

***YAESU***

***The radio***

# **HRI-200**

## **Reference Manual for DR-1X/XE**

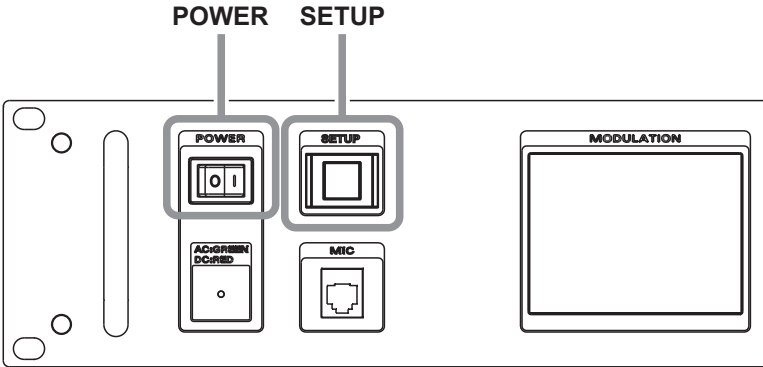
This Reference Manual is for the DR-1X/XE  
with MAIN firmware V1.10D

**YAESU MUSEN CO., LTD.**

# Activate HRI mode

## Change the repeater mode to the HRI mode

1. Turn the DR-1/X power OFF.
2. While pressing and holding the [SETUP] button, press the [POWER] switch.

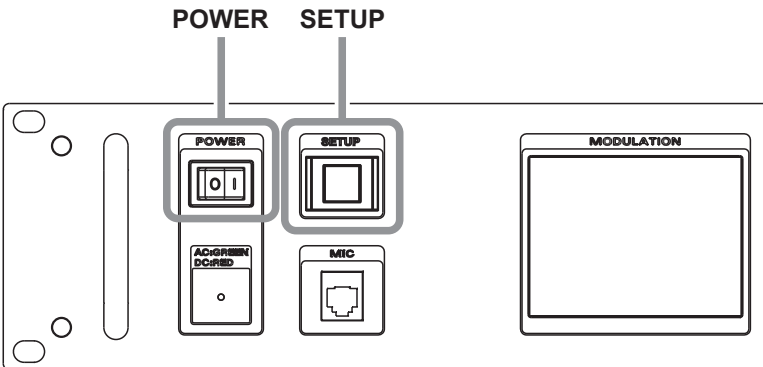


3. While the “YAESU” logo is being displayed, release the [SETUP] button.  
“HRI+REPEATER MODE” will appear on the display.
4. Touch [OK?]  
HRI mode will activate.

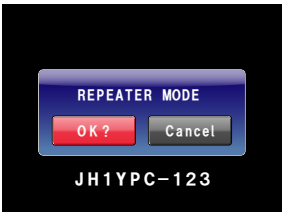


## Return to REPEATER mode from HRI mode

1. Turn the DR-1/X power OFF.
2. While pressing and holding the [SETUP] button, press the [POWER] switch.

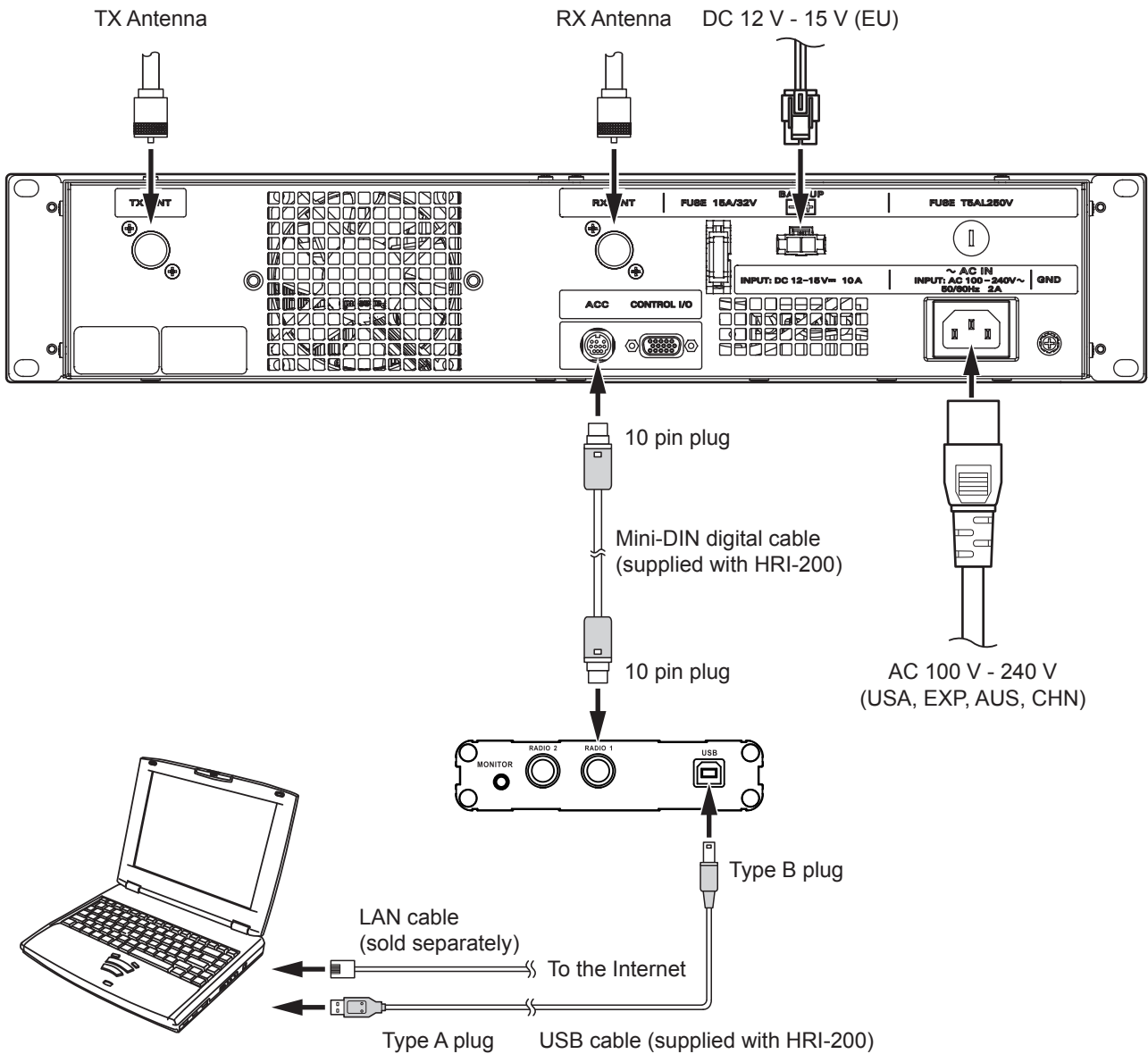


3. While the “YAESU” logo is being displayed, release the [SETUP] button.  
“REPEATER MODE” will appear on the display.
4. Touch [OK?]  
The operation mode screen will appear on the display.



# Connecting Devices

## Connecting HRI-200 to a DR-1X/XE



## Repeater setting

If an HRI-200 control mode repeater is connected, the following repeater setting screen for exclusive use of Repeater is displayed.

- When an HRI-200 control mode repeater is detected, the setting information is read from the Repeater and is displayed on the screen.
- If connecting an HRI-200 control mode repeater, switch on the DR-1X/XE unit while simultaneously pressing the mechanical [SETUP] button on the front panel. When the “YAESU” logo is displayed on the LCD touch screen, release the [SETUP] button, the LCD will change to “HRI-REPEATER MODE”. Then press the [OK] button.
- If operating in Analog FM mode while connected to an HRI-200 control mode repeater, noise squelch can be adjusted by pressing the [SQL] button (setup screen) and touching the [▲] / [▼] button.

## Voice CH

Voice CH uses WIRES-X to communicate via the Internet.

Operation will be executed by controlling the repeater connected to the HRI-200 Radio 1 terminal.

The following parameters need to be set/display for operation.

The screenshot shows the 'Transceiver' settings window. The 'Voice CH' section is highlighted with a pink border. It contains the following settings:

- WIRES Operation: Digital
- Transceiver: RX:DIGITAL - TX:DIGITAL
- Table with columns: Transceiver, DST, F/W version
- RX CH: Modulation (Digital), Frequency (440.500 MHz), Narrow deviation (off), C4FM detect (Signal), Digital SQL (001), Analog SQL (Tone SQL), Tone SQL (100.0 Hz), DCS (023), Power (Low)
- TX CH: Modulation (Digital), Frequency (445.500 MHz), Narrow deviation (off), C4FM detect (Signal), Digital SQL (001), Analog SQL (Tone SQL), Tone SQL (100.0 Hz), DCS (023), Power (Low)
- Reverse: checked
- Hide frequency settings: unchecked
- Summary: Uplink (RX)=440.500MHz, Downlink (TX)=445.500MHz, Offset (RX)=-5.000MHz

Other sections include:

- Repeater: ID SET (empty)
- TIMER: TOT (3 Min), SQL HYS TERESIS (NORMAL), SQL TAIL LENGTH (0 mSec)
- ID ANNOUNCE: Mode (CW), Level (Mid), CW ID SPEED (20 WPM), INTERVAL (10 Min)
- TX INHIBIT: Mode (OFF)
- STOP CODE (01 05), RESUME CODE (02 05)
- DISP TIMER (OFF)
- Preset Search CH: Operation mode (OFF), Transceiver, DST, F/W version
- Modulation (Digital), Frequency (144.000 MHz), Narrow deviation (off), C4FM detect (Signal), Digital SQL (OFF), Power (Low)

Buttons at the bottom: OK, Cancel, Apply, Help.

### WIRES Operation

Select a WIRES operation mode from the following options:

- Digital : C4FM digital mode.
- Analog : FM Analog mode.

### Note

- The WIRES Operation is automatically set according to TX CH parameters (Transceiver) setting of the Repeater. However, if the transmit CH is AMS, the WIRES Operation setting must be selected.
- When the Repeater is connected, you cannot operate the Digital Dual Receive mode.
- You cannot selected GM mode or connect to a closed room while in Analog (FM) operation.

## **Transceiver**

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Select the Repeater operation mode from the following:

- RX:FM - TX:FM: FM Analog repeater (WIRES Operation=Analog (fixed))
- RX:DIGITAL - TX:DIGITAL: C4FM Digital repeater (WIRES Operation=Digital (fixed))
- RX:AMS - TX:FM: AMS to FM repeater (WIRES Operation=Analog (fixed))
- RX:AMS - TX:DIGITAL: AMS to C4FM repeater (WIRES Operation=Analog (fixed))
- RX:AMS - TX:AMS: AMS to AMS repeater (WIRES Operation=selectable)

### **Note**

- When operating in RX:AMS mode, the WIRES-X system only relays the signal that is selected by the WIRES Operation setting.
- When "HRI-REPEATER MODE" is started in either the "RX:DIGITAL-TX:FM" or "RX:FM-TX:DIGITAL" state, the WIRES-X Node cannot operate.

## **Transceiver / DST / F/W version**

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Displays the data information of the digital transceiver in connection with the HRI-200.

### **Modulation**

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Displays the Voice CH wave format selected for repeater operation.(RX CH and TX CH)

- Digital: Displayed if using digital (C4FM) mode.
- Analog: Displayed if using analog (FM) mode.
- AMS: Displayed if using AMS(Automatic Mode Select) mode.

### **Frequency**

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Enter the WIRES-X operating frequency (RX CH and TX CH) in MHz.

The entered data will be displayed on the ID list.

### **Narrow deviation**

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Select if using Narrow deviation operation.

### **Note**

This parameter cannot be set different for the RX and TX channels.

### **C4FM detect**

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Select the C4FM detection method for WIRES-X Digital operation.

- Signal: Becomes busy state when receiving any signal.
- DSQ code: Becomes busy state only when receiving a signal with a matching DSQ code.

### **Digital SQL/Analog SQL**

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Enter the squelch code of the WIRES-X operating frequency (Voice CH frequency).

The entered data will be displayed on the ID list.

The following squelch codes are available:

#### **Analog Operation**

- NoTone: Not using CTCSS tone or DCS code squelch.
- ToneSQL: Using CTCSS tone squelch.
- DCS: Using DCS code squelch.

If using ToneSQL, select the desired tone frequency (67.0-254.1 Hz).

If using DCS, select the desired DCS code (023-754).

#### **Digital Operation**

- DSQ: Select the squelch code (OFF or 001-126) exclusive to digital mode.

### **Note**

- The SQL code parameter cannot be set different for the RX or TX channels.
- The analog SQL type can be set individually for the RX and TX channels.
- When making REMOTE settings in the TX INHIBIT function, there are some combinations that cannot be set. (See the description of the TX INHIBIT function for details)

## **Power**

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Set the transmission power of the repeater connected to the Radio 1 terminal.

## Reverse

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Enables the transmit frequency offset.

- Reverse (when checked): The uplink (RX CH) input frequency information equals the downlink (TX CH) output frequency minus the offset frequency. (Default - Offset)
- Normal (not checked): The uplink (RX CH) input frequency information equals the downlink (TX CH) output frequency plus the offset frequency. (+ Offset)

When using a repeater, the portable terminal transceiver and transmission/reception are reversed. It is therefore necessary to use the reverse setting (transmission frequency offset reception setting). (Default setting)

### Example 1

Uplink (RX CH) frequency = 434.700 MHz  
Downlink (TX CH) frequency = 439.700 MHz  
Reverse setting (Default setting) (- Offset)

Uplink (RX) = 434.700 MHz / Downlink (TX) = 439.700 MHz / Offset = -5.000 MHz

List output/search response info = 439.700 MHz - 5.000 MHz

### Example 2

Uplink (RX CH) frequency = 439.700 MHz  
Downlink (TX CH) frequency = 434.700 MHz  
Normal setting (+ Offset)

Uplink (RX) = 439.700 MHz / Downlink (TX) = 434.700 MHz / Offset = +5.000 MHz

List output/search response info = 434.700 MHz + 5.000 MHz

## Hide frequency settings

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Hide transmission frequency data. If checked, operating data, such as frequency, can be temporarily hidden from the ID list.

## Repeater

When connecting the HRI-200 and the DR-1X Repeater, the Repeater settings may be entered with a PC and the WIRES-X software.

The screenshot shows the 'Transceiver' window in the WIRES-X software. The 'Repeater' section is highlighted with a pink box. It contains the following settings:

- ID SET:** A text field for entering the repeater callsign.
- TIMER:**
  - TOT: 3 Min
  - SQL HYSTERESIS: NORMAL
  - SQL TAIL LENGTH: 0 mSec
- ID ANNOUNCE:**
  - Mode: CW
  - Level: Mid
  - CW ID SPEED: 20 WPM
  - INTERVAL: 10 Min
- TX INHIBIT:**
  - Mode: OFF
  - STOP CODE: 01 05
  - RESUME CODE: 02 05
- DISP TIMER:** OFF

### ID SET

Set the ID (Repeater Callsign) information (max 10byte).

#### Note

Please enter the same callsign as the WIRES-X registration.

### TIMER

Set the timer function

TOT (Timeout Timer): Set the Time-Out Timer to prevent continuous extended transmission.

SQL HYSTERESIS: Set the Hysteresis setting of the noise squelch circuit.

SQL TAIL LENGTH: Set the transmit "squelch tail" duration.

#### Note

When the Termination signal is received, the transmit "squelch tail" is eliminated. (Digital operation).

### ID ANNOUNCE

Set the ID announcement.

Mode: Set the contents of the ID announcement.

- CW: CW ID
- CW wo TONE: CW ID (TX without tone code)
- VOICE: Voice ID (Voice guide unit (FVS-2) is required)
- VC wo TONE: Voice ID (TX without tone code)(Voice guide unit (FVS-2) is required)

Level: Set the volume of the ID sound.

CW ID SPEED : Set the mark reproduction speed (wd/min) of the CW ID.

INTERVAL : Set the Transmission time interval between the ID announcements.

#### Caution1 (CW ID SPEED)

When operating in the USA the CW ID SPEED setting time must not exceed 20wd/min when keyed by an

automatic device, to comply with the FCC rule Part 97: Sec.97.119(b)(1)Station identification.

**Caution2 (INTERVAL)**

When operating in the USA the ID setting time should be ten minutes or less to comply with the FCC rule Part 97: Sec.97.119(a)Station identification.

**[TX INHIBIT]**

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Set transmit inhibit.

Mode : Set the TX INHIBIT function.

- OFF: Permit repeater transmissions
- ON: Restrict transmission
- REMOTE: Remote transmit control by ECS(Enhanced Code Squelch) code.

STOP/RESUME CODE : Set the ECS(Enhanced Code Squelch)code for remote TX control.

**Note**

The selected ECS code, must meet the following conditions:

- Analog SQL is 151.4Hz or less (ToneSQL), or “DCS”: 01(67 Hz) to 25 (151.4 Hz)
- Analog SQL is 156.7Hz or higher (ToneSQL), or “No Tone”: 26 (156.7 Hz) to 50 (254.1 Hz)

**[DISP TIMER]**

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Set the repeater touch panel automatic light timer.



## Preset Search CH

WIRES-X compatible digital (C4FM) transceivers are able to transmit search signals to locate WIRES-X Node stations. There are 2 ways of transmitting this search signal.

### Manual Search Function

Directly transmitting search signals via the WIRES Node station Voice CH

### Preset Search Function

Establishing a unique search frequency at which the portable terminal transmits search signals

When WIRES Node stations detect search signals, it returns response signals on the CH at which it detected the original signal.

Response signals contain Voice CH operating data (frequency, SQL Code, offset data, etc.). Portable terminals use this information to adjust its setup to access the WIRES Node, entering WIRES-X access operation mode.

Preset Search CH settings are for establishing this unique search frequency.

The following parameters need to be set for operation.

The screenshot shows the 'Transceiver' software interface. The 'Preset Search CH' panel is highlighted with a pink border. The settings in this panel are: Operation mode: OFF; Transceiver: (empty); DST: (empty); F/W version: (empty); Modulation: Digital; Frequency: 144.000 MHz; Narrow deviation: (unchecked); C4FM detect: Signal; Digital SQL: OFF; Power: Low. Other panels include Voice CH (WIREs Operation: Digital, Transceiver: RX:DIGITAL - TX:DIGITAL), Repeater (ID SET: (empty)), TIMER (TOT: 3 Min, SQL HYSTERESIS: NORMAL, SQL TAIL LENGTH: 0 mSec), ID ANNOUNCE (Mode: CW, Level: Mid, CW ID SPEED: 20 WPM, INTERVAL: 10 Min), TX INHIBIT (Mode: OFF, STOP CODE: 01 05, RESUME CODE: 02 05, DISP TIMER: OFF), and RX/TX CH settings (RX CH: Modulation: Digital, Frequency: 440.500 MHz, Narrow deviation: (unchecked), C4FM detect: Signal, Digital SQL: 001, Analog SQL: Tone SQL, Tone SQL: 100.0 Hz, DCS: 023, Power: Low; TX CH: Modulation: Digital, Frequency: 445.500 MHz, Narrow deviation: (unchecked), C4FM detect: Signal, Digital SQL: 001, Analog SQL: Tone SQL, Tone SQL: 100.0 Hz, DCS: 023, Power: Low). A summary box shows: Uplink (RX)=440.500MHz, Downlink (TX)=445.500MHz, Offset (RX)=-5.000MHz. The interface also includes a 'Reverse' checkbox and a 'Hide frequency settings' checkbox. At the bottom are buttons for OK, Cancel, Apply, and Help.

### Operation mode

Displays the Preset Search CH operating mode.

- OFF : Displayed if not using Preset Search CH mode.
- ON : Displayed if using Preset Search CH mode.

### Note

The search channel operation requires an HRI-200/ C4FM Digital control mode capable transceiver (FTM-400D, FTM-100D etc) connected to Radio 2 terminal of the HRI-200.

### Transceiver / DST / F/W version

The firmware information of the digital transceiver connecting to HRI-200 for Preset CH operation is displayed.

### Note

When the connected transceiver firmware does not support WiRES-X, the version is not displayed.

Not supported firmware: FTM-400D (ver2.10 and previous)  
FTM-100D (ver1.10 and previous)

**Modulation**

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Displays the Preset search CH signal format.

**Frequency (Preset Search CH)**

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Enter a unique WIRES-X Preset Search operating frequency in MHz.

**Tip**

In practice, consult with other WIRES-X stations to select a suitable frequency that will effectively avoid interference.

**Narrow deviation**

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Select if using Narrow deviation operation for Preset CH transceiver.

**C4FM detect**

---

Select the C4FM detection method for Preset CH operation.

- Signal: Busy is indicated when receiving any signal.
- DSQ code: Busy is indicated when receiving any signal containing the matching DSQ code.

**Digital SQL**

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Enter the squelch code setting for the WIRES-X Preset Search CH operating frequency. The normal setting is DSQ = OFF. If using SQL Code, select from 001 to 126.

**Power (Preset Search CH)**

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Set the transmission power of the WIRES-X Preset Search CH operating frequency.



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