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 the FT2D Transceiver 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

- **The following connecting cable is required.**
  - **SCU-39 WIRES-X Connection Cable Kit**
    (The SCU-39 includes SCU-19, CT-44, and two audio cables.)

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 7 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 9 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 9 for details.

⑤ Connect the transceiver and the PC

Connecting the transceiver and the PC with the designated connection cables.
Refer to page 10 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.
	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 the FT2D C4FM digital transceiver with the 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 station 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 12/2018 or firmware updated) an SCU-19 USB Connection Cable (FT2D) and a PC with WIRES-X Software and Internet connection.

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

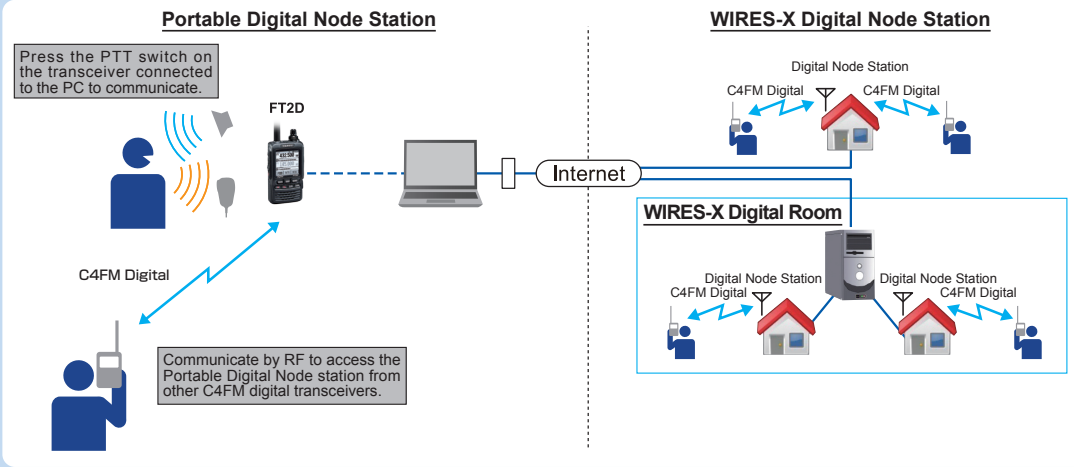
In "**Access Point**" the Portable Node station (FT2D) can be used to communicate "On Air and relay nearby local C4FM digital transceivers, while simultaneously connected with the Internet WIRES-X digital rooms and digital node stations.

In "**Direct Operation**", the Portable Node (FT2D) 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 FT2D Node Station PTT, microphone, and speaker, or via another local C4FM transceiver communicating on frequency with the USB connected FT2D Node Station. The FT2D Node Station connects directly to the PC and Internet, and communicates with WIRES-X Nodes and Rooms. The FT2D Node Station 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 with a single USB connected FT2D transceiver, or to access WIRES-X Nodes and Rooms from one or several local C4FM transceivers.

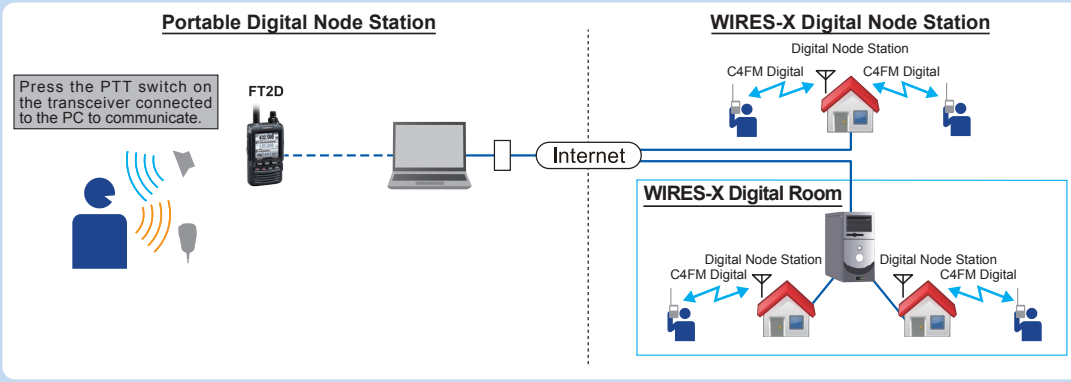
Access Point Illustration



● **Direct Operation**

In this mode, WIRES-X C4FM communications are made directly by using the USB connected FT2D Transceiver Node Station. The microphone signal is sent only to the PC and the Internet. The Internet signals are heard only in the FT2D speaker. In this Direct Operation, the FT2D transceiver does not transmit or receive over the air.

Direct Operation Illustration



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

Requires a Yaesu C4FM Portable Digital Node capable transceiver (FT2D as 12/2018) an SCU-19 USB (FT2D) Connection Cable, a CT-44 adapter, two audio cables and a PC with WIRES-X Software and Internet connection.

(The HRI-200 interface is not used).

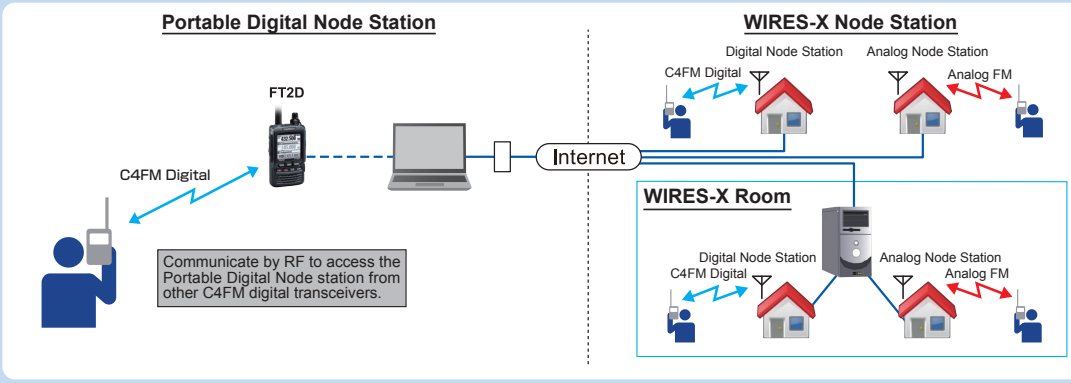
(The SCU-19 USB Connection Cable, CT-44 adapter & two audio cables are available in the SCU-39 connection kit)

In the Portable HRI configuration, either the Access Point 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 USB connected FT2D Node Station. The FT2D Node Station 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.

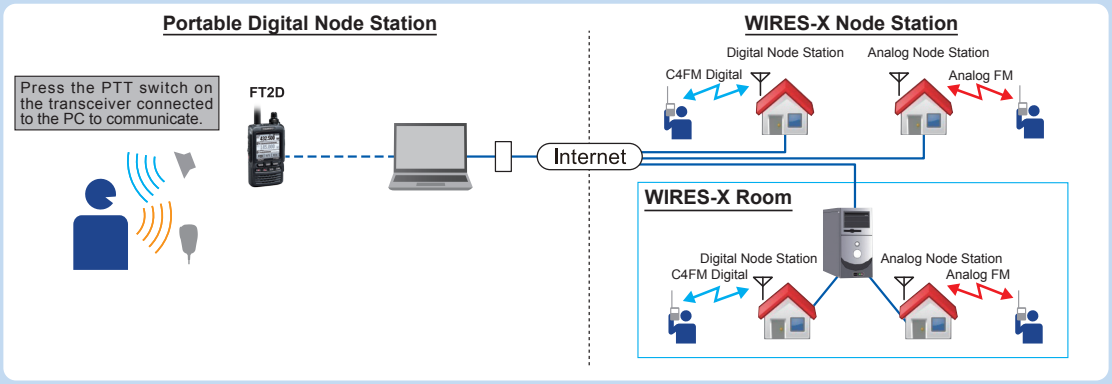
Access Point (Portable HRI Mode) Illustration



● **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 FT2D Transceiver. The microphone signal is sent only to the PC and the Internet. The Internet signals are heard only from the PC speaker. In this Direct Operation, the FT2D transceiver does not transmit or receive over the air.

Direct Operation (Portable HRI Mode) Illustration



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.

System Requirements (Operating Environment)

● **Supported Transceiver**

- **FT2D**（As of Dec 2018）

● **Connection Cable**

- **SCU-39 WIRES-X Connection Cable Kit (Option)**
  （The SCU-39 includes SCU-19 and CT-44, and two audio cables.）

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

Update to the latest software and firmware on YAESU website.

- WIRES-X Software：Ver.1.500 or later
- FT2D MAIN: Ver.3.10 or later, SUB: Ver.2.01 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”, the sound function of the personal computer to be used must have the function “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 dedicated terminal such as a laptop, convert 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**

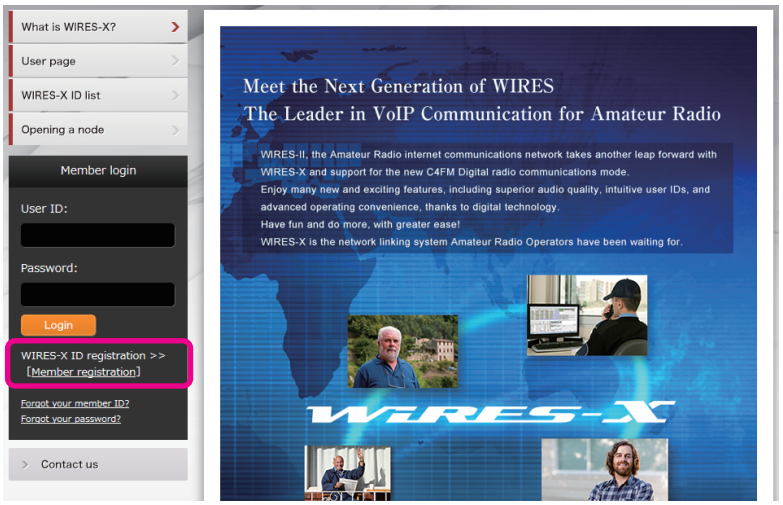
- ADSL 8 Mbps or faster (No fixed or dynamic global IP address is required.)

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**].

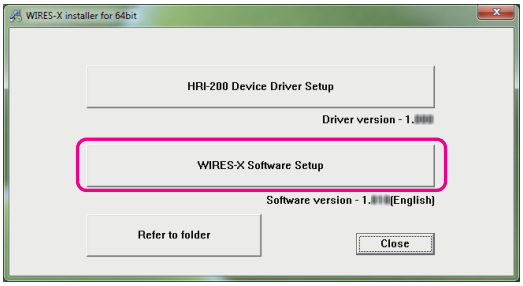
7. When registration is completed, e-mail with the Node ID and the Room ID will be sent to your email address.
   Member registration is completed.

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

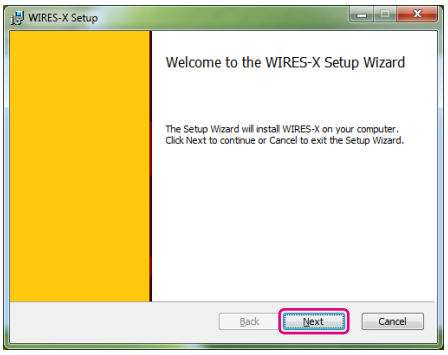
② Install latest WIRES-X software to the PC

- This is not necessary if the latest WIRES-X software (Ver.1.500 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.)

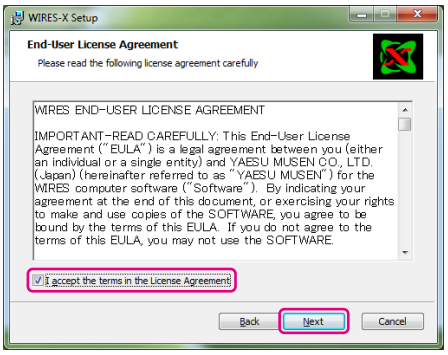
1. User login to the WIRES-X web site. Download and unzip the “wx****en.zip” file of the latest WIRES-X software (Ver.1.500 or higher).
2. Execute the “**Install.exe**” file in the unzipped folder.
   The “WIRES-X Installer” window will appear.
3. Click [**WIRES-X Software Setup**].



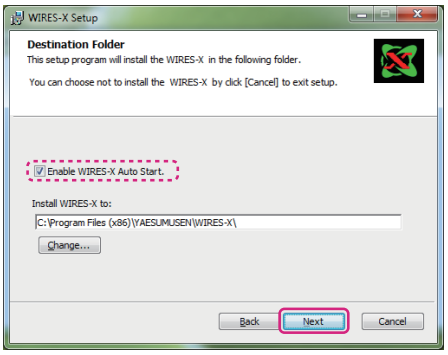
   The “**Welcome to the WIRES-X Setup Wizard**” window will appear.
4. Click [**Next**].
   The “License” window will appear.



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.

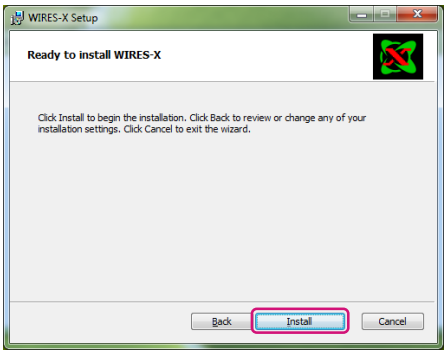


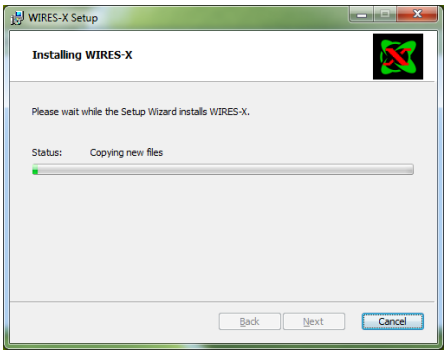
> If you put a check-mark in the “**Enable WIRES-X Auto Start.**” check box, the WIRES-X software will run automatically when Windows starts. Even if the WIRES-X software is terminated for some reason, it will reboot automatically.

7. Click [**Install**].

   Software installation will start.

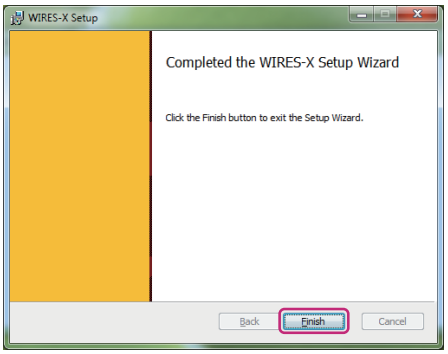
   When installation completes, the "**Completed the WIRES-X Setup Wizard**" window will appear.





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

This procedure is not necessary if the USB driver of the SCU-19* 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 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

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**].

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 10).
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.

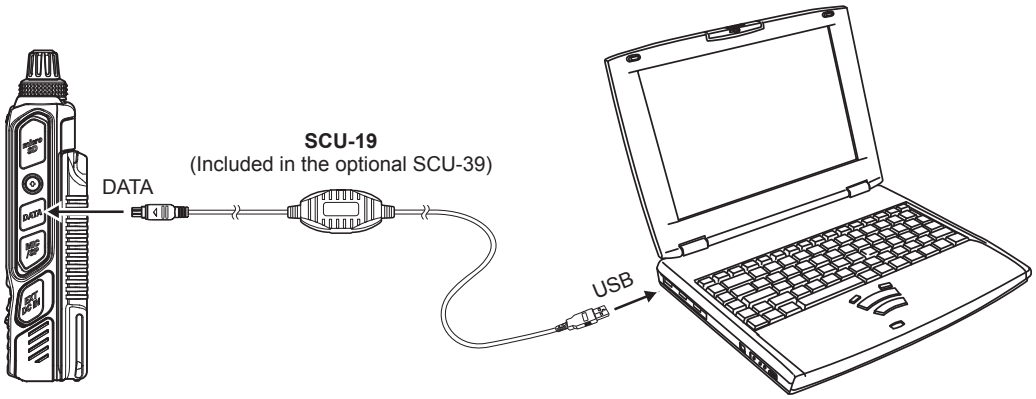
⑤ Connect the transceiver and the PC

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.

To communicate with an analog FM station, refer to "**Communicating with digital or analog FM mode (Portable HRI Mode)**" (page 11) and connect the transceiver and the PC.

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

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.



- 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.

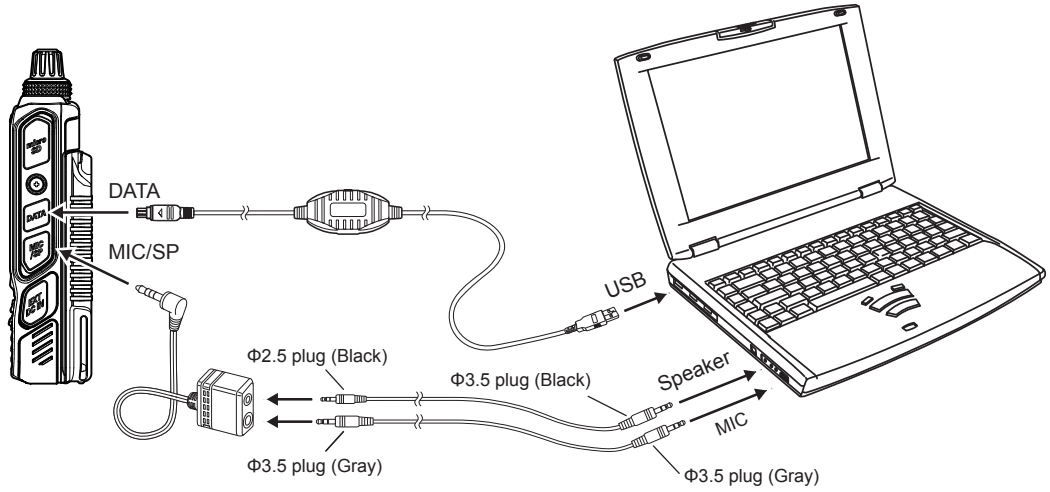
The connection is complete.

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

Since the cable connection 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.



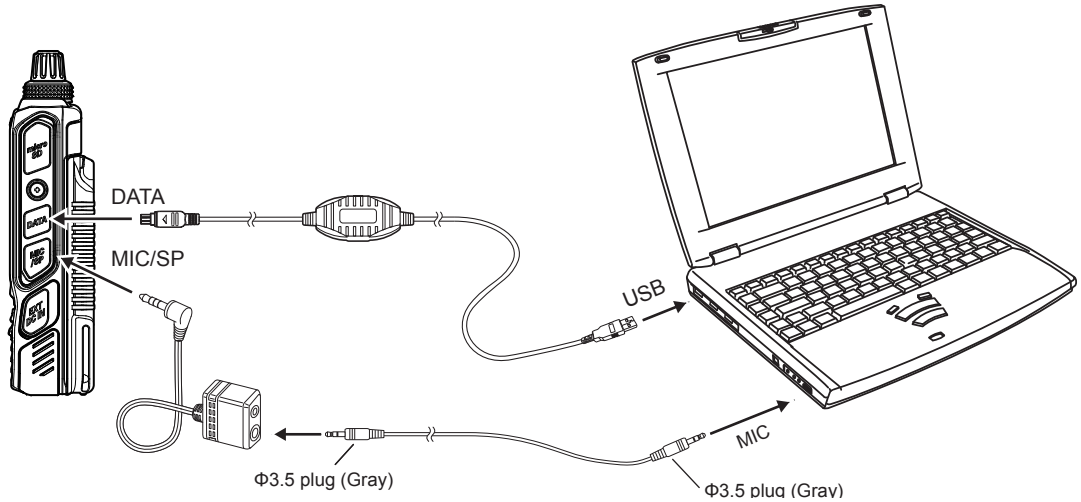
- To prevent RF interference, keep the antenna of the transceiver as far away from the connecting cables and PC as possible.
- It is recommended to set the transmit output power of the transceiver as low as possible for the desired communication.

The connection is complete.

After completing "**Initial Setting (setting is required only once at the beginning)**" (page 12), 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 30).

《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.



The connection is complete.

In "**Direct Operation**" of Portable HRI Mode, 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 12), 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 32).

To adjust the receive volume level, turn the **VOL** knob of the FT2D transceiver, or adjust the PC speaker volume.

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)**

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.

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

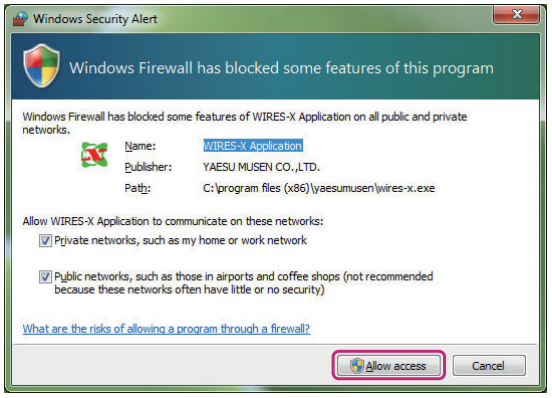
1. Press and hold the [**X**] key, [**BACK**] key and the POWER switch to turn the transceiver **ON**.
   "**WIRES-X NODE**" is displayed on the LCD screen.

Repeating the above operation will return the transceiver to the normal mode.

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

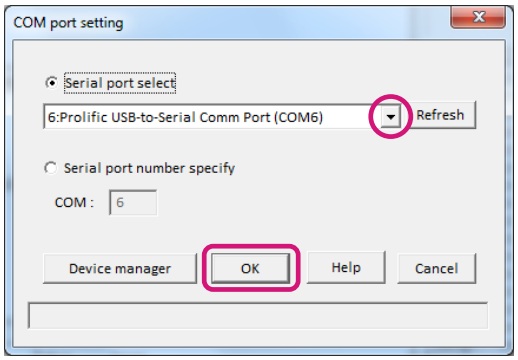
When starting the WIRES-X software for the first time, the "**COM port setting**" window will appear. Set the communication port with the transceiver connected to the PC.

1. 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.

2. Click the [**OK**].

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

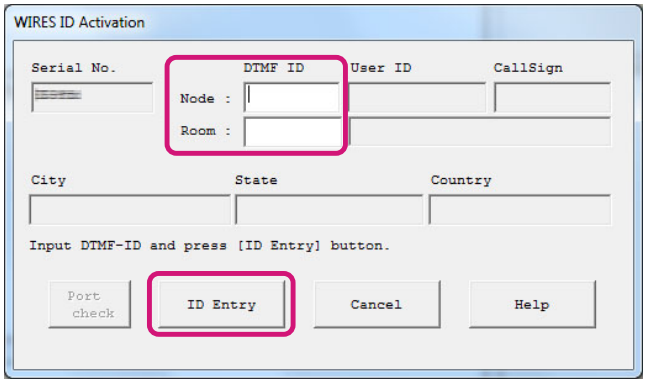


Authenticate (activate) the WIRES-X server

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.

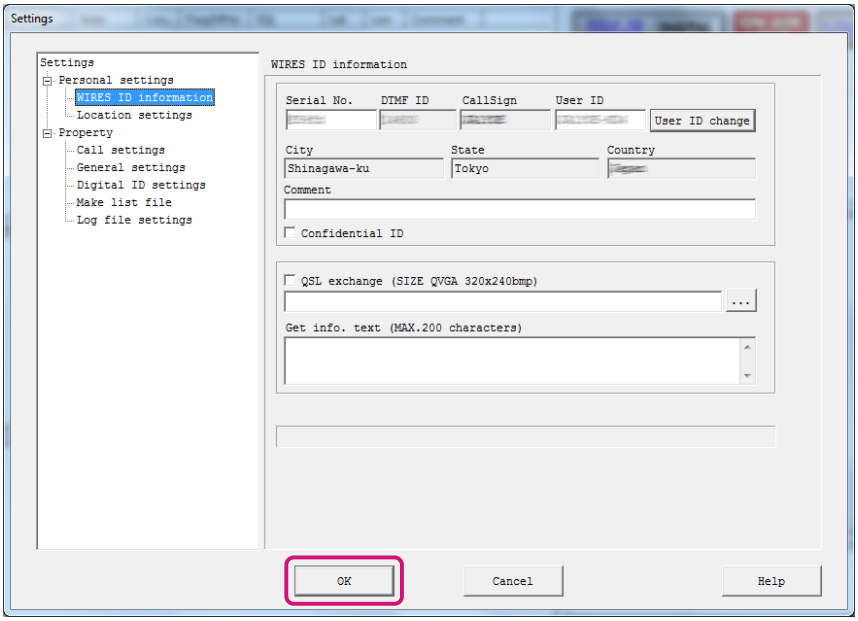
2. Click the [**ID Entry**].

   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 14) is not necessary, so the initial setting is completed. Proceed to “**Basic Operation**” (page 16).

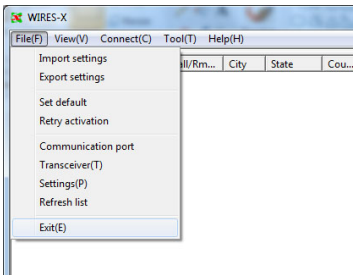
Transceiver settings (Access Point only)

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

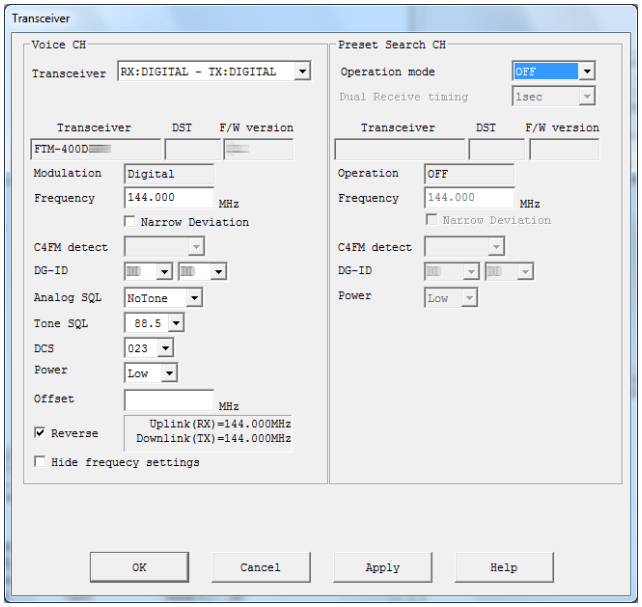
It is not necessary to make these settings when using “**Direct Operation**”.

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)

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.

When communicating via the Internet in “**Portable HRI Mode**”, refer to “**Adjusting Audio Level in the Access Point (Portable HRI Mode)**” (page 30) or “**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**” (page 32) 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 26) 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 10) 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 28).

Starting the transceiver in special mode

1. Press and hold the [**X**] key and the [**BAND**] key simultaneously, while turning the radio **ON**.
   "**PDN**" is displayed at the lower right of the LCD.
2. Press the [**A/B**] key to select "**Access Point**" or "**Direct Operation**".
   Depending on the set operation mode, it is displayed on the frequency display as follows.
   Access Point: "(Frequency display)"
   Direct Operation: "DIRECT"

To return the transceiver to the normal mode, repeat procedure 1 above.

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 18).

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.

   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	A/B key
Starts operation for the Portable Digital Node	X key
Sets the operation frequency	DIAL knob or Numeric keypad input screen
Switches between the VFO mode and the Memory Channel mode	V/M key
Moves operation to the next-highest frequency band	BAND key
Sets the transmit and receive DG-ID number	GM key (Press and hold)

Function	Key or Dial
TX/BUSY LED turn OFF/ON	V/M key (Press and hold)
Squelch OFF	MONI key (While MONI key is pressed)
Adjusts the squelch level	SQL key and DIAL knob
Enters the Set mode*	DISP key (Press and hold)
Enters the BACKTRACK screen	DISP key
Registering to Memory Channel	[F MW] (Touch and hold)
Displays the Function Menu Screen	[F MW]
Selects the Transmission Power Level	[TX PWR] in the Function Menu Screen
Recalls the “HOME” channel	[HOME] in the Function Menu Screen
Reverses the transmit and receive frequencies	[REV] in the Function Menu Screen
Switches Busy detection between “Noise squelch” and “DG-ID number match”.	A/B key (Press and hold)

* 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.

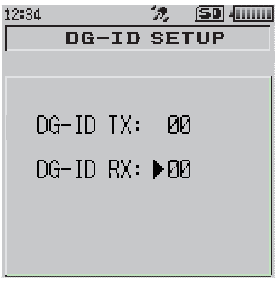
1. Press and hold the [**GM**] key.
   The DG-ID SETUP screen is displayed on the LCD.

2. Press the [**GM**] key, then rotate the **DIAL** knob to set the transmit DG-ID number (DG-ID TX).

While setting the DG-ID number, press and hold the [**DISP**] key will set the transmit and the receive DG-ID numbers to “00”.

3. Press the [**GM**] key, then rotate the **DIAL** knob to select "**DG-ID RX**".

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

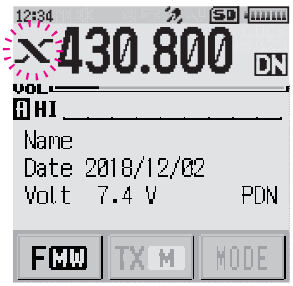


5. Press and hold the [**DISP**] key, to save the setting and return to normal operation.

The setting of the transceiver is complete.

Start operation of Portable Node

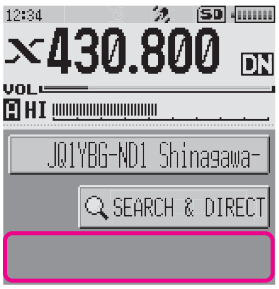
1. Press the [**X**] key on the portable node's transceiver.
   The "***X***" icon flashes on the upper left of the LCD screen.



- 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 [**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.

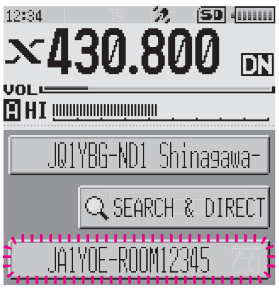
2. When the operation of the portable node is started, the "***X***" icon changes from blinking to lit and the Node ID and the city of its own station are displayed.
   Depending on the history of the previously connected node on the internet and the current connection status of the portable node, one 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.

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, may be set and operate the following on the portable node transceiver.

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

In the Digital Portable Access Point, you can connect only to a Digital Room or a Digital Node. When connecting to an analog node station, please use Portable HRI Mode.
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.

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 26).

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

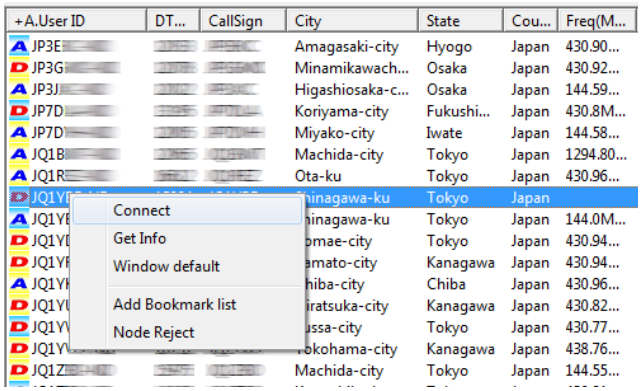
(1) Connecting to a node or a room by operating the WIRES-X software on the PC

(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
     : Digital Open room (Only the Digital Nodes may be connected)
     : 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 "[redacted]" 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 29).

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

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

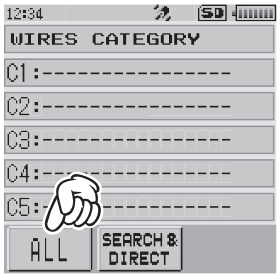
① **Searching from the node & room lists** (page 20)
② **Search the node ID or the room** (page 21)
③ **Select the node or the rooms registered in the category list** (page 22)
④ **Connecting to the node or room you have most recently connected** (page 23)
⑤ **Enter the DTMF ID number (5 digits) of the node or the room** (page 23)

May also be connected to a node or a room by operating another C4FM digital transceiver accessing the portable node station with the frequency and the WIRES-X DG-ID number together. For details, refer to the **Operating Manual (WIRES-X Edition)** of each transceiver.

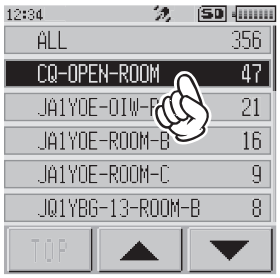
① Searching from the node & room lists

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

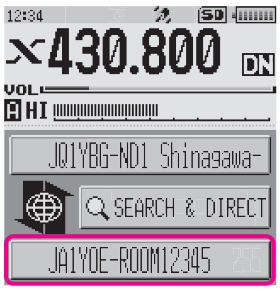
2. Touch [**ALL**].
   Displays the list of accessible nodes and rooms.
   - Connection destinations are displayed from the room list and then node list.
   - On the connection destination room columns, the number of activities (the number of nodes connected to each room) appears on the right side.



3. Touch the node or room you want to connect to establish the connection.
   By pressing 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.

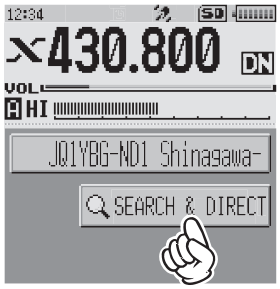


   Once connection is successfully established, "**Connected**" will appear on the LCD.
   If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.

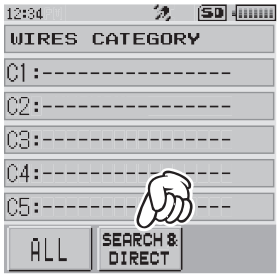


② Searching by node or room ID

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



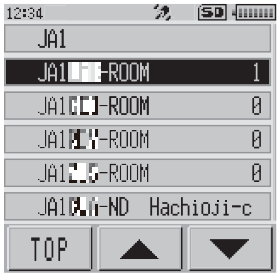
2. Touch [**SEARCH & DIRECT**].
   Displays the character input screen.



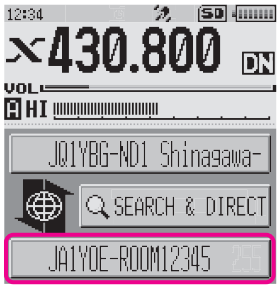
3. Enter all or part of the Room ID or the Node ID.
   The list is searched for the matching foreword part of the ID.

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.



   If connection is unsuccessful, an error message appears and the screen returns to the list of nodes and rooms.



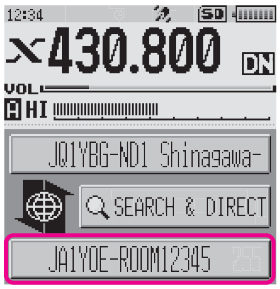
③ Connecting to registered nodes or rooms to the category list.

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 25).
   - 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.

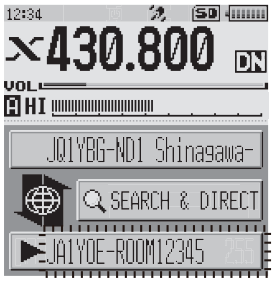
> Items may be listed in order according to the number of activities, or access history from [**WIRES-X**]→[**2 SEARCH SETUP**] in the setting mode.

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

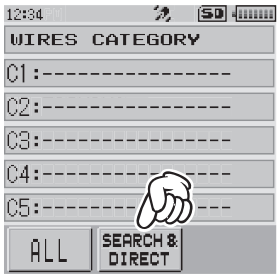
1. If you have previously connected to a node ID or a room ID on the Internet, it appears and flashes at the bottom of the screen.
   - Touch the flashing node ID or room ID to start connection, and once connection is established, the menu list of the node (room) you are connected to will appear.
   - 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.

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, it is relayed to the other station on the Internet and it is transmitted with C4FM digital radio wave at the same time.
   - In the Direct Operation, it will be relayed to the other station on the Internet. The TX/BUSY LED lights red but 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, the voice from the other station on the Internet sounds from the speaker, and at the same time it is relayed with C4FM digital radio waves. Also, the voice from another C4FM digital transceiver accessing the portable node will sound on the speaker, and at the same time it will relay 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, when setting the receive DG-ID number to except for "00", set the transmit DG-ID number to the same number. Note that sets to a different number will not work properly.
- When setting the receive DG-ID number to "00" and set the transmission DG-ID number to anything other than "00", the voice of all received C4FM digital station 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.

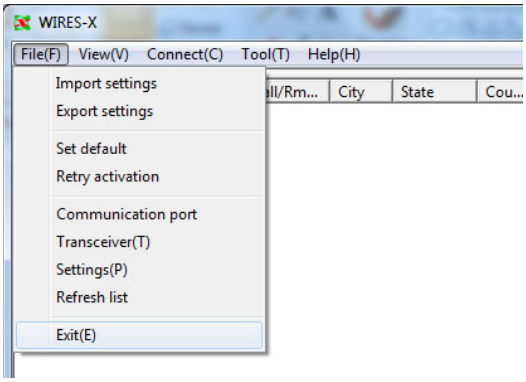
Disconnecting from the node or room

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, 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.



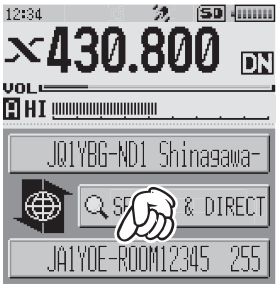
● Confirming the location of the other station

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.

1. Press the [**DISP**] key.
   The "**BACKTRACK**" screen (compass screen) is displayed.

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

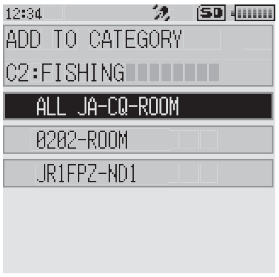
1. Touch the node or room you want to connect to.
   Displays the category list.



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.

   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.

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 30) or "**Adjusting Audio Level in the Direct Operation (Portable HRI Mode)**" (page 32) 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 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 28).

Starting the transceiver in special mode

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**".
   Depending on the set operation mode, it is displayed on the frequency display as follows.
   Access Point: "WIRES-X NODE"
   Direct Operation: "DIRECT"

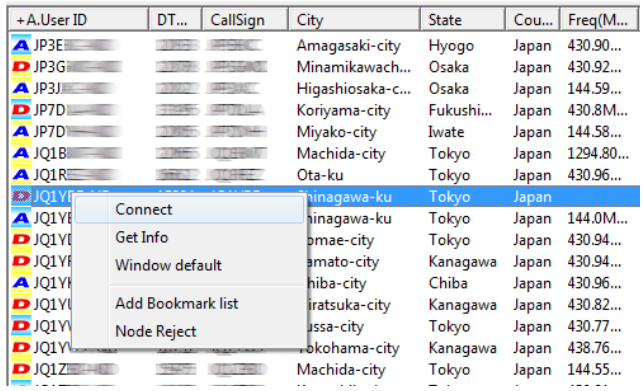
To return the transceiver to the normal mode, repeat procedure 1 in the above.

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, may be easily connect 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[redacted]" 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 29).

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 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 36).

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, 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.

1. Press the [**DISP**] key.
   The "**BACKTRACK**" screen (compass screen) is displayed.
   Press the [**DISP**] key again to return to the normal screen.

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

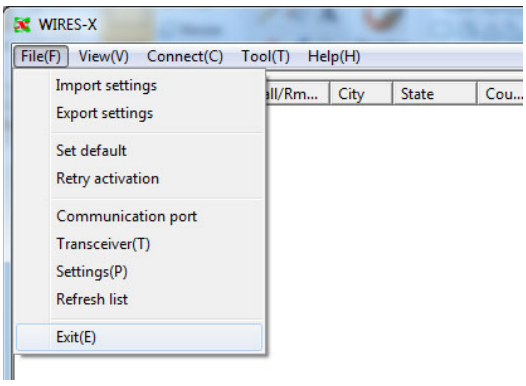
Disconnecting from the node or room

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

Closing the WIRES-X software

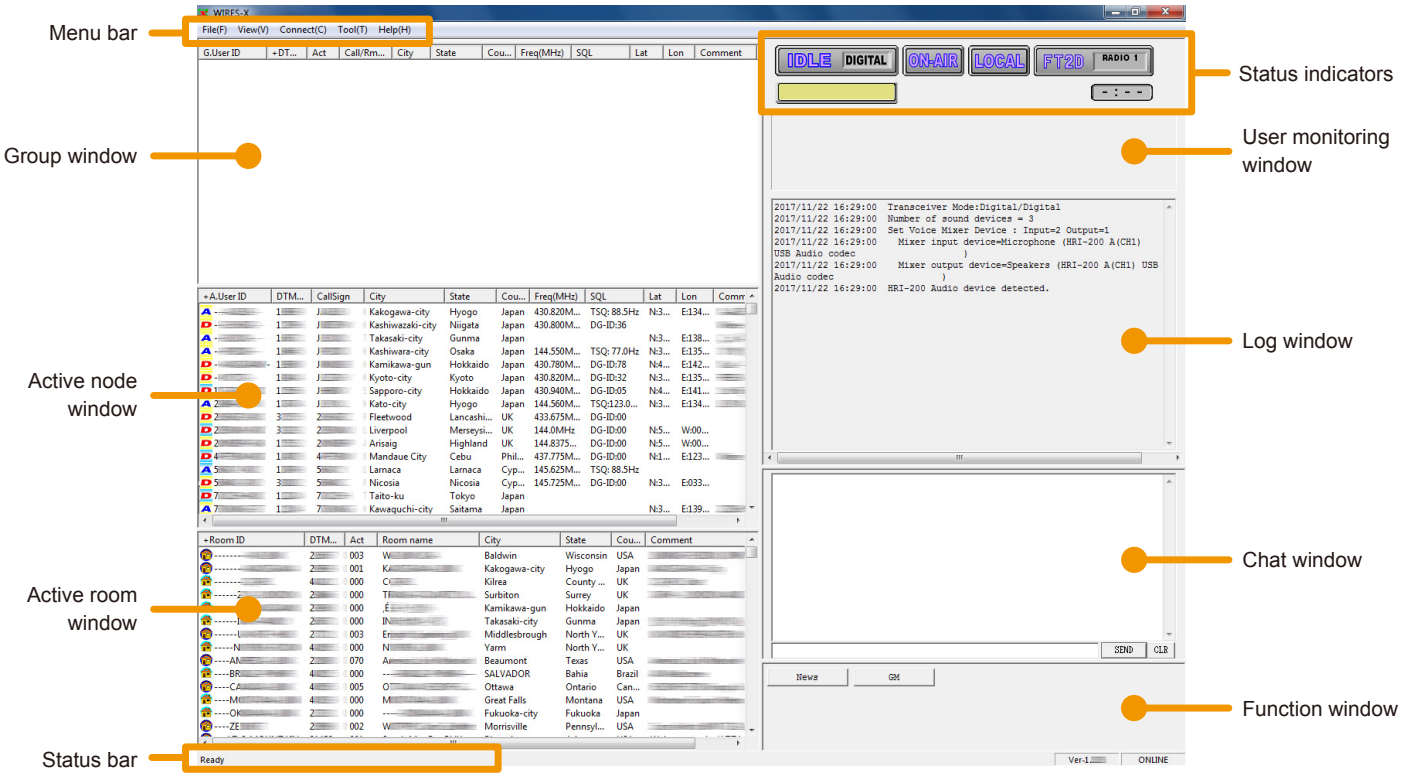
1. From the "**File**" menu, select "**Exit**"

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.



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 73) of the WIRES-X Connection Kit HRI-200 Instruction Manual.

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
		Digital Node Station
		Analog Node Station
		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
		Open room (Only the Digital Nodes may be connected)
		Open room
		Closed room
		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 90) 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 transceiver connected

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.

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

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)


Connecting to another Node station (indicated User ID)

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

Click this icon to toggle transmission prohibition and release alternately.

Not transmitting

Transmitting

Prohibiting transmission

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

Not receiving

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

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

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.

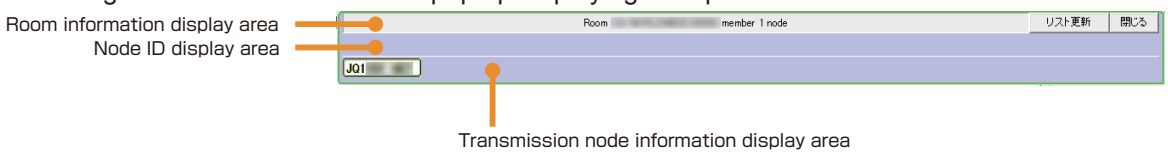
Chat window : The chat history is shown in the window. There is a text entry field at the bottom of the window where you can chat with the owner of the node or room you are connecting to.

Function window : There are dedicated buttons for other functions.

For other details of each display, refer to “**Main Screen**” (page 65) of the WIRES-X Connection Kit HRI-200 Instruction Manual.

● **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: 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.

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 32) according to the mode you are using.

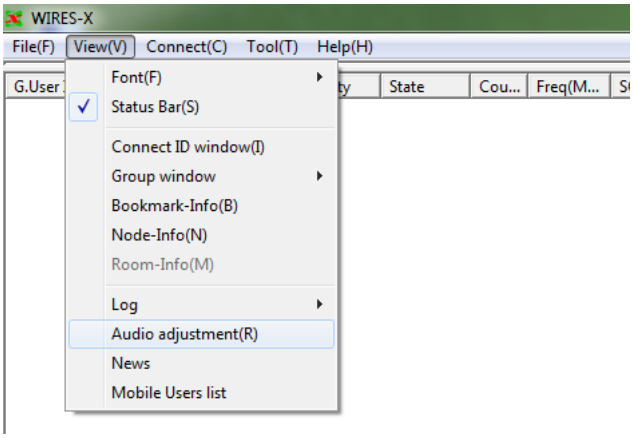
Adjusting Audio Level in the Access Point (Portable HRI Mode)

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

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

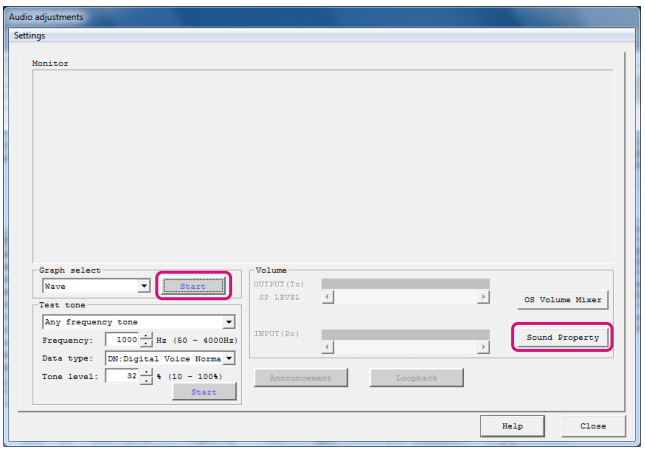
Adjust the volume level so that the "**VOL bar graph**" is halved by turning the VOL knob of FT2D, then make the following adjustments. Also, when using FT2D as a transceiver of a Portable Digital Node station, adjust it so that it is almost the same volume level.

1. From the "**View**" menu, click "**Audio adjustment**".
   The "**Audio adjustment**" window will appear.

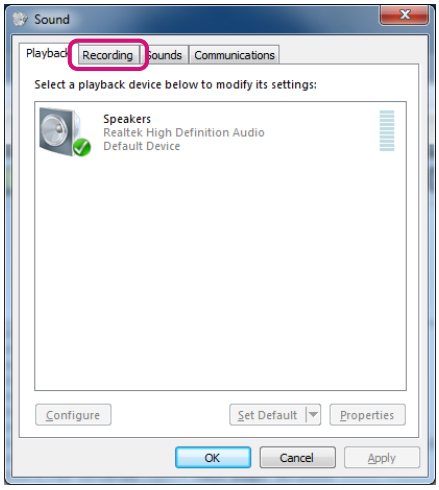


2. Click the [**Start**] in the "**Graph select**" area.
3. Click the [**Sound Property**].
   The WINDOWS "**Sound**" window opens.

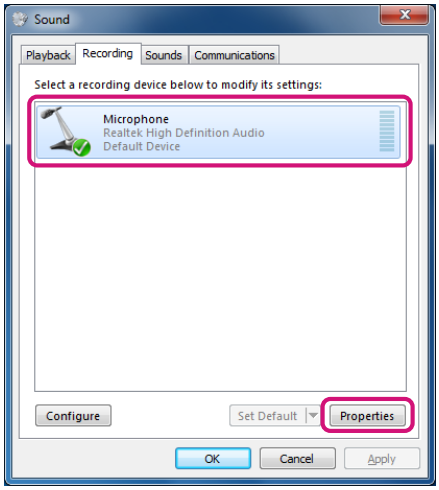
For Portable Digital Node stations, adjust the audio level with the WINDOWS sound setting.



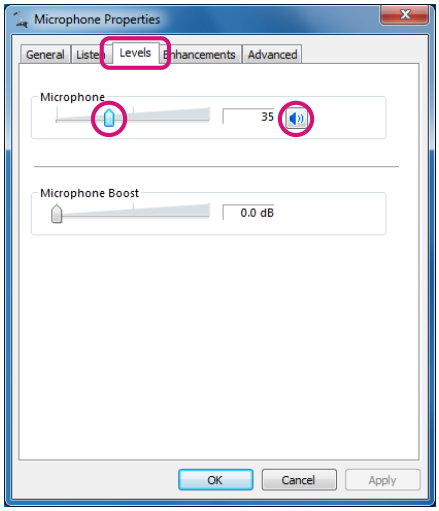
4. Click the [**Recording**] tab in the WINDOWS "**Sound**" window.

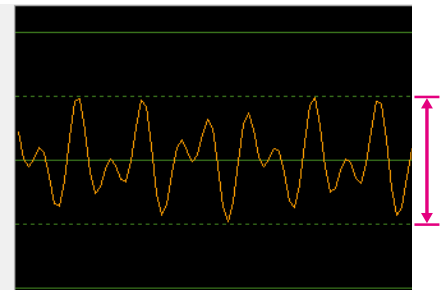


5. Click [**Microphone**], then click the [**Properties**] button.
   The microphone properties will open.



6. Click the [**Levels**] tab.
7. While transmitting "**1**" of DTMF on the 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 does not over the dotted line.





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

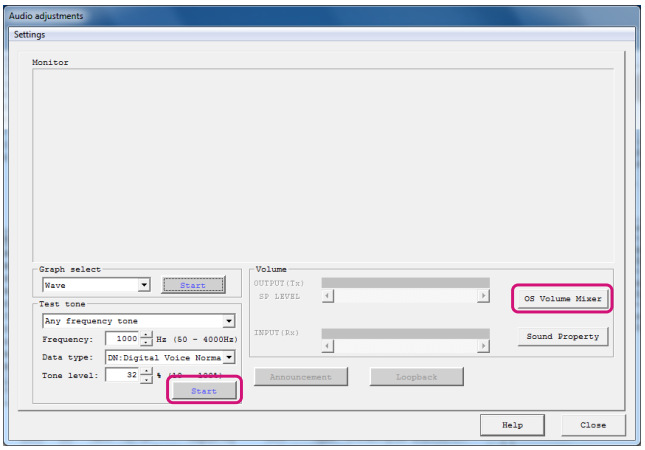
8. Press the [**OK**] button several times to close all Windows setting screens.

Completes the microphone input level adjustment of the personal computer.

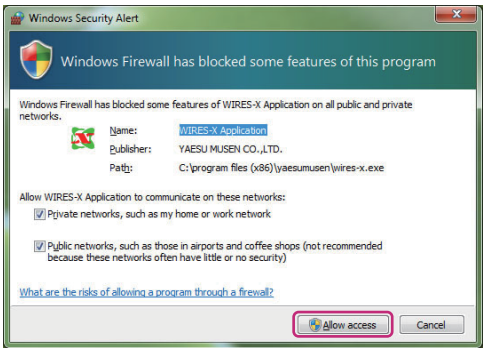
Continue to adjust the speaker output level of the personal computer.

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

1. Click the “**OS Volume Mixer**”.
   The Windows “**Volume Mixer**” window opens.
2. Click the “Start”.
   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 the [**TX**] to stop transmits.
6. Click the “**×**” button at the top right of the “**Volume Mixer”** window to close.

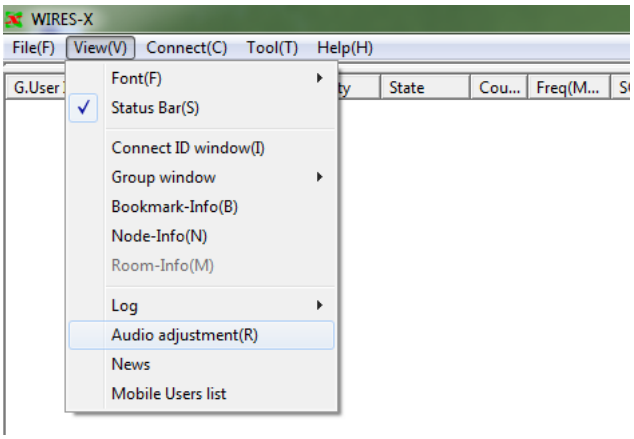
The audio level adjustment of Access Point is completed.

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.

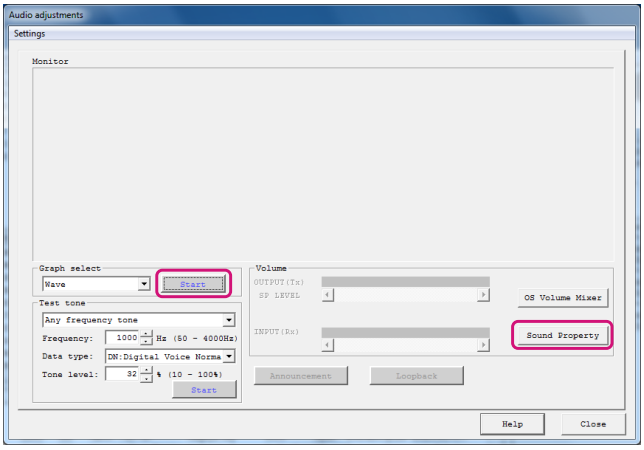
● **Adjusting the microphone input level of the personal computer**

1. From the “**View**” menu, click “**Audio adjustment**”.
   The “**Audio adjustment**” window will appear.

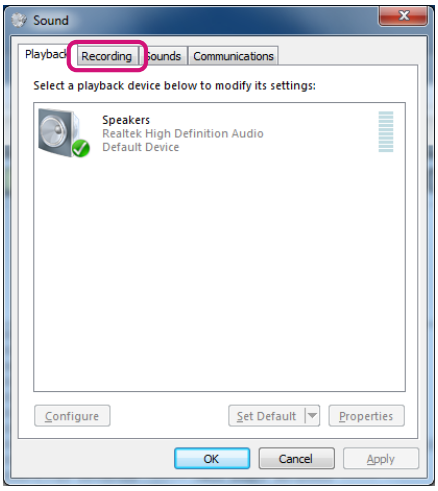


2. Click the [**Start**] in the “**Graph select**” area.
   Waveform monitor is enabled.

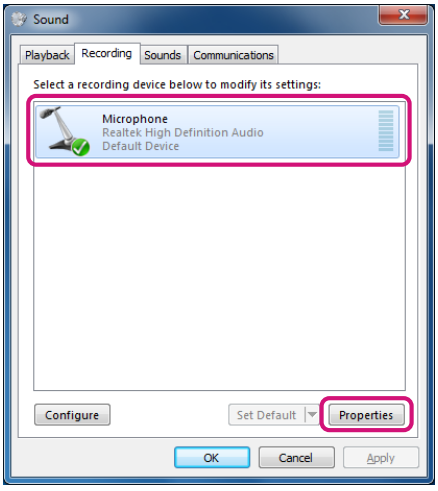
3. Click the [**Sound Property**].
   The WINDOWS “**Sound**” window opens.



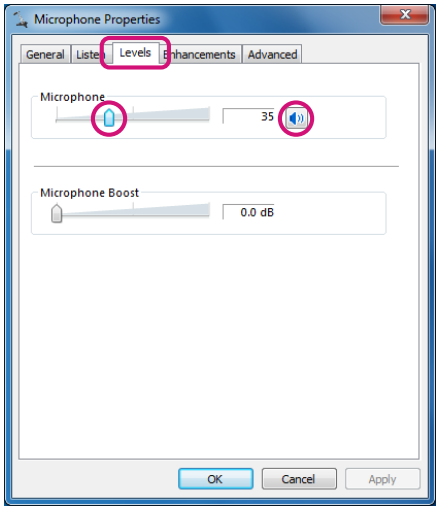
4. Click the [**Recording**] tab in the WINDOWS “**Sound**" window.



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



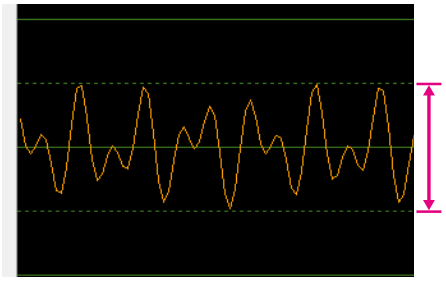
6. Click the [**Levels**] tab.



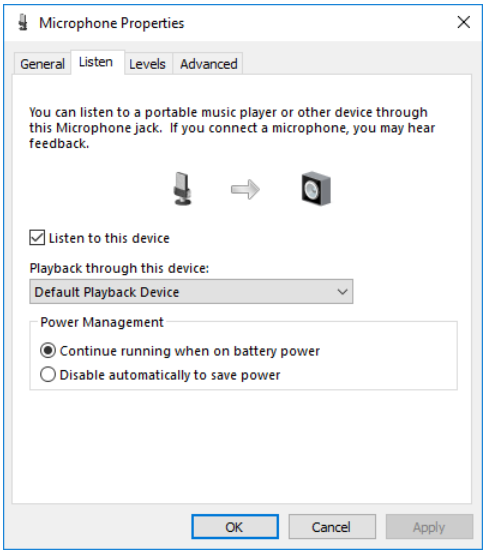
> If the microphone input is muted, click the icon "" on the right side of the slider to cancel mute "".

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



> 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.

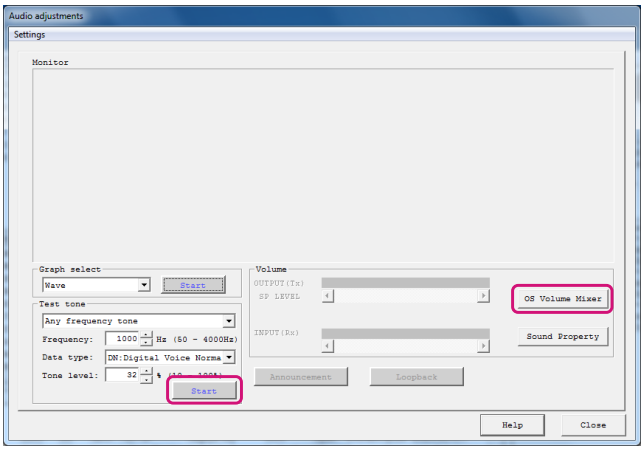
The microphone input level adjustment of the personal computer is completed with the above.

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

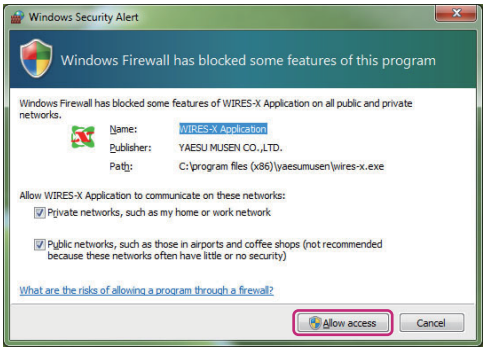
● Adjust speaker output level of PC

Adjust the volume level so that the "**VOL bar graph**" is halved by turning the **VOL** knob of FT2D, 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 the "**OS Volume Mixer**".
   The WINDOWS "**Volume Mixer - Speakers**" window opens.
2. Click the [**Start**] in the "**Test Tone**" area.
   A test tone is output.

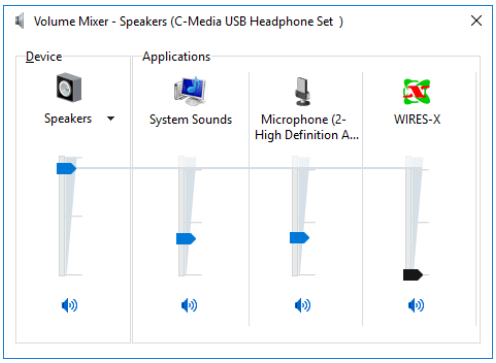


3. Adjust the volume level of "**WIRES-X**" on the "**Volume Mixer**" screen so that the test sound that you hear from the PC 's speaker will be easy to hear.
   When adjustment is completed, click the [**Start**] button again, to stop the test sound.

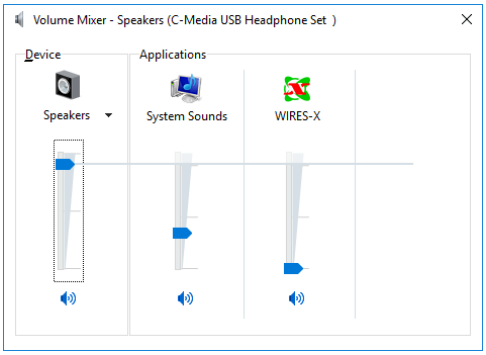


- If the speaker output is muted, click the icon "" at the bottom of the slider to release the mute.
- If the volume level of "**Speaker/Headphone**" is decreasing, adjust the volume so that it is easy to hear.

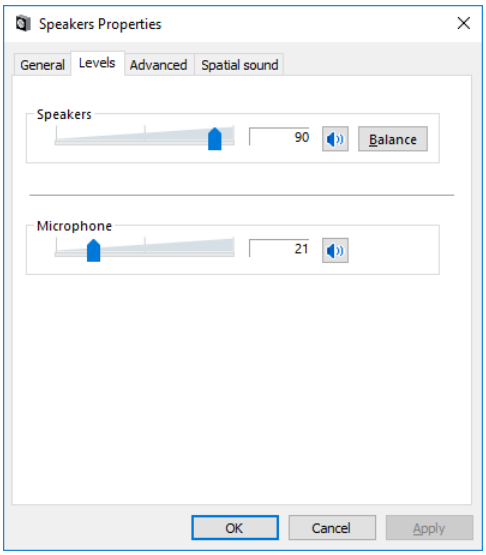
4. Adjust the volume level of the "**microphone**" on the "**Volume Mixer**" screen so that the voice of the partner station operating in the digital mode will be easy to hear.
   When the adjustment is completed, proceed to step 8.
   Depending on your computer, this setting item may be missing in the volume mixer. In this case, proceed to step 5.



5. Click the "**Speakers**" icon on the "**Volume Mixer**" screen.
   The "**Speakers Properties**" screen opens.



6. Click the [**Levels**] tab on the "**Speakers Properties**" screen.
7. Adjust the volume level of "**microphone**" so that the volume of the other station operating in digital mode will be easy to hear.



8. 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.

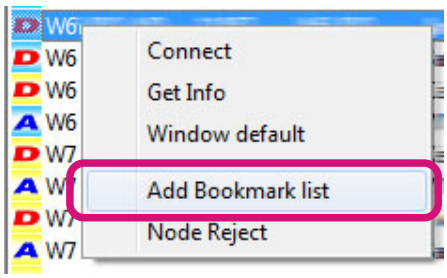
If you turn the **VOL** knob while pressing the **PTT** switch while the analog audio output (uplink) setting is "**ON**", it will be displayed as LEVEL XX (XX: 0 to 31) and the volume level of the analog audio to be sent to the other station You can adjust. (The default setting is 10.)

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**].



Operating the transceiver in Portable HRI Mode

You can make settings such as transceiver screen display in use in Portable HRI Mode and turning off the TX/BUSY lamp.

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

YAESU
The radio

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