User Manual

Published January 2022

Firmware Version MRX-212

ZAXCOM.COM

RX-8

The MRX must be running software version 2.12 for the RX-8 to work

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RX-8 Receiver

Front

1. **UHF Antenna Connectors (2)** - SMA connectors.
2. **Receiver Select keys (8)** - Rx keys press to select a receiver. When a receiver is active a bracket will appear around the display for that receiver.
3. **Receiver Status Indicators (8)**
   Green - Receiver is receiving a valid signal.
   Red - Receiver is not getting a valid signal.
4. **OLED Displays (4)**
5. **INC Key** - Up key used to increase the parameters of a menu item.
6. **Dec Key** - Down key used to decrease the parameters of a menu item.
   Press and hold the DEC key to access the extended menu.
7. **Menu Key** - Press to advance to the next menu item.

Side Panels

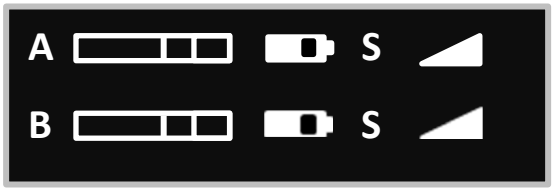
1. **Dante I/O –** RJ45 - The Dante connector allows for with Power Over Ethernet support.
2. **DC Power Input -** Hirose 4 Pin - The operating voltage of the RX-8 is 8 to 18 DC volts. When connected to Dante and receiving POE it is not necessary to externally power the RX-8.
3. **Time code out -** BNC - the RX8 will output timecode when time code is sent on Dante analog audio 4 in.
4. **USB -** For factory use only **WARNING: DO NOT PLUG ANYTHNG INTO THE USB CONNECTOR - YOU CAN POTENTIALLY DAMAGE THE RX-8.**
5. **Audio In / Out -** DB25 Analog and AES audio out. Audio can be inputted to be sent via Dante.
6. **RS422 -** For connection to a Camera Link or IFB300 for remote transmitter control.
7. **RF Outputs -** SMA - The RF out is post the 35MHz filter.
8. **Power Switch -** Control of the 12-volt input - if power is received via POE the power switch will be overridden.

The two MRX receivers slide into the side of the RX-8. The A receiver goes to in the bottom slot away from the front panel and the B receiver goes in the top by the front panel. The arrows on the MRX will need to point to the bottom of the RX-8. Please note if only using 1 receiver it must go in the A slot.

MRX software must be 2.12 to run in the RX-8 / MRX software can not be updated in the RX-8

The back of the RX-8 has a 12 Volt DC output. The RX-8 will output power only when receiving Power Over Ethernet. Power must be less than 1 amp.

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

- Press a 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.

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-8.

- Press the desired RECEIVER key - a bracket will appear around the active receiver.
- 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 frequency that is being adjusted.
- Please note that all frequencies need to be within the 35MHz range of the front-end filter. If the frequency 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 where the center frequency of the front-end filter is set. The front-end filter is 35MHz wide so frequencies 17.5MHz above and 17.5MHz below the center frequency will be the operating range of the RX-8. MRX receivers will need to operate within the set 35MHz window. If the frequencies aren’t within this window the RF performance will suffer. This menu is only available in the A receiver.

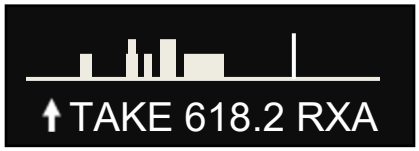
Frequency Scan

An RF scan is initiated from this menu. After the scan is complete a graphical display of the RF that is present will be shown and the RX-8 will suggest clear frequencies. The frequency can be accepted by pressing the INC key. Pressing the DEC key will skip the first chosen frequency and the RX-8 will suggest another frequency. Please note the RX-8 can scan 30 MHz at a time.
Scanning is only available from the A receiver.

Scanning on the RX-8

- Turn off the transmitter(s).
- Press the INC key to initiate a scan.
  Please note the scanning range will be set in the scan bandwidth menu. So, for example if the scan bandwidth is set to 30MHz the RX-8 will scan 15MHz below and 15MHz above the center frequency.
- While the RX-8 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 RX1/2 RECEIVER key to select the desired receiver 1 thru 8.
  Please note if single mode on the odd number receiver will be active.
- Press the INC key to accept the frequency.
- Press the DEC key to select another frequency.

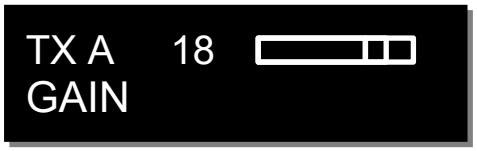
The scan results are available as long as there is valid scan data, so this screen can be revisited, and different frequencies can be chosen. Please note power cycling the RX-8 will clear the scan data.

Set Bandwidth

The scan bandwidth sets how much spectrum the RX-8 will scan below and above the center frequency. So, for example if the scan bandwidth is set to 30MHz the RX-8 will scan 15MHz below and 15Mhz above the center frequency. The scan bandwidth can be adjusted from 4 to 30MHz.

Transmitter Gain

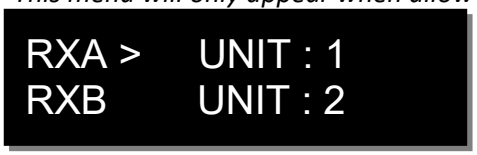
This menu will only appear when allow transmitter remote is turned on in the extended menu.



- Pressing the INC key will remotely increase the gain of the transmitter being received.
- Pressing the DEC key will remotely decrease the gain of the transmitter being received
- When the gain is being adjusted "+++" will appear when the gain is being increased and "- - - -" will appear when the gain is being decreased. The gain value of the transmitter will be shown.
- If the receiver is in dual mode press the RX key to select the desired receiver.

Unit Code

This menu will only appear when allow transmitter remote is turned on in the extended menu.



This is where the unit code is set. The unit code needs to match the unit code of the transmitter that the MRX is receiving. Pressing the RX key will toggle between receivers.
Please note the group code is set on the ZaxNet sending device either a camera link or IFB.

Test Tone Output

From the tone menu a 1K test tone can be enabled. 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.
- **+0dBFS -** Simultaneously sends tone to all 4 channels at 0dBFS (full scale).

Extended Menu

Navigating the Extended Menu

- Press the RECEIVER key for the desired receiver please note the receiver must be in the home screen.
- Press and hold the DEC key for 1.5 seconds to enter the extended menu.
- When in the extended menu, press the MENU key to advance to the next menu.

Exiting the Extended Menu

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

Modulation Select

Modulation is simply the way a transmitter “modulates”, or sends, its signal to the RX8. This setting needs to match the modulation mode that the corresponding transmitter is set to - if the two setting do not match the RX8 will not be able to receive and decode the signal from the transmitter. Please note If the modulation is changed the RX-8 will need to be rebooted. Mono / XR / stereo, or ZHD96 can be selected.

Single / Dual Mode Select

- **SINGLE** - Configures two of the four MRX receivers to operate as a single receiver. In single mode the MRX can receive audio from one transmitter. This mode offers true diversity and will give better transmission reliability. When in single mode only one frequency can be tuned for each receiver pair.
- **DUAL** - Configures two of the four MRX receivers to operate as two independent receivers. In dual mode the MRX can receive audio from two transmitters. In dual mode there are two separate frequencies that are tuned for each receiver pair.

Output Router

This menu is where the routing to the DB25 connector takes place. This menu is only in the A side of the receiver but will control both the A and B sides of the receiver. Please note that after changing modes it is necessary to reboot the RX-8.

- **Mode 0 AES MONO -** Each receiver side (**A, B**) will receive signal from two mono transmitters. AES audio will be outputted for each side. When possible, Mode 0 should be used.
- **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 for each side.
- **Mode 2 AES STEREO** - Each receiver side (**A, B**) will receive signal from one stereo transmitter.
  AES audio will be outputted on each side.
- **Mode 3 ANALOG MONO** - Each receiver side (**A, B**) will receive signal from two mono transmitters.
  Analog audio will be outputted on each side.
- **Mode 4 ANALOG STEREO** - Each receiver side (**A, B**) will receive signal from one stereo transmitter.
  Analog audio will be outputted for each side.
- **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.
- **Mode 6 ANALOG AES, MONO –** 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.

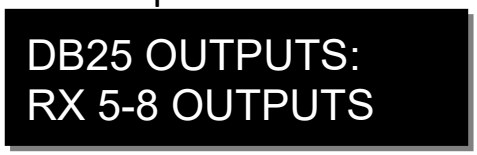
Dante Module On / Off

This menu toggles power to the Dante module. Please note if the Dante module is on the receivers must be in AES mode. This menu is only accessible in the A receiver for units that have Dante.

DB25 In-Out Mode

- **RX 1-4 Outputs** - The audio outputs from the A receiver (analog or AES outputs 1 thru 4) are on the DB25 connector.
- **8 AES Input to Dante** - When the RX-8 is remoted 8 audio channels - via 4 AES pairs -can be inputted to the RX-8 and sent via Dante as AES 9 thru 16.

DB25 Outputs



- **RX 5-8 Outputs** - The audio outputs from the B receiver (analog outputs 5 thru 8) are on the DB25 connector.
- **4 Analog Dante Out** - When the RX-8 is remoted, 4 channels of analog audio received via Dante can be outputted on the DB25. Time code can be optionally sent from the TC out BNC provided time code is sent on audio channel 4 Via Dante.

Allow Transmitter Remote Screens

When turned on two additional transmitter remote control menus will appear in the main menu. The first menu gives the ability to remotely change the transmitters gain when the RX-8 is connected to a Camera Link or IFB transmitter. The second menu is where the unit code for the receiver can be adjusted. The unit code on the receiver must match the unit code on the transmitter that it is controlling.
Please note that this menu needs to be individually turned on for each side of the of the 414 receiver.
When transmitter remote control is turned on the frequency of the transmitter will automatically be changed when the receive frequency on the RX-8 is adjusted.

RS422 Mode

- **Camera Link** - Used when the RX-8 is connected to a Camera Link or IFB via the RS422 port.
- **USB (GUI)** - For future GUI Bridge support.

LED On / Off

This menu toggles On / Off the receiver status LED's.

Encryption Code Set

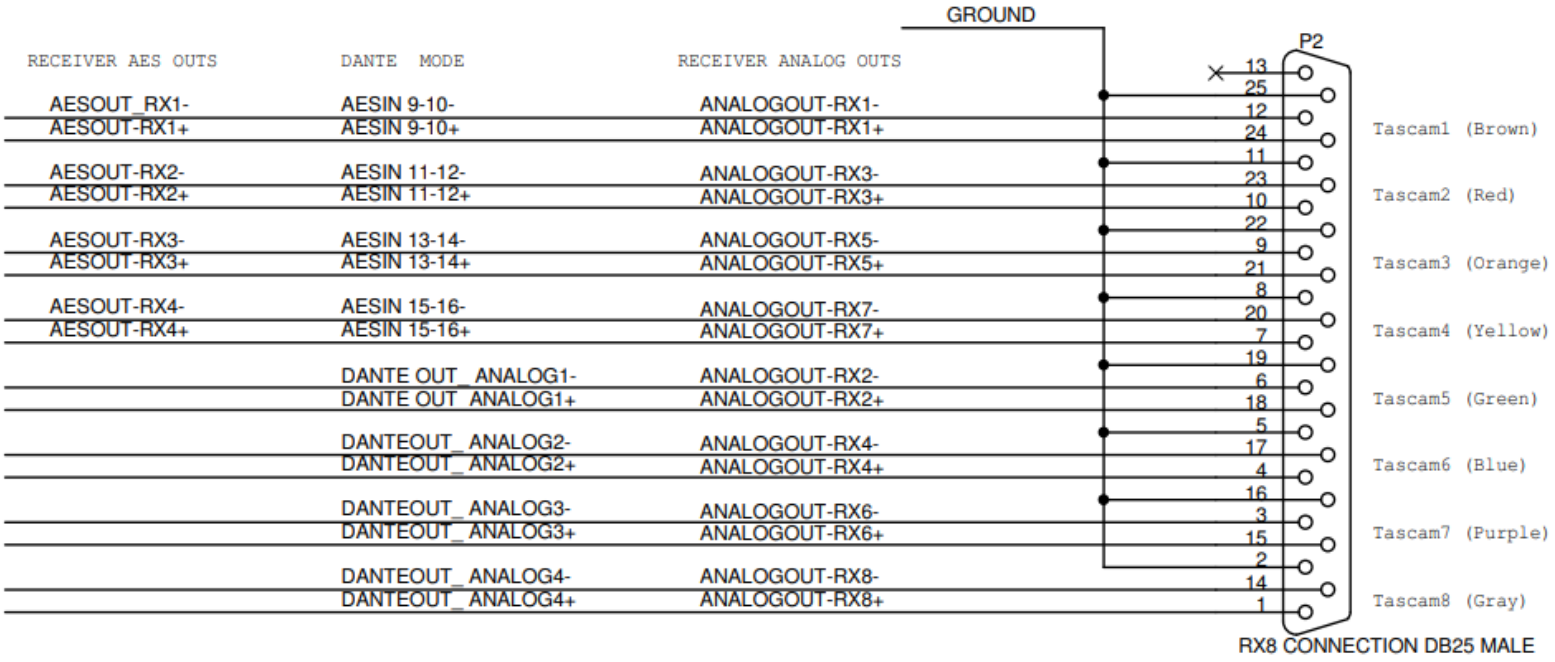
The encryption menu is where the encryption is turned on and the code is set. The encryption code needs to match the encryption code of the associated transmitters. If an encryption code is set on the transmitter the transmitted audio will be encrypted and can only be listened to if the MRX has the same 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

DB25



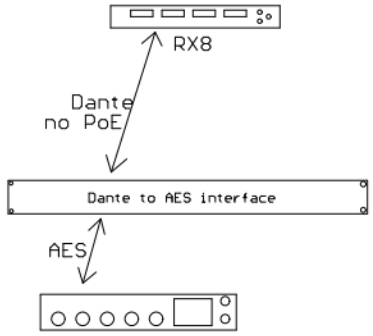
WIRE AS PER TASCAM DB25 BREAKOUT
XLR GENDER DEPENDS ON FUNCTIONS USED

For connection to Nova use AESOUT 1 and AESOUT 2 from receiver A
and ANALOG OUT 5,6,7,8 from receiver B

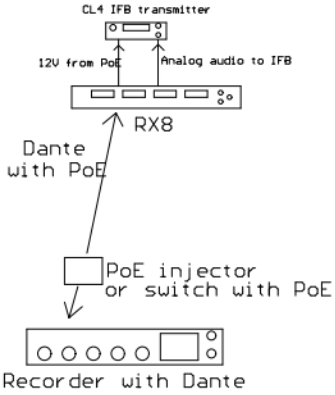
Power Connector DC Power In / DC Out (Hirose-4 Connector)

Pin 1 – Ground (-)
Pin 2 – Not Connected
Pin 3 – Not Connected
Pin 4 – DC (+)

Setup Configuration

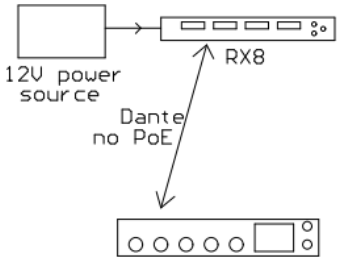


Recorder with AES interface
8 channel from RX8



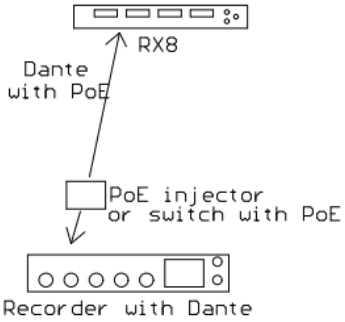
Recorder with Dante

8 channel from RX8
with IFB TX and PoE



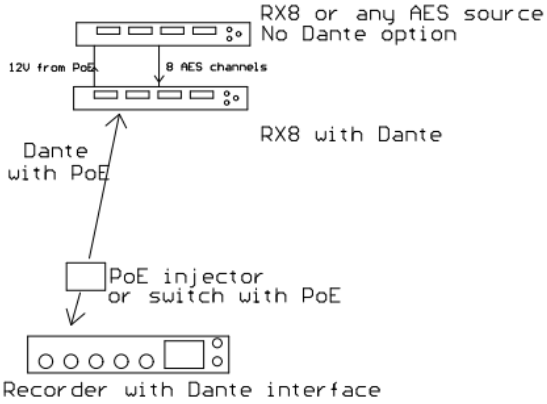
Recorder with Dante interface
for recorder

8 channel from RX8



Recorder with Dante

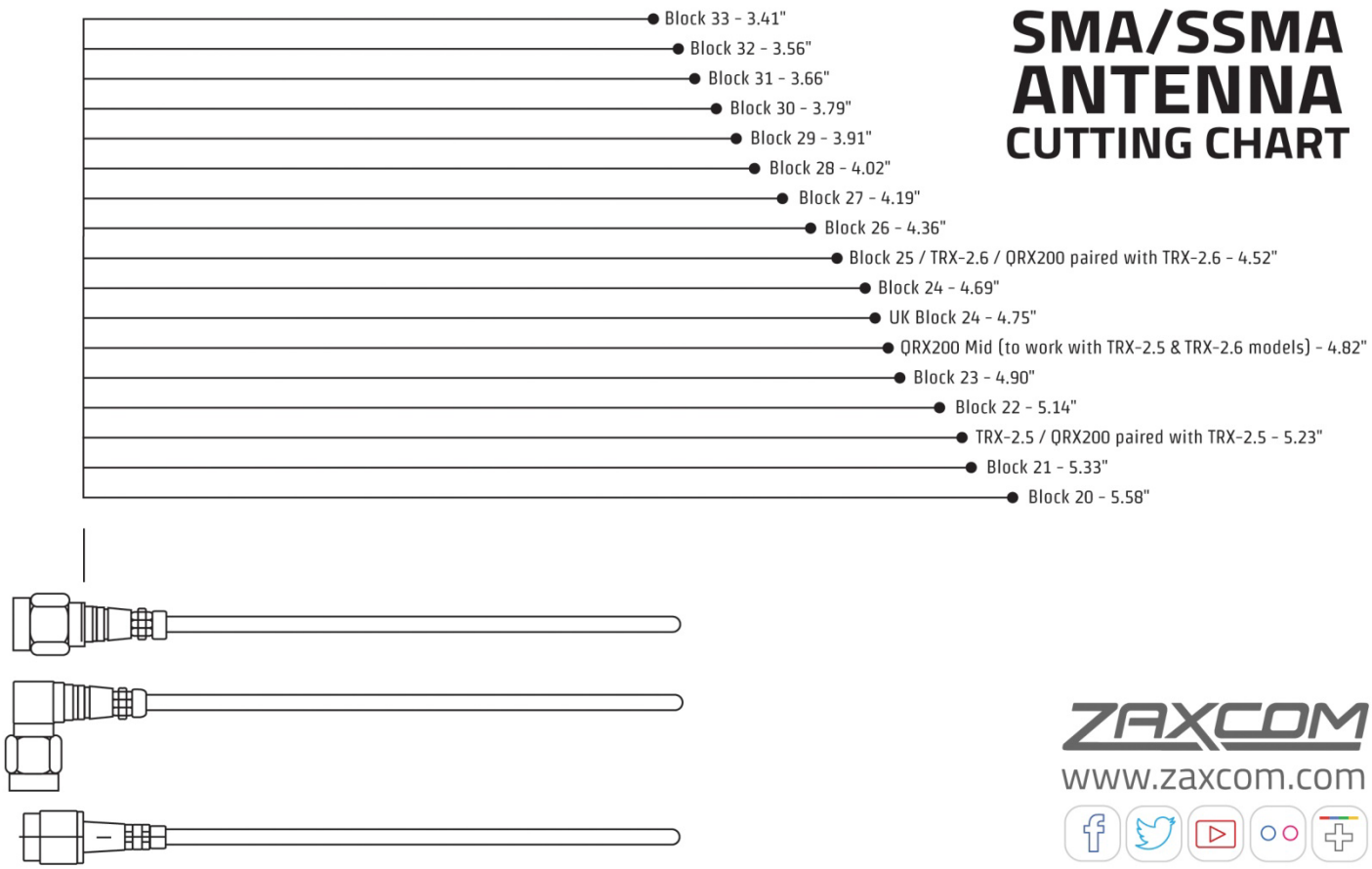
8 channel from RX8
and PoE



Recorder with Dante interface

16 channels to RX8
and PoE

Antenna Cutting Chart



Product Support

Register your product with Zaxcom:	***http://zaxcom.com/support/product-registration/***
Download the latest **Firmware** from:	***http://zaxcom.com/support/updates/***
Download the latest **User Manuals** from:	***http://zaxcom.com/support/updates/***
Submit Technical Questions at:	***http://www.zaxcom.com/submit-a-technical-question***
Submit information for **Repair Services** at:	***http://www.zaxcom.com/support/repairs***
Join the **Zaxcom User Forum** at:	***http://www.zaxcom.com/forum/forum.php***
Join the **Zaxcom Face Book User Group** at:	***https://www.facebook.com/groups/682199065139938/***

Specifications

DB25 MRX I/O
Analog Audio Output: 8 Channels Balanced 0dB @ -20 dBFS
Digital Audio Output: 8 Channels (32 kHz Sample Rate)
Audio Connector: DB25 (wired to Tascam standard)

Receiver Interface
Receiver Slots: 2 (MRX Compatible)
RF Input Connectors: 2 x SMA
RF Output 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 Bandwidth: 35 MHz
RX-8 Tuning Range: 512 - 698 MHz
RF Diversity Single Mode: True
RF Diversity Dual Mode: Antenna
Antenna Power: N/A

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

Dante
4-Channel Balanced Analog Out: to DB25 from Dante
8-CHannel AES: from DB25 into Dante
8-Channel: from MRX to Dante
Timecode Direct Out: Hard-wired to output 4 and BNC
Dante Connector: RJ45
Power over Ethernet: 30w
Power conversion from Dante: 12 VDC @ 1 amp max

Misc
Power: 9 VDC to 18 VDC
Power Connector: Hirose HR10A-7P-4P
Power Consumption: 800 mA
Power Consumption w/Dante: 950 mA
Dante Power Switching: PoE priority w/automatic switching
Display: 4 x Graphic OLED Displays
RS422: 1 x USB
USB Connector: future use
Size: 8.5" x 8.0" x 1.0" (L x W X H)
Weight: 2 lb. 7 oz. w/2 x MRX

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-8 ("Product") was purchased from an authorized distributer or authorized reseller. Distributers 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.

ZAXCOM

Declaration of Conformity

ZAXCOM, INC.
230 West Parkway, Unit 9
Pompton Plains, NJ 07444
December 15, 2020

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

QRX200, QRX235, QRX212, MRX214, MRX414, RX-4, RX-8, RX-12, RX-12R, RX200, URX100, and URX50 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.

Zaxcom, Inc.
230 West Prkwy, Unit 9
Pompton Plains, NJ
07444 USA

zaxcom.com
973.835.5000 (tel)
973.835.6633 (fax)

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.