



## **HDR100 DMR Repeaters**

136 to 174 MHz 50-Watt (HD-RV1B)  
400 to 470 MHz 50-Watt (HD-RU1B)  
450 to 520 MHz 50-Watt (HD-RU2B)

### **Quick Guide**

14222-5000-1000, Nov/11



## NOTICE!






For product safety information, installation information, detailed operating information, and a list of options and accessories available for the HDR100 repeater, refer to *Installation and Product Safety Manual* publication number 14222-5000-4000.

The material contained herein is subject to U.S. export approval. No export or re-export is permitted without written approval from the U.S. Government. Rated: EAR99 in accordance with U.S. Dept. of Commerce regulations 15CFR774, Export Administration Regulations.

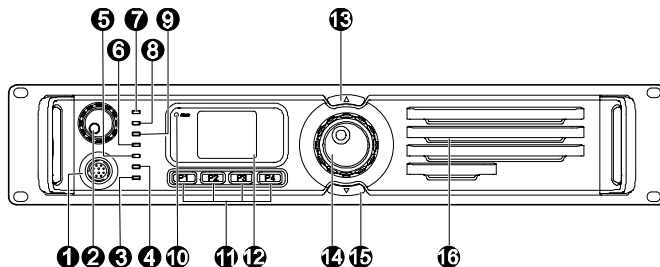
## SYMBOLS USED IN THIS GUIDE

The following table lists symbols used in this guide.

SYMBOL	DESCRIPTION
	The <b>WARNING</b> symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a <b>WARNING</b> symbol until the conditions identified are fully understood or met.
	The <b>CAUTION</b> symbol calls attention to an operating procedure, practice, or the like, which, if not performed correctly or adhered to, could result in damage to the equipment or severely degrade equipment performance.
	The <b>NOTE</b> symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure. It may also be used to flag tips that can help you make better use of the radio.

## PRODUCT OVERVIEW

### FRONT PANEL

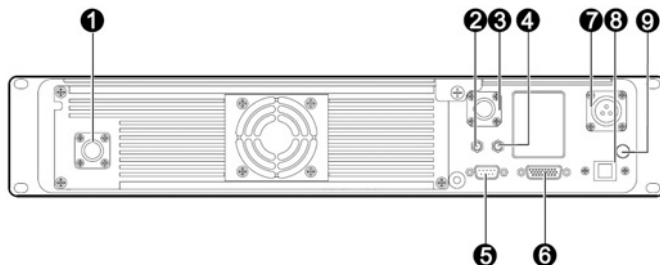


NO.	PART NAME	NO.	PART NAME
1	Accessory Jack	9	Slot 1 RX Indicator
2	Volume Control Knob / Power Indicator	10	Alarm Indicator
3	Repeater Mode Indicator	11	Programmable Keys (P1, P2, P3, P4)
4	Analog Mode Indicator	12	LCD Display
5	Slot 2 RX Indicator	13	Channel Up (CH+)
6	Slot 2 TX Indicator	14	Navigation Knob
7	Digital Mode Indicator	15	Channel Down (CH-)
8	Slot 1 TX Indicator	16	Speaker

### PROGRAMMABLE KEYS

For enhanced convenience, you can request your dealer program keys **P1**, **P2**, **P3** and **P4** as shortcuts to appropriate functions.

## REAR PANEL



NO.	PART NAME	NO.	PART NAME
①	TX Antenna Connector	⑥	Accessory Connector
②	Optional Interface 1 Connector	⑦	DC Power Connector
③	RX/Duplex Antenna Connector	⑧	Ethernet Port Connector
④	Optional Interface 2 Connector	⑨	Ground Screw
⑤	Monitor/Tuning Interface Connector		

## OPERATION











### TURNING THE REPEATER ON AND OFF

**Turn ON:** Turn on the repeater by connecting a DC power supply to it. During power-up process, the Power indicator glows green and the display shows an animation.

**Turn OFF:** To turn the repeater off, disconnect the DC power supply.

## STATUS INDICATORS

### Display Icons

ICON NAME	ICON	REPEATER STATUS
Repeater Mode	RM	Repeater Mode.
RSSI Icons		This Received-Signal Strength Indication (RSSI) icon indicates no radio signal is being received.
		More bars on an RSSI icon indicate better signal strength.
Transmit (Tx) Power Level Icons		Low transmit power for the currently selected channel.
		High transmit power for the currently selected channel.
Scan Icon		Scanning is in progress (i.e., scan is on).
Monitor Icon		The monitor feature is active.
Speaker Icon		The speaker is unmuted.
Alarm Icon		An alarm is present. A corresponding message appears in the display.
Accessory Icon		An accessory is connected to the repeater.
Scrambler/-Encrypt Icon		The Scrambler/Encrypt feature is active.



## LED Status Indicators

LED INDICATOR	LABEL	REPEATER STATUS
Power indicator glows green.	(None)	Normal power-on.
Alarm indicator glows red.	<b>ALARM</b>	The repeater abnormal.
Repeater mode indicator glows green.	<b>RPT</b>	The repeater is operating in Repeat mode.
Repeater mode indicator not lit.	<b>RPT</b>	The repeater is operating in Base mode.
Slot 1 TX indicator glows red.	<b>TX-A</b>	Repeater is transmitting on an analog channel or on slot 1.
Slot 1 RX Indicator glows green.	<b>RX-A</b>	Repeater is receiving on an analog channel or on slot 1.
Slot 2 TX indicator glows red.	<b>TX-B</b>	Repeater is transmitting on slot 2.
Slot 2 RX Indicator glows green.	<b>RX-B</b>	Repeater is receiving on slot 2.
Analog mode indicator glows yellow.	<b>ANALOG</b>	The repeater is operating in analog mode.
Digital mode indicator glows blue.	<b>DIGITAL</b>	The repeater is operating in digital mode.

## **ADJUSTING VOLUME**

- **Analog Channel:** Rotate the Volume Control knob clockwise to increase the volume or counter-clockwise to decrease the volume.
- **Digital or Mixed Channel:** The speaker remains muted, so the Volume Control knob does not function.

## ADJUSTING POWER LEVEL

On a per-channel basis, the repeater may be programmed with a high or low TX power level. High TX power can extend repeater coverage, increasing communication range with mobile and portable radios. Low TX power is indicated by the  icon in the display, and high TX power is indicated by the  icon in the display.

## BACKLIGHT

Display backlighting can be turned on to improve viewing in low ambient light conditions. Either of the following modes may be programmed by your dealer:

- **Timed:** Either a key press, knob operation, or a signal reception/transmission turns on the backlight for a short period of time. If no foregoing event occurs within a specified time period, the backlight automatically turns off.
- **Enable:** The backlight always remains on.



NOTE

When an alarm event occurs, the backlight will remain on until the alarm event is cleared.

## LOCKING AND UNLOCKING THE REPEATER

You can request your dealer lock the knob and all keys on the front panel to prevent accidental operation. To unlock the repeater, it must be re-programmed by your dealer.

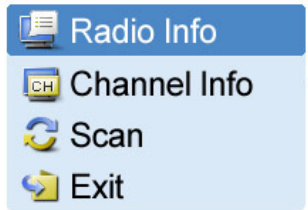
## CHANGING CHANNEL

Press the **Channel Up** or **Channel Down** key on the front panel to select another channel. The alias/name of the newly selected channel appears in the display.

## MENU NAVIGATION

The radio's main menu is shown in the following diagrams. Main menu selections vary depending upon whether the selected channel is an analog channel or a digital channel.

### Main Menu for an Analog Channel: Main Menu



### Main Menu for a Digital Channel: Main Menu



To access the main menu, from the home screen, press the **Navigation** knob. For detailed information on using the menus, refer to the *Installation and Product Safety Manual* publication number 14222-5000-4000.

### Radio Info

Use the **Radio Info** menu to view basic information about the repeater, including serial number, model number, frequency range, firmware version, RCDB version, Bootload version, program date and English language version.



## **Channel Info**

Use the **Channel Info** menu to view repeater channel information. Channel information varies according to the respective type of channel, as listed in the following table:

<b>CHANNEL TYPE</b>	<b>CHANNEL INFORMATION</b>
Digital	CH Alias, TX Frequency, RX Frequency, Color Code
Analog	CH Alias, TX Frequency, RX Frequency, CH Band, TX CTCSS/CDCSS, RX CTCSS/CDCSS
Mixed (Analog and Digital)	CH Alias, TX Frequency, RX Frequency, CH Band, TX CTCSS/CDCSS, RX CTCSS/CDCSS, Color Code

## **Scan**

The Scan feature allows you to listen to communication activities on other (non-selected) channels. Select **Scan on** to turn scan on and select **Scan off** to turn scan off. When scan is on, the radio scans channels according to the scan list set for the channel on which scanning starts. When scan is off, the radio does not scan channels on the list; it remains on the selected channel. Each scan list can contain up to thirty-two (32) channels.

## **Digital Speaker**

The Digital Speaker feature allows the repeater to receive audio from a specific slot of the selected digital channel, or to remain muted. To keep the speaker muted, select **Close** on the Digital Speaker menu.



## **Exiting the Main Menu**

To exit the main menu, rotate the **Navigation** knob to select **Exit**, and then press the knob.

## ALARM INFORMATION

The repeater can automatically detect faults in its operational status. When an abnormality occurs, if the respective alarm indication option is enabled per repeater programming, a related message appears in the display and the Alarm LED indicator lights red.



### Over-Temperature Alarm

If the temperature of repeater's Power Amplifier (PA) module exceeds the normal range, the Alarm LED indicator lights red and an  Over Temperature! message displays. In this case, the repeater stops transmitting. When the temperature falls into the normal range, the  Over Temperature! message disappears and the Alarm LED indicator turns off.




To avoid a burn to the skin, do **NOT** touch the heat sink. Use a digital thermometer/multimeter with thermocouple to measure the surface temperature.

### Fan Failure Alarm

If the repeater's fan fails, the Alarm LED indicator lights red and a  Fan Locked! message displays. In this case, the repeater automatically switches to low transmit (TX) power to protect the transmitter from overheating. When the fan returns to normal operation, the  Fan Locked! message disappears and the Alarm LED indicator turns off.

### VSWR Alarm

A high Voltage Standing-Wave-Ratio (VSWR) condition at the repeater's transmit (TX) antenna connector could result in damage to the repeater's PA module and/or a complete operational loss of the repeater's transmitter. If a high VSWR condition occurs, the Alarm LED indicator lights red and a  High VSWR! message displays. During a high VSWR condition, the repeater automatically switches to low transmit power.

When the VSWR falls within the normal range, the ⚠ High VSWR! message disappears and the Alarm LED indicator turns off.

### **Low Forward Power Alarm**

If the repeater's transmitter power falls below the preset range, the Alarm LED indicator lights red and a ⚠ Low Forward Power! message displays. During this condition, the repeater may or may not continue transmission, subject to a detection result. When transmitter output power returns to a normal range, the message disappears and the Alarm LED indicator turns off.

### **Over/Low Voltage Alarm**

If the repeater detects its DC power supply input voltage is outside of the normal range of approximately 11.0 to 15.6 Vdc, the Alarm LED indicator lights red and a ⚠ Low Voltage Alarm! message or a ⚠ Over Voltage Alarm! message displays. If this condition occurs, the repeater automatically stops working. When the detected voltage returns to within the normal range, the message disappears and the Alarm LED indicator turns off.



If the repeater is powered by an external battery and the battery's measured voltage is too low, recharge the battery. **Always disconnect the battery from the repeater before charging the battery.**

### **TX/RX Unlock Alarm**

If the repeater's transmit (TX) synthesizer or receive (RX) synthesizer becomes unlocked, the Alarm LED indicator lights red and a ⚠ TX Unlocked! message or an ⚠ Rx Unlocked! message displays. If this condition occurs, the repeater will partially stop working. When the synthesizer returns to normal operation, the message disappears and the Alarm LED indicator turns off.



Public Safety and Professional Communications  
221 Jefferson Ridge Parkway | Lynchburg, VA USA 24501  
[www.pspc.harris.com](http://www.pspc.harris.com) | 1-800-528-7711