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**NEXEDGE  
NXR-710/ NXR-810**

VHF DIGITAL BASE-REPEATER/ UHF DIGITAL BASE-REPEATER  
**INSTRUCTION MANUAL**

BASE-RELAIS NUMÉRIQUE VHF/BASE-RELAIS NUMÉRIQUE UHF  
**MODE D'EMPLOI**

BASE-REPETIDOR DIGITAL VHF / BASE-REPETIDOR DIGITAL UHF  
**MANUAL DE INSTRUCCIONES**

# NXR-710 / NXR-810 INSTRUCTION MANUAL

## VHF DIGITAL BASE-REPEATER / UHF DIGITAL BASE-REPEATER

### THANK YOU!

We are grateful you purchased this **Kenwood** repeater. We believe this easy-to-program repeater will be highly effective in your communications system, and will keep personnel operating at peak efficiency.

### PRECAUTIONS

- Do not expose the unit to rain or moisture; to prevent fire or electric shock.
- Do not open the unit under any circumstances; to avoid risk of electric shock.
- Do not expose the unit to long periods of direct sunlight, nor place it close to heating appliances.
- Do not place the unit in excessively dusty and/or humid areas, nor on unstable surfaces.
- If you detect an abnormal odor or smoke coming from the unit, disconnect the power from the unit immediately. Contact your **Kenwood** service center or dealer.

### NOTICES TO THE USER

- ◆ Government law prohibits the operation of unlicensed radio transmitters within the territories under government control.
- ◆ Illegal operation is punishable by fine and/or imprisonment.
- ◆ Refer service to qualified technicians only.

#### FCC WARNING

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

#### INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.

#### Firmware Copyrights

The title to and ownership of copyrights for firmware embedded in Kenwood product memories are reserved for Kenwood Corporation.

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to extract, remove, decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form. U.S. Patent Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.



- ◆ This repeater is intended for use as a fixed base station with the antenna located outdoors on the rooftop or on an antenna tower.
- ◆ This repeater is designed for a 13.6 V DC power source! Never use a 24 V DC or higher source to power the repeater.
- ◆ Use only the supplied DC cord.
- ◆ Do not remove the ferrite core attached to the DC cord. Doing so may cause interference with radio communications.

### UNPACKING AND CHECKING EQUIPMENT

**Note:** The following unpacking information is for use by your **Kenwood** dealer, an authorized **Kenwood** service center, or the factory.

Carefully unpack the repeater. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

Item	Part Number	Quantity
Hardware fixture	J21-8559-XX	1
Front glass	B10-2635-XX	1
Name plates	B11-1259-XX	1
Cushion	G13-1801-XX	4
Cushion	G13-1802-XX	4
Foot	J02-0475-XX	2
Foot	J02-0492-XX	2
Grommet	J59-0302-XX	2
Handle	K01-0418-XX	1
Screws	N30-4006-XX	2
Screws	N35-3006-XX	5
DC cord	E30-3427-XX	1
Lead wire with connector (15 pin)	E31-3228-XX	1
Fuse	F05-1537-XX	1
Instruction Manual	B62-2199-XX	1

### INSTALLATION

To install the handles onto the front panel of the repeater, align the handles with the holes on the front panel, then secure the handles using the supplied screws.

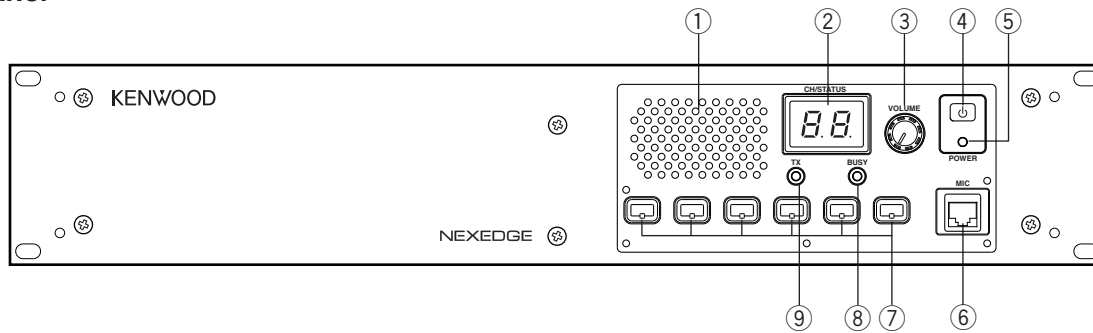
Please consult your dealer for installing the repeater and antenna.

### MICROPHONE

Connect an optional KMC-30, KMC-35, KMC-27A, KMC-27B, or KMC-9C **Kenwood** microphone to the **MIC** jack on the front panel.

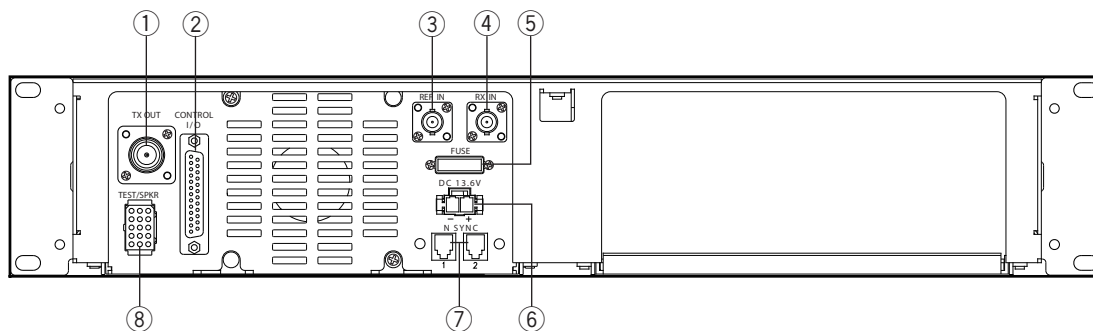
## CONTROLS AND FUNCTIONS

### ■ Front Panel



- ① **Speaker**
- ② **CH/STATUS Display**  
Two 7-segment digits display the channel number, name, or status.
- ③ **VOLUME control**  
Rotate to adjust the audio.
- ④ **POWER switch**
- ⑤ **POWER indicator**  
Lights green when power is supplied to the **DC 13.6V** jack.
- ⑥ **MIC jack**  
Connect a microphone to this 8-pin modular jack.
- ⑦ **Programmable Function keys**  
Press these keys to activate their programmable functions.
- ⑧ **BUSY indicator**  
Lights green while a signal is being received.
- ⑨ **TX indicator**  
Lights red while transmitting.

### ■ Rear Panel



- ① **TX OUT jack**  
Connect a TX antenna or a duplexer to this receptacle.
- ② **CONTROL I/O jack**  
Connect a repeater controller or a remote panel to this DB-25 interface.
- ③ **REF IN jack**  
Connect to a 10 MHz external oscillator.
- ④ **RX IN jack**  
Connect an RX antenna or a duplexer to this BNC receptacle.
- ⑤ **FUSE**  
Insert 15 A blade fuse into this fuse holder.
- ⑥ **DC 13.6V jack**  
Connect a 13.6 V DC power supply to this jack.
- ⑦ **N SYNC 1 / 2 jack**  
This jack is currently not used . You can connect another repeater here for future functions.
- ⑧ **TEST/SPKR jack**  
Test input/output jack. Connect an external speaker to this jack.

## REPEATER OPERATION

**Note:** Please consult your dealer for programming the repeater.

When power is applied to the unit, the **POWER** indicator lights:

- Green when using the main DC jack.

Rotate the **VOLUME** control to adjust the audio.

The **BUSY** indicator lights green while receiving a signal and the **TX** indicator lights red while transmitting.

## TRANSCEIVER OPERATION

### ■ Receive

Adjust the volume to your desired level. You may need to readjust the volume if you are having interference while receiving a message from your dispatcher or another member in your fleet.

The **BUSY** indicator lights green while a signal is being received.

### ■ Transmit

- 1 Listen to the channel before transmitting, to make sure it is not being used.
- 2 Press the microphone **PTT** switch, then speak in your normal speaking voice.  
The **TX** indicator lights red while transmitting.
- 3 When you finish speaking, release the **PTT** switch.

**KENWOOD**

**TERMINAL****MIC(Modular Jack)**

Pin Number	Pin Name	Description	Specification	I/O	notes
1	NC				
2	SB	Power Output	13.6V		
3	GND	GND	GND		
4	PTT	PTT Signal/ TXD2 Asynchronous Send	Input Impedance 22kΩ	I/O	
5	MICG	MIC GND	MIC GND		
6	MIC	MIC Input	600Ω	I	
7	HOOK	HOOK Detection/ RXD2 Asynchronous Receive Data	Input Impedance 100kΩ	I	
8	NC				

**TEST/SPEAKER CONNECTOR**

Pin Number	Pin Name	Description	Specification	I/O	notes
1	SB	Power Output	13.6V		
2	SB	Power Output	13.6V		
3	NC				
4	GND	GND	GND		
5	GND	GND	GND		
6	SPG	Speaker GND	Speaker GND		
7	RD	RX Audio Output	60% Deviation	O	
8	RSSI	RSSI Signal Output	Output Level 0 or 3.3V	O	
9	SPI	Internal Speaker Input	Short with "SPO"	I	
10	AO1	Open Collector Terminal	Allowable current value MAX	O	
11	AO2	Open Collector Terminal	Allowable current value MAX	O	
12	SPO	External Speaker Output	Output Level 4W (5% Distortion)	O	
13	AO3	Open Collector Terminal	Allowable current value MAX	O	
14	AO4	Open Collector Terminal	Allowable current value MAX	O	
15	AO5	Open Collector Terminal	Allowable current value MAX 200mA	O	

**Control I/O (D-SUB 25Pin) CONNECTOR**

Pin Number	Pin Name	Description	Specification	I/O	notes
1	NC				
2	RXD0	Asynchronous Receive Data	Conform to RS-232C standard	I	
3	TXD0	Asynchronous Send Data	Conform to RS-232C standard	O	
4	AI1	Programmable Function Input 1	Input Impedance 47kΩ	I	
5	AI2	Programmable Function Input 2	Input Impedance 47kΩ	I	
6	AI3	Programmable Function Input 3	Input Impedance 47kΩ	I	
7	DG	Digital GND	Digital GND		
8	TD	TX DATA Input	Input Impedance 600Ω	I	signalling
9	TA	TX Audio Input	Input Impedance 600Ω	I	voice
10	RD	RX DATA Output	60% Deviation	O	signalling
11	RA	RX Audio Output	60% Deviation	O	voice
12	RXG	RX Signal GND	RX Signal GND		
13	SPM	Speaker Mute	Input Impedance 47kΩ	I	
14	BER_CLK	For Bit Error Rate Clock	CMOS	O	
15	EMON	External Monitor Switch	Input Impedance 47kΩ	I	
16	EPTT	External PTT Switch	Input Impedance 47kΩ	I	
17	SC	Squelch Control	Output Level 0 or 5V	O	
18	BER_DAT	For Bit Error Rate Data	CMOS	O	
19	TXG	TX Signal GND	TX Signal GND		
20	IO1	Programmable Function I/O 1	Input Impedance 47kΩ/ Output Level 0 or 5V	I/O	
21	IO2	Programmable Function I/O 2	Input Impedance 47kΩ/ Output Level 0 or 5V	I/O	
22	IO3	Programmable Function I/O 3	Input Impedance 47kΩ/ Output Level 0 or 5V	I/O	
23	IO4	Programmable Function I/O 4	Input Impedance 47kΩ/ Output Level 0 or 5V	I/O	
24	IO5	Programmable Function I/O 5	Input Impedance 47kΩ/ Output Level 0 or 5V	I/O	
25	IO6	Programmable Function I/O 6	Input Impedance 47kΩ/ Output Level 0 or 5V	I/O	

**N-SYNC Connector (There are two connectors)**

Pin Number	Pin Name	Description	Specification	I/O	notes
1	N SYNC1 B	RS-485 Differential Signal B	Conform to RS485	I/O	Connector#1,2
2	N SYNC1 A	RS-485 Differential Signal A	Conform to RS485	I/O	Connector#1,2
3	N SYNC2 B	RS-485 Differential Signal B	Conform to RS485	I/O	Connector#1,2
4	N SYNC2 A	RS-485 Differential Signal A	Conform to RS485	I/O	Connector#1,2

**RX IN** RX antenna terminal(BNC Receptacle)  
**TX OUT** TX antenna terminal(N Receptacle)  
**REF IN** Reference CLK input terminal(BNC Receptacle)

## **MANDATORY SAFETY INSTRUCTIONS TO INSTALLERS AND USERS**

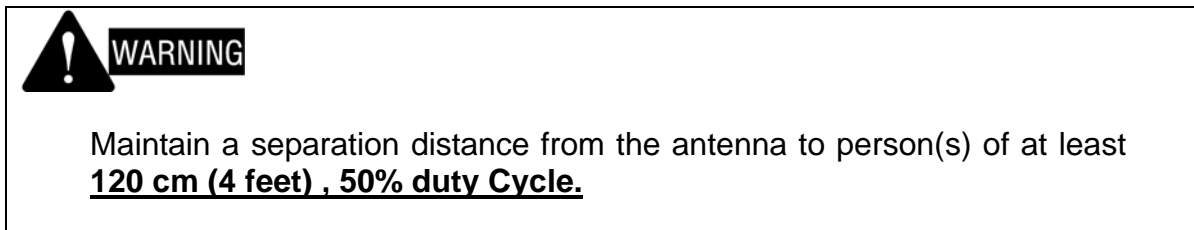
- Use only manufacturer or dealer supplied antenna.
- **Antenna Minimum Safe Distance: 120 cm (4 feet), 50% duty Cycle.**
- Antenna Gain: **0** dBd referenced to a dipole.

The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio Frequency) energy which is below the OSHA (Occupational Safety and Health Act) limits.

- **Antenna Mounting:** The antenna supplied by the manufacturer or radio dealer must not be mounted at a location such that during radio transmission, any person or persons can come closer than the above indicated minimum safe distance to the antenna, i.e. **120 cm (4 feet) , 50% duty Cycle.**
- To comply with current FCC RF Exposure limits, the antenna must be installed at or exceeding the minimum safe distance shown above, and in accordance with the requirements of the antenna manufacturer or supplier.
- Vehicle installation: The antenna can be mounted at the center of a vehicle metal roof or trunk lid, if the minimum safe distance is observed.
- Base Station Installation: The antenna should be fixed-mounted on an outdoor permanent structure. RF Exposure compliance must be addressed at the time of installation.

**Antenna substitution:** Do not substitute any antenna for the one supplied or recommended by the manufacturer or radio dealer.

You may be exposing person or persons to excess radio frequency radiation. You may contact your radio dealer or the manufacturer for further instructions.



You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying RF Exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational/Controlled Exposure Environment, for work-related use, transmit only when person(s) are at least the minimum distance from the properly installed, externally mounted antenna. Transmit only when people outside the vehicle are at least the recommended minimum lateral distance away from the antenna/vehicle