

User Manual
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Firmware Version MRX-184



ZAXCOM.COM

RX-4

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RX-4 Receiver

Front

**1. OLED Displays (2)**

2. INC Key - Used to increase the parameters of a menu item.

3. Dec Key - Used to decrease the parameters of a menu item.
Press and hold to access the extended menu.

4. Menu Key - Press to advance to the next menu item.

5. UHF Antenna Connectors (2) - SMA connectors.

6. Receiver Status Indicators (4)

Green - Receiver is receiving a valid signal.

Red - Receiver is not getting a valid signal.

7. Receiver Select keys (2) - Press to alternate between receivers.

The RX 1/2 key will power the RX-4. Press and hold the key for 5 seconds to power down the RX-4.

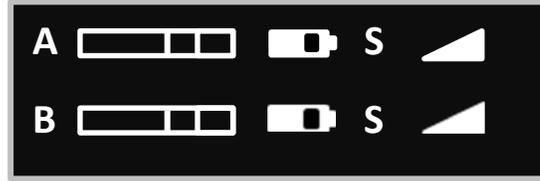
Press the RX 1/2 key to toggle thru receivers when choosing frequencies.

Rear



1. **DC Power Input** – Hirose 4 pin power input.
2. **Audio out connectors (2) - TA5M**
These connectors will output the audio from the RX-12. The same connectors can be used to output either analog audio or AES audio.

Home Screen



Audio level

Indicates the incoming audio level for each receiver, the meter extends from the left to the right. The two vertical bars to the right are the -20dBFS and -10dBFS mark.

Transmitter's battery level

The battery diagram displays the transmitter's battery level. The battery type being used in the transmitter needs to be set in the transmitters extended menu. The battery symbol will start to blink just before transmitter shuts down.

Transmitter's record status

- S (STOP) The transmitter is stopped.
- R (REC) The transmitter is recording.
- P (PLAY) The transmitter is playing back.

RF signal strength

This shows the radio signal strength of the corresponding transmitter. The RF signal is depicted as a staircase pattern with the lowest step (low signal strength) on the left and building up as it progresses to the right (higher signal strength). When more stairs are showing the stronger the signal is.

Receiving antenna

- ← Indicates the signal is being received by antenna 1 (left antenna connector)
- Indicates the signal is being received by antenna 2 (right antenna connector)

Main Menu

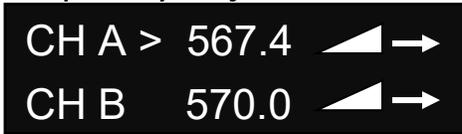
Navigating the Main Menu

- Choose the desired receiver by pressing the RECEIVER key - a bracket will appear around the active receiver.
- To enter the main menu - press and the MENU key.
- To advance to the next menu press the MENU key again.

Exiting the Main Menu

- To exit the main menu at any time, press and hold the MENU key for 1.5 seconds.

Frequency Adjust

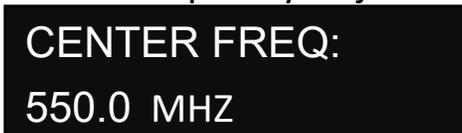


The frequency select menu is where the receive frequencies are set. These frequencies need to match the frequencies that are set on the corresponding transmitters.

Adjusting the receive frequency of the RX-4

- Press the INC key and DEC key to adjust the frequency.
- In dual receive mode pressing the RECEIVER key will toggle between the A and B receiver. The > will indicate the receiver being adjusted.
- Please note that all frequencies need to be within the range of the center of the front-end filter. If the frequency difference is out of range "TOO BIG" or "TOO SMALL" will flash on the screen to warn that the difference is wider than the filter range and the frequency will need to be adjusted.

Center Frequency Adjust



This is where the center frequency of the front-end filter is set. The front-end filter is 40 MHz wide so frequencies 20 MHz above and 20 MHz below the center frequency will be the operating range of the RX-4.

Frequency Scan



The frequency scan menu is where the A receiver of the RX-4 can scan the user specified frequency range and search for a clear frequency. After the scan is complete a graphical display of the RF that is present, in that specified range will be shown and the RX-4 will suggest a clear frequency. That frequency can be accepted by pressing the INC key. Or press the DEC key to skip the first chosen frequency and have the RX-4 suggest another frequency.

Single mode scanning

- Turn off the transmitter(s).
- Press the INC key to initiate a scan.
- While the RX-4 is scanning, the frequency being examined is displayed on the bottom half of the screen and a graphic map of the RF that is found will be displayed with a vertical line extending up from the baseline. The length of the line indicates the level or strength of the found RF at that frequency.
- Pressing the MENU key while scanning will abort the scan.



Selecting a frequency

When the scan is complete a suggested frequency will be shown, and a vertical blinking line will be drawn on the display.

At that point:

- Press the left RECEIVER key to select the desired receiver (RXA, RXB, RXC, RXD). Please note if the receivers are in single mode then RX A and RX C would be used.
- Press the INC key to accept the frequency.
- Press the DEC key to select another frequency.



The scan result is always available as long as there is valid scan data. So, this screen can be revisited, and different frequencies can be chosen.

Set Bandwidth

SCAN BW: 40 MHZ
530.0 TO 570.0

The bandwidth range will set how wide the operating range will be on either side of the center frequency. The bandwidth can be adjusted from 4 to 40 MHz.

Test Tone Output

TONE:
OFF

From the tone menu a 1K test tone can be enabled. The tone will be outputted from the TA5 connectors. This is used to set levels and check routing.

Pressing the INC and DEC key will cycle through the different tone settings.

- **OFF** - No tone is being outputted.
- **-20dBFS** -Tone is simultaneously sent to all 4 outputs at -20dBFS.
- **CHAN-ID** -Tone is sequentially sent to each channel one at a time at -20dBFS.
- **+0dBFS** - Simultaneously sends tone to all 4 channels at 0dBFS (full scale)

Extended Menu

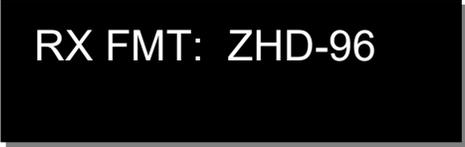
Navigating the Extended Menu

- Press and hold the DEC key from the home screen to enter the extended menu.
- To advance to the next menu press the MENU key.
- Press and hold the MENU key at any point to return to the top of the extended menu.

Exiting the Extended Menu

- To exit the extended menu - press and hold the MENU key then press the INC key.

Modulation Select



RX FMT: ZHD-96

From this menu the modulation mode is selected. Modulation is simply the way a transmitter “modulates”, or sends, its signal to the RX4. This setting needs to match the modulation mode that the corresponding transmitter is set to - if the two settings do not match the RX4 will not be able to receive and decode the signal from the transmitter.

Single / Dual Mode Select



RX MODE:
SINGLE

- **SINGLE** - This configures the one side of the RX-4 to operate as a single receiver. In single mode the side of the RX-4 can receive one audio channel from one transmitter.
- **DUAL** - This configures the one side of RX-4 to operate as two independent receivers. In dual mode the side of the RX-4 can receive audio from two transmitters.

Output Router

ROUTER MODE: 0
AES MONO-MONO

The routing menu is where the TA5 connectors are assigned an output.

After changing modes it is necessary to reboot the RX-4.

Please note this menu is only in the A receiver but will control both the A and B receiver.

- **Mode 0 AES MONO-MONO** – Each receiver side (**A, B**) will receive signal from two mono transmitters. AES audio will be outputted for each side on pins 2 and 3.
- **Mode 1 AES STEREO-MONO** – The (**A**) receiver side will receive signal from 1 stereo transmitter and the **B** receiver side will receive signal from two mono transmitters. AES audio will be outputted on each side on pins 2 and 3.
- **Mode 2 AES STEREO-STEREO** – Each receiver side (**A, B**) will receive signal from one stereo transmitter. AES audio will be outputted on each side on pins 2 and 3.
- **Mode 3 ANALOG MONO-MONO** – Each receiver side (**A, B**) will receive signal from two mono transmitters. Analog audio will be outputted on each side on pins 2 and 3, 4 and 5.
- **Mode 4 ANALOG STEREO-STEREO** – Each receiver side (**A, B**) will receive signal from one stereo transmitter. Analog audio will be outputted for each side on pins 2 and 3, 4 and 5.
- **Mode 5 ANALOG STEREO-MONO** – The (**A**) receiver side will receive 1 stereo transmitter and the (**B**) receiver side will receive two mono transmitters. Analog audio will be outputted on each side on pins 2 and 3, 4 and 5.
- **Mode 6 AES, ANALOG** – Each receiver (**A, B**) side will receive signal from a single mono transmitter. The audio will be outputted as both a digital and an analog signal simultaneously. AES audio will be outputted on pins 2 and 3 and the analog signal will be on pins 4 and 5 with pin 1 being ground.

LED On / Off



LEDS:
ON

This menu toggles on / off the receiver LED's.

Encryption Code Set



ID1: 000 ID0: 000
↑

The encryption menu is where the encryption is turned on and the code is set. The encryption code needs to match the encryption code of the associated transmitters. If an encryption code is set on the transmitter the transmitted audio will be encrypted and can only be listened to if the RX-4 has the same matching encryption code entered. When the codes do not match, all that will be heard is white noise.

These two sets of numbers are formed into a single six-digit encryption code which provides a total of 16,777,216 possible combinations. For non-encrypted operations all six numbers should be set to 0. Encryption can be set independently for each receiver side.

Adjusting the encryption code

1. Press the RECEIVER key to advance to the desired character.
2. To change the designated character, press the INC or DEC key.
3. Press the MENU key to exit.

Pin Configuration

Audio Output Connectors

There are two TA-5M connectors on the back of the RX-4.

Analog Out of TA5

TA5 Out on QRX		XLR into Camera or Mixer
PIN 1	→	PIN 1 on both XLRs
PIN 2	→	PIN 2 - Left
PIN 3	→	PIN 3 - Left
PIN 4	→	PIN 2 - Right
PIN 5	→	PIN 3 - Right

AES Digital Out of TA5

The TA-5 connectors can also be used to output AES digital audio. Each TA5 will output a stereo pair on pins 1, 2 and 3 with pin 1 being ground.

IMPORTANT: While sending digital audio, it is necessary that the unit on the other end (recorder, mixer, etc.) have digital inputs with sample rate convertors, as there is no way to synchronize the output data with the recorder's digital input.

TA5 out on QRX		XLR into Camera or Mixer
PIN 1	→	PIN 1
PIN 2	→	PIN 2
PIN 3	→	PIN 3
PIN 4		No Connection
PIN 5		No Connection

Power Connector (Hirose-4 Connector)

Pin 1 – Ground (-)

Pin 2 – Not Connected

Pin 3 – Not Connected

Pin 4 – DC (+)

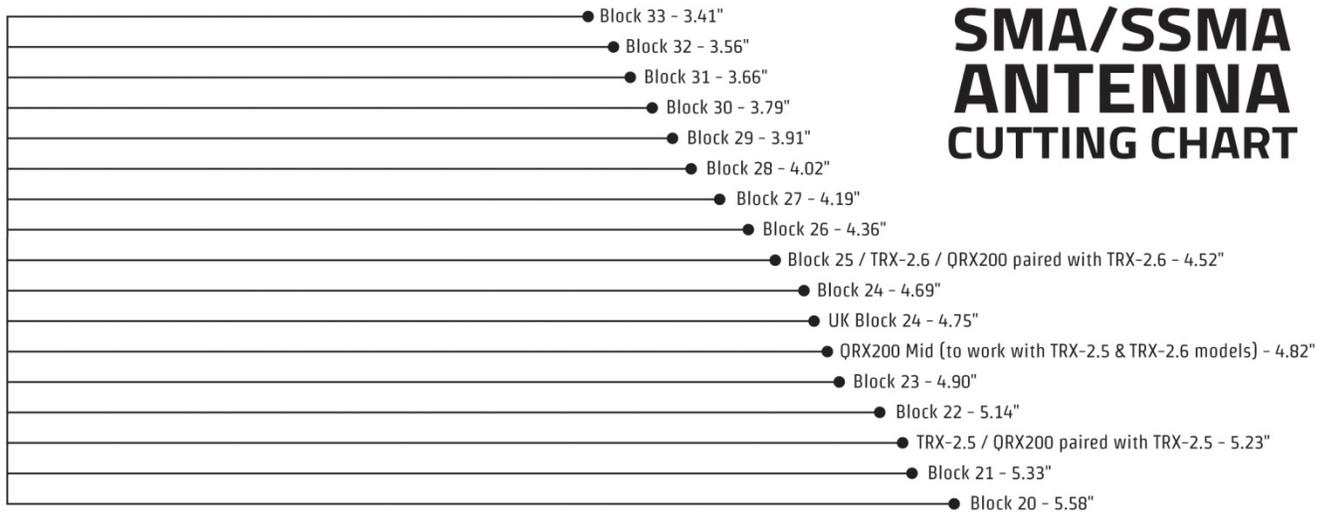
Operating Frequencies

UHF - Audio

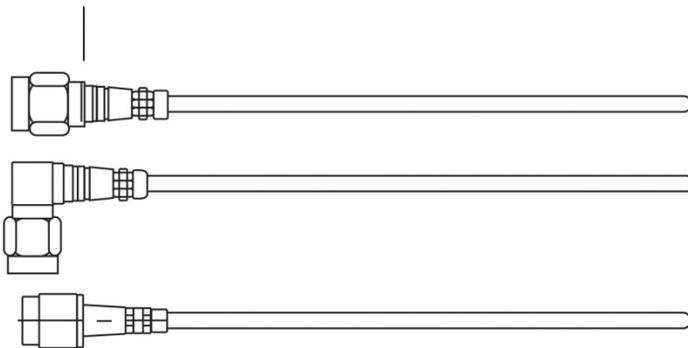
Low 512.0 MHz to 614.0 MHz

High 598.0 MHz to 698 MHz

Antenna Cutting Chart



SMA/SSMA ANTENNA CUTTING CHART



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Specifications

Outputs

Analog Audio Output: 4-Channel Balanced 0dB @ -20 dBFS

Digital Audio Output: 2 x AES3 Pairs (32 KHz Sample Rate)

Audio Connectors: 2 x TA5M

Receiver Interface

RF Connectors: 2 x SMA

RF Impedance: 50 ohm

RF Sensitivity: -110 dB

RX Decode Level: 6 dB signal to noise in XR Modulation

RF Filter Band Pass: 44 MHz

RX-4L Tuning Range: 512 - 614 MHz

RX-4H Tuning Range: 598 - 698 MHz

MRX414 Module

Receivers Per Module: 4

Receiver Modulation: Zaxcom Proprietary Digital

MRX414-L Tuning Range: 512 - 614 MHz

MRX414-M Tuning Range: 536 - 652 MHz

MRX414-H Tuning Range: 596 - 698 MHz

Power Consumption: 300 ma @ 12 VDC

Size: 5" x 3" x .8" (L x W x H)

Weight: 7oz

MRX214 Module

Receivers Per Module: 2

Receiver Modulation: Zaxcom Proprietary Digital

MRX214-L Tuning Range: 512 - 614 MHz

MRX214-M Tuning Range: 536 - 652 MHz

MRX214-H Tuning Range: 596 - 698 MHz

Power Consumption: 160 mA @ 13 VDC

Size: 5" x 3" x .8" (L x W x H)

Weight: 7oz

Misc

Power: 8 VDC to 18 VDC (12 VDC nominal @ 30 ma)

Power Connector: Hirose HR10A-7P-4P

Display: 2 x Graphic OLED Display

Size: 1.25" x 5.5" x 1.25" (L x W X H) - (H 5.5" w/MRX414 less pull handle)

Weight: 4 oz

Display: OLED panel

Product Support

Register your product with Zaxcom:

<http://zaxcom.com/support/product-registration/>

Download the latest **Firmware** from:

<http://zaxcom.com/support/updates/>

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<http://www.zaxcom.com/forum/forum.php>

Join the **Zaxcom Face Book User Group** at:

<https://www.facebook.com/groups/682199065139938/>

Zaxcom Warranty Policy and Limitations

Zaxcom Inc. values your business and always attempts to provide you with the very best service.

No limited warranty is provided by Zaxcom unless your RX-4 ("Product") was purchased from an authorized distributor or authorized reseller. Distributors may sell Product to resellers who then sell Product to end users. Please see below for warranty information or obtaining service. No warranty service is provided unless the Product is returned to Zaxcom Inc. or a Zaxcom dealer in the region where the Product was first shipped by Zaxcom.

Warranty Policy

The Product carries a Standard Warranty Period of one (1) year.

NOTE: The warranty period commences from the date of delivery from the Zaxcom dealer or reseller to the end user.

There are no warranties which extend beyond the face of the Zaxcom limited warranty. Zaxcom disclaims all other warranties, express or implied, regarding the Product, including any implied warranties of merchantability, fitness for a particular purpose or non-infringement. In the United States, some laws do not allow the exclusion of the implied warranties.

Troubleshooting & Repair Services

No Product should be returned to Zaxcom without first going through some basic troubleshooting steps with the dealer you purchased your gear from.

To return a product for repair service, go to the Zaxcom Repair Services page <http://www.zaxcom.com/repairs> and fill in your information; there is no need to call the factory for an RMA. Then send your item(s) securely packed (in the original packaging or a suitable substitute) to the address that was returned on the Repair Services page. Insure the package, as we cannot be held responsible for what the shipper does.

Zaxcom will return the warranty repaired item(s) via two-day delivery within the United States at their discretion. If overnight service is required, a FedEx or UPS account number must be provided to Zaxcom to cover the shipping charges.

*Please note a great resource to troubleshoot your gear is the Zaxcom Forum: <http://www.zaxcom.com/forum>.

Warranty Limitations

Zaxcom's limited warranty provides that, subject to the following limitations, each Product will be free from defects in material and workmanship and will conform to Zaxcom's specification for the particular Product.

Limitation of Remedies

Your exclusive remedy for any defective Product is limited to the repair or replacement of the defective Product.

Zaxcom may elect which remedy or combination of remedies to provide in its sole discretion. Zaxcom shall have a reasonable time after determining that a defective Product exists to repair or replace a defective Product. Zaxcom's replacement Product under its limited warranty will be manufactured from new and serviceable used parts. Zaxcom's warranty applies to repaired or replaced Product for the balance of the applicable period of the original warranty or thirty days from the date of shipment of a repaired or replaced Product, whichever is longer.

Limitation of Damages

Zaxcom's entire liability for any defective Product shall, in no event, exceed the purchase price for the defective Product. This limitation applies even if Zaxcom cannot or does not repair or replace any defective Product and your exclusive remedy fails of its essential purpose.

No Consequential or Other Damages

Zaxcom has no liability for general, consequential, incidental or special damages. These include loss of recorded data, the cost of recovery of lost data, lost profits and the cost of the installation or removal of any Product, the installation of replacement Product, and any inspection, testing or redesign caused by any defect or by the repair or replacement of Product arising from a defect in any Product.

In the United States, some states do not allow exclusion or limitation of incidental or consequential damages, so the limitations above may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Your Use of the Product

Zaxcom will have no liability for any Product returned if Zaxcom determines that:

- The Product was stolen.
- The asserted defect:
- Is not present,
- Cannot reasonably be fixed because of damage occurring when the Product is in the possession of someone other than Zaxcom, or
- Is attributable to misuse, improper installation, alteration, including removing or obliterating labels and opening or removing external covers (unless authorized to do so by Zaxcom or an authorized Service Center), accident or mishandling while in the possession of someone other than Zaxcom.
- The Product was not sold to you as new.

Additional Limitations on Warranty

Zaxcom's warranty does not cover Product, which has been received improperly packaged, altered or physically abused.

Declaration of Conformity

ZAXCOM, INC.
230 West Parkway, Unit 9
Pompton Plains, NJ 07444
September 1, 2019

We certify and declare under our sole responsibility that the following product:

QRX200, QRX235, QRX212, MRX214, RX-12, RX-12R, RX200 and URX100 wireless
microphone receivers

Restrictive use for residential, office and professional use only

Conforms with the essential requirements of the EMC Directive 2004/108/EC and
R&TTE Directive 99/5/EC, based on the following specifications applied:

EN 300 422-2 v1.3.1 Radio Parameters
EN 301 489-9 v1.4.1 Immunity
EN 60950: 2006/A1:2011 Product Safety (low voltage directive)
EN 50566: 2013 RF Exposure Safety

Our authorized representative in Europe is Mr. Roger Patel, Director of Everything
Audio located at Elstree Film Studios, Shenley Road, Borehamwood, Herts WD61JG in
England.



Glenn Sanders
President
Zaxcom, Inc.

FCC Notice:

NOTE: 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. The equipment generates uses and can radiate 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 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 into an outlet on a circuit different from that which the receiver is connected • Consult the dealer or an experienced radio/TV technician for help. Changes or modifications to this equipment not expressly approved by Zaxcom, Inc. could void the user's authority to operate it.