User Manual

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Software QRX Version 3.45

QIFB Version 1.56

ZAXCOM

ZAXCOM.COM

QRX235

Your Sound Amplified

Knowing Your QRX235 Receiver

Front

1. **LCD Display**
2. **INC Key** - Used to increase the parameters of a menu item.
3. **UHF Antenna Connectors (2)** - SMA connectors.
4. **Dec Key** - Used to decrease the parameters of a menu item.
5. **Menu Key** - Press to advance to the next menu item.
6. **Receiver Status Indicators**
   - Solid Red - That receiver is not getting a valid signal.
   - Solid Green - That receiver is receiving a valid signal.
7. **A/B Key** - Press to alternate between receivers in dual mode.
8. **ZaxNet 2.4GHz Antenna Connector (1)** - SMA connector (only with QIFB option).
9. **Power Key** - Press and hold for 2 seconds to power up the QRX.
   Press and hold for 5 seconds to power down the QRX.

Rear

1. **IFB Audio** - (available with the QIFB option) 3.5mm TRS.
   - This connector will accept external audio for IFB transmission when the QIFB is in transmit mode.
   - This connector will output ZaxNet audio when the QIFB is in receive mode.
2. **DC Power Input** - The QRX uses a Switchcraft 761K connector.
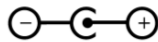
3. **Audio out connectors (2)** - TA5M.
   These connectors will output the audio from the QRX. The same connectors can be used to output either analog audio or AES audio. The audio assignments for the TA5 connectors are set in the extended menu.
4. **Time Code In/Out** - (available with the QIFB option) 3.5mm TRS.
   This connector will input or output time code depending on how the connector is wired.
5. **Serial Loop** -The USB style connectors on the back of the QRX will allow multiple QRXs to share a single common QIFB option. For example one master QRX with a QIFB option board can be connected to 3 QRXs with no option boards. The QRXs without option boards will behave as if they have an IFB option board and will send remote control commands over the serial link to the master QRX.
   Note: The USB connectors are NOT generic USB connectors that can be used as a connection to any computer. These are used to exchange RS-422/RS-485 commands and a special cable is required to do this please see the wiring diagram section of this manual for more information.

Side
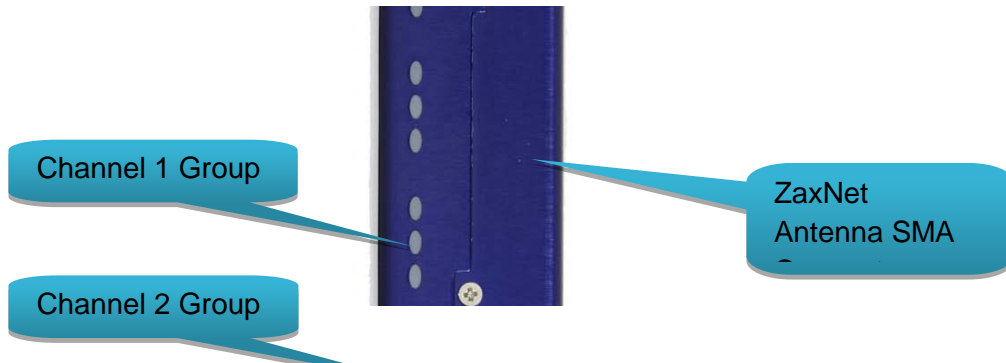
Side Mounted LEDs - The LEDs give you visual indication if RF and / or audio is being received by the QRX. They can be adjusted in the extended menu. There are three LEDs per group. There is one group per channel. The group to the top represents channel one, the group below is channel 2, the next group is channel 3, and the group on the bottom is channel 4.

The LED colors are as:

⬜⬜🟢 When the signal hits -40 dBFS
⬜🟢🟢 When the signal hits -20 dBFS
🟢🟢🟢 When the signal hits -10 dBFS
🟡🟡🟡 When the signal hits - 8 dBFS
🔴🔴🔴 When the signal hits - 5 dBFS

ZaxNet Antenna Connector - SMA connector When the QRX has the QIFB option installed this is where the ZaxNet antenna will be connected

Home Screen Explained

Single Mode
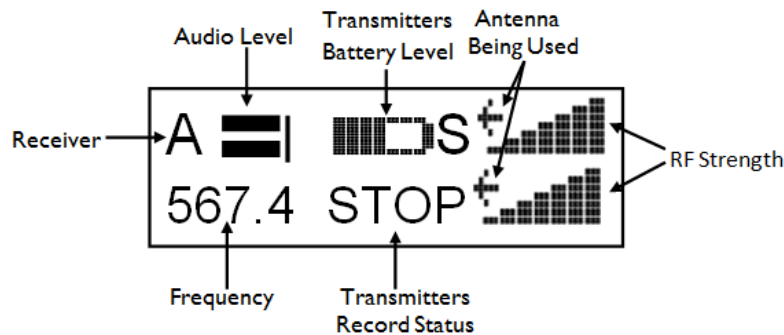
Dual Mode
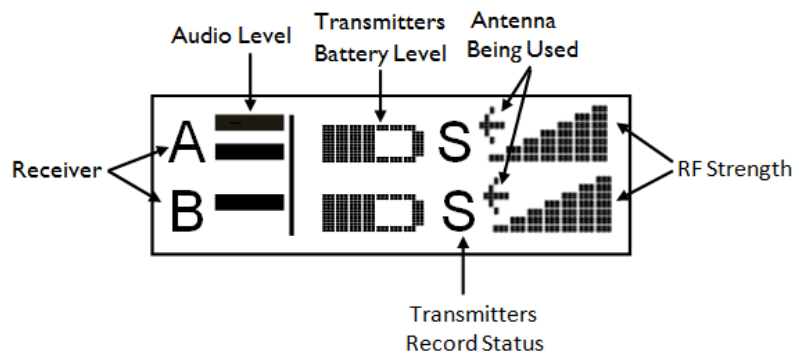
Receiver
Indicates the receiver
   A – Left receiver
   B – Right receiver

Audio level
The audio level indicator (one for each channel), extends from the left to the right. The vertical bar to the right is the -20dBFS mark. A single meter indicates a mono signal is being received. Two meters indicate that a stereo signal is being received.

Transmitter's battery level
The diagram of the battery displays a rough percentage of battery capacity provide you have set the correct battery chemistry in the TRX transmitter menu. The battery symbol will start to blink just before transmitter shutdown.

Transmitter's Record status
- S   (STOP) Stopped or does not have a card installed
- R   (REC) Recording
- P   (PLAY) Playing back
- –   (NO SIGNAL) Occurs if the associated transmitter is turned "OFF"

Antenna is being used
⬅ Indicates the signal is being received by ANTENNA 1 (left antenna connector)
➡ Indicates the signal is being received by ANTENNA 2 (right antenna connector)

RF signal strength
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)

Main Menu

Navigating the Main Menu

- To enter the main menu press the MENU button.
- To advance to the next menu press the MENU button again.

Exiting the Main Menu

- To exit the menu at any time press and hold the MENU button for 1.5 seconds.
  Or
- Cycle through the menu items.

Frequency Display and Select

CH A 567.4

Single Receiver Mode

CH A> 567.4
CH B   570.0
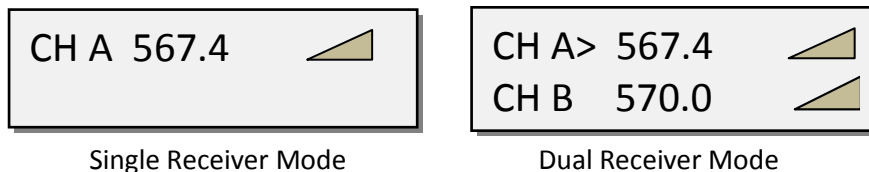
Dual Receiver Mode

The Frequency Select menu is where the QRX receive frequency is set. This frequency needs to match the transmitter's frequency.

To adjust the frequency

- Press the INC key and DEC key to adjust the frequency.
- In dual receive mode pressing the A/B key will toggle between the A and B frequency.
- The **>** will indicate the frequency being adjusted.

Transmitter Gain Adjust

This menu is only available when Transmitter Remote Control is set to "ON" in the Extended Menu.

TX GAIN

Single Receiver Mode

TXA
GAIN

Dual Receiver Mode
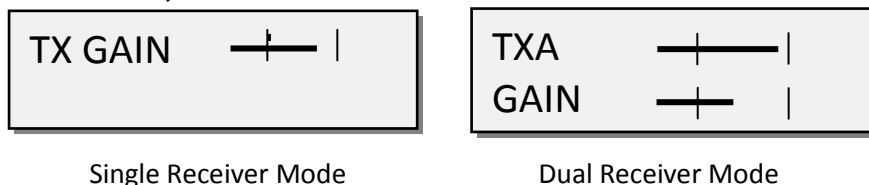
From this page you will have the ability to remotely change the gain of the corresponding TRX transmitter with ZaxNet if you have the QIFB option installed.

The transmitter gain menu will display the audio levels for the transmitter with marks at the -20dBFS and 0dBFS.

To adjust the gain

- Press the INC key to raise the transmitters gain. As you increased the gain will see "+ + +" on the QRX.
- Press the DEC key to lower the transmitters gain. As you decrease the gain you will see "- - -" on the QRX.
- In dual mode pressing the A/B key will allow you to toggle between the two transmitters.

Unit Code Set

This menu is only available when Transmitter Remote Control is set to "ON" in the Extended Menu.

RXA UNIT: NONE

RXA> UNIT: NONE
RXB   UNIT: NONE

      Single Receiver Mode   Dual Receiver Mode

The unit code menu tells the QRX which TRX transmitter to control. The unit code as a way to assign each transmitter an individual number of your choice to be controlled by. This allows the individual transmitter that the QRX is receiving to be independently controlled.

Receive Signal Select

RXA FMT MONO-XR

RXA >FMT MONO-XR
RXB   FMT STEREO

      Single Receiver Mode   Dual Receiver Mode

This menu is where the QRX's modulation mode is selected. The modulation is simply the way a transmitter "modulates", or sends, its signal to the QRX This mode setting needs to match the modulation mode that is set in the corresponding transmitter is set to - if the two setting do not match the QRX will not be able to receive and decode the signal from the TRX transmitter.
In dual receive mode pressing the A/B key will toggle between the A and B format.
The **>** will indicate the receiver is being adjusted.

- **XR Mono** - Select when extended range modulation (XR) on the TRX transmitter is being used. XR modulation is the recommended setting.
- **Stereo** - Select when using a TRX900CL - Camera Link, TRXLA2S, or a TRXLT2S stereo transmitter.
- **Mono** - Select when using a mono transmitter and XR modulation is not available in the software.
- **EU** - Select when using a transmitter that is set up for European broadcast standards.

Test Tone Output

```
TONE:  :          |        TONE:   :————|
OFF    :          |        CHAN-ID:     |

TONE:  ═══════╗            TONE:  ═══════╗
-20dBFS ══════╝            +0dBFS ═══════╣
                                   ═══════╝
```
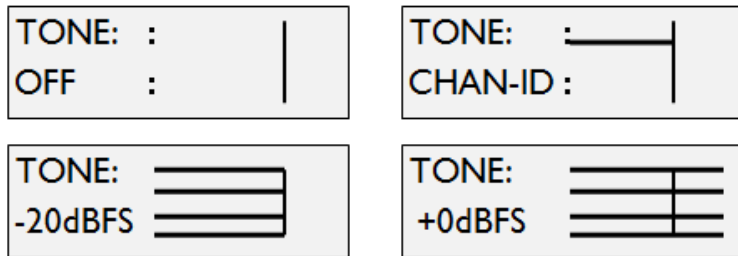
The test tone menu allows you output tone from the QRX's TA5 outputs to set levels and check routing. Pressing the INC and DEC key will cycle through the different tone settings.

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

Frequency Scan

```
┌─────────────────────┐    ┌─────────────────────┐
│                     │    │                     │        Press the A/B key
│  PRESS ↑TO SCAN     │    │  PRESS ↑ TO SCAN    │        to scan other receiver
│                     │    │  (RX A) ←───────────┼────────
└─────────────────────┘    └─────────────────────┘
     Single Receiver Mode         Dual Receiver Mode
```
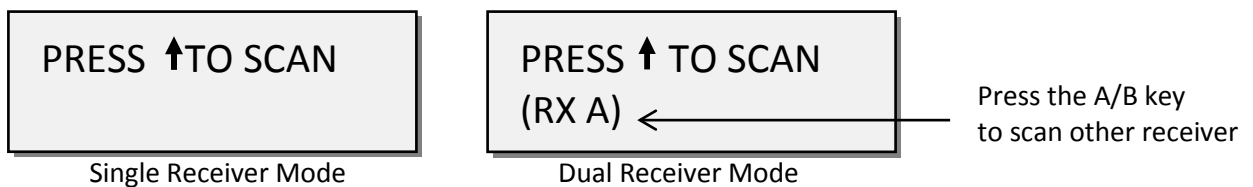
From this menu you can scan the specified frequency range and search for a clear frequency. After you scan you will see a graphic display of the RF that is present in that specified range, then the QRX will suggest a frequency. You can accept that frequency by pressing the INC key. Or you can press the A/B key or the DEC key to skip the chosen frequency and have the QRX suggest another frequency.

Single mode scanning

- Turn off the TRX transmitter.
- From the frequency scan menu press the INC key to start a scan.
- While the block is being scanned, the frequency being examined is displayed in the bottom half of the screen. Once the scan has completed, a graphic map of what was scanned is displayed.

The low end of the frequency range is on the left side and the high end is on the right. Wherever RF is found, a vertical line is drawn. It extends from the baseline up. The length of the line indicates the level or strength of the found RF at that frequency.

```
┌─────────────────────────┐
│         ▄ ▐█▌ ▄█▌ ◄──────┼──── Found RF
│ ────────────────────     │
│  SCANNING 568.9 ◄────────┼──── Frequency being scanned
└─────────────────────────┘
```
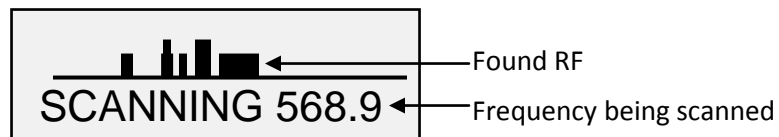
Selecting the frequency

When the scan is complete QRX will draw a vertical blinking line on the display to indicate where the first suggestion occurs in the scan and displays the frequency number below the graphic.

Suggested Frequency
Location (Blinking)

Suggested Frequency
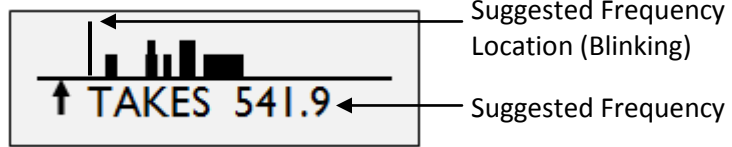
- Press the INC key to accept the new frequency.
- Press the A/B key to suggest the next best frequency suggestion.
- Press the DEC key to rescan.

IMPORTANT: If more than one TRX is being used, after the first scan turn on the first TRX and set it to the chosen frequency. This way when another scan is performed for the second transmitter the QRX will not select the same, or adjacent, frequency.

Extended Menu

Navigating the Extended Menu

- Press and hold the DEC key - while in 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 Main Menu

- To exit the extended menu at any time press the POWER key briefly.

Single / Dual Mode Select
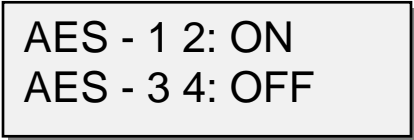
> RX MODE:
> SINGLE

This menu allows you to choose between receiving one or two transmitters.

- **SINGLE** - This configures the QRX to operate as a single receiver.
  In single mode the QRX can receive one audio channel from a mono transmitter or two audio channels from a stereo transmitter.
- **DUAL** - This configures the QRX to operate as two independent receivers.
  In dual mode the QRX can receive two audio channels from two Zaxcom mono transmitters, three audio channels from one stereo and one mono transmitter, or four audio channels from two stereo transmitters.

AES Output Enable
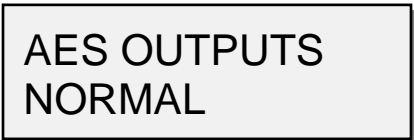
> AES - 1 2: ON
> AES - 3 4: OFF

This menu selects which connectors will output an AES signal.

- **ON** - Indicates that the TA5 will output AES audio.
- **OFF -** Indicates that the TA5 will output analog audio.

AES Output Assignment

This menu is only available when the QRX is set to dual receive mode.

> AES OUTPUTS
> NORMAL

This menu allows you to change the AES signal assignment.

- **NORMAL -** This will output the signal from two mono transmitters as it is labeled on each TA5 connector. So one transmitter per TA5.
- **SWAP -** This will output two mono transmitters on the first TA5 connector labeled "AES 1/2".

IFB Output Mix

> IFB OUTPUT MIX:
> CH 1234

This menu selects which internal QRX audio channels received from the UHF signal will be broadcast via ZaxNet by the IFB audio transmitter. You can select any combination of the 4 receive channels. What is selected here will be broadcast when you select "QRX" in the IFB Input mix menu in the IFB option menu. This setting is only for broadcasting the audio received from the UHF signal - not the audio inputted via the IFB in.

QIFB Enable

> IFB ENABLE:
> YES

This menu switches the QRX IFB board ON / OFF if the QIFB board is installed.

Transmitter Remote Control Enable

> TX REMOTE CTRL:
> OFF

Transmitter remote control turns on the ability to remote control the corresponding TRX transmitter. When set to ON you will have the ability to remotely change the gain, output power level, frequency and transport commands of the TRX's recorder of the TRX transmitters with ZaxNet.

Time Code Jam Source

> USE TIME CODE
> FROM TRX900:

This menu selects the source of external time code the QRX will use.
- **OFF** - The QRX will use and output time code received via ZaxNet.
- **ON** - The QRX will use and output the time code received from the TRX transmitter. The time code is embedded the UHF signal. This will be helpful if you were sending audio and time code to a camera from the Zaxcom TRX900CL camera link.

Analog Output Routing

This menu is only available when the QRX is set to single receive mode.

```
OUTPUT ROUTING:
 C1 = L  C2 = R
```

The LEFT output will be on TA5 connector 1 and the RIGHT output will be on TA5 connector 2

```
OUTPUT ROUTING:
 C1 = L R
```

Both the LEFT and RIGHT outputs will be on TA5 connector 1 and connector 2
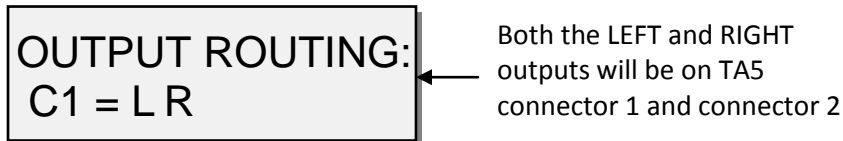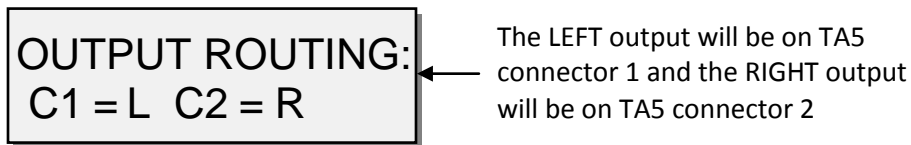
This menu sets the analog output assignments when you are using the QRX in single mode.

QRX Software Update

```
   PRESS ↑ TO
UPDATE SOFTWARE
```
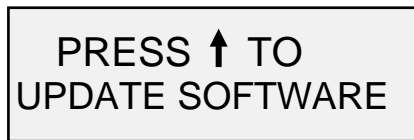
This menu is where you update the QRX software from.

When in this menu pressing the INC key will start the update process.

After the INC key is pressed the QRX will wait and search for software that will be transmitted from a TRX transmitter. After the QRX receives the program from a TRX transmitter the QRX will automatically begin updating the software.

If the QRX is set to dual receive mode the QRX will display "CHANGE MODE TO UPDATE SOFTWARE."

If you see this you will need to set the QRX to single mode before you can update the software.

Receive Signal Select

RXA FMT MONO-XR

RXA >FMT MONO-XR RXB   FMT STEREO

Single Receiver Mode   Dual Receiver Mode

This menu is where the QRX's modulation mode is selected. The modulation is simply the way a transmitter "modulates", or sends, its signal to the QRX This mode setting needs to match the modulation mode that is set in the corresponding transmitter is set to - if the two setting do not match the QRX will not be able to receive and decode the signal from the TRX transmitter.
In dual receive mode pressing the A/B key will toggle between the A and B format.
The **>** will indicate the receiver is being adjusted.

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- **Stereo** - Select when using a TRX900CL - Camera Link, TRXLA2S, or a TRXLT2S stereo transmitter.
- **Mono** - Select when using a mono transmitter and XR modulation is not available in the software.
- **EU** - Select when using a transmitter that is set up for European broadcast standards.

Backlight Adjust

BACKLIGHT TIMER ALWAYS ON

This menu sets how long LCD backlight stays illuminated after the last key press.
- **OFF –** The backlight will stay off.
- **ALWAYS ON –** The backlight will always stay on.
- **1** to **29 SECONDS** – Selectable from 1 to 29 seconds in 1 second increments.

> **NOTE**: The battery draw when using the backlight is minimal.

LED Brightness Set

LED DIMMER: OFF

This menu sets the brightness of the side mount LED's.
- **OFF** - The LED's don't illuminate.
- **Numeric Value** (variable values) – adjustable brightness levels.
- **Bright**

Blue LED Meter Mode

> LED METER
> MODE:

This menu sets the action of the bottom LED in each group (total of 4 groups).
The side mount LEDs were designed to give you a visual confirmation that audio is being received at the QRX. This menu gives you the option to display that a valid RF signal is getting to the QRX even if no audio is being sent.

- **OFF** - The bottom LED will only display the audio modulation and the blue LED is disabled.
- **BLUE FULL TIME** - Turns the bottom LED blue for each channel that is receiving a valid RF signal. When the audio has gotten to the point of displaying a level for that channel, the bottom LED will continue to show blue but with a tint of the appropriate modulation color of that channel's LEDs.
- **BLUE PART TIME** - Turns the bottom LED blue for each channel that is receiving a valid RF signal. Once the audio level has gotten to the point of displaying a level for that channel, the blue color is replaced with the appropriate modulation color of that channels LEDs.

Encryption Code Set

> ID1: 000 ID0: 000

This menu sets the encryption code on the QRX. This code needs to match the encryption code of the associated transmitters.

If you set an encryption code on the transmitter the transmitted audio will be encrypted and can only be listened to if the QRX 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.

To adjust the encryption code
1. Press the A/B key to advance to the next character.
2. To change the designated character, press the INC or DEC key.
3. To exit this page, press and hold the MENU key.

> **NOTE:** Both of these codes should always be set to **000** for normal un-encrypted operation.

IFB Option Menu

Only available if the QIFB option board is installed

Navigating the IFB Option Menu

- Press and hold the DEC key when in the home screen to display the extended menu.
- Press the DEC key to advance to the IFB option menu.
- Press the MENU key to enter into the IFB option menu
  (When in the IFB option menu the screen will display a black background with white letters)
- To advance to the next menu press the MENU key again.
- Press and hold the MENU key at any point to return to the top of the IFB option menu.

Exiting the Main Menu

- To exit the IFB Option Menu press the POWER key briefly.

IFB Home Screen

```
IFB HOME MENU
VER 1.56 TX 2.404
```

IFB Software   IFB Mode   ZaxNet
Version   TX or RX   Frequency
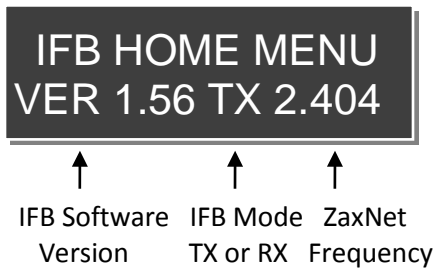
IFB Status / TRX Transport Control

```
2.404  TX   STOP
```

This menu displays the following information:
- ZaxNet IFB frequency.
- If the IFB is set to transmit or receive.
- The transport commands being sent to the TRX transmitter.
- IFB Audio Level Meter

Pressing the INC or DEC key will scroll through the commands.
- REC -TRX is being told to record.
- STOP - TRX is being told to stop.
- PLAY - TRX is being told to play.
- - - - - - No ZaxNet commands are being sent (Normal).

NOTE: Any changes to the transmitter transport status will affect ALL the transmitters with the same group number

NOTE: When the IFB is set to Receive (RX) mode, the INC and DEC keys will not function and no transport commands will be sent to the TRX.

IFB Input Mix Assign

```
IFB INPUT MIX:
QRX ONLY
```

This menu sets what audio will be broadcast via ZaxNet back to you for confidence monitoring and to ERX receivers.

You can choose to broadcast the UHF audio that the QRX receives, audio that is inputted via the IFB audio in connector, or any combination on the two.

The QRX MIX audio is set in the IFB Output Mix menu located in the extended menu.

- **RIGHT + QRX** - Sums the right IFB audio input with the QRX mix.
- **LEFT + QRX** - Sums the left IFB audio input with the QRX mix.
- **L + R + QRX** - Sums both IFB audio inputs and the QRX mix.
- **L - R + QRX** - Sums the difference of the left and right IFB audio inputs plus the QRX mix.
- **QRX ONLY** - QRX mix only.
- **RIGHT** - The right input of the IFB audio connector only.
- **LEFT** - The left input of the IFB audio connector only.
- **L + R** - Sums the left and right IFB audio inputs.
- **L - R** - Sums the difference of the left and right IFB audio inputs. This effectively makes the IFB audio input a balance connection.

Remote Power Mode

This menu is only available when IFB Mode is set to TX

```
REMOTE POWERMODE
0: POWER = ON
```

This menu allows you to remotely adjust the power setting of the TRX transmitters.

The TRX transmitter has three power settings

- **NORMAL -** The transmitters are at full transmitting power at all times.
- **WAKE** - When you select "WAKE" in this menu the TRX transmitter will go to full power.
  If the TRX is set to REMOTE STANDBY it will power up to a non-transmitting super low power mode. A TRX in this state will use approximately 25% of the power of full operations. This may be helpful if you have to mic someone who will not be on set for a while and you want to conserve battery life.
  To use this feature you would set the TRX BOOT UP MODE to REMOTE STANDBY. When the transmitter is in REMOTE STANDBY the TRX, when powered up, will remain in standby mode until it receives the wake command to wake it. Once the TRX is awoken from this power mode the only way the TRX will go back into this mode is with a power cycle.
- **LOW 2-** This setting is used to put the TRX transmitter into Low 2 mode. Low 2 disables the RF power amplifier, RF board and mic pre-amp. The TRX will run on approximately 50% of the power of normal operations which will extend the battery life of the transmitter. The TRX can be put into or taken out of this mode when "LOW 2" is selected in this menu. The QIFB can put the transmitter into, and out of, Low 2 mode as often as you like.

NOTE: The QRX will always default to **0:POWER=ON** upon power up.

Settings:

- **0: POWER=ON** – Normal operation - the TRX will be fully powered ON
- **1: POWER=ON** – Normal operation (same as 0) filler to prevent accidental power setting adjustment.
- **2: POWER=ON** – Normal operation (same as 0) filler to prevent accidental power setting adjustment.
- **3: POWER=ON** – Normal operation (same as 0) filler to prevent accidental power setting adjustment.
- **4: POWER=ON** – Normal operation (same as 0) filler to prevent accidental power setting adjustment.
- **5: POWER=WAKE** – You would select this to wake a TRX transmitter to full power when the Boot Up Mode is set to Remote Standby.
- **6: POWER=LOW2** – This setting can put the TRX transmitter into and out of a low power setting. You can come in and out of LOW 2 mode as needed. When you are in LOW 2 mode "LOW 2" will be displayed on the TRX's home screen. Note LOW 2 will not disable recording but it will be muted. Once you have reduced the TRX power to Low 2 you can power down your QRX. Once you power up the QRX all TRX's being controlled will automatically come up to full power since after a power cycle the QRX will boot up to the 0 Power setting.

> **NOTE**: If the TRX is not in range of the ZaxNet signal, the power setting command will have to be repeated once the transmitter comes back into range.

Time Code Set

```
TC TIME ENTRY:
>H00   M00   JAM
```

This menu is where you can set the QRX's internal time code generator. This would be necessary if you are not receiving time code from another source and need to feed time code to the transmitter.
The **>** indicates the item that will be adjusted. To advance to the next field, press the A/B key on the front panel.
- **H (Hours)** use the INC or DEC key to adjust the hours.
- **M (Minutes)** use the INC or DEC key to adjust the minutes.
- **JAM** - Use the INC key to JAM QRX's TC Generator with the entered time.
The seconds and frames fields are automatically entered as zero (0).

Time Code Frame-Rate Select

```
TIMECODE  23.98
GEN:  01:02:34:02
```

This menu sets the frame-rate of the QIFB time code reader / generator.
The QRX supports all standard time code frame rates: 23.98, 24, 25, 29.97DF, 29.97DF, 30 DF, 30 NDF

IFB Extended Menu

Navigating the IFB Extended Menu

- From the IFB option home screen press and hold the DEC key to display the IFB extended menu.
- Press the MENU key to get into the IFB extended menu
- To advance to the next menu press the MENU key again.
- Press and hold the MENU key at any point takes you to the top of the IFB extended menu.

Exiting the Main Menu

- To exit the IFB Option Menu at any time press the POWER key briefly.

Input Trim Set

INPUT TRIM 0dB

This menu adjusts the input level from the 3.5mm IFB audio in connector.
This menu only works when the QIFB is in transmit mode.
- Range is from 12dB to -20dB in 1 dB increments.

Output Trim Set

OUTPUT TRIM 0dB

When the QIFB is in receive mode you can output the received IFB audio via 3.5 mm IFB connector. This menu adjusts the audio output level. This menu only works when the QIFB is in receive mode.
- Range is from 6dB to -20dB in 1 dB increments.

IFB Frequency Set

IFB TXCH: 2.404
(TX MODE)   ← Transmit Frequency

Transmit Mode

IFB RXCH: 2.404   ← Receive Frequency`
SIGNAL: 23   ← Signal Strength
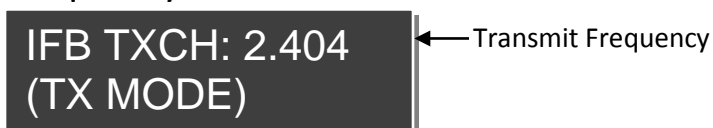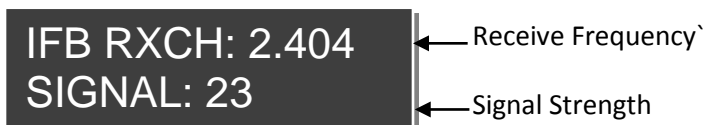
Receive Mode

This menu adjusts the ZaxNet transmit and receive frequency of the QRX. Depending what mode the IFB is set to (transmit or receive) will determine if the transmit or receive frequency will be displayed for adjustment.

> **NOTE**: Even number frequencies are recommended for better performance.

IFB Mode Set

```
IFB MODE:     TX
```

This menu switches if the ZaxNet IFB on the QRX will be transmitting (TX) or receiving (RX). Once you have changed this parameter, you will need to cycle power to initialize the IFB board.

IMPORTANT: When IFB Mode is set to transmit TX, you MUST keep a 2.4 GHz antenna attached to the IFB antenna connector to prevent RF noise from interfering with UHF reception.

Group ID Set

```
REMOTE CONTROL
GROUP ID=1
```

This allows you to set your QRX to control a ZaxNet "GROUP".
A QRX set to Group 1 will control all transmitters set to group 1 and if set to group 2 the QRX will control all transmitters set to group 2. This allows you to control a specific group of transmitters without affecting others. This will also help if two or more people on set are sending ZaxNet commands each person will be independent and won't interfere with each other. Most users will leave this set to 1 on all products.
  • Group codes can be set from 1 to 99

IFB Voting Enable

This menu is only available when the IFB MODE is set to is to (RX) Receive mode

```
IFB VOTING:
NORMAL (OFF)
```

```
IFB VOTING:
2 TXERS (ON)
```

This menu allows you to turn ON / OFF IFB voting.
IFB voting allows the QIFB to choose and switch to the stronger signal from two different ZaxNet IFB transmitters. On a large set you can place a second IFB transmitter at a different location and the QRX will choose the strongest signal
The QRX IFB voting feature assigns the extra voting channel as the current frequency +2.
So for example if you were using two IFB transmitters and you set to the first frequency to 2404 the second frequency should be set to 2406.

Updating the IFB Software

This menu is only available when the IFB MODE is set to is to (RX) Receive mode

> PRESS UP 5X TO
> UPDATE IFB SOFT

This allows you to update the QIFB software. See the firmware section of this manual for additional information,

Time Code Output Level Set

> TC OUTPUT LEVEL:
> 1.0V (DEFAULT)

This menu allows you to adjust the voltage level of the time code out of the 3.5mm time code connector. This is useful for some cameras or time code devices that may need a different level time code signal.

Time Code Frame Rate Set

> TC FRAME RATE
> 23.98

This menu sets the time code frame-rate of the QRX internal time code generator.
The QRX supports all standard time code frame rates: 23.98, 24, 25, 29.97DF, 29.97DF, 30 DF, 30 NDF.

Time Code Jam Mode Set

> TC JAM MODE:
> AUTO-LOAD

This menu sets how the QRX jams time code and how it uses that time code.
- **MANUAL (OFF)** -This setting allows you to enter your own time code.
- **AUTO-JAM** - The QRX will continuously jams time code via ZaxNet or from the UHF signal from a TRX transmitter - provided you have set "Uses TC from TRX900" to ON.
- **AUTO-LOAD** - This is used when working with record-run time code. The TRX transmitter can start and stop when it detects the record-run time code starting and stopping. The TRX transmitter receives the record commands from the QRX IFB. If you are using the auto load feature on the TRX transmitter this needs be set to auto load as well.

Time **Code Delay Set**

> TC DELAY:
> 0 (NORMAL)

This menu allows you to adjust the delay of the time code out of the time code connector.
The QRX will allow you to either delay or advance the time code up to +/-50 frames in 0.5 frame increments.

Time Code Mute Time Set

> TCJAM MUTE TIME:
> 0MS (DEFAULT)

This menu allows you to adjust the length of time the time code is muted whenever a time code jump is detected. If the time code changes the time code out of the QRX will be muted by the time set in this menu. This menu was added to help the RED camera jam its time code properly. In the case of a Red One you would want to set this to 1000MS

Audio Delay Set

> AUDIO DELAY:
> OFF

This menu is where the delay of the IFB audio that is broadcasted via ZaxNet. This is useful if you need to delay the audio feed to match the video dely.
Adjustable range is from 5 to 400 MS in 5 MS increments.

ZaxNet Output Enable

> ZAXNET OUTPUT:
> OFF

This menu is where you toggle if the QRX will embed and output ZaxNet commands in the user bits of its time code output. This should be set to OFF most of the time since most non Zaxcom devices cannot decipher ZaxNet commands via time code.

IFB Transmit Power Level Set

This menu is only available when the IFB MODE is set to is to (TX) Transmit mode in the IFB Extended Menu

> IFB TX POWER: 7

This menu is where the transmit power of the ZaxNet transmitter is set.
Power range is 0 through 7 with 7 being the highest

Send Record Commands

ALWAYS SEND REC
COMMANDS: OFF

This menu is where you set if the QIFB will send record commands to the transmitter.
If this is set to ON you will be able to start / stop the TRX recording feature via the QIFB.

IFB Encryption Set

ID1:000 ID0:000

This menu sets the encryption for the IFB transmission
If you set an encryption code the transmitted audio will be encrypted and can only be listened to
if the IFB receiver has the matching encryption code. When an ERX receives an audio signal and
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.

To adjust the encryption code
1. Momentarily press the A/B key to advance to the next character.
2. To change the designated character, press the INC or DEC key.
3. To exit this page, press and hold the MENU key.

NOTE: Both of these codes should always be set to **000** for normal un-encrypted operation.

Wiring Diagrams

Audio Output Connectors

There are two TA-5M connectors on the back panel. How they are used varies based on the output configuration in the extended menu.

Single Analog Channel out of one TA5

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

Two Analog Channels out of one 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
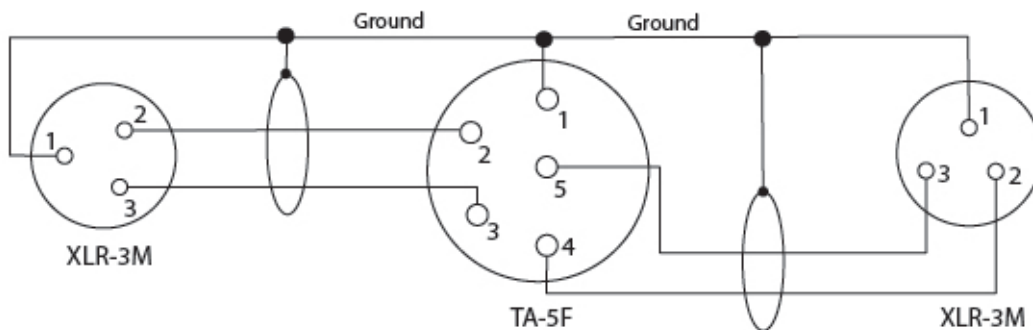
AES Digital out of TA5

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

If you are receiving audio from a mono transmitter the QRX will output the same audio on both pairs on the TA5.

If you are receiving audio from a stereo transmitter the QRX can output both signals on a single TA5.

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

IMPORTANT: While sending digital output, 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.

Time Code Connector - 3.5mm

Time Code in to QRX

3.5 mm Connector	TC Connector
TIP	NO CONNECTION
RING	SIGNAL
SLEEVE	GROUND

Time Code out of QRX

3.5 mm Connector	TC Connector
TIP	SIGNAL
RING	NO CONNECTION
SLEEVE	GROUND

IFB Audio Connector - 3.5mm
Same wiring is used for both input and output

3.5 mm Connector	Connector
TIP	LEFT
RING	RIGHT
SLEEVE	GROUND

Serial Loop Connector - USB (RS-485)

These connectors allow a serial connection between several QRXs. This allows QRXs that do not have the IFB option to connect to a single QRX that does have the IFB option.
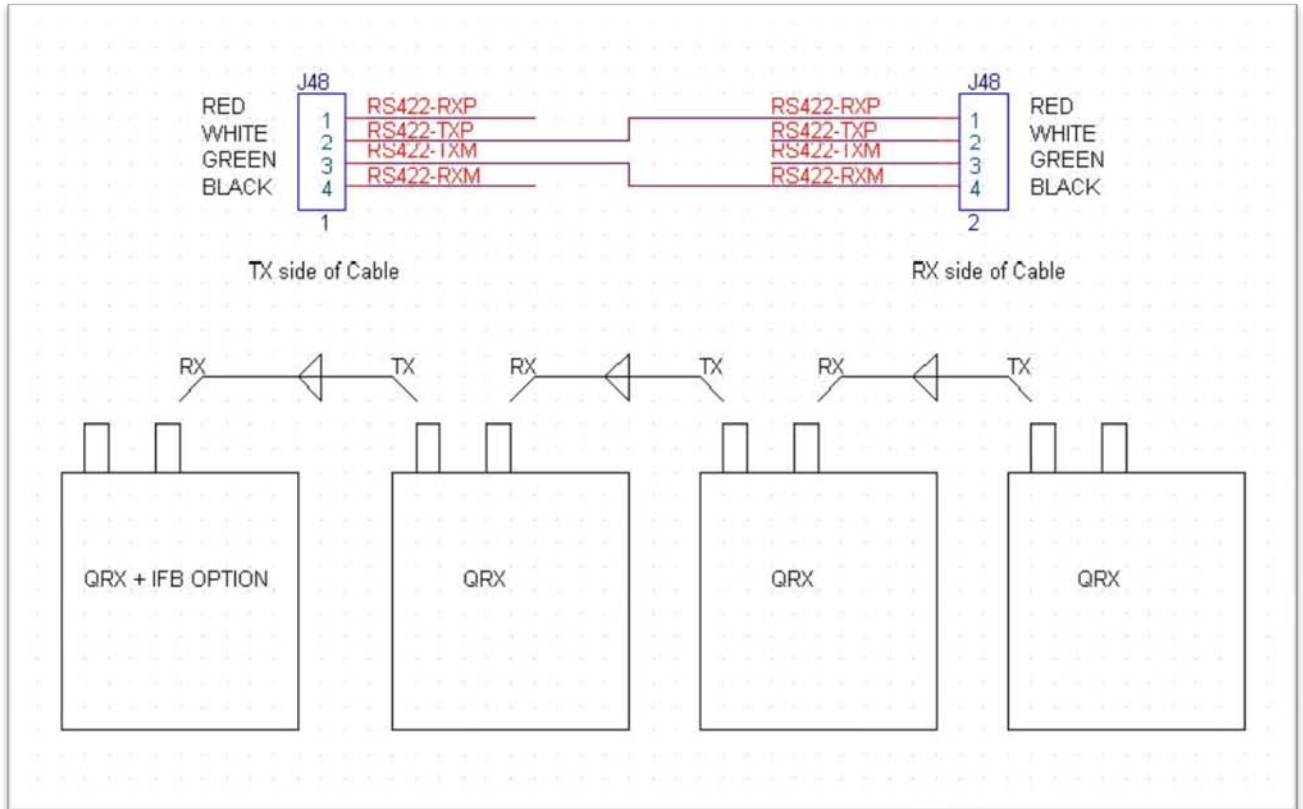
Operating Frequencies

ZaxNet Remote Control and Time Code
2.403 to 2.475 GHz

UHF Audio

Block	Frequency Range	TV Channels
20	518.0 to 542.0	22 to 25
21	536.0 to 572.0	25 to 30
22	560.0 to 590.0	29 to 33
23	590.0 to 614.0	34 to 37
24	614.0 to 644.0	38 to 42
25	638.0 to 668.0	42 to 46
26	662.0 to 692.0	46 to 50

Antenna Cutting Chart

SMA/SSMA ANTENNA CUTTING CHART

- Block 33 – 3.41"
- Block 32 – 3.56"
- Block 31 – 3.66"
- Block 30 – 3.79"
- Block 29 – 3.91"
- Block 28 – 4.02"
- Block 27 – 4.19"
- Block 26 – 4.36"
- Block 25 / TRX-2.6 / QRX200 paired with TRX-2.6 – 4.52"
- Block 24 – 4.69"
- UK Block 24 – 4.75"
- QRX200 Mid (to work with TRX-2.5 & TRX-2.6 models) – 4.82"
- Block 23 – 4.90"
- Block 22 – 5.14"
- TRX-2.5 / QRX200 paired with TRX-2.5 – 5.23"
- Block 21 – 5.33"
- Block 20 – 5.58"
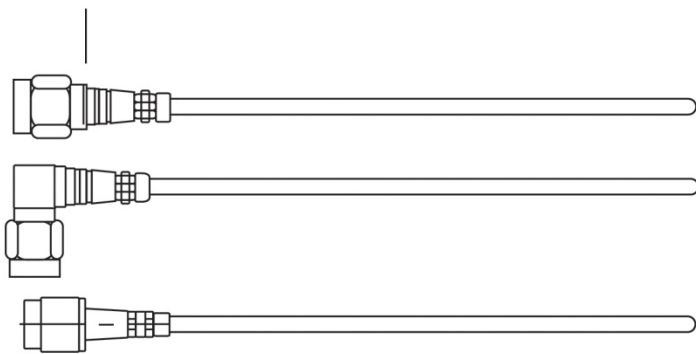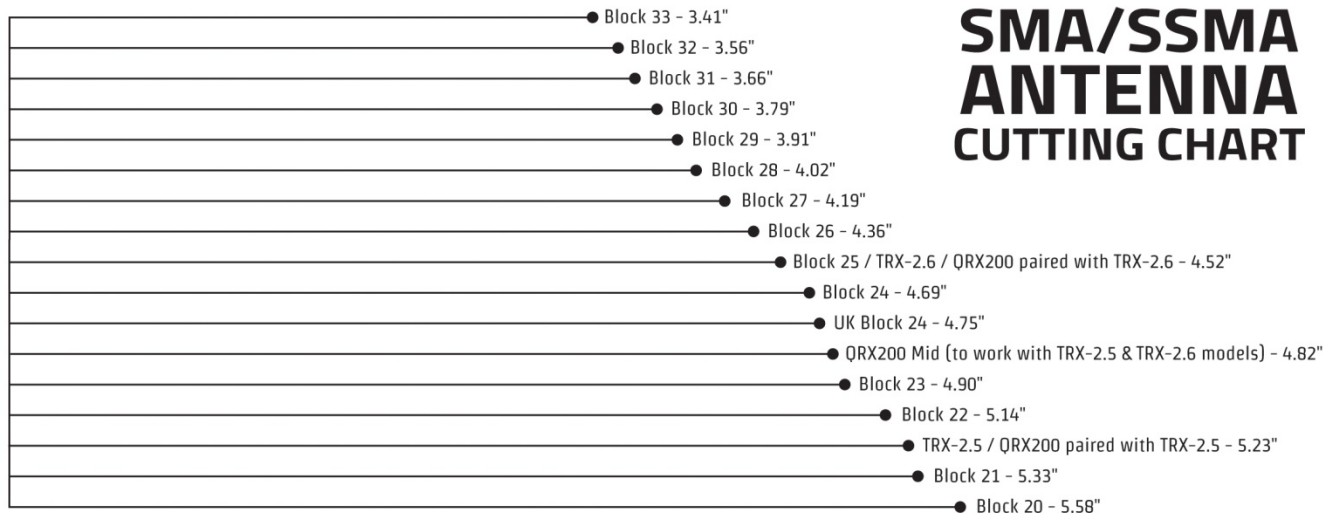
ZAXCOM

www.zaxcom.com

Firmware

Each unit is shipped with the latest firmware version installed.

Each time a unit is powered up, the firmware version number is displayed briefly on the LCD screen. Pressing the DEC key during the boot up will slow down the screen to allow easier viewing of the information.

As newer firmware becomes available, it can be downloaded from the Zaxcom website
http://www.zaxcom.com/software-updates

Updating the QRX software using a TRX transmitter

1. Format a micro SD card in a TRX transmitter.
2. With a computer take the formatted card and perform the following:
    - Delete the "DELETE.ME" file from the card.
    - Download the new QRX software and load it into the card. (QRX-XXX.BIN)
3. Insert the card and a fresh set of batteries into the TRX transmitter.
4. Turn 'ON' the transmitter and all QRXs.
5. At the QRX:
    - Verify the ReceiverMode is set to SINGLE.
    - Verify encryption is off (ID1 and ID0 are both set to 000)
    - Set the UHF Frequency to the same frequency as the programming transmitter.
    - If the receiver has a good connection, the LEDs for the A and B Status Indicators will be green. If they are red, check that the programming transmitter has zeroes in the encryption code, and the UHF signal format in both the TRX and QRX are set the same.
    - From the EXTENDED MENU go to the Software Update page and press the INC key.
    - The screen will display Waiting for Program. This indicates the receiver is ready to download the new version. Be sure to do this to all of your units, so they will be updated at the same time.
    - Place each QRX within 10' and line-of-sight of the Programming Transmitter. All of the units should remain motionless to insure they receive a strong and undisturbed signal.
6. At the Transmitter:
    - Press and hold the MENU key while powering the TRX ON.
    - Verify the Allow IFB Remote Control is set to OFF.
    - Go to the Send QRX Program menu.
    - Press the INC key.
    - The TRX will indicate that it found the program on the card and has started sending it.

    > **NOTE:** The transmit process will cycle over and over until manually stopped.

7. Each QRX should indicate it is receiving the program.
8. After the cycle, all of the receivers should be re-programmed. If there is a reception error, the affected receiver automatically restarts the process with the start of the next download cycle.
9. If the receiver that have been reprogrammed displays READ RELEASE NOTES.
    Press A/B KEY to get rid of RELEASE notes warning.
10. On the Programming Transmitter:
    - Press the MENU key to stop the download process.
    - If appropriate, change the Allow IFB Remote Control back to ON.
    - Cycle its power.
11. At each QRX:
    - Cycle the power
    - Verify the new firmware version number is displayed during the boot process
    - As necessary, set the Receiver Mode to DUAL.

    > **WARNING:** After the QRX has received its entire program, it will erase and burn its firmware into the ROM. During this process, which only takes a few seconds, you **MUST NOT** turn 'OFF' the QRX.

Upgrading the QRX IFB Firmware (using a IFB100/200)

1. Format a micro SD in the IFB transmitter.
2. With a computer take the formatted card and perform the following:
   - Delete the "DELETE.ME" file on the card.
   - Download the new Q-OPT software and load it into the card.
   - Insert the card into the IFB transmitter.
3. At each QRX:
   - Turn 'ON' and go to the IFB EXTENDED MENU.
   - Set the IFB MODE to RX (receive).
   - Set the IFB FREQUENCY to the same frequency as the IFB transmitter.
   - Set the GROUP CODE to the same number as the IFB transmitter.
   - Go to the IFB SOFTWARE UPDATE and press the INC key 5 times.
     The screen will display Waiting for Program. This indicates the receiver is ready to download the new version of software. You can do this to all of your units, so they will be updated at the same time.
   - Place the QRX within 10' and line-of-sight of the IFB transmitter.
4. At the IFB Transmitter:
   - Power up while pressing and holding the MENU key while starting it.
   - It will boot up into the extended menu.
   - Go to the Send ERX Program page.
   - Press the INC key.
   - The LCD screen will indicate that it found the program on the card and has started sending it.

   > **NOTE:** The IFB-100/200 will continually resend the program until manually stopped.

5. The QRX screen should indicate that it is receiving the program.
6. After the cycle, all of the receivers should be re-programmed. If there is a reception error, the affected receiver automatically restarts the process with the start of the next download cycle.
7. For those receivers that have completed reprogramming, the screen will display SUCCESS.

   > **WARNING:** After each QRX has received its entire program, it will erase and burn its firmware into the ROM During this process, which only takes a few seconds, you MUST NOT turn 'OFF' the unit.
   > If the program is never fully received, it is safe to cycle the power. In this case, turn 'OFF' the Programming Transmitter before power cycling the QRX.

8. Once ALL units have displayed SUCCESS, at the Programming Transmitter:
   - Press the MENU key to stop the download process.
   - Cycle its power.
9. At each QRX unit:
   - Cycle the power
   - Verify the new firmware version number is displayed.

Upgrading the QRX IFB Firmware using a TRX Transmitter

1. Format a micro SD card in the TRX transmitter.
2. With a computer take the formatted card and perform the following:
   - Delete the "DELETE.ME" file on the card.
   - Download the new Q-OPT software and load it into the card.
3. Insert the card into the TRX transmitter.
4. At each QRX:
   - Turn it 'ON' and go to the IFB EXTENDED MENU.
   - Set the IFB MODE to RX (receive).
   - Set the IFB FREQUENCY to the same frequency as the Programming Transmitter.
   - Set the GROUP CODE to the same number as the Programming Transmitter.
   - Go to the IFB SOFTWARE UPDATE and press the INC key 5 times.
   - The screen will display Waiting for Program. This indicates the receiver is ready to download the new version of software. Be sure to do this to all of your units, so they will be updated at the same time.
   - Place the QRX within 10' and line-of-sight of the Programming Transmitter. All of the units should remain motionless to insure they receive a strong and undisturbed signal.
5. At the TRX transmitter:
   - Go to the Factory Menu (go to the LOCK page and quickly press the DEC key 6 times).
   - Set the IFB Mode page to 3 TX.
   - Go to the Send ERX Program menu.
   - Press the INC key.
   - The display will indicate that it found the program on the card and has started sending it.

> **NOTE:** This process will continue until manually stopped.

6. The QRX should indicate that it is receiving the program.
7. After the cycle, all of the receivers should be re-programmed. If there is a reception error, the affected receiver automatically restarts the process with the start of the next download cycle.
8. For those receivers that have been reprogrammed, the screen will display SUCCESS.

> **WARNING:** After each QRX has received its entire program, it will erase and burn its firmware into the ROM During this process, which only takes a few seconds, you MUST NOT turn 'OFF' the unit.
> If the program is never fully received, it is safe to cycle the power. In this case, turn 'OFF' the Programming Transmitter before power cycling the QRX.

9. Once all units have displayed SUCCESS at the TRX transmitter:
   - Press the MENU key to stop the download process.
   - Cycle its power.
10. At each QRX unit:
    - Cycle the power
    - Verify the new firmware version number is displayed
        If the program is never fully received, it is safe to cycle the power.

Specifications

Receiver

Receiver Type:	True / antenna diversity (mono or stereo)
RF Modulation:	Proprietary digital method
RF Frequency Range:	518.0 to 692.0 MHz
RF Frequency Step:	100 KHz
RF Bandwidth: US Mode:	200 KHz
European Mode:	125 KHz
Channel Separation:	500 KHz (700 KHz recommended)
Sensitivity:	-110 dBm
Antenna Connector:	50-ohm SMA female

Receiver Audio - Analog Outputs

Channels:	Up to 4
Audio Level:	Line Level 0 dBu active balanced
Dynamic Range:	114 dB
Distortion:	0.001%
DAC Bit-depth:	24 bit
DAC Rate:	48 kHz
Connector (x 2):	TA-5M

Receiver Audio - Digital Outputs

Channels:	Up to 4
Sample-rate:	32 kHz
AES Reference:	Wordclock and AES reference
Connector:	TA-5M

Serial Control

Protocol:	RS-422, RS-485
Connector (x 2):	USB

IFB Transmitter/Receiver (optional)

Transmitter

RF Power Output:	50 mW
Emission Designator:	180 KV2E
FCC Part:	CFR Title 47, Part 18
Receiver Sensitivity:	-96 dBm
Frequency Response:	20 Hz to 12 kHz
RF Modulation:	Digital Spread Spectrum
RF Frequency Range:	2.403 to 2.475 GHz
RF Frequency Step:	0.001 GHz (1 MHz)
RF Bandwidth:	1 MHz
Channel Separation:	2 MHz
Antenna Connector:	50-ohm SMA female

IFB Audio

ADC Bit-depth:	24 bit
ADC Rate:	48 kHz
Dynamic range:	103 dB
Distortion:	0.01%
Frequency Response:	20 Hz to 12 kHz
System Group Delay:	10 ms

IFB Audio Input/Output

Connector:	1/8" Stereo (3.5 mm)
Type:	Unbalanced
Level:	-10 to +8 dBu
Impedance:	10k ohms

Time code Input/Output (common connector)
Input

Level Range:	1 to 5V, P-P

Output

Level Range:	.2 to 3V, P-P

Connector:	1/8" Stereo (3.5 mm) Stereo
Type:	Unbalanced
Impedance:	10 k ohms

Time code Reader/Generator

Clock Accuracy:	1.54 PPM (1 frame out in 6 hours)
Time code Type:	SMPTE
Time code Frame-rates:	23.98, 24, 25, 29.97NDF, 29.97DF, 30NDF, 30DF

Physical

Weight:	6.0 oz. (170 grams)
Dimensions	(H x W x D): 1.25" x 3.25" x 5.25" (32mm x 83mm x 133mm)
External Power:	9 to 18 VDC (270 mA @ 12 VDC – no side LEDs, 390 mA – w/ LEDs illuminated)
Internal Power:	N/A
Display:	Graphic LCD panel

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/*

Consumer Alert

Most users do not need a license to operate a wireless microphone system. Nevertheless, operating a microphone system without a license is subject to certain restrictions:

- the system may not cause harmful interference,
- it must operate at a low power level (not in excess of 50 milliwatts),
- it has no protection from interference received from any other device.

Purchasers should also be aware that the FCC is currently evaluating the use of wireless microphone systems, and these rules are subject to change. For more information, call the FCC at 1-888-CALL-FCC (TTY: 1-888-TELL-FCC) or visit the FCC's wireless microphone website at:
www.fcc.gov/cgb/wirelessmicrophones. To operate wireless microphone systems transmitting with greater than 50mW of radiated power, you must qualify as a Part 74 user and be licensed.

Zaxcom Digital Wireless is protected under patent #'s: 7,711,443 & 7,929,902

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 QRX ("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.