.**

Hearing impairment can result.



**Do not use transceiver in a crowded place.**

The antenna can hit someone, resulting in an injury.



**Keep this product out of reach of children.**

An injury, etc. can result.



**Do not place this transceiver in a place subject to direct sunlight or near a heater.**

The transceiver can deform or discolor.



**Install the hand strap and belt clip securely.**

If they are installed improperly, the FT2DR may fall or drop, resulting in an injury or damage.



**Do not place this transceiver in a humid or dusty place.**

A fire or failure can result.



**Do not place a heavy object on the power cord of the battery charger.**

The battery cord can be damaged, resulting in a fire or electric shock.



**During transmission, keep the antenna as far from you as possible.**

Long-time exposure to electromagnetic waves can have a negative impact on your health.



**Do not use the included battery charger to charge any battery pack which is not specified for use with the charger.**

A fire can result.



**Do not clean the case with thinner or benzene.**

Use a soft, dry cloth to clean the case.



**Do not operate the transmitter near the TV or radio.**

Radio disturbance can occur in the transceiver, the TV, or the radio.



**If you do not use this transceiver for a long period, turn it off and remove the battery pack for safety.**



**Do not use any products other than the specified options and accessories.**

A failure can result.



**Do not drop, strike, or throw the transceiver.**

A failure or damage may result.



**When the battery charger is not in use, remove its power plug from the outlet**



**Keep magnetic cards and video tape away from the transceiver.**

The data recorded on cash cards or video tape can be erased.

## Safety Precautions (Be Sure to Read)

**Charge the battery pack within the temperature range from +5 °C to +35 °C (+41 °F to +95 °F).**



Charging the battery pack outside this temperature range can cause leak, overheating, decrease in performance, or reduction in service life can result.

**When unplugging the power cord of the battery charger, be sure to hold the power plug.**



Pulling the power cord can damage it and cause a fire or electronic shock.



**Before discarding the worn battery pack, affix tape or the like to its terminals.**



**Before using this transceiver in a hybrid or fuel-saving car, be sure to check with the automobile manufacturer regarding use of the transceiver in that car.**

Noise generated by an onboard electrical device (inverter, etc.) can disrupt the normal operation of the transceiver.

## Safety Precautions (Be Sure to Read)

### About Waterproofing Feature Conforming to IPX5

When the included antenna and battery pack are installed and the MIC/SP jack, EXT DC IN jack, DATA terminal, and micro SD slot are securely covered with rubber caps, this product is moisture and splash resistant. To ensure continued waterproofing protection, be sure to check the following points before use.

○ **Check for damages, deterioration, and dirt.**

Antenna rubber, key switch rubber, MIC/SP jack, EXT DC IN jack, DATA terminal, micro SD slot rubber cap, and battery pack joint.

○ **Cleaning**

When this product is contaminated with seawater, sand, or dirt, rinse with fresh water, and then wipe with a dry cloth immediately.

○ **Recommended maintenance interval**

It is recommended that you ask for maintenance of this product when one year has passed since purchase or previous maintenance or when any damage or deterioration is found. Note that the maintenance service is subject to fees.

○ **Do not immerse this product in the following liquids:**

Sea, pool, hot spring, water containing soap, detergent, or bath additive, alcohol, or chemicals

○ **Do not leave this product for a long time in the following places:**

Bathroom, kitchen, or humid place

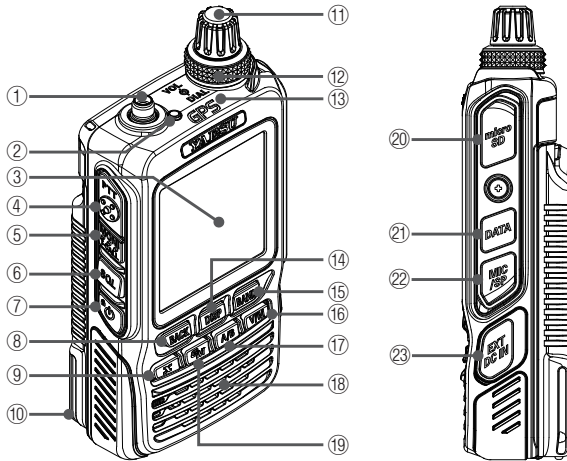
○ **Other precautions**

Since this product is not totally waterproof, it cannot be used in water.



# Names and Functions of Controls

## Transceiver





①	<b>Antenna terminal (SMA)*</b>
②	<b>TX/BUSY LED</b> This lamp lights green during reception and red during transmission.
③	<b>Touch screen display</b> Touch to set the frequency and various other settings.
④	<b>[PTT] switch</b> <ul style="list-style-type: none"> <li>Press and hold  to transmit, and release it for reception.</li> <li>Pressing [PTT] in Set mode causes Set mode to end.</li> </ul>
⑤	<b>[MONT-CALL] switch</b> While  is pressed: Squelch OFF
⑥	<b>[SQL] switch</b> While pressing , rotate VOL: Squelch level adjustment
⑦	<b>Power switch</b> <ul style="list-style-type: none"> <li>When the power is off, press and hold  for over 1 second: Power on</li> <li>When the power is on, press and hold  for over 1 second: Power off</li> <li>When the power is on, press : Key lock</li> </ul>
⑧	<b>[BACK] [BACK] key</b> <ul style="list-style-type: none"> <li>Press to return to the previous operation mode.</li> <li>Press and hold for over 1 second to return to the previously used normal mode.</li> </ul>
⑨	<b>[X] key</b> <ul style="list-style-type: none"> <li>Pressing each time switches among, analog mode, digital mode and AMS function.</li> <li>Press and hold for over 1 second to start WIRES-X.</li> </ul>
⑩	<b>Battery pack*</b>

⑪	<b>VOL</b> Adjusts volume. Turn clockwise to increase the sound volume and turn counterclockwise to decrease the sound volume.
⑫	<b>DIAL</b> Rotate to change the frequency and select a memory channel.
⑬	<b>GPS antenna</b>
⑭	<b>[DISP] [DISP] key</b> <ul style="list-style-type: none"> <li>Pressing each time switches between the frequency display and the backtrack screen.</li> <li>Press and hold for over 1 second to enter Set mode.</li> </ul>
⑮	<b>[BAND] [BAND] key</b> Press to select the desired frequency band.
⑯	<b>[V/M] [V/M] key</b> <ul style="list-style-type: none"> <li>Pressing each time switches between VFO mode and memory mode.</li> <li>Press and hold for over 1 second to turn on/off the dual watch function.</li> </ul>
⑰	<b>[A/B] [A/B] key (switching between operating bands)</b> <ul style="list-style-type: none"> <li>Pressing each time switches between A-band and B-band.</li> <li>Press and hold for over 1 second to switch between the Dual Band Reception mode and the Mono Band Reception mode.</li> </ul>
⑱	<b>Microphone</b>
⑲	<b>[GM] [GM] key</b> Press to turn on/off the GM function.
⑳	<b>microSD memory card slot*</b> Open the cover and insert your microSD memory card.

Before Using the Transceiver

## Names and Functions of Controls

- ⑳ **DATA terminal\***
- To use the clone function, connect another FT2DR with an optional clone cable (CT-168).
  - When updating the firmware, connect to your PC.  
\* For how to update the firmware, access our website.
  - Connect the optional camera-equipped microphone (MH-85A11U) to this terminal.
  - Connect an external GPS to this terminal.
- ㉑ **MIC/SP jack\***
- Connect a speaker microphone or earpiece microphone to this jack.  
The waterproof effect cannot be attained when an external microphone is connected.
-  Do not connect any microphone which is not specified by Yaesu. A failure can result.

- ㉒ **EXT DC IN jack\***
- Connect an external power supply adapter with a cigarette lighter plug (SDD-13) or an external power cable (E-DC-6) to this jack.
  - When charging the battery pack, connect the battery charger (PA-48A) to this jack.
-  Do not connect any battery charger which is not specified by Yaesu. A failure can result.