# YAESU
## The radio

# WIRES-X
## Wide-Coverage Internet Repeater Enhancement System

# WIRES-X Portable Digital Node Function

# Instruction Manual

Please read this "Instruction Manual" carefully for appropriate procedure.

# Preparation Procedure

Portable Digital Node operation requires a compatible transceiver (FT2DR/DE, FTM-400XDR/XDE/DR/DE or FTM-100DR/DE (as of Feb 2019)) and a Personal computer (Windows 7 or later) with USB terminal.

> ① **User registration (acquire an ID number)**
> ② **Install WIRES-X Software to the PC**
> ③ **Install the connection cable USB device driver**
> ④ **Update the firmware of the transceiver**
> ⑤ **Connect the transceiver and the PC**
>
> ● **Depending on the transceiver used, one or more of the following connection cables is required.**
>  ❒ **FT2DR/DE**
>    • **SCU-39  WIRES-X Connection Cable Kit**
>       (The SCU-39 includes the SCU-19, CT-44, and two audio cables.)
>  ❒ **FTM-400XDR/XDE/DR/DE or FTM-100DR/DE**
>    **When communicating with the digital node station in the portable digital mode**
>    • **SCU-20 PC Connection Cable** (Supplied with the transceiver)
>
>    **When communicating with a digital node station or an analog node station in the portable HRI mode via the Internet**
>    • **SCU-40  WIRES-X Connection Cable Kit**
>       (The SCU-40 includes the SCU-20 and an audio cable.)

① **User registration** (acquire an ID number)

Access the WIRES-X web page and register with the "**Radio ID**" of the transceiver to be used for the Portable Digital Node station.
Refer to page 6 for details.

② **Install WIRES-X Software to the PC**

Download "**WIRES-X Software**" from WIRES-X website (user login required) and install it to the PC for the node station.
Refer to page 8 for details.

③ **Install a USB device driver for the PC connection cable**

Download the USB device driver from YAESU website and install it to a PC.
Refer to page 10 for details.

④ **Update the firmware of the transceiver**

Download the latest firmware of the transceiver from our website and update the firmware of the transceiver for the Portable Digital Node station.
Refer to page 10 for details.

⑤ **Connect the transceiver and the PC**

Connecting the transceiver and the PC with the designated connection cables.
Refer to page 11 for details.

# Table of contents

## About this manual

Reference icon symbols and conventions are used in this manual. Their meanings are described in the below chart.

| Symbols | Description |
|---|---|
| ⚠ | This icon indicates cautions and information that should be read. |
| ℹ | This icon indicates notes, tips and information that should be read. |

# Introduction

## What is WIRES-X?

WIRES (Wide-coverage Internet Repeater Enhancement System) is an Internet communication system which expands the range of amateur radio communication. WIRES-X uses local nodes (stations connected to the Internet via PCs) as access points to relay communications of conventional amateur radio stations. Mobile stations using WIRES-X can communicate with amateur stations all over the world by using a local node access station operating within an amateur band. WIRES-X supports the new C4FM digital communications mode, enabling C4FM digital signals to be repeated without deterioration of the communication quality. In addition, several new functions making use of digital formats are also made available.

## What is WIRES-X Portable Digital Node Function?

Using the WIRES-X Portable Digital Node function, you can operate a WIRES-X digital node station by directly connecting a compatible C4FM digital transceiver with a PC. The HRI-200 Internet interface kit is not needed and no fixed or dynamic global IP address is required.)

There are two operating modes of the WIRES-X Portable Digital Node function:

**Portable Digital Node Mode** capable of Internet communication with digital stations.

**Portable HRI Mode** capable of Internet communication with both digital and analog stations.

## Portable Digital Node Mode (Supports Internet communication only in C4FM Digital Mode)

Requires a Yaesu C4FM Portable Digital Node capable transceiver (FT2D as of Aug 2018 or FTM-400XD/D or FTM-100DR/DE as of Feb 2019 or firmware updated) an SCU-19 USB Connection Cable (FT2DR/DE) or SCU-20 USB Connection Cable (FTM-400XD/D or FTM-100D) and a PC with WIRES-X Software and Internet connection.

Two forms of WIRES-X Access are supported, "**Access Point**" and "**Direct Operation**".

In "**Access Point**" the Portable Node station (FT2D, FTM-400XD/D or FTM-100D) can be used to communicate "On Air and relay nearby local C4FM digital transceivers, while simultaneously connected with the Internet WIRES-X digital rooms and digital node stations.

In "**Direct Operation**", the Portable Node (FT2D, FTM-400XD/D or FTM-100D) station transceiver is used only for WIRES-X Internet communications without transmitting or receiving local "On Air" radio signals.

● **Access Point**

In this mode, WIRES-X C4FM communications are made by either directly using the USB connected Portable Digital Node Station transceiver PTT, microphone, and speaker, or via another local C4FM transceiver communicating on frequency with the USB connected Portable Digital Node Station transceiver. The Portable Digital Node Station transceiver connects directly to the PC and the Internet, and then communicates with WIRES-X Nodes and Rooms. The Portable Digital Node Station transceiver relays the local C4FM stations and signals to the Internet and transmits the Internet Node and Room signals to the local stations. This mode allows the flexibility to operate the Portable Digital Node directly from a single USB connected Portable Digital Node Station transceiver, or to access WIRES-X Nodes and Rooms from one or several local C4FM transceivers.



**Access Point (Portable Digital Node Mode) Illustration**
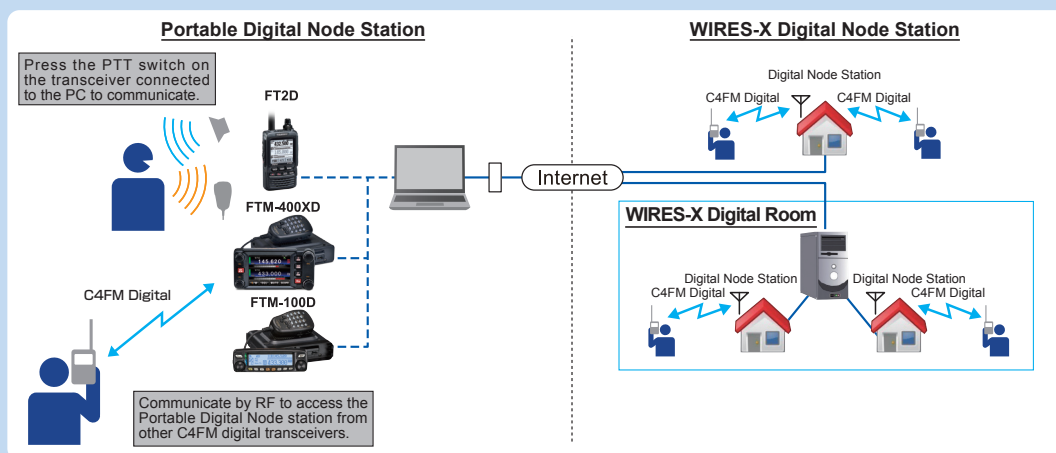
● **Direct Operation**

In this mode, WIRES-X C4FM communications are made directly by using the USB connected Portable Digital Node Station transceiver Node Station. The microphone signal is sent only to the PC and the Internet. The Internet signals are heard only in the Portable Digital Node Station transceiver speaker. In this Direct Operation, the Portable Digital Node Station transceiver does not transmit or receive over the air.
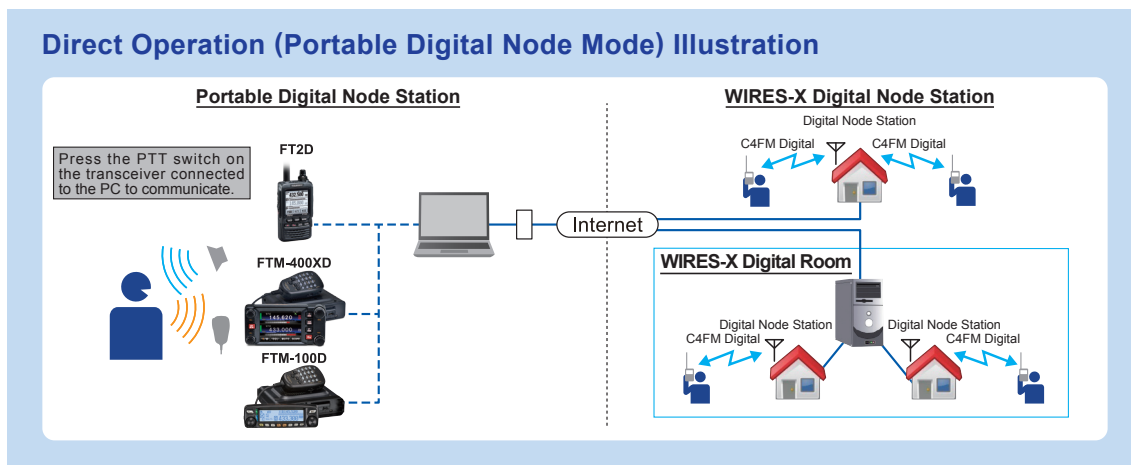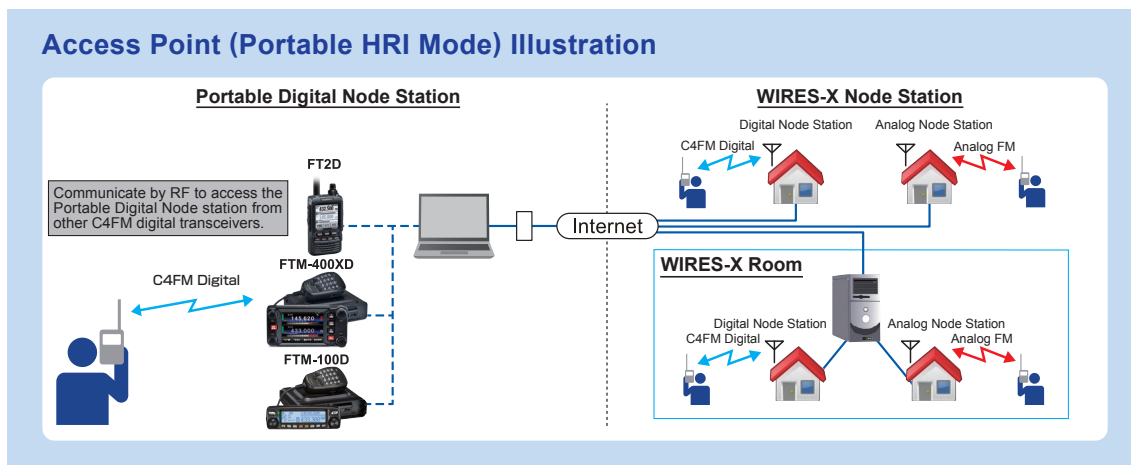


**Portable HRI Mode** (Supports Internet communication in both C4FM Digital Mode and Analog Mode）

Requires a Yaesu C4FM Portable Digital Node capable transceiver, a USB Connection Cable, audio cables and a PC with WIRES-X Software and Internet connection. (The HRI-200 interface is not used).

In the Portable HRI Mode configuration, either the Access Point operation or the Direct operation may be activated:

● **Access Point（Portable HRI Mode）**

In this mode, WIRES-X C4FM and Analog communications are made via another local C4FM transceiver communicating on frequency with the connected Portable Digital Node Station. The Portable Digital Node Station transceiver relays the local C4FM and Analog signals to the Internet and transmits the Internet Node and Room signals to the local stations. This Node mode allows the flexibility to operate the Portable Digital Node to access WIRES-X Nodes and Rooms from one or several local C4FM transceivers.



● **Direct Operation（Portable HRI Mode）**

In this mode, you can communicate in digital mode or analog mode via the Internet. WIRES-X communications are made directly by using the USB connected Portable Digital Node Station Transceiver. The microphone signal is sent only to the PC and the Internet. The Internet signals are heard only in the Portable Digital Node Station transceiver speaker. (When communicating in "**Direct Operation**" on "**Portable HRI Mode**" using FT2D, the Internet signals are heard only from the PC speaker.) In this Direct Operation, the Portable Digital Node Station transceiver does not transmit or receive over the air.

## Direct Operation (Portable HRI Mode) Illustration

**Portable Digital Node Station**

Press the PTT switch on the transceiver connected to the PC to communicate.

FT2D

FTM-400XD

FTM-100D

Internet

**WIRES-X Node Station**

Digital Node Station    Analog Node Station

C4FM Digital    Analog FM

**WIRES-X Room**

Digital Node Station    Analog Node Station

C4FM Digital    Analog FM

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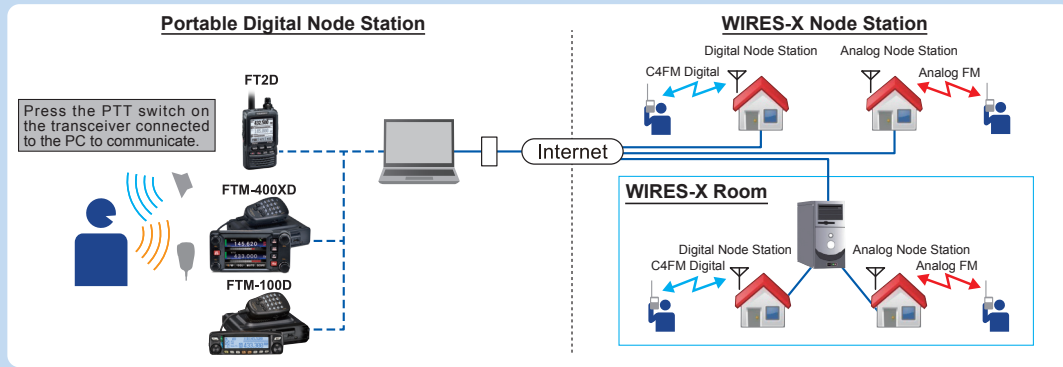
**!** With the WIRES-X Portable Digital Node function, you cannot operate a WIRES-X Room (Including a digital room) or use the remote-control function from the outside.

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## System Requirements (Operating Environment)

● **Supported Transceiver**
- **FT2D**, **FTM-400XDR/XDE/DR/DE** or **FTM-100DR/DE** (As of Feb 2019)

● **Connection Cable**
- ☐ **FT2DR/DE**
  - **SCU-39  WIRES-X Connection Cable Kit**
    (The SCU-39 includes SCU-19, CT-44, and two audio cables.)
- ☐ **FTM-400XDR/XDE/DR/DE or FTM-100DR/DE**

  **When communicating with a digital node station in an portable digital mode**
  - **SCU-20 PC Connection Cable** (Supplied with the transceiver)

  **When communicating with a digital node station or an analog node station in the portable HRI mode via the Internet**
  - **SCU-40  WIRES-X Connection Cable Kit**
    (The SCU-40 includes the SCU-20 and an audio cable.)

● **The latest WIRES-X Software and Transceiver Firmware**

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**!** Update to the latest software and firmware on YAESU website.

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- WIRES-X Software：Ver.1.510 or later
- FT2D          MAIN: Ver.3.10 or later, SUB: Ver.2.01 or later, DSP: Ver.4.31 or later
- FTM-400XD   MAIN: Ver.4.40 or later, DSP: Ver.4.31 or later
- FTM-400D    MAIN: Ver.3.40 or later, DSP: Ver.4.31 or later
- FTM-100D    MAIN: Ver.2.40 or later, PANEL: Ver.2.10 or later, DSP: Ver.4.31 or later

● **PC**
- OS：Microsoft® Windows® 7 / 8.1 / 10
- Processor Clock Frequency：2.0 GHz or faster
- HDD：1 GB or more of available space
- RAM：2 GB or more
- Display resolution：1366 x 768 16-bit high color or higher (32-bit true color is recommended)
- USB port：USB 2.0 (Full Speed)
- LAN port：100BASE-TX/1000BASE-T or Wi-Fi：IEEE 802.11 b or higher

- Audio Interfaces*[1]
  - [1] Sound function is also required when using the "**Portable Digital Node Mode**" or "**Portable HRI Mode**". Furthermore, when communicating in "**Direct Operation**" in "**Portable HRI Mode**" using the **FT2D**, the personal computer must have the "audio input from the microphone terminal pass to the speaker output" function.
- 3.5 Φ speaker terminal, 3.5 Φ microphone terminal.*[2] (It is necessary only for Internet communication in "Portable HRI Mode".)
  - [2] In the case of a unique terminal such as a laptop, adapt it to a 3.5 Φ speaker terminal and 3.5 Φ microphone terminal with a commercially available conversion cable.
- Speaker (It is necessary only when communicating in "Direct Operation" in "Portable HRI Mode".)

● **Internet Connection**
- ADSL 8 Mbps or faster (No fixed or dynamic global IP address is required.)
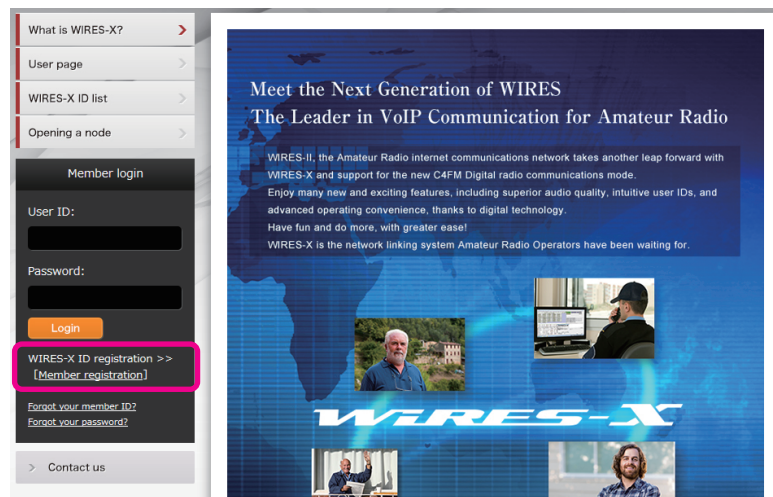
> ⚠ When the Internet line speed is low or unstable, the sound may be interrupted or the connection of the WIRES-X connection may become unstable.

## Preparation

### ① **User registration (acquire an ID number)**

1. Access to the WIRES-X website (https://www.yaesu.com/jp/en/wires-x/index.php).



2. Click [**Member Registration**] on the left side of the screen.
   The "**Member registration**" page opens.
3. On the "**Member registration**" page, enter the e-mail address to be used for registration and click the [**Send**] button.
   You will promptly receive an e-mail with an URL address to the website for registration.
4. Click the URL address of an e-mail to open the website.
5. When "**WIRES-X Server End-User License Agreement**" is displayed, check "**I agree to the WIRES-X server license agreement**", then click [**Agree and proceed**].
6. Fill in all the fields on the "**Member registration**" page and send it.
   In the "**HRI-200 Serial Number / RADIO ID**" field, enter the "**RADIO ID**" of the transceiver used for the node station (RADIO ID: 5-digit alphanumeric ID unique to the transceiver).

> ✎ The transceiver's RADIO ID is a combination of five letters and numbers. Since the RADIO ID is distinguished between uppercase and lowercase letters of the alphabet, please input the RADIO ID displayed on the screen exactly as it is.

The "**RADIO ID**" of the transceiver may be displayed using the following procedure:

- **FT2D**
  (1) Press and hold [**DISP**] key to open the setup menu.
  (2) Touch [**GM**].
  (3) Touch [**2 RADIO ID CHECK**].
     The RADIO ID is displayed.

- **FTM-400XDR/DE or FTM-400DR/DE**
  (1) Press and hold [**DISP**](SETUP) key to open the setup menu.
  (2) Touch [**GM**].
  (3) Touch [**3 RADIO ID CHECK**].
     The RADIO ID is displayed.

- **FTM-100DR/DE**
  (1) Press and hold [**DISP**](SETUP) key to open the setup menu.
  (2) Rotate DIAL to select "**6 GM**" and then press [**DISP**](SETUP) key.
  (3) Rotate DIAL to select "**4 RADIO ID CHECK**" and then press [**DISP**](SETUP) key.
     The RADIO ID is displayed.

7. When registration is completed, e-mail with the Node ID and the Room ID will be sent to your email address.

   Member registration is completed.

> ℹ️ Completion of registration usually takes 2 to 3 business days.

## ② Install latest WIRES-X software to the PC

ℹ️ 
- This is not necessary if the latest WIRES-X software (Ver. 1.510 or higher) is already installed on the PC to be used.
- The latest WIRES-X software must also be installed on the transceiver that is establishing the connected room or the directly connected node station. (When WIRES-X software with Ver. 1.400 or higher is not installed, you cannot connect to a portable node station.)
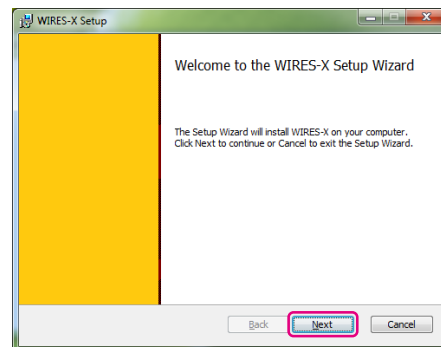
1. User login to the WIRES-X web site. Download and unzip the "wx****en.zip" file of the latest WIRES-X software (Ver.1.510 or higher).

2. Execute the "**Install.exe**" file in the unzipped folder.

   The "WIRES-X Installer" window will appear.

3. Click [**WIRES-X Software Setup**].
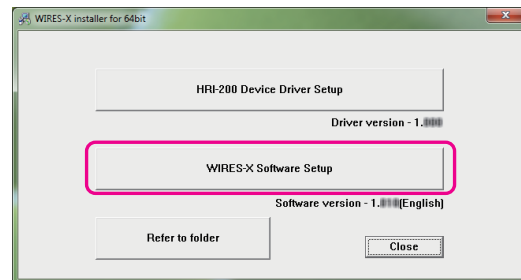
   The "**Welcome to the WIRES-X Setup Wizard**" window will appear.
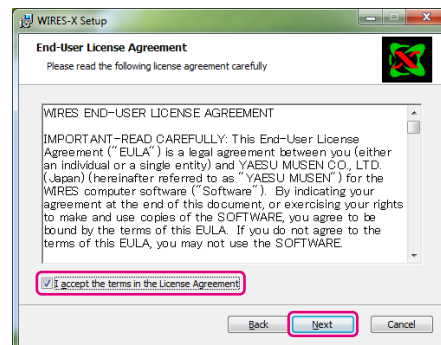
4. Click [**Next**].

   The "License" window will appear.

5. Put a check-mark in the "**I accept the terms in the License Agreement**" check box, then click [**Next**].

   The "**Destination Folder**" window will appear.

6. Confirm the destination where the WIRES-X software will install and click [**Next**].

   The "Ready to install WIRES-X" window will appear.
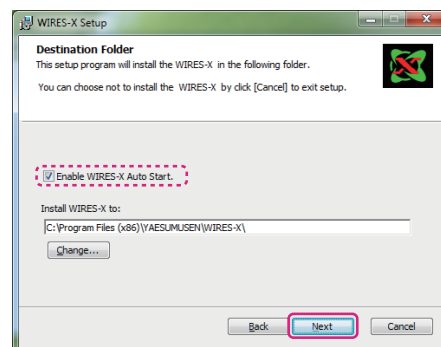
   ℹ️ If you put a check-mark in the "**Enable WIRES-X Auto Start.**" check box, the WIRES-X software will run automatically when Windows starts. Even if the WIRES-X software is terminated for some reason, it will reboot automatically.

7. Click [**Install**].

   Software installation will start.

   When installation completes, the "**Completed the WIRES-X Setup Wizard**" window will appear.
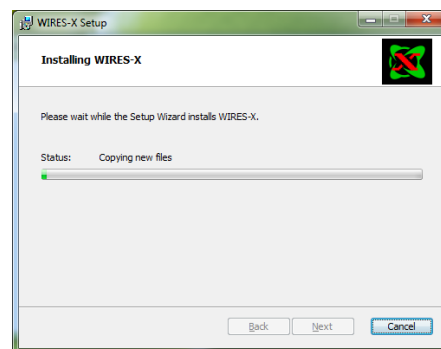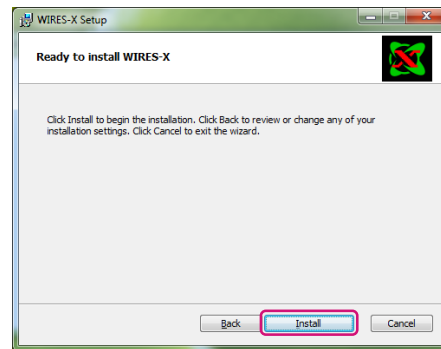
8. Click [**Finish**].

   When WIRES-X software installation has been completed properly, the [**Wires-X**] icon will appear on the Windows desktop.

9. Click [**Close**] in the "**WIRES-X installer**" windows Installation of the WIRES-X software is complete.

## ③ Install the USB driver for the PC connection cable

> **ℹ** This procedure is not necessary if the USB driver of the SCU-19* or the SCU-20 is already installed on the PC to be used.
> *(The SCU-19 is included in the SCU-39 kit.)
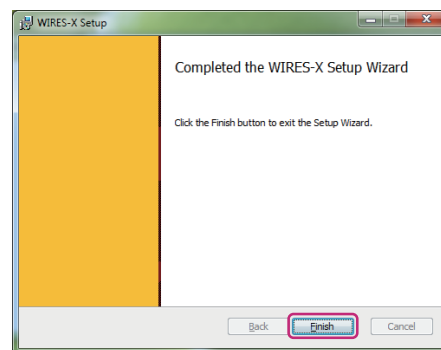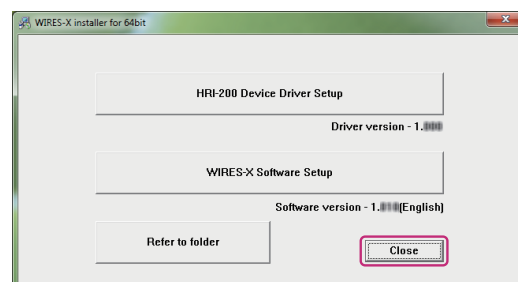
1. Download the SCU-19 USB driver for FT2D or the SCU-20 USB driver for FTM-400XD/D and FTM-100D from YAESU website (http://www.yaesu.com/).
2. Unzip the downloaded file and copy all the files to the desired folder.
3. Refer to the "**Driver Installation Manual**" PDF file in the folder and install the USB driver on the PC.

## ④ Update the firmware of the transceiver

> **ℹ** This procedure is not necessary if the firmware of the transceiver used for the Portable Digital Node station is the latest version already posted on YAESU website.

1. To check the firmware version of the transceiver, use the following procedure:

   ❏**FT2D**
   - (1) Press and hold the [**DISP**] key to display "**SETUP MENU**", then touch [**DISPLAY**].
   - (2) Rotate the **DIAL** knob, then touch [1**1 SOFTWARE VERSION**].

     The firmware version of "**Main**" and "**Sub**", "**DSP**" will be displayed.

   ❏**FTM-100DR/DE**
   - (1) Press and hold the [**DISP**](SETUP) key to display "**SETUP MENU**".
   - (2) Rotate the DIAL to select [**13 RST/CLONE**].
   - (3) Press the Press the [**DISP**](SETUP) key.
   - (4) Rotate the DIAL to select [**8 SOFTWARE VERSION**], then press the [**DISP**](SETUP) key.

     The firmware version of "**MAIN CPU**" and "**PANEL CPU**", "**DSP CPU**" will be displayed.

   ❏**FTM-400XDR/DE, FTM-400DR/DE**
   - (1) Press and hold the [**DISP**](SETUP) key to display "**SETUP MENU**".
   - (2) Touch [**RESET/CLONE**].

     The firmware version of "**MAIN**" will be displayed on the top of the screen.
   - (3) Touch [**BACK**].
   - (4) Touch [**TX/RX**].
   - (5) Touch [**DIGITAL**].
   - (6) Rotate the DIAL knob to select [**5 DSP VERSION**].

     The "**DSP**" firmware version will be displayed to the right of [**5 DSP VERSION**].

> **ℹ** For details on checking the firmware version of the transceiver other than the above, refer to the owner's manual of each transceiver.

2. If the firmware version of the transceiver is the latest firmware as indicated on YAESU website (http://www.yaesu.com/), update is not necessary.

   Proceed to "⑤ **Connect the transceiver and the PC**" (page 11).
3. Download the latest firmware from YAESU website (http://www.yaesu.com/).
4. Unzip the downloaded file and copy all the files to the desired folder.
5. Refer to the "**Firmware Update Manual**" PDF file in the folder and update the firmware of the transceiver.

> **!** Be sure to use "**Supplied USB cable with FT2D**" for FT2D firmware update. The PC connection cable SCU-19 cannot be used for FT2D firmware update.

## ⑤ Connect the transceiver and the PC

> ⚠ Do not connect the connection cable to the PC before the installation of the USB device driver is completed. The wrong device driver may be installed and it may not operate correctly.

> ℹ To communicate with an analog FM station, refer to "**Communicating with digital or analog FM mode (Portable HRI Mode)**" (page 12) and connect the transceiver and the PC.

**Communicating only with C4FM digital mode (Portable Digital Node Mode)**

### ❏ FT2D

1. Refer to the figure and connect the PC connection cable SCU-19.
   (**The SCU-19 is included in the optional SCU-39 kit.**)

   *It is not necessary to connect the microphone / speaker terminal.
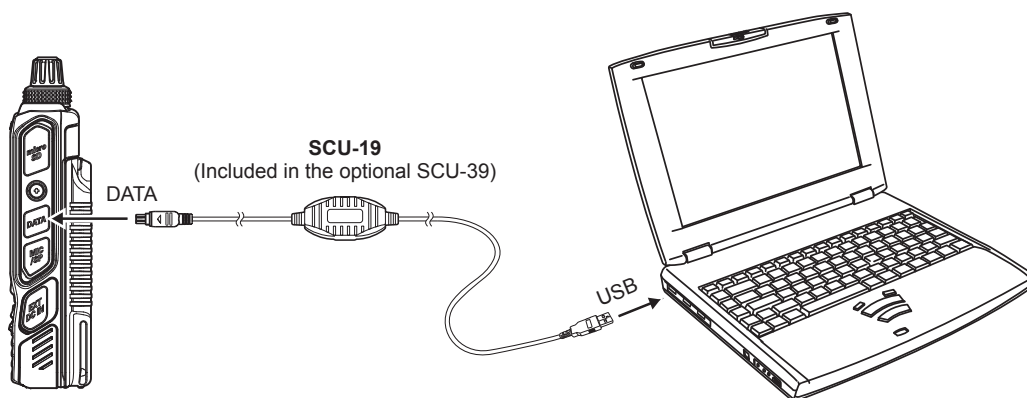


SCU-19
(Included in the optional SCU-39)

DATA

USB

> ⚠ • To prevent RF interference, keep the antenna of the transceiver as far away from the connecting cables and PC as possible.
> • It is recommended to set the transmit output power of the transceiver as low as possible for the desired communication.

The connection is complete.

### ❏ FTM-400XD/D or FTM-100D

1. Refer to the figure and connect the PC connection cable SCU-20 (Supplied with FTM-400XD/D or FTM-100D).



DATA

SCU-20

USB

The connection is complete.

## Communicating with digital or analog FM mode (Portable HRI Mode)

### ❒ FT2D

Since the cable connection for the FT2D transceiver differs between Access Point and Direct Operation, please refer to the following and make the connections according to the mode to be used.

### 《When operating in Access Point》

1. For the WIRES-X Node mode connection, use the SCU-19 USB Connection Cable, the CT-44 adapter & two audio cables that are supplied in the SCU-39 Connection Kit (sold separately) as shown in the figure.



DATA
MIC/SP
USB
Φ2.5 plug (Black)
Φ3.5 plug (Black)    Speaker
Φ3.5 plug (Gray)
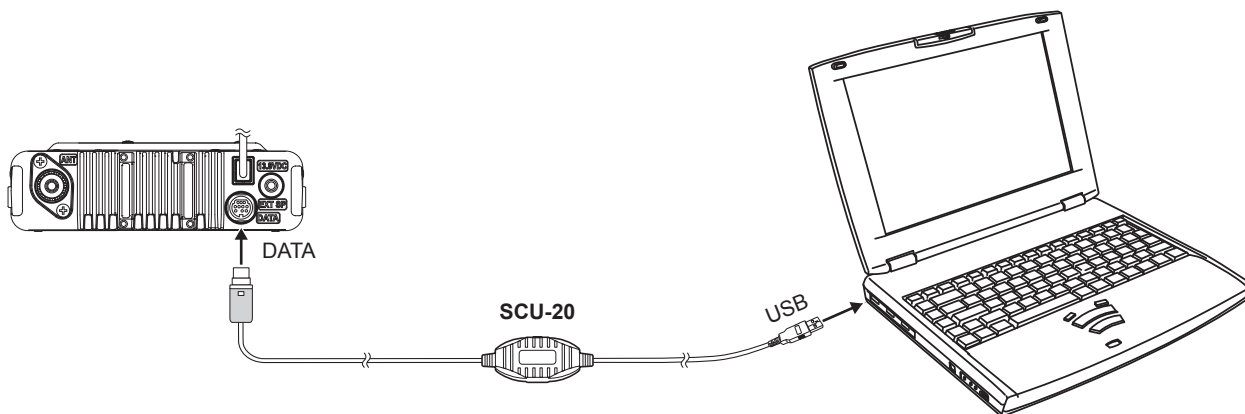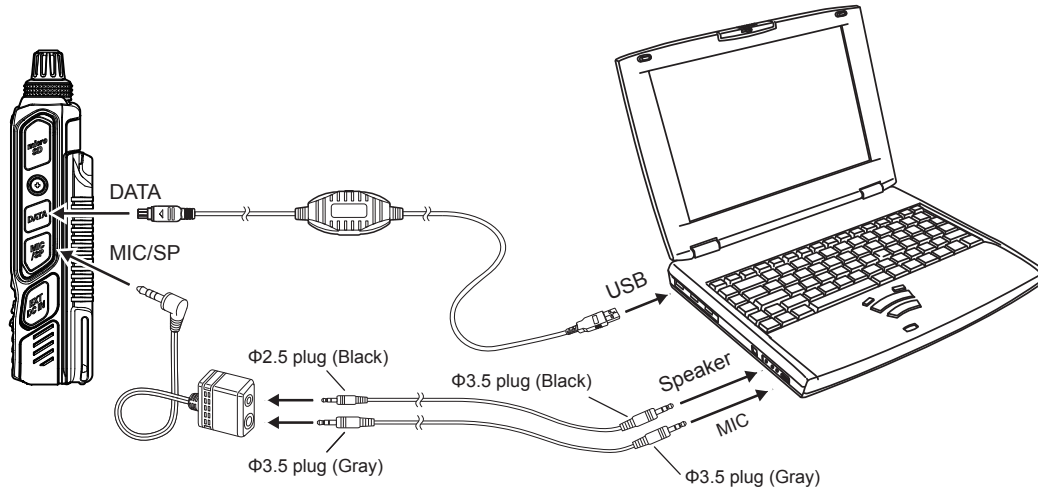MIC
Φ3.5 plug (Gray)

> [!] • To prevent RF interference, keep the antenna of the transceiver as far away from the connecting cables and PC as possible.
> • It is recommended to set the transmit output power of the transceiver as low as possible for the desired communication.
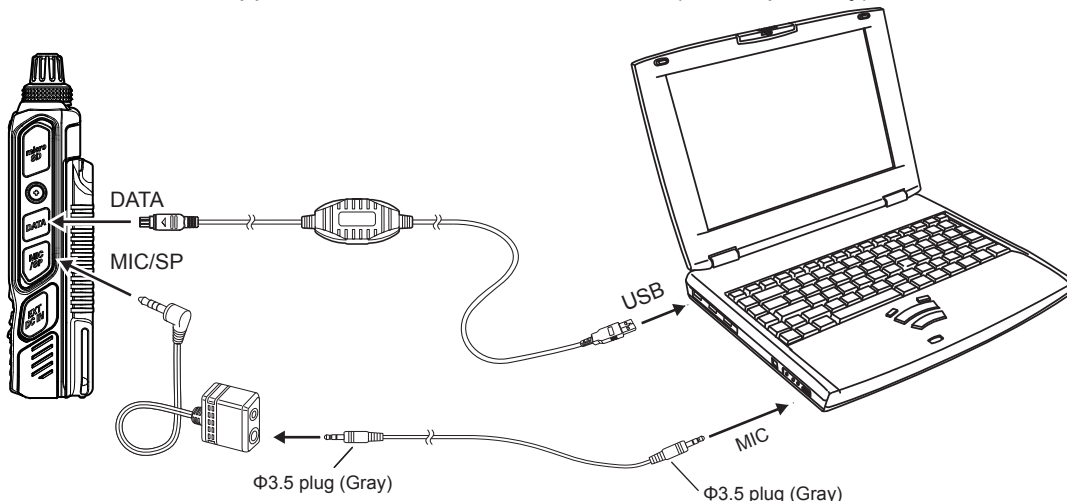
The connection is complete.

> [!] After completing "**Initial Setting (setting is required only once at the beginning)**" (page 14), the volume level of the microphone and PC speaker must be set by referring to "**Adjusting Audio Level in the Access Point (Portable HRI Mode)**" (page 44).

### 《When operating in Direct Operation》

1. For the WIRES-X Direct mode connection, use the SCU-19 USB Connection Cable, the CT-44 adapter & one of the audio cables that are supplied in the SCU-39 Connection Kit (sold separately) as shown in the figure.



DATA
MIC/SP
USB
Φ3.5 plug (Gray)
MIC
Φ3.5 plug (Gray)

The connection is complete.

> [!] In "**Direct Operation**" of Portable HRI Mode with FT2D transceiver, the audio from the other station is heard only from the PC speaker. After completing "**Initial Setting (setting is required only once at the beginning)**" (page 14), the volume level of the microphone and PC speaker must be set by referring to "**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**" (page 46).
> To adjust the receive volume level, turn the **VOL** knob of the FT2D transceiver, or adjust the PC speaker volume.

## ❒ **FTM-400XD/D or FTM-100D**

When using FTM-400XD/D or FTM-100D, the cable connection with the personal computer is the same for both Access Point and Direct Operation.

1. Refer to the figure to connect the SCU-20 PC connection cable supplied with the SCU-40 WIRES-X connection cable kit (sold separately) and the audio cable.



DATA

SCU-20

USB

Speaker

MIC
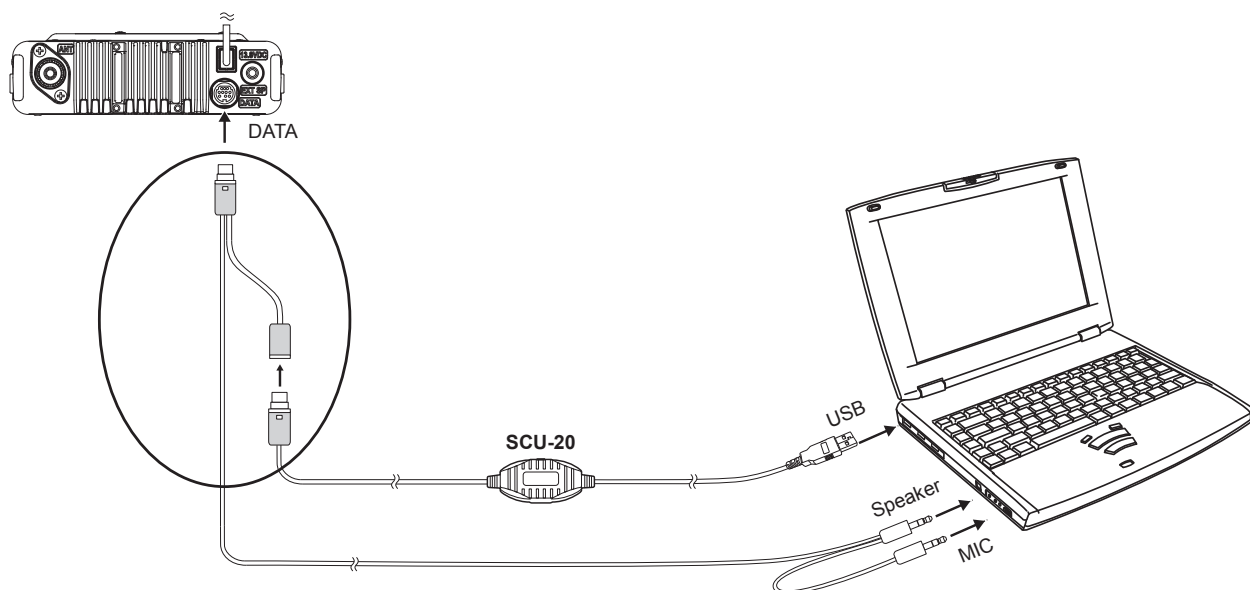
The connection is complete.

| | When communicating via the Internet in "**Portable HRI Mode**", refer to "**Adjusting Audio Level in the Access Point (Portable HRI Mode)**" (page 44) or "**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**" (page 46) and adjust the audio level of the computer. |

# Initial Setting (setting is required only once at the beginning)

## Start the transceiver

◎ **Portable Digital Node mode (Supports linking to the Internet only in C4FM digital mode)**

❏ **FT2D**
1. Press and hold the [**X**] key, [**BAND**] key and the POWER switch to turn the transceiver **ON**.
   "**PDN**" is displayed on the LCD screen.

❏ **FTM-400XD/D**
1. Press and hold the [**DX**] key and the POWER switch to turn the transceiver **ON**.
   "**PDN**" is displayed on the LCD screen.

❏ **FTM-100D**
1. Press and hold the [**DX**] key and the POWER switch to turn the transceiver **ON**.
   "**PDN**" is displayed on the LCD screen.

◎ **Portable HRI Mode (Supports Internet communication in digital mode and analog mode)**

❏ **FT2D**
1. Press and hold the [**X**] key, [**BACK**] key and the POWER switch to turn the transceiver **ON**.
   "**WIRES-X**" is displayed on the LCD screen.

❏ **FTM-400XD/D**
1. Press and hold the [**DX**] key, [**GM**] key and the POWER switch to turn the transceiver **ON**.
   "**WIRES-X**" logo is displayed on the LCD screen.

❏ **FTM-100D**
1. Press and hold the [**DX**] key, [**GM**] key and the POWER switch to turn the transceiver **ON**.
   "**WIRES-X**" logo is displayed on the LCD screen.

> ℹ️
> • Repeating the above operation will return the transceiver to the normal mode.
> • To switch between "**Portable Digital Node Mode**" and "**Portable HRI Mode**", start with the normal mode once and then perform the above operation.

## Starting the WIRES-X software

1. Double-click the [**Wires-X**] icon on the PC desktop.

   ・Setting the Internet access security (Only when Windows Security Alert screen appears)

   If the Windows Security Alert window appears when starting WIRES-X software, click [**Allow access**] to allow Internet access from the WIRES-X software.
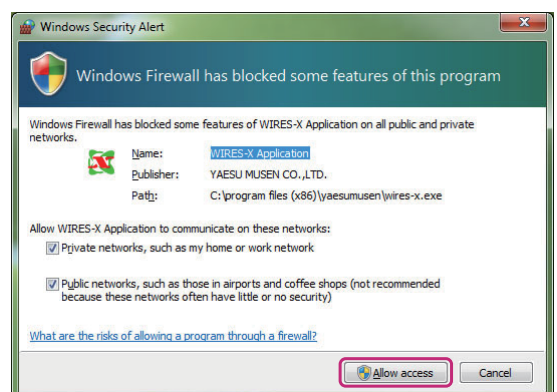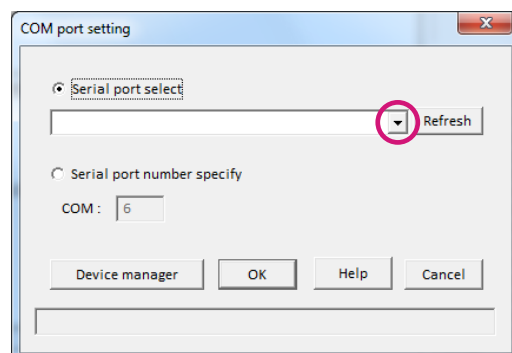
## Communication port setting

When starting the WIRES-X software for the first time or when the communication port is changed, the "**COM port setting**" window will appear. Set the communication port with the transceiver connected to the PC.

1. Connect the transceiver to the PC using the SCU-19 or SCU-20 PC connection cable. For details on the connection procedure, refer to "⑤ **Connect the transceiver and the PC**" (page 11).

2. Click [▼] in the "**Serial Port Selection**" column and click the COM port (displayed as "**Prolific USB-to-Serial Comm Port (COMX)**") connected to the transceiver.
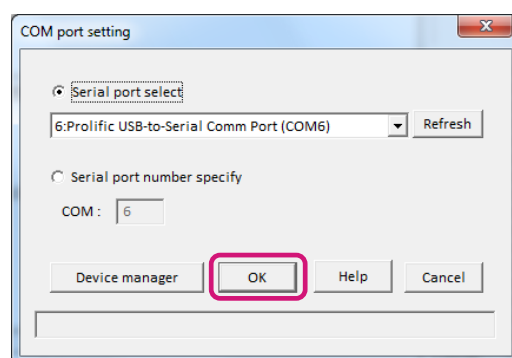
   📝 • You can also select a communication port by clicking "Serial port number specify" and entering the COM port number directly.
   • Click the [**Device manager**] to open the Windows Device Manager.

3. Click the [**OK**].

   📝 The communication port may be changed from the **[File (F)]** menu - [**Communication port**] of WIRES-X software.

## Authenticate (activate) the WIRES-X server

If the WIRES-X server authentication (activation) has not been completed on the personal computer to be used, the "WIRES ID Activation" screen opens automatically.

1. Enter the Node ID and Room ID (both are 5-digit numbers).

   📝 The Node ID and the Room ID are described in the e-mail received when the user registration is completed.

   ❗ • "**RADIO ID**" of the transceiver connected to the PC is automatically displayed in the serial number column. If "**RADIO ID**" is not displayed, check the connection between the transceiver and the computer again.
   • Remove the HRI-200 interface from the PC when using the Portable Digital Node function.

2. Click the [**ID Entry**].

   When activation is completed, information on registration is automatically displayed for "**User ID**", "**Call Sign**", "**City**", "**State**", and "**Country**".

3.  Click the [**OK**].

    The information of the User ID is saved on the computer and "**Settings**" window will appear.

    On this screen the settings such as "**Comment**" of your station may be added to display in the ID list.



4.  Click the [**OK**].

    The "**Settings**" window closes and the "**Main Screen**" will appear.

When using it in "**Direct Operation**", "**Transceiver settings (Access Point only)**" (page 17) is not necessary, so the initial setting is completed. Proceed to "**Basic Operation**" (page 19).

## Transceiver settings (Access Point only)

When using "**Access Point**" of Portable HRI Mode, set the operating frequency and parameters etc. of the transceiver by using the following procedure:

It is not necessary to make these settings when using "**Direct Operation**".

> When using "**Access Point**" of Portable Digital Node Mode, only the "**Hide frequency settings**" item can be set using the following procedure. When the transceiver is connected and operation of the "**Node Mode**" is started, the other items settings are transferred from the transceiver and can only be confirmed.

1. From the "**File**" menu, click "**Transceiver**".

   The "**Transceiver**" window will appear.
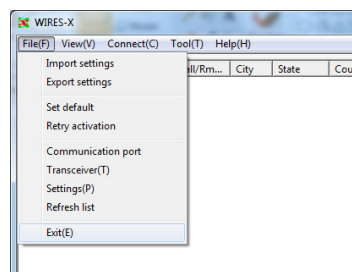
2. Set the operating frequency of the Portable Digital Node Station.
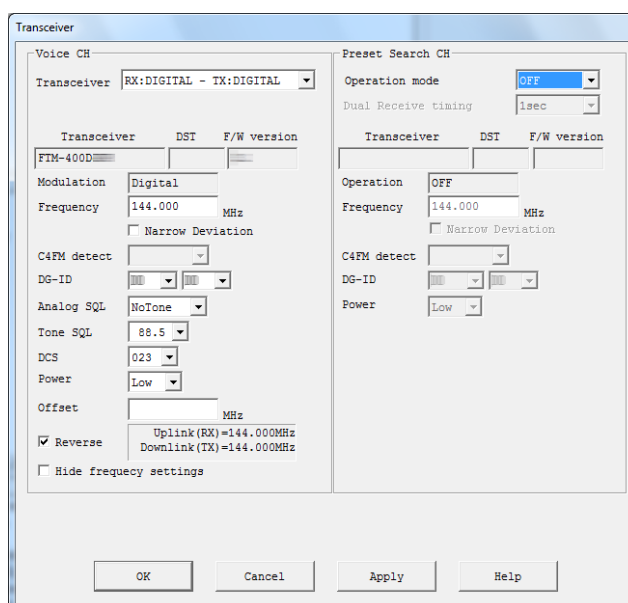
**Frequency:** Enter the operating frequency.

**Narrow Deviation:** Select if using narrow deviation operation. (default: Unchecked)

**DG-ID:** Select the DG-ID (Digital Group ID) number 00 to 99 (default setting: 00)

When the DG-ID number is set to "**00**", the node becomes an open node. The subcode on the right can be set from "**00**" to "**26**".

When DG-ID number is set to "**00**" and subcode is set to "**00**", relay C4FM digital signals of all DG-ID numbers.

When DG-ID number is set to "**00**" and subcode is set from "**01**" to "**26**", C4FM digital signals without the matching subcode will not be relayed. The C4FM digital transceiver accessing the WIRES-X DG-ID "**AUTO**" node station is automatically set to the same subcode and can communicate while accessing it.

> • By setting the DG-ID number to "00", the station becomes an open node station, and can be connected from all transceivers with the WIRES-X DG-ID setting "AUTO". When using a node station in a restricted group, set the DG-ID to a number "01" to "99", and then set all the group transceivers to the same DG-ID number.
> • The DG-ID Subcode cannot be used or set in Portable Digital Node mode.

**Power:** Set the transmission power of the transceiver.

**Offset:** For split operation, input the offset value of the frequency to be used for reception (uplink) in MHz for the "operating frequency" that the node station uses for transmission (downlink). Leave blank if you do not want split operation. (default: blank)

**Reverse:** When unchecked, reception (uplink) at the operating frequency and transmission (downlink) at the offset frequency are made.

**Hide frequency settings:** When checked, the operation information (frequency and squelch setting) will not be displayed in the node list. It takes about 10 minutes for the setting to be reflected in the node list.

(default: Unchecked)

| | |
|---|---|
| **i** | This is the only item that may be set when using "Access Point" in the Portable Digital Node Mode. |

3. Click the [**OK**].

The "**Transceiver**" window closes and the "**Main Screen**" will appear.

| | |
|---|---|
| **!** | When a microphone is connected or built in the PC, there may be cases where the sound around the PC is relayed, be sure to remove the microphone or mute the microphone with the setting of the audio device of the PC. |

| | |
|---|---|
| **i** | When communicating via the Internet in "**Portable HRI Mode**", refer to "**Adjusting Audio Level in the Access Point (Portable HRI Mode)**" (page 44) or "**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**" (page 46) and adjust the audio level of the computer. |

The Initial setting is complete.

# Basic Operation

Refer to "**Using the Portable Digital Node Mode**" or "**Using the Portable HRI Mode**" (page 38) according to the mode to be used.

## Using the Portable Digital Node Mode

### Connecting the transceiver and the PC

Refer to "**Communicating only with C4FM digital mode (Portable Digital Node Mode)**" (page 11) and connect the transceiver to the PC.

### Starting the WIRES-X software

1. Double click the [**Wires-X**] icon on the desktop of the computer screen.

   The main screen of WIRES-X software is displayed.

   For details on the main screen, refer to "**WIRES-X Software Main Screen**" (page 41).

### Starting the transceiver in special mode

#### ❏ FT2D

1. Press and hold the [**X**] key, [**BAND**] key and the POWER switch to turn the transceiver **ON**.

   "**PDN**" is displayed on the LCD screen.

2. Press the [**A/B**] key to select "**Access Point**" or "**Direct Operation**".

   Depending on the operation mode chosen, the frequency display will show as follows:

   **Access Point:**      "**(Frequency display)**"
   **Direct Operation:**   "**DIRECT**"

#### ❏ FTM-400XD/D

1. Press and hold the [**DX**] key and the POWER switch to turn the transceiver **ON**.

   "**PDN**" is displayed on the LCD screen.

2. Press the Band B **DIAL** knob (Lower) to select "**Access Point**" or "**Direct Operation**".

   Depending on the operation mode chosen, the A band frequency display will show as follows:

   **Access Point:**      "**(Frequency display)**"
   **Direct Operation:**   "**DIRECT**"

#### ❏ FTM-100D

1. Press and hold the [**DX**] key and the POWER switch to turn the transceiver **ON**.

   "**PDN**" is displayed on the LCD screen.

2. Press the [**A/B**](DW) key to select "**Access Point**" or "**Direct Operation**".

   Depending on the operation mode chosen, the sub frequency display will show as follows:

   **Access Point:**      "**(Frequency display)**"
   **Direct Operation:**   "**DIRECT**"

---

* To return the transceiver to the normal mode, repeat procedure 1 above.
* To switch between "**Portable Digital Node Mode**" and "**Portable HRI Mode**", start with the normal mode once and then perform the above operation.

---

The portable station transceiver cannot use the News Station feature or the GM feature.

## Setting the transceiver (Access Point only)

When using the "**Access Point**", it is necessary to set the node station transceiver parameters, such as operating frequency and DG-ID number on the portable node station transceiver.

When using the "**Direct Operation",** it is not necessary to set the frequency and parameters on the transceiver, just proceed to "**Start operation of Portable Node**" (page 24).

1. To set the operating frequency:

   Use the transceiver **DIAL** knob, the Numeric keypad input screen, or the memory channel to set the operating frequency.

> In the **"Transceiver Setting Screen**", the portable Access Point function is not working. May be communicate normally with C4FM digital mode (DN mode only) with the transceiver.

### ❒ FT2D

On the frequency setting screen, you can set and operate the following with the transceivers key and **DIAL** knob settings.

| Function | Key or Dial |
| --- | --- |
| Switches between the Access Point and the Direct Operation | Press the A/B key |
| Starts operation for the Portable Digital Node | Press the X key |
| Sets the operation frequency | Rotate the DIAL knob or press the Numeric keypad input screen |
| Switches between the VFO mode and the Memory Channel mode | Press the V/M key |
| Moves operation to the next-highest frequency band | Press the BAND key |
| Sets the transmit and receive DG-ID number | Press and hold the GM key |
| TX/BUSY LED turn OFF/ON | V/M key (Press and hold) |
| Enters the Set mode* | Press and hold the DISP key |
| Enters the BACKTRACK screen | Press the DISP key |
| Registering to Memory Channel | Touch and hold [F MW] |
| Displays the Function Menu Screen | Touch [F MW] |
| Selects the Transmission Power Level | Touch [TX PWR] on the Function Menu Screen |
| Recalls the "HOME" channel | Touch [HOME] on the Function Menu Screen |
| Reverses the transmit and receive frequencies | Touch [REV] on the Function Menu Screen |
| Squelch OFF | While MONI key is pressed |
| Adjusts the squelch level | Press the SQL key, then rotate the DIAL knob |
| Switches Busy detection between "Noise squelch" and "DG-ID number match". | Press and hold the A/B key |

\* Some setting items in the set mode are automatically set for the Portable Digital Node function, so these settings cannot be changed.

### ❒ FTM-400XD/D

On the frequency setting screen, you can set and operate the following with the transceivers key and **DIAL** knob settings.

| Function | Key or Dial |
| --- | --- |
| Switches between the Access Point and the Direct Operation | Press the Band B DIAL knob (Lower) |
| Starts operation for the Portable Digital Node | Press the DX key or press the P3 key on the microphone (by default setting) |
| Sets the operation frequency | Rotate the DIAL knob or press the numeric keypad input screen |
| Switches between the VFO mode and the Memory Channel mode | Touch [V/M] on the LCD screen |
| Sets the transmit and receive DG-ID number | Press and hold the GM key |

| Function | Key or Dial |
|---|---|
| Enters the Set mode* | Press and hold the DISP key |
| Enters the BACKTRACK (COMPASS) screen | Press the DISP key |
| Registering to Memory Channel | Press and hold the F(MW) key |
| Displays the Function Menu Screen | Press the F(MW) key |
| Selects the Transmission Power Level | Touch [TX PWR] in the Function Menu Screen or press the P4 key on the microphone (by default setting) |
| Recalls the "HOME" channel | Touch [HOME] in the Function Menu Screen or press the P2 key on the microphone (by default setting) |
| Reverses the transmit and receive frequencies | Touch [REV] in the Function Menu Screen |
| Squelch OFF | Press the P1 key on the microphone (by default setting) |
| Adjusts the squelch level | Touch [SQL] on the LCD screen, then rotate the Band A DIAL knob (Upper) |
| Switches Busy detection between "Noise squelch" and "DG-ID number match". | Press and hold the Band B DIAL knob (Lower) |

 * Some setting items in the set mode are automatically set for the Portable Digital Node function, so these settings cannot be changed.

☐ **FTM-100D**

On the frequency setting screen, you can set and operate the following with the transceivers key and **DIAL** knob settings.

| Function | Key or Dial |
|---|---|
| Switches between the Access Point and the Direct Operation | Press the A/B (DW) key |
| Starts operation for the Portable Digital Node | Press the DX key or press the P3 key on the micrphone (by defalut setting) |
| Sets the operation frequency | Rotate the DIAL knob |
| Selects the operating band | Press the BAND (MHz) key |
| Recalls the "HOME" channel | Press the P2 key on the microphone (by default setting) |
| Switches between the VFO mode and the Memory Channel mode | Press the V/M (MW) key |
| Registering to Memory Channel | Press and hold the V/M (MW) key |
| Sets the transmit and receive DG-ID number | Press and hold the GM key |
| Enters the Set mode* | Press and hold the DISP (SETUP) key |
| Enters the BACKTRACK (COMPASS) screen | Press the DISP (SETUP) key |
| Selects the Transmission Power Level | Press the TX PO key or press the P4 key on the microphone (by default setting) |
| Reverses the transmit and receive frequencies | Press and the P1 key ~ P4 key on the microphone* *Setting of "REVERSE" function is necessary for P1 ~ P4 keys in set mode. |
| Squelch OFF | Press the P1 key on the microphone (by default setting) |
| Adjusts the squelch level | Press the SQL (VOICE) key, then rotate the DIAL knob |
| Switches Busy detection between "Noise squelch" and "DG-ID number match". | Press and hold the A/B (DW) key |

 * Some setting items in the set mode are automatically set for the Portable Digital Node function, so these settings cannot be changed.

2. Setting the transmit and receive DG-ID number.

This procedure is unnecessary if the transceiver is already set to the required transmit and receive DG-ID number.

Since the transmit and receive DG-ID number is "TX: 00" and "RX: 00", it operates as an open node and is accessible from all transceivers using C4FM digital mode.

When using a portable node station to be accessed only by the specific members, set the transmit and receive DG-ID to a number other than "00".

> ⚠ • In the Access Point, if the receive DG-ID is set to other "00", set the transmit DG-ID number to the same DG-ID number. Note that setting to a different number will not work properly.
>
> • When setting the receive DG-ID number to "00" and then setting the transmission DG-ID number to anything other than "00", the audio of all received C4FM digital stations will be heard on the speaker, but for the transmission DG-ID Only the matched communication is relayed to the opposite station on the Internet.
>
> • The DG-ID Subcode cannot be used or set in Portable Digital Node mode.

### ❒ **FT2D**

1. Press and hold the [**GM**] key.
   The DG-ID SETUP screen is displayed on the LCD.

   > 12:34      🦅 SD 📶
   > DG-ID SETUP
   >
   > ▶DG-ID TX:  50
   >
   >   DG-ID RX:  50
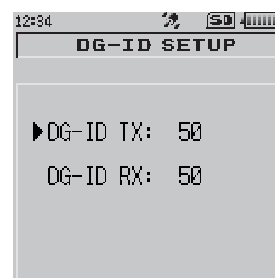
2. Press the [**GM**] key, then rotate the **DIAL** knob to set the transmit DG-ID number (DG-ID TX).

   > ℹ️ When setting the DG-ID number, pressing and holding the [**DISP**] (SETUP) key will set the transmit and the receive DG-ID numbers to "00".

   > 12:34      🦅 SD 📶
   > DG-ID SETUP
   >
   > DG-ID TX: ▶00
   >
   > DG-ID RX:  50
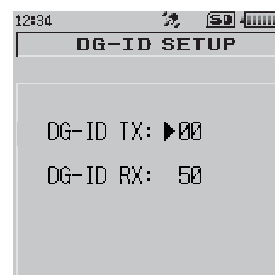
3. Press the [**GM**] key, then rotate the **DIAL** knob to select "**DG-ID RX**".

   > 12:34      🦅 SD 📶
   > DG-ID SETUP
   >
   > DG-ID TX:  00
   >
   > DG-ID RX: ▶50

4. Press the [**GM**] key, then rotate the **DIAL** knob to set the receive DG-ID (DG-ID RX).

   > 12:34      🦅 SD 📶
   > DG-ID SETUP
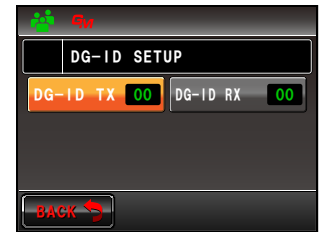   >
   > DG-ID TX:  00
   >
   > DG-ID RX: ▶00

5. Press and hold the [**DISP**] key, to save the setting and return to normal operation.

The setting of the FT2D transceiver is complete.

### ❒ FTM-400XD/D

1. Press and hold the [**GM**] key.
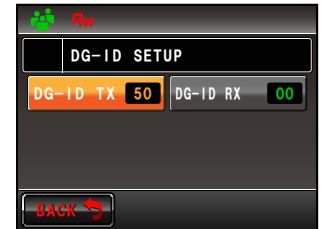   The DG-ID SETUP screen is displayed on the LCD.

2. Touch [**DG-ID TX**].
   The numbers of the set value will turn orange in color.
3. Rotate the **Band A DIAL** knob (upper side) to set the transmit DG-ID.
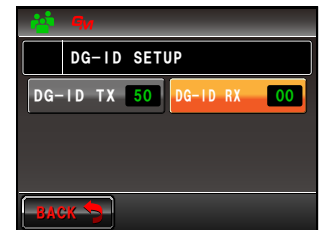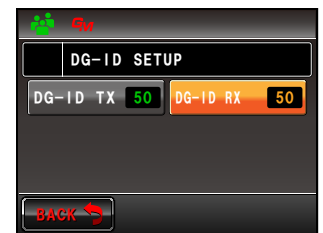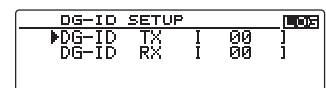
   > ℹ️ When setting the DG-ID number, pressing and holding the [**DISP**] (SETUP) key will set the transmit and the receive DG-ID numbers to "00".

4. Touch [**BACK**] , then touch the screen to select "**DG-ID RX**".
   "**DG-ID RX**" will turn orange.

5. Touch [**DG-ID RX**].
   The numbers of the set value will turn orange in color.
6. Rotate the Band A **DIAL** knob (upper side) to set the receive DG-ID.
7. Press and hold the [**GM**] key to save the setting and return to normal operation.

The setting of the FTM-400XD/D transceiver is complete.

### ❒ FTM-100D

1. Press and hold the [**GM**] key.
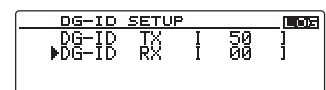   The DG-ID number setting screen is displayed.

2. Press the [**GM**] key, then rotate the **DIAL** knob to set the transmit DG-ID (DG-ID TX).
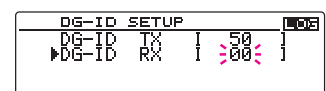
   > ℹ️ When setting the DG-ID number, pressing and holding the [**DISP**] (SETUP) key will set the transmit and the receive DG-ID numbers to "00".
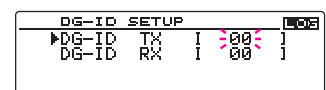
3. Press the [**GM**] key, then rotate the **DIAL** knob to set the "DG-ID RX".

4. Press the [**GM**] key, then rotate the **DIAL** knob to set the receive DG-ID (DG-ID RX).

5. Press and hold the [**GM**] key to save the setting and return to normal operation.

The setting of the FTM-100D transceiver is complete.

## ❒ **FT2D**

1. Press the [**X**] key on the portable node FT2D transceiver.

   The "**X**" icon flashes on the upper left of the LCD screen.

   ---

   ℹ️
   - The display screen example uses the "**Access Point**" screen. In "**Direct Operation**", "**DIRECT**" is displayed instead of frequency
   - If the "**X**" icon does not blink when the [**X**] key is pressed, communication between the transceiver connected to the PC and the WIRES-X software has not been established, so check the cable connection and USB driver installation.
   - To cancel the connection, press and hold the [**X**] key.

   ---
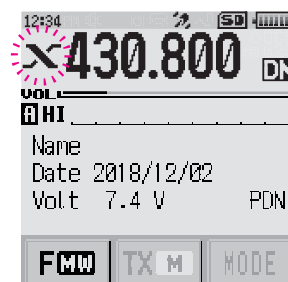
2. When the operation of the portable node is started, the "**X**" icon changes from blinking to lit and the Node ID and the city of its own station are displayed.

   Depending on the history of the previously connected node on the internet and the current connection status of the portable node, one of the following four screen is displayed.

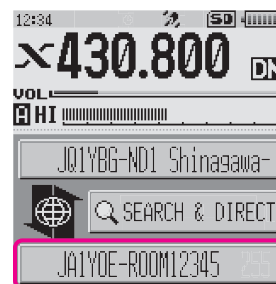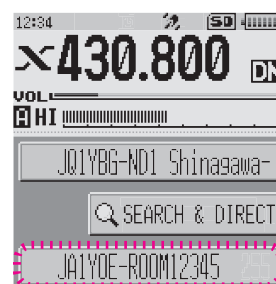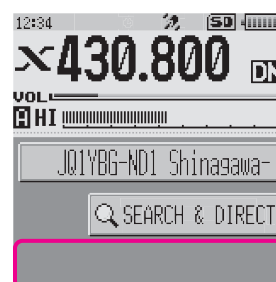   **If the portable node is not connected to a node or a room on the Internet**

   ① **When connection history is not stored**

   The lower connection destination display will be blank.

   ② **When connection history is stored**

   The ID of the previous connected the Node or Room will blink.

   Press the **PTT** switch or touch [**blinking connection ID**] to connect.

   **If the portable node is already connected to a node or a room on the Internet**

   ③ **When connected to the same node or room as the ID of the previous connection history**

   The current connection ID is displayed in the lower part of the LCD. To communicate with this connection, proceed to "**Communicating with the other station**" (page 24).

   ④ When connected to a node or room different from the previous connection history

   The "**▶**" and the current connection ID is displayed in the lower part of the LCD.

   When the **DIAL** knob is turned, the previous connection destination ID will blink. In this case, press the **PTT** switch or touch [**blinking connection ID**] to connect to the previous connection ID.

---

ℹ️ While operating the Portable Node, may be not possible to switch between "**Access Point**" and "**Direct Operation**". Press and hold the [**X**] key to return to the transceiver setting screen, then press the [**A/B**] key.

---

While operating the portable node, the following functions may be set on the portable node  FT2D transceiver.

| Function | Key or Dial |
| --- | --- |
| Return to the transceiver setting screen | Press and hold the X key |
| Squelch OFF | While MONI key is pressed |
| Adjusts the squelch level | Press the SQL key, then rotate the DIAL knob |
| Enters the BACKTRACK screen | Press the DISP key |
| Enters the Set mode* | Press and hold the DISP key |
| Displays the frequency display screen | Press the V/M key |
| Displays the Function Menu Screen | Touch [F MW] on the LCD screen |
| Selects the Transmission Power Level | Touch [TX PWR] in the Function Menu Screen |
| Selects Speaker Mute | Touch the A/B key |
| Disconnects a node or a room on the Internet | Press and hold the BAND key |

* Some setting items in the set mode are automatically set for the Portable Digital Node function, so the settings cannot be changed.

● **Setting the speaker mute**

You can mute the audio output of the speaker of the node station FT2D transceiver.

You cannot set it in Direct Operation.

Press [**A/B**] key each time toggles the mute mode as follows.

→ **MUTE OFF** → **MUTE ALL**→ **MUTE TX** → **MUTE RX** → **MUTE OFF**→ · · ·

**MUTE OFF**: Disable mute.

**MUTE ALL**: Mute both the received voice from the C4FM digital station and the voice from the node station on the Internet.

**MUTE RX**: Mute the received voice from the C4FM digital station.

**MUTE TX**: Mute the voice from the node station on the Internet.

When the MUTE setting is enabled, the mute icon "🔇" blinks at the top of the LCD.

> When the frequency setting screen is displayed, the mute setting status is displayed for about 1 second on the screen each time you press the [**A/B**] key.

### ❏ **FTM-400XD/D**

1. Press the [**DX**] key on the portable node FTM-400XD/D transceiver.

   The "𝒳" icon flashes on the upper left of the LCD screen.

   > • The display screen example uses the "**Access Point**" screen. In "**Direct Operation**", "**DIRECT**" is displayed instead of frequency
   >
   > • If the "𝒳" icon does not blink when the [**DX**] key is pressed, communication between the transceiver connected to the PC and the WIRES-X software has not been established, so check the cable connection and USB driver installation.
   >
   > • To cancel the connection, press and hold the [**DX**] key.

2. When the operation of the portable node is started, the "𝒳" icon changes from blinking to lit and the Node ID and the city of its own station are displayed.

   Depending on the history of the previously connected node on the internet and the current connection status of the portable node, one of the following three screen is displayed.

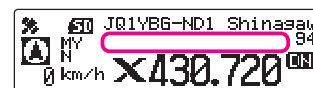**If the portable node is not connected to a node or a room on the Internet**

① **When connection history is not stored**

The lower connection destination display will be blank.

② **When connection history is stored**

The ID of the previous connected Node or Room will display in gray.
Press the **PTT** switch or touch [**connection ID**] to connect.
Upon being connected, the text will light up in white.

**If the portable node is already connected to a node or a room on the Internet**

③ **When connected to the same node or room as the ID of the previous connection history**

The current connection ID is displayed in white. To communicate with this connection, proceed to "**Communicating with the other station**" (page 24).

If the current connection destination is different from the previous connection ID, turning the **DIAL** knob displays the previous connection ID in gray. When the PTT switch is presses or [connection ID] is touched, the node will connect [**connection ID**] is touched, the node will connect to the previous connection destination.

---

While operating the Portable Node, may be not possible to switch between "**Access Point**" and "**Direct Operation**". Press and hold the [**DX**] key to return to the transceiver setting screen, then press the **Band B DIAL** knob.

---

While operating the portable node, may be set and operate the following on the portable node FTM-400XD/D transceiver.

| Function | Key or Dial |
|---|---|
| Return to the transceiver setting screen | Press and hold the DX key or press the P3 key on the microphone (By default setting) |
| Squelch OFF | Press the P1 key on the microphone (By default setting) |
| Adjusts the squelch level | Touch [SQL] on the LCD screen, then rotate the DIAL knob |
| Enters the BACKTRACK (COMPASS) screen | Press the DISP (SETUP) key |
| Displays the Function Menu Screen | Press the F (MW) key |
| Turning the display ON and OFF | Press and hold the DISP (SETUP) key |
| Selects the Transmission Power Level | Touch [TX PWR] in the Function Menu Screen or press the P4 key on the microphone (By default setting) |
| Selects Speaker Mute | Press the [MUTE] on the LCD screen |
| Disconnects a node or a room on the Internet | Press the ∗ key on the microphone (Press and hold) |

*Some setting items in the set mode are automatically set for the Portable Digital Node function, so the settings cannot be changed.

● **Setting the speaker mute**

You can mute the audio output of the speaker of the node station FTM-400XD/D transceiver.

You cannot set it in Direct Operation.

Touch the [**MUTE**] on the LCD each time toggles the mute mode as follows.

→ **MUTE OFF** → **MUTE ALL**→ **MUTE TX** → **MUTE RX** → **MUTE OFF**→ ・・・

**MUTE OFF**: Disable mute.

**MUTE ALL**: Mute both the received voice from the C4FM digital station and the voice from the node station on the Internet.

**MUTE RX**: Mute the received voice from the C4FM digital station.

**MUTE TX**: Mute the voice from the node station on the Internet.

When the MUTE setting is enabled, the [**MUTE**] in orange on the LCD.

### ❒ FTM-100D

1. Press the [**DX**] key on the portable node FTM-100D transceiver.

    The "*X*" icon flashes on the LCD screen.

    

> • The display screen example uses the "**Access Point**" screen. In "**Direct Operation**", "**DIRECT**" is displayed instead of frequency
>
> • If the "*X*" icon does not blink when the [**DX**] key is pressed, communication between the transceiver connected to the PC and the WIRES-X software has not been established, so check the cable connection and USB driver installation.
>
> • To cancel the connection, press and hold the [**DX**] key.

2. When the operation of the portable node is started, the "*X*" icon changes from blinking to lit and the Node ID and the city of its own station are displayed.

    Depending on the history of the previously connected node on the internet and the current connection status of the portable node, one of the following four screens is displayed.

    **If the portable node is not connected to a node or a room on the Internet**

    ① **When connection history is not stored**

    

    The connection destination display will be blank.

    ② **When connection history is stored**

    

    The ID of the previous connected ID will blink.

    Press the **PTT** switch  to connect to the previous connected ID.

    **If the portable node is already connected to a node or a room on the Internet**

    ③ **When connected to the same node or room as the ID of the previous connection history**

    

    The current connection ID is displayed in the LCD. To communicate with this connection, proceed to "**Communicating with the other station**" (page 24).

    ④ When connected to a node or room different from the previous connection history

    

    The "►" and the current connection ID are displayed on the LCD.

    When the **DIAL** knob is turned, the previous connection ID will blink. In this case, press the **PTT** switch  to connect to the previous connection ID.
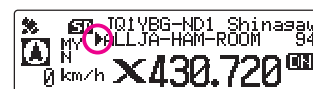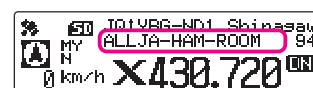
> While operating the Portable Node, it may not be possible to switch between "**Access Point**" and "**Direct Operation**". Press and hold the [**DX**] key to return to the transceiver setting screen, then press the [**A/B**] (DW) key.

While operating the portable node, you may set and operate the following on the portable node FTM-100D transceiver.

| Function | Key or Dial |
|---|---|
| Return to the transceiver setting screen | Press and hold the DX key |
| Adjusts the squelch level | Press the SQL (VOICE) key, then rotate the DIAL knob |
| Enters the BACKTRACK screen | Press the DISP (SETUP) key |
| Selects the Transmission Power Level | Press the TX PO key or press the P4 key on the microphone (By default setting) |
| Selects Speaker Mute | Press the A/B (DW) key |
| Turning the display ON and OFF | Press and hold the DISP (SETUP) key |
| Disconnects a node or a room on the Internet | Press and hold the ∗ key on the microphone |

● **Setting the speaker mute**

You can mute the audio output of the speaker of the node station FTM-100D transceiver.

You cannot set it in Direct Operation.

Touch the [**A/B**] (DW) key each time toggles the mute mode as follows.

→ **MUTE OFF** → **MUTE ALL**→ **MUTE TX** → **MUTE RX** → **MUTE OFF**→ · · ·

**MUTE OFF**: Disable mute.

**MUTE ALL**: Mute both the received voice from the C4FM digital station and the voice from the node station on the Internet.

**MUTE RX**: Mute the received voice from the C4FM digital station.

**MUTE TX**: Mute the voice from the node station on the Internet.

**Connecting to a node or a room on the Internet**

The Portable Digital Node Mode may be not connected to anything other than a Digital Room or a Digital Node. In order to connect with the analog node station, it is necessary to use the **Portable HRI Mode** (page 38).

Connection to an Internet Digital Node or a Digital Room may be made in the following two ways:

**(1) Connecting to a node or a room by operating the WIRES-X software on the PC**

**(2) Connecting to a node or a room by operating the transceiver of the portable node**

**(1) Connecting a node or a room by operating the WIRES-X software on the PC**

On the WIRES-X software main screen, you can easily connect to the desired room or node station.

1. Click the **Digital Node** or **Digital Room** to connect.
   - Icon of a digital room or a digital node
      **DIG** : Digital Open room (Only the Digital Nodes may be connected)

      **D** : Digital Node Station

      📶 : Portable Digital Node Station

2. Right-click on the selected **Digital Node** or **Digital Room**.

   The command list is displayed.

3. Click the [**connect**].

   When a connection is successfully established, the IDLE indicator "IDLE DIGITAL" will change to the NET indicator "NET DIGITAL", and the User ID of the connected Node station or Room "J⬚⬚⬚" is displayed.

   "**Connected**" will appear on the LCD of the portable node station's transceiver or the transceiver accessing the portable node station in WIRES-X mode.
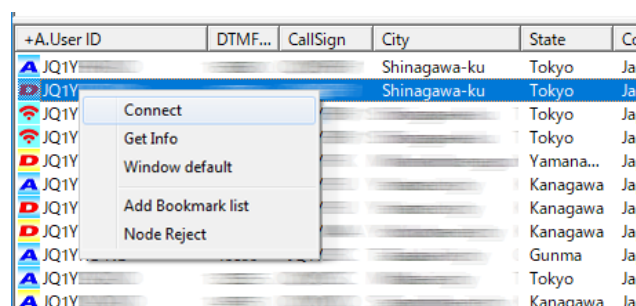
● **Room Pop-up Window**

When connecting to the room a window will pop up displaying the operational status of the room. For details, refer to "**Room pop-up window**" (page 43).

**(2)** **Connecting a node or a room by operating the transceiver of the portable node**

❏ **FT2D**

There are five ways to connect to a digital room or a digital node on the Internet.

① **Searching from the node & room lists** **(**page 29**)**
② **Searching the node ID or the room** **(**page 29**)**
③ **Selecting the node or the rooms registered in the category list** **(**page 30**)**
④ **Connecting to the node or room you have most recently connected** **(**page 31**)**
⑤ **Entering the DTMF ID number (5 digits) of the node or the room** **(**page 31**)**

Another C4FM digital transceiver accessing the portable node frequency and using the WIRES-X DG-ID number may also connect a node or a room. For details, refer to the **Operating Manual (WIRES-X Edition)** of each transceiver.

① **Searching from the node & room lists**

1. Touch [**SEARCH & DIRECT**].

   Displays the category list.

2. Touch [**ALL**].

   Displays the list of accessible nodes and rooms.

   • Connection destinations are displayed from the room list and then node list.

   • On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
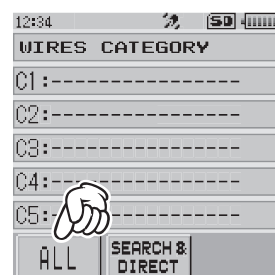
3. Touch the node or room you want to connect to establish the connection.

   By pressing the PTT switch, you may also establish the connection while talking.

   • Touch [▲] or [▼] to download and display 20 rooms or nodes at a time. Touch [**TOP**] to return to the first 20 rooms or nodes.

   Once connection is successfully established, "**Connected**" will appear on the LCD.

   If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.
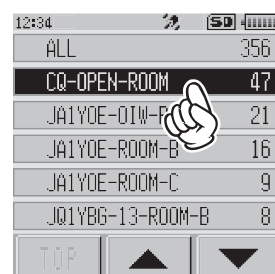
② **Searching by node or room ID**

1. Touch [**SEARCH & DIRECT**].

   Displays the category list.

2. Touch [**SEARCH & DIRECT**].

   Displays the character input screen.

3. Enter all or part of the Room ID or the Node ID.
   The list is searched for the matching foreword part of the ID.

4. Touch [**ENT**].

   If connection destinations with the foreword of the ID matching the entered ID are found, they will be listed.

   • Connection destinations are displayed from the room list and then node list.
   • On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
   • If there is no connection destination matching the entered name, "No Matches" appears and then the screen returns to the character input screen.
   • If the entered ID is found, the transceiver establishes connection immediately.
   • Touch [▲] or [▼] to download and display 20 rooms or nodes at a time. Touch [**TOP**] to return to the first 20 rooms or nodes.

5. Touch the node or room you want to connect to start the connection.
   • Once connection is successfully established, "**Connected**" will appear on the LCD.
   • If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.

③ **Connecting to registered nodes or rooms to the category list.**

1. Touch [**SEARCH & DIRECT**].
   Displays the category list.

2. Touch one of [**C1**] to [**C5**].
   Displays the node and room lists.
   • For details on registering nodes and rooms, see "**Registering the connected node or room in the category list**" (page 37).
   • Connection destinations are displayed from the room list and then node list.
   • On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.

   | ✏ | Items may be listed in order according to the number of activities, or access history from [**WIRES-X**]→[**2 SEARCH SETUP**] in the setting mode. |

3. Touch the node or room you want to connect to starts connection.
   • Once connection is successfully established, "**Connected**" will appear on the LCD.
   • If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.
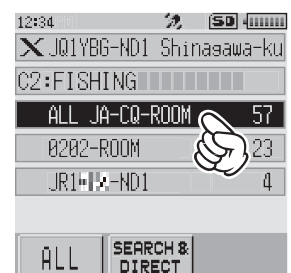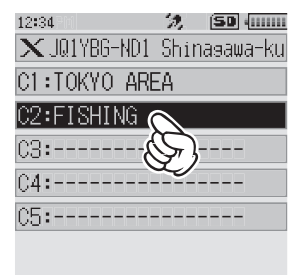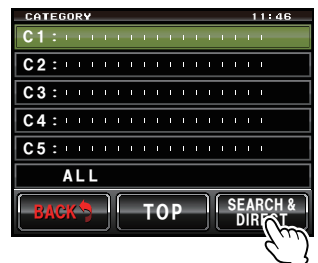
④ **Connecting to the node or room you have most recently connected**

1.  If you have previously connected to a node ID or a room ID on the Internet, it appears and flashes at the bottom of the screen.

    • Touch the flashing node ID or room ID to start connection, and once connection is established, the menu list of the node (room) you are connected to will appear.

    • If connection is unsuccessful, an error message appears and the name flashes again.

⑤ **Specifying the DTMF ID of the node or room you want to connect to**

1.  Touch [**SEARCH & DIRECT**].
    Displays the category list.

2.  Touch [**SEARCH & DIRECT**].
    Displays the character input screen.

3.  Touch [**ID**].
    Displays the DTMF ID input screen.

4.  Enter the 5-digit DTMF ID.

5.  Touch [**ENT**] to start a connection.

    • Once connection is successfully established, "**Connected**" will appear on the LCD.

    • If connection is unsuccessful, an error message appears and the screen returns to the DTMF ID input screen.
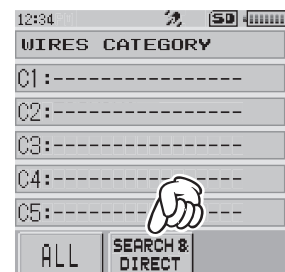
## ☐ FTM-400XD/D

There are five ways to connect to a digital room or a digital node on the Internet.

- ① **Searching from the node & room lists** (page 32)
- ② **Searching the node ID or the room** (page 32)
- ③ **Selecting the node or the rooms registered in the category list** (page 33)
- ④ **Connecting to the node or room you have most recently connected** (page 34)
- ⑤ **Entering the DTMF ID number (5 digits) of the node or the room** (page 34)

> Another C4FM digital transceiver accessing the portable node frequency and using the WIRES-X DG-ID number may also connect a node or a room. For details, refer to the **Operating Manual (WIRES-X Edition)** of each transceiver.

### ① Searching from the node & room lists

1. Touch [▼].
   Displays the category list.

2. Touch [**ALL**] twice.
   Displays the list of accessible nodes and rooms.
   - Connection destinations are displayed from the room list and then node list.
   - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
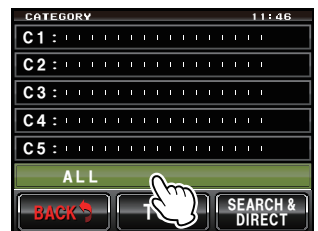
3. Touch the node or room you want to connect to establish the connection.
   By pressing the PTT switch, you may also establish the connection while talking.
   Once connection is successfully established, "**Connected**" will appear on the LCD.
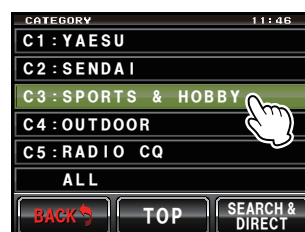   If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.

### ② Searching by node or room ID

1. Touch [▼].
   Displays the category list.

2. Touch [**SEARCH & DIRECT**].
   Displays the character input screen.

3. Enter all or part of the Room ID or the Node ID.
   The list is searched for the matching foreword part of the ID.

4. Touch [**ENT**].
   If connection destinations with the foreword of the ID matching the entered ID are found, they will be listed.
   - Connection destinations are displayed from the room list and then node list.
   - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
   - If there is no connection destination matching the entered name, "No Data" appears and then the screen returns to the character input screen.
   - If the entered ID is found, the transceiver establishes connection immediately.

5. Touch the node or room you want to connect to start the connection.
   - Once connection is successfully established, "**Connected**" will appear on the LCD.
   - If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.

③ **Connecting to registered nodes or rooms to the category list**

1. Touch [▼].
   Displays the category list.

2. Touch one of [**C1**] to [**C5**].
   Displays the node and room lists.
   - For details on registering nodes and rooms, see "**Registering the connected node or room in the category list**" (page 37).
   - Connection destinations are displayed from the room list and then node list.
   - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.

   > Items may be listed in order according to the number of activities, or access history from [**WIRES-X**]→[**2 SEARCH SETUP**] in the setting mode.

3. Touch the node or room you want to connect to start the connection.
   - Once connection is successfully established, "**Connected**" will appear on the LCD.
   - If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.

④ **Connecting to the node or room you have most recently connected**

1. If you have previously connected to a node ID or a room ID on the Internet, it appears in gray at the bottom of the screen.
   - Press the PTT switch or touch the ID to connect to the previous connection destination. When you connect, the connection destination is displayed in white.
   - If connection is unsuccessful, an error message appears and the name flashes again.

⑤ **Specifying the DTMF ID of the node or room you want to connect to**

1. Press and hold the [**#**] key on the microphone.
   Displays the DTMF ID input screen.
2. Enter the 5-digit DTMF ID.
3. Press the [**#**] key on the microphone to start a connection.
   - Once connection is successfully established, "**Connected**" will appear on the LCD.
   - If connection is unsuccessful, an error message appears and the screen returns to the DTMF ID input screen.
   - Press the [✱] key on the microphone to cancel the DTMF input screen.

☐ **FTM-100D**

There are four ways to connect to a digital room or a digital node on the Internet.

① **Searching from the node & room lists** (page 34)
② **Searching the node ID or the room** (page 34)
③ **Connecting to the node or room you have most recently connected** (page 35)
④ **Entering the DTMF ID number (5 digits) of the node or the room** (page 35)

> 📝 Another C4FM digital transceiver accessing the portable node frequency and using the WIRES-X DG-ID number may also connect a node or a room. For details, refer to the **Operating Manual (WIRES-X Edition)** of each transceiver.

① **Searching fro the node & room lists**

1. Press the [**BAND**] (MHz) key.
   Displays the category list.

2. Rotate the **DIAL** knob to select [**ALL**], and press the [**DISP**] (SETUP) key.
   Displays the list of accessible nodes and rooms.
   - Connection destinations are displayed from the room list and then node list.
   - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.
3. Rotate the **DIAL** knob to select you want to connect to establish the connection and press the [**DISP**] (SETUP) key to start the connection.
   By pressing the PTT switch, you may also establish the connection while talking.
   Once connection is successfully established, "**Connected**" will appear on the LCD.
   If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.

② **Searching by node or room ID**

1. Press the [**BAND**] (MHz) key.
   Displays the category list.

2. Rotate the **DIAL** knob to select [**SEARCH & DIRECT**], and press the [**DISP**] (SETUP) key.
   Displays the character input screen.

3.  Enter all or part of the Room ID or the Node ID.
    The list is searched for the matching foreword part of the ID.

4.  Press the [**DISP**] (SETUP) key.
    If connection destinations with the foreword of the ID matching the entered ID
    are found, they will be listed.
    • Connection destinations are displayed from the room list and then node list.
    • On the connection destination room columns, the number of activities (the
      number of nodes connected to each room) appears on the right side.
    • If there is no connection destination matching the entered name, "No Data"
      appears and then the screen returns to the character input screen.
    • If the entered ID is found, the transceiver establishes connection immediately.

5.  Rotate the **DIAL** knob to select the node or room you want to connect, then
    press the [**DISP**] (SETUP) key to start the connection.
    • Once connection is successfully established, "**Connected**" will appear on the LCD.
    • If connection is unsuccessful, an error message appears and the screen re-
      turns to the list of nodes and rooms.

③ **Connecting to the node or room you have most recently connected**
1.  If you have previously connected to a node ID or a room ID on the Internet, it
    appears and flashes on the LCD.
    • Press the [**BAND**] (MHz) key to start connection, and once connection is es-
      tablished, the menu list of the node (room) you are connected to will appear.
    • If connection is unsuccessful, an error message appears and the name flash-
      es again.
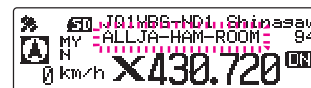
④ **Specifying the DTMF ID of the node or room you want to connect to**
1.  Press and hold the [**#**] key on the microphone.
    Displays the DTMF ID input screen.
2.  Enter the 5-digit DTMF ID.
3.  Press the [**#**] key on the microphone to start a connection.
    • Once connection is successfully established, "**Connected**" will appear on the
      LCD.
    • If connection is unsuccessful, an error message appears and the screen re-
      turns to the DTMF ID input screen.
    • Press the [∗] key on the microphone to cancel the DTMF input screen.

**Communicating with other station**

1. Press the **PTT** switch on the transceiver of the portable node to communicate with the other station.
   - In the Access Point, the signal is relayed to the Internet station and also transmitted from the C4FM digital radio at the same time.
   - In the Direct Operation, the signal will only be relayed to the other station on the Internet. The TX/BUSY LED lights red but the transceiver does not transmit radio waves, so the PO meter does not swing.

2. Release the PTT switch to return to receive mode.
   - In the Access Point operation, the voice from the other station on the Internet sounds from the speaker, and at the same time the C4FM digital signal is transmitted. Also, the voice from another C4FM digital transceiver accessing the portable node will sound on the speaker, and at the same time it will be relayed to the other station on the Internet.
   - In the Direct Operation, the TX/BUSY LED lights green while receiving communication from the other station on the Internet, but the S meter does not swing.

> **!**
> - In the Access Point operation, when setting a receive DG-ID number (except for "00"), set the transmit DG-ID number to the same number. A node that is set to a different number will not work properly.
> - When setting the receive DG-ID number to "00" and setting the transmit DG-ID number to anything other than "00", the voice of all received C4FM digital stations will be heard on the speaker, but for the transmit DG-ID Only the matched communication is relayed to the opposite station on the Internet.

**Disconnecting from the node or room**

To disconnect a node or room on the Internet, press and hold the [**BAND**] key. You may also disconnect by selecting from the "**Connection**" menu of WIRES-X software, and click "**Disconnect**".

**Closing the WIRES-X software**

1. From the "**File**" menu, select "**Exit**"

   > **i**
   > If "Enable WIRES-X Auto Start." has been selected when installing the WIRES-X software, the software will restart immediately after closing the software.
   > If you do not want to restart the software, click the WIRES-X icon on the right part of the Windows task bar (or from the hidden indicator list), then select "Quit" or "Auto Start" to remove the check mark.

   

● **Confirming the location of the other station**

   When latitude and longitude data is included in the signal of the other station, you may check the distance and direction of the other station in real time on the transceiver screen.

   **FT2D**: Press the [**DISP**] key to display the compass screen. Press the [**DISP**] key again to return to the normal screen.

   **FTM-400XD/D** or **FTM-100D**: Press the [**DISP**] (SETUP) key to display the compass screen. Press the [**DISP**] (SETUP) key twice to return to the normal screen.

● **Registering the connected node or room in the category list**

❐ **FT2D**

1. Touch the node or room you want to connect to.
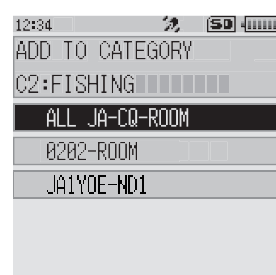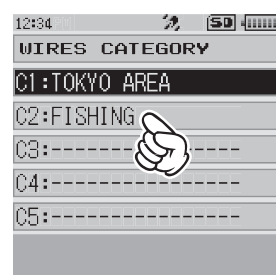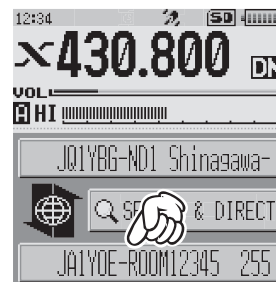   Displays the category list.

2. Touch [**ADD**].

3. Touch the desired category.
   The name of the node or room you are currently connected to is added to the list of the registered node and room lists.

   > **ℹ️** If the selected category is already registered with the same node or room, a beep sounds and it will not register.

4. Press the [**BACK**] key twice to return to the connection screen.

❐ **FTM-400XD/D**

1. Touch the node or room you want to connect to.
   Displays the category list.

2. Touch the desired category twice.
   The name of the node or room you are currently connected to is added to the list of the registered node and room lists.

   > **ℹ️** If the selected category is already registered with the same node or room, a beep sounds and it will not register.
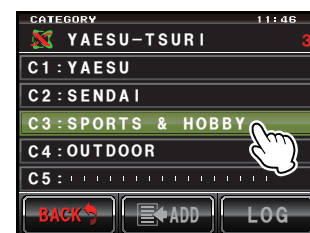
3. Press the [**BACK**] key to return to the connection screen.

## Using the Portable HRI Mode

 When communicating via the Internet in "**Portable HRI Mode**", refer to "**Adjusting Audio Level in the Access Point (Portable HRI Mode)**" (page 44) or "**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**" (page 46) and adjust the audio level of the computer.

**Connecting the transceiver and the PC**

Refer to "**Communicating with digital or analog FM mode (Portable HRI Mode)**" (page 12) and connect the transceiver to the PC.

**Starting the WIRES-X software**

1. Double click the [**Wires-X**] icon on the desktop of the computer screen.

   The main screen of WIRES-X software is displayed.

   For details on the main screen, refer to "**WIRES-X Software Main Screen**" (page 41).

**Starting the transceiver in special mode**

### ❏ FT2D

1. Press and hold the [**X**] key and the [**BACK**] key simultaneously, while turning the radio **ON**.
2. Press the [**A/B**] key to select "**Access Point**" or "**Direct Operation**".

   The set operation mode is indicated on the frequency display as follows:

   | | |
   |---|---|
   | **Access Point:** | **"WIRES-X NODE"** |
   | **Direct Operation:** | **"DIRECT"** |

 To communicate with an analog node station via Direct Operation using the FT2D transceiver, press the [**A/B**] key to turn **ON** the analog voice output (uplink). An " ＊ " will appear on the screen at the right side of the call sign. For details, refer to "Output of analog audio (uplink) setting" (page 50).

### ❏ FTM-400XD/D

1. Press and hold the [**DX**] key and the [**GM**] key simultaneously, while turning the radio **ON**.
2. Press the **Band B DIAL** knob to select "**Access Point**" or "**Direct Operation**".

   The set operation mode is indicated on the A Band frequency display as follows:

   | | |
   |---|---|
   | **Access Point:** | **"(Frequency display)"** |
   | **Direct Operation:** | **"DIRECT"** |

### ❏ FTM-100D

1. Press and hold the [**DX**] key and the [**GM**] key simultaneously, while turning the radio **ON**.
2. Press the [**A/B**] (DW) key to select "**Access Point**" or "**Direct Operation**".

   The set operation mode is indicated on the sub frequency display as follows:

   | | |
   |---|---|
   | **Access Point:** | **"NODE"** |
   | **Direct Operation:** | **"DIRECT"** |


- To return the transceiver to the normal mode, repeat procedure 1 in the above.
- To switch between "**Portable Digital Node Mode**" and "**Portable HRI Mode**", return the transceiver to the normal mode first and then perform the above operation.

 The portable station transceiver cannot use the News Station feature or the GM feature.

**Connecting a node or a room by operating the WIRES-X software on the PC**

On the WIRES-X software main screen, the node may be easily connected to the desired room or node station.
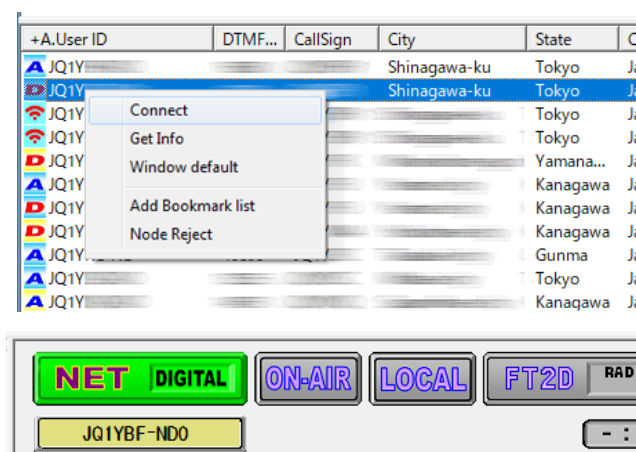
1. Click the Digital Node or Digital Room to connect.

2. Right-click on the selected Node or Room.

   The command list is displayed.

3. Click the [**connect**].

   When a connection is successfully established, the IDLE indicator "[IDLE DIGITAL]" will change to the NET indicator "[NET DIGITAL]", and the User ID of the connected Node station or Room "[J_____]" is displayed.

   "**Connected**" will appear on the LCD of the portable node station's transceiver or the transceiver accessing the portable node station in WIRES-X mode.

- **Room Pop-up Window**

   When connecting to the room a window will pop up displaying the operational status of the room. For details, refer to "**Room pop-up window**" (page 43).

---

**Communicating with other station**

**（1）Access Point**

1. Access the "**frequency**" and "**WIRES-X DG-ID number**" of another C4FM digital transceiver according to the portable node station for details, refer to the **Operating Manual (WIRES-X Edition)** of the transceiver.

2. Press the **PTT** switch on the other transceiver to communicate with the other station on the Internet.

3. Release the **PTT** switch to return to receive mode.

> • When the transceiver of the portable node is transmitting, you may not switch "**Access Point**" or "**Direct Operation**" by pressing the [**A/B**] key.
>
> • In the Access Point, you may connect to a node or a room on the Internet by operating from another C4FM digital transceiver accessing the portable node. For details, refer to the **Operating Manual (WIRES-X Edition)** of each transceiver.

**（2）Direct Operation**

> The FT2D also has the capability to be used only in the Direct Operation. For details, please refer to "**FT2D Direct Operation dedicated function**" (page 50).

1. Press the **PTT** switch on the transceiver of the portable node to communicate with the other station.

   The TX/BUSY LED lights red but does not transmit radio waves, so the PO meter does not fluctuate.

2. Release the **PTT** switch to return to receive mode.

   The TX/BUSY LED lights green while receiving communication from the other station on the Internet, but the S meter does not fluctuate.

> In "**Direct Operation**" of Portable HRI Mode with an FT2D transceiver, the audio from the other station is heard only from the PC speaker. To adjust the receive volume level, turn the **VOL** knob of the FT2D transceiver, or adjust the PC speaker volume.

● **Confirming the location of the other station**

When latitude and longitude data is included in the signal of the other station, the distance and direction of the other station may be displayed in real time on the transceiver screen.

**FT2D**: Press the [**DISP**] key to display the compass screen. Press the [**DISP**] key again to return to the normal screen.

**FTM-400XD/D**: Press the [**DISP**] (SETUP) key to display the compass screen. Press the [**DISP**] (SETUP) key twice to return to the normal screen.

**FTM-100D**: The callsign of the other station, and the direction and distance are displayed alternately at the top of the screen automatically.

> On the "**BACKTRACK**" screen (compass screen), operation may not be switched between "**Access Point**" or "**Direct Operation**" by pressing the [**A/B**] key.

**Disconnecting from the node or room**

To disconnect a node or room on the Internet, from the "**Connection**" menu of WIRES-X software, click "**Disconnect**".

**Closing the WIRES-X software**

1. From the "**File**" menu, select "**Exit**"

> If "Enable WIRES-X Auto Start." has been selected when installing the WIRES-X software, the software will restart immediately after closing the software.
>
> If you do not want to restart the software, click the WIRES-X icon on the right part of the Windows task bar (or from the hidden indicator list), then select "Quit" or "Auto Start" to remove the check mark.
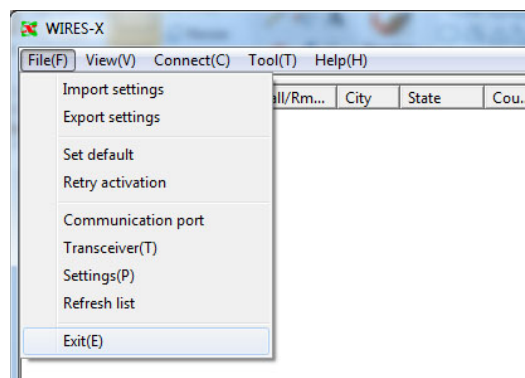


## Operating the transceiver in Portable HRI Mode

You can change settings such as transceiver screen display in use and turn OFF the TX/BUSY Lamp in Portable HRI Mode.

**FT2D**

| Function | Key |
|---|---|
| Switching between Access Point and Direct Operation | Press the A/B key |
| BACKTRACK screen (compass screen) | Press the DISP key  (Direct Operation only) |
| Transmission sound monitor function on or off | Press the V/M key  (Direct Operation only) |
| SQL open | Press the MONI key |
| SQL level setting | Press the SQL key |
| Switching TX/RX LED on or off | Press and hold the V/M key |
| Dimmer setting | Press the BAND key |
| Lamp setting | Press and hold DISP key |
| Change of the busy detection (noise squelch / DG-ID number match) | Press and hold the A/B key |

**FTM-400XD/D**

| Function | Key |
|---|---|
| Switching between Access Point and Direct Operation | Press the Band B DIAL knob |
| BACKTRACK screen (compass screen) | Press the DISP (SETUP) key  (Direct Operation only) |
| SQL level setting | Touch the [SQL] and rotate the Band A DIAL knob |
| Turning the display ON and OFF | Press and hold the DISP (SETUP) key |
| Dimmer setting | Rotate the Band A DIAL knob |
| Display Contrast setting | Rotate the Band B DIAL knob |
| Change of the busy detection (noise squelch / DG-ID number match) | Press and hold the Band B DIAL knob |

**FTM-100D**

| Function | Key |
|---|---|
| Switching between Access Point and Direct Operation | Press the A/B key |
| SQL level setting | Press the [SQL] (VOICE) key and rotate the DIAL knob |
| Selects the contents of sub frequency display | Press the DISP (SETUP) key |
| Turning the display ON and OFF | Press and hold the DISP (SETUP) key |
| Dimmer setting | Rotate the DIAL knob |
| Change of the busy detection (noise squelch / DG-ID number match) | Press and hold the A/B (DW) key |

## WIRES-X Software Main Screen

On the left side of the main screen is displayed the list of the active node stations and the active rooms is displayed. On the right side the operational status of the portable node station is displayed.
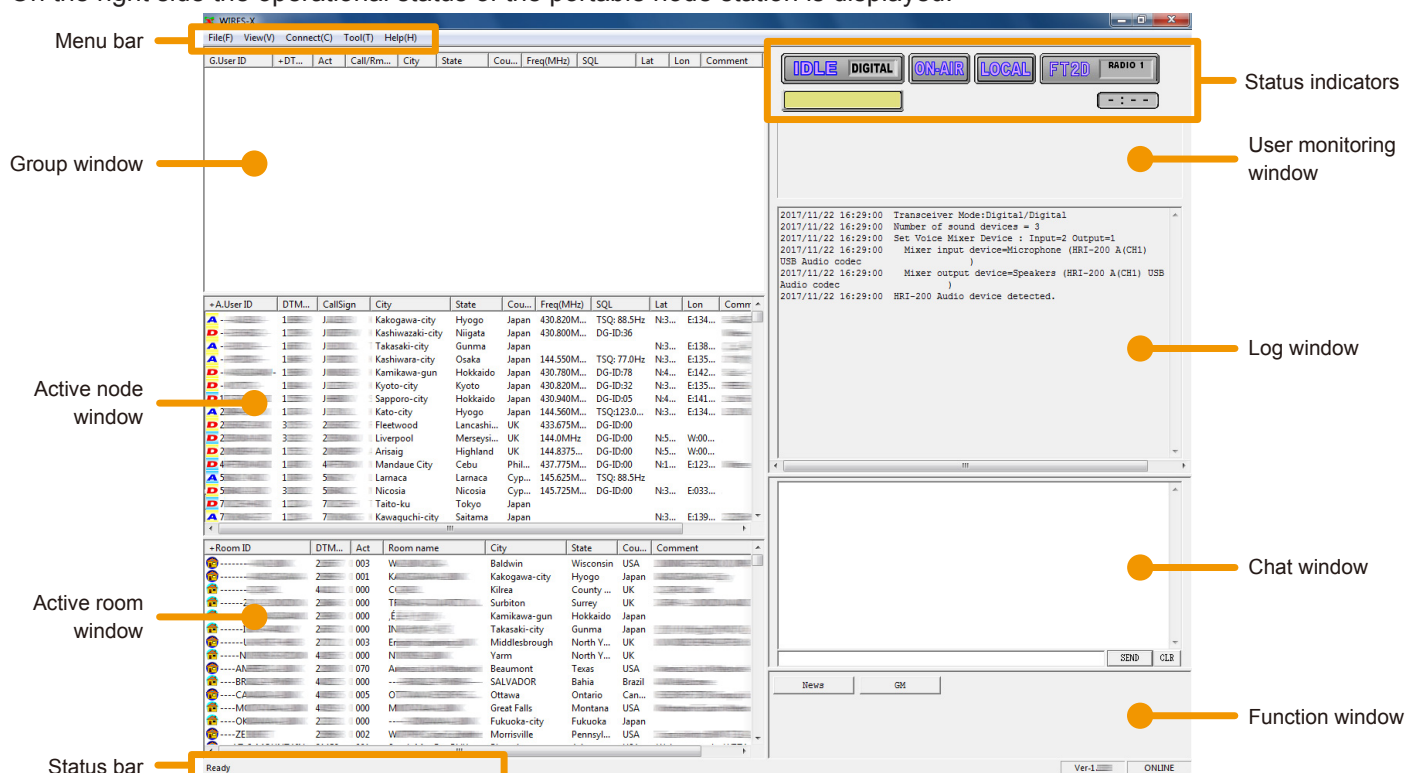


**Menu bar**:              Calls the WIRES-X software main functions.
For details on each menu, refer to "**Main Menu**" (page 74) of the WIRES-X Connection Kit HRI-200 Instruction Manual.

| | Group window: | Displays active nodes and rooms arranging the list based on the setting. |
|---|---|---|

**Group window:** Displays active nodes and rooms arranging the list based on the setting.

**Active node window:** Active WIRES-X nodes are listed. The node station type and connection status are indicated by icons.

・**Node Icons**

| Idling | Connecting | Type |
|---|---|---|
| 🛜 | 🛜 | Portable Digital Node Station |
| D | D | Digital Node Station |
| A | A | Analog Node Station |
| GM | GM | GM Node Station |

**Active room window:** Active WIRES-X rooms are listed. The room type and connection status are indicated by icons.

・**Room Icons**

| Idling | Connecting | Type |
|---|---|---|
| DIG | DIG | Open room (Only the Digital Nodes may be connected) |
| 🏠 | 🏠 | Open room |
| C | C | Closed room |
| GM | GM | GM room |

**Status bar:** Displays information such as the WIRES-X software status and descriptions of a menu item pointed by the cursor.
For details, refer to "**Displaying the operating instructions**" (page 92) of the WIRES-X Connection Kit HRI-200 Instruction Manual.

**Status indicator:** Displays the status of your node station with icons.

• **Connection status of the transceiver**

　　FT2D RADIO 1　　FT2D transceiver connected

　　UNKNOWN　　The transceiver is not connected, or the connection is incorrect

• **Operating status**　Connection status to a node station or room on the Internet and operating mode of your node station are shown.

　　IDLE DIGITAL　　Not transmitting (DIGITAL: Digital node station, GM: GM node station)

　　NET DIGITAL　　Transmitting (DIGITAL: Digital node station, GM: GM node station)

• **User ID of the connection destination**　The user ID information of the Node station / Room you are connecting to will be shown.

　　　　　　Not connecting to another Node station (blank)

　　J　　Connecting to another Node station (indicated User ID)

• **Transmitting status**　　Shows whether or not your Node station transmits signals.

　Click this icon to toggle　between transmit prohibit and release alternately.

　　ON-AIR　　Not transmitting

　　ON-AIR　　Transmitting

　　ON-AIR LOCK　　Prohibit transmission

• **Receiving status**　The signal receiving status of the node and the repeating status of the received signal are shown.

　　LOCAL　　Not receiving

　　LOCAL　　Receiving an analog signal, or digital signal whose DG-ID number does not match (not relaying)

　　LOCAL　　Receiving a digital signal whose DG-ID number matches (not relaying)

　　INTERNET　　It receives reception of a digital signal whose DG-ID number matches and relays it to other node stations or rooms via the Internet.

• **Transmission timeout timer**

When sending, it counts down and displays the remaining time (Up to 3 minutes) until automatic transmission stops.

**User monitoring window**: Displays the information below the status indicators, of the digital Node station (mobile or fixed) that is accessing your Node station.

**Log window**: On the right side of the main screen, the window in the middle shows the WIRES-X software operating status.

**Chat window**：The chat history is shown in the window. There is a text entry field at the bottom of the window where you can chat with the owner of the node or room you are connecting to.

**Function window**：There are dedicated buttons for other functions.

---

ℹ️ For other details of each display, refer to "**Main Screen**" (page 66) of the WIRES-X Connection Kit HRI-200 Instruction Manual.

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● **Room pop-up window**

When connecting to the room a window will pop up displaying the operational status of the room.



Room information display area
Node ID display area

Room _____ member 1 node   リスト更新  閉じる
JQ1_____

Transmission node information display area
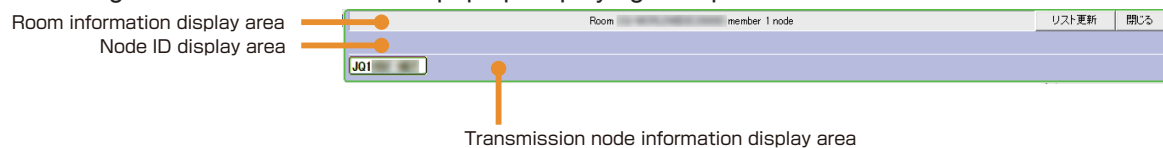
**Room information display area**: Displays the Room User ID, DTMF ID and the number of activities (the number of nodes connecting to the room)

**Transmission node information display area**: Displays information of a node or digital node which is currently transmitting.

**Node ID display area**: Lists the IDs of nodes connecting to the room.

**[Refresh] button**: Click to update the active ID list window on the main screen.

**[Close] button**: Click to close the room pop-up window.

---

ℹ️ Even after closing the room pop-up window, the room pop-up window can be displayed again by clicking "**Connect ID window**" from the "**View**" menu when connected to the room.

---

# Functions to use as necessary

## Audio volume adjustment of PC (Portable HRI Mode only)

Refer to "**Adjusting Audio Level in the Access Point (Portable HRI Mode)**" or "**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**" (page 46) according to the mode you are using.

### Adjusting Audio Level in the Access Point (Portable HRI Mode)

> **!** Audio level adjustment should be done with no connection to the node station or room.

● **Receive audio level adjustment (PC microphone input level)**

> **ℹ** Adjust the volume level so that the "**VOL bar graph**" is 50% by turning the VOL knob of FT2D, and then make the following adjustments. Also, when using FT2D as a transceiver of a Portable Digital Node station, adjust it so that it is almost the same volume level.

1. From the "**View**" menu, click [**Audio adjustment**].

   The "**Audio adjustment**" window will appear.
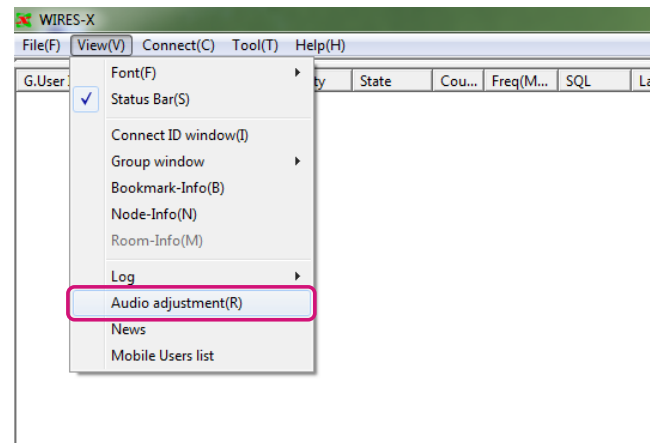
2. Click [**Start**] in the "**Graph select**" area.

3. Click [**Sound Property**].

   The WINDOWS "**Sound**" window opens.

> **ℹ** For Portable Digital Node stations, adjust the audio level with the WINDOWS sound setting.
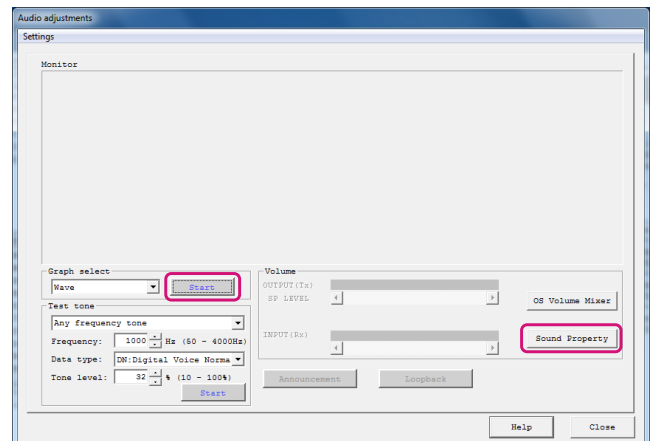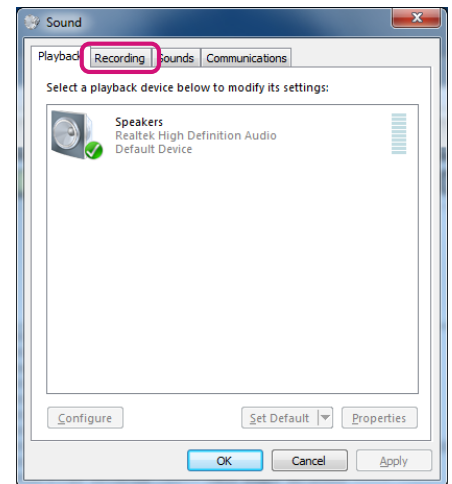
4.  Click the [**Recording**] tab in the WINDOWS "**Sound**" window.

5.  Click [**Microphone**], then click the [**Properties**] button.
    The microphone properties will open.
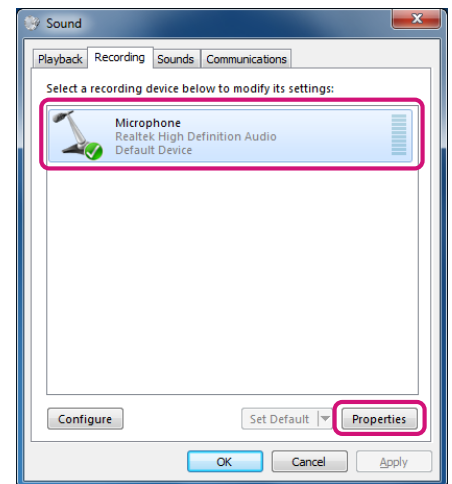
6.  Click the [**Levels**] tab.
7.  While transmitting "**1**" of DTMF on a C4FM digital transceiver set to the same frequency and DG-ID number as the Portable Digital Node station, move the [**Slider**] to adjust so that the peak is not over the dotted line.
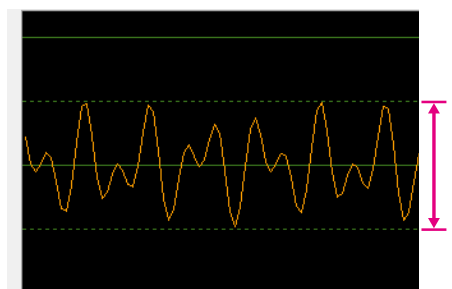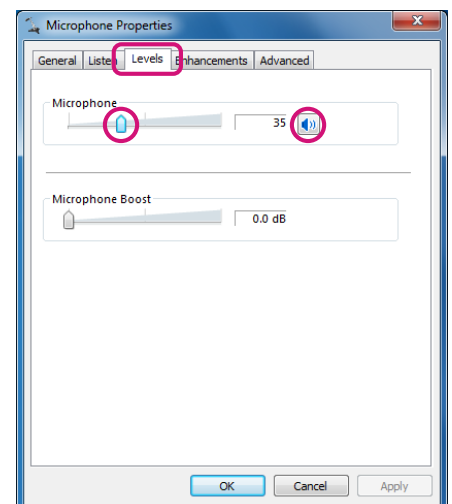
    | ℹ | If the microphone input is muted, click the icon "🔇"on the right side of the slider to cancel mute "🔊". |
    |---|---|

8.  Press the [**OK**] button several times to close all Windows setting screens.

Completes the microphone input level adjustment of the personal computer.

Continue to adjust the speaker output level of the personal computer.

● **Audio level adjustment of transmission (PC speaker output level)**

1. Click "**OS Volume Mixer**".

   The Windows "**Volume Mixer**" window opens.

2. Click "Start" in the "**Test tone**" area.

   Portable Digital Node station transceiver transmits.
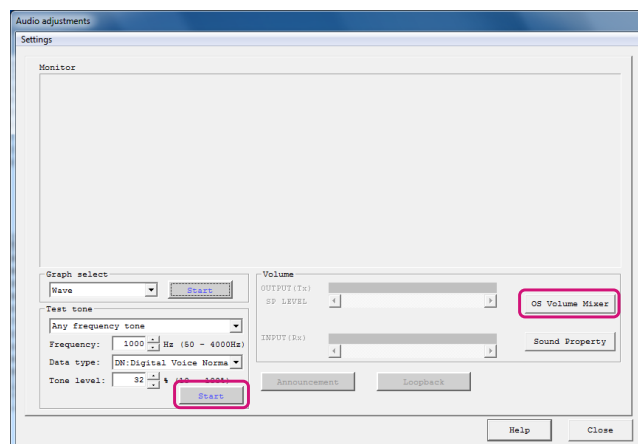


3. It is received by the C4FM digital transceiver which has the same setting as the frequency and the DG-ID number of the Portable Digital Node station.

4. Adjust the [**WIRES-X slider**] of the Volume Mixer so that it will be distortion free received sound.



> • If the speaker output is muted, click the icon " 🔇 " at the bottom of the slider to release the mute " 🔊 ".
> • If the audio level of the transmission is too high or too low, the sound may be distorted.
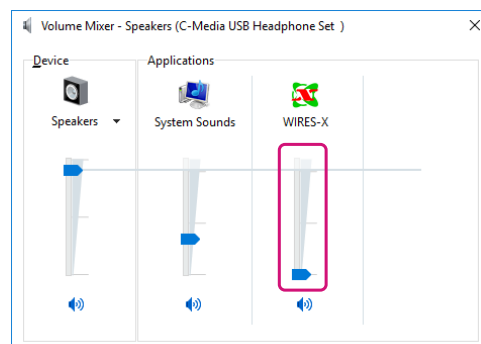
5. Click [**TX**] to stop transmits.

6. Click the "**✕**" button at the top right of the "**Volume Mixer"** window to close.

The audio level adjustment of Access Point is completed.

**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**

> ❗ Audio level adjustment should be done with no connection to the node station or room.

> ✏️ When communicating with an analog node station via direct operation using the FT2D transceiver, press the [A/B] key to turn ON the analog voice output (uplink), before making the following settings. An " ＊ " will appear on the screen at the right side of the station call sign. For details, refer to "Output of analog audio (uplink) setting" (page 50).

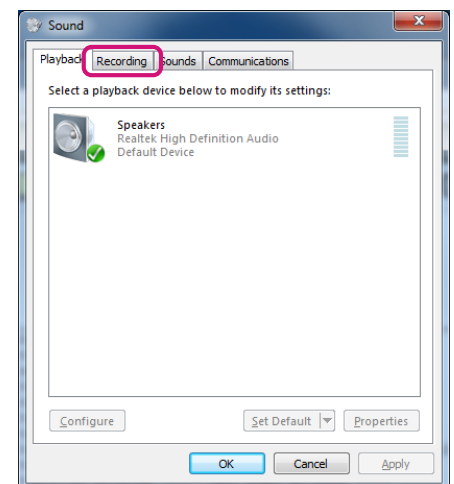● **Adjusting the microphone input level of the personal computer**

1. From the "**View**" menu, click "**Audio adjustment**".

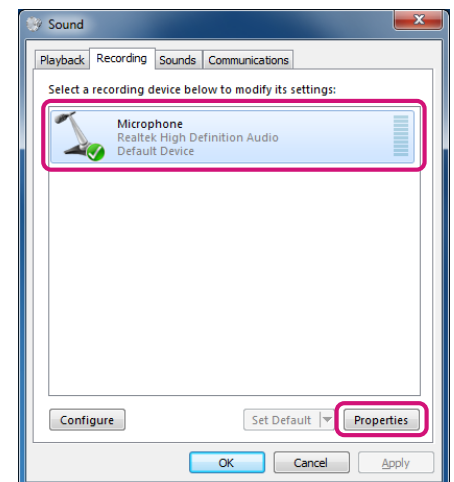   The "**Audio adjustment**" window will appear.



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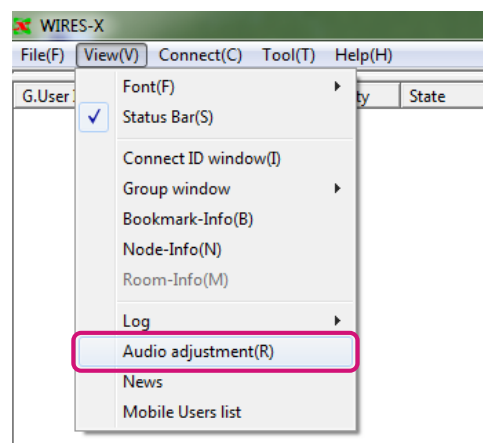
2. Click [**Start**] in the "**Graph select**" area.
   Waveform monitor is enabled.
3. Click [**Sound Property**].
   The WINDOWS "**Sound**" window opens.
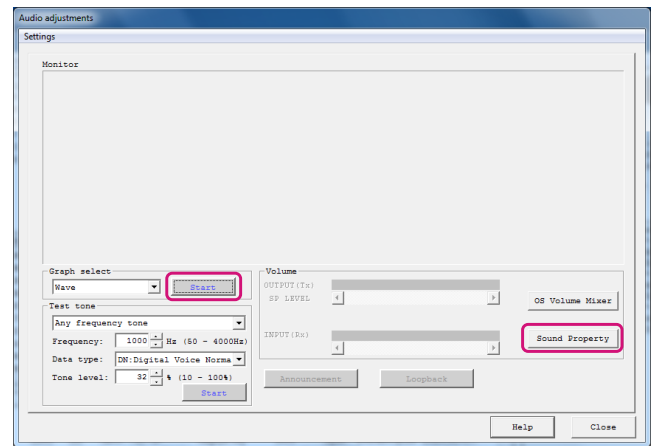


4. Click the [**Recording**] tab in the WINDOWS "**Sound**" window.



5. Click [**Microphone**], then click the [**Properties**] button.
   The microphone properties will open.

6. Click the [**Levels**] tab.

> ℹ️ If the microphone input is muted, click the icon "🔇" on the right side of the slider to cancel mute "🔊".

7. Press the **PTT** switch of the transceiver connected to the PC and adjust the microphone level while talking with a normal voice level.

   Make the waveform as large as possible while the waveform displayed on the waveform monitor does not exceed the dotted line or the peak of the waveform does not collapse.
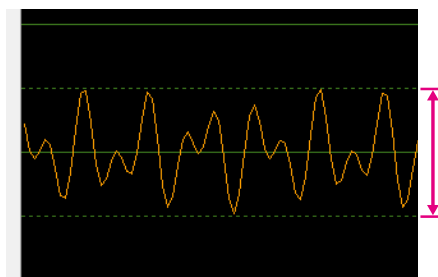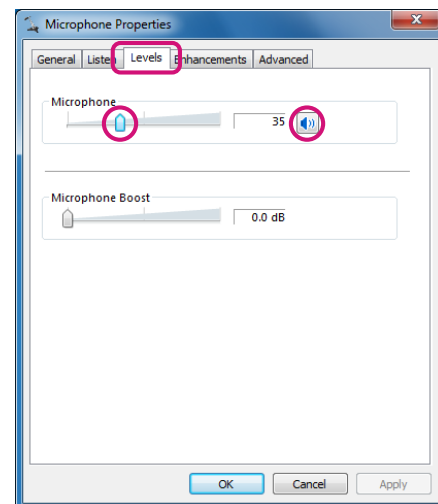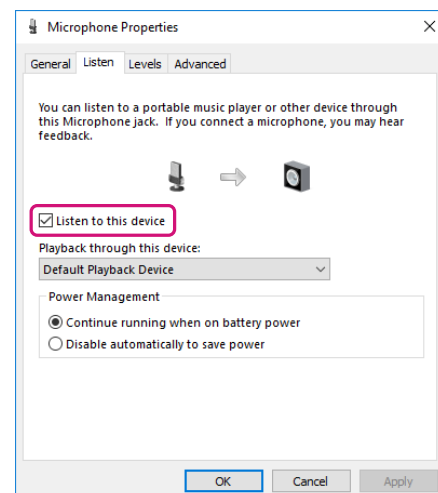
8. 【**This setting is necessary only when using the FT2D transceiver**】

   Click the [**Listen**] tab and check "**Listen to this device**".

> ℹ️ Depending on your computer, there may be no [**Listen**] tab. In that case, please proceed to step 9 as it is.

9. Press the [**OK**] button several times to close all Windows setting screens.

The microphone input level adjustment of the personal computer is completed with the above.

Continue to adjust the speaker output level of the personal computer.

● **Adjust speaker output level of PC**

Adjust the volume level so that the "**VOL bar graph**" is 50% by turning the **VOL** knob of FT2D, and then make the following adjustments. Also, when using FT2D as a transceiver of a Portable Digital Node station, adjust it so that it is almost the same volume level.

1. Click "**OS Volume Mixer**".

   The WINDOWS "**Volume Mixer - Speakers**" window opens.

2. Click [**Start**] in the "**Test Tone**" area.

   A test tone is output.
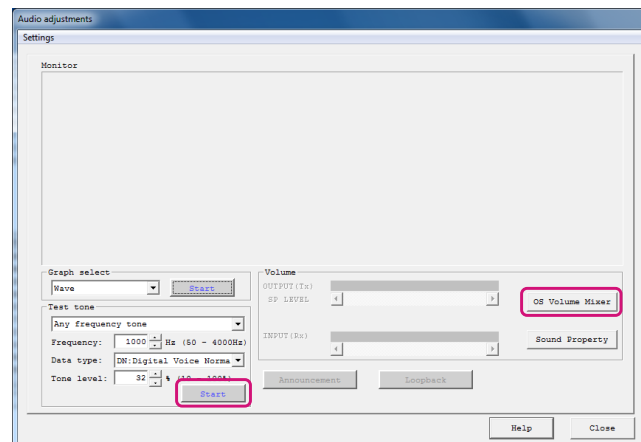
3. Adjust the volume level of "**WIRES-X**" on the "**Volume Mixer - Speakers**" screen so that the test sound that you hear from the PC speaker will be easy to hear.

   When adjustment is completed, click the [**Start**] button again, to stop the test sound.

   - If the speaker output is muted, click the icon " " at the bottom of the slider to release the mute.
   - If the volume level of "**Speaker/Headphone**" is decreased, adjust the volume so that it is easy to hear.

4. 【**This setting is necessary only when using the FT2D transceiver**】

   Adjust the volume level of the "**Microphone**" on the "**Volume Mixer - Speakers**" screen so that the voice of the partner station operating in the digital mode will be easy to hear.
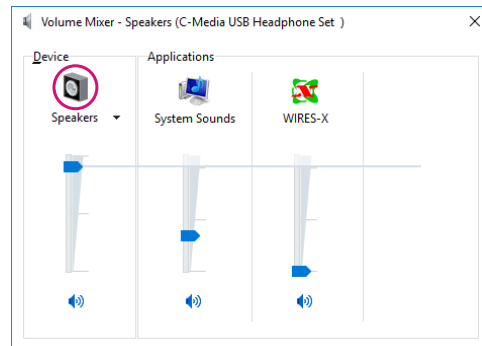
   When the adjustment is completed, proceed to step 7.

   Depending on your computer, this setting item may be missing in the volume mixer. In this case, proceed to step 5.
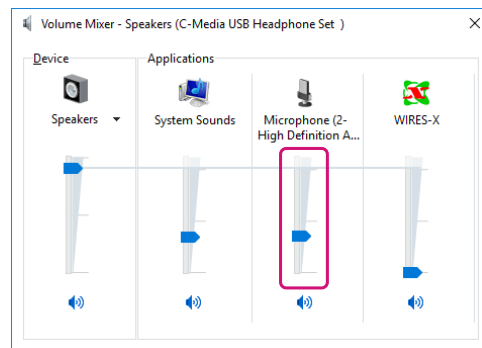
5. 【**This setting is necessary only when using the FT2D transceiver**】

   Click the "**Speakers**" icon on the "**Volume Mixer - Speakers**" screen.

   The "**Speakers Properties**" screen opens.

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6. 【**This setting is necessary only when using the FT2D transceiver**】

   Click the [**Levels**] tab on the "**Speakers Properties**" screen, then adjust the volume level of "**Microphone**" so that the volume of the other station operating in digital mode will be easy.
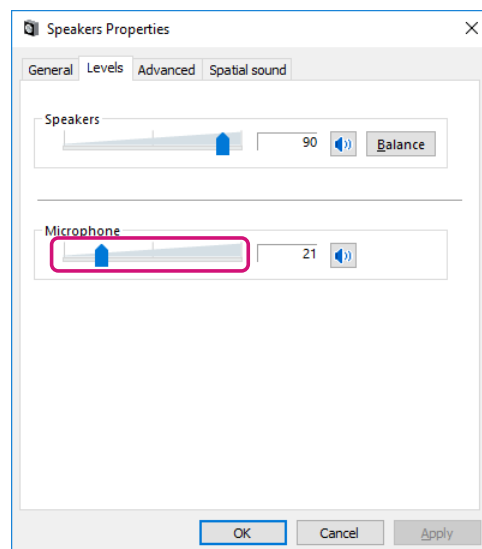
7. Click the "**✕**" button at the top right of the "**Volume Mixer**" window to close.

The audio level adjustment of Direct Operation is completed.

## FT2D Direct Operation dedicated function

FT2D has a setting function related to analog audio that can be used only in **Direct Operation** of Portable HRI Mode.

● **Output of analog voice (uplink) setting**

Set whether to output audio to the analog station when talking by pressing the PTT switch.
Each time you press the [**V/M**] key, it switches between "**ON**" and "**OFF**".

**OFF** ： Does not output sound to the analog station.（Default setting）
Turn it off when you do Internet communication only in digital mode.

**ON** ： Audio output to the analog station. "*" Is displayed on the right side of the call sign of the screen.

Always turn on Internet communication when using the analog communication in the analog mode.

> • When set to "**OFF**", the other station operating in analog mode cannot hear this voice.
> • When set to "**ON**", your voice is output from the PC or FT2D speaker.

● **Level adjustment of analog audio output (uplink)**

> Since the level of the analog sound is set with the personal computer, it is not normally necessary to adjust this level.
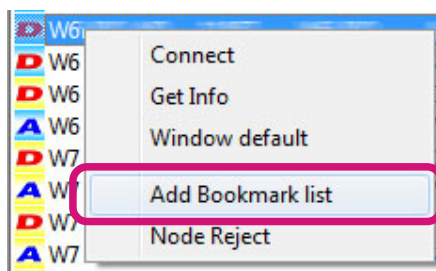
If you turn the **VOL** knob while pressing the **PTT** switch while the analog audio output (uplink) setting is "**ON**", it will be displayed as LEVEL XX (XX: 0 to 31) and the volume level of the analog audio to be sent to the other station You can adjust. (The default setting is 10.)

## Bookmarking frequently connected Nodes or Rooms

When you save (bookmark) node stations and rooms, they are displayed in the group window, so you can easily access them.

### Bookmarking Nodes or Rooms

1. Click on the node station or room you want to bookmark in "**Active node window**" or "**Active room window**".
2. Right-click the selected "**Node**" or "**Room**" to display the command list.
3. Click the [**Add to Bookmark**].

**YAESU**
*The radio*

1902-C