Zaxcom Miniature Digital Recorder User's Manual

ZFR100

ZFR200

ZFR800

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NOTE: All specifications in this manual are subject to change without notice.

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Chapter 1 – Topics that apply to most units

User Manual Conventions

Throughout this manual, the following conventions are used:

- **button** – refers to an on-screen (VIRTUAL) object that represents a parameter that can be viewed and/or changed.
- **cycle the power** – refers to turning 'OFF' the power to the unit, waiting a few seconds and then turning it back 'ON'.
- **IFB ?** – IFB followed by transmitter or frequency is talking about the IFB portion of the bodypack recorder, or the IFB100 transmitter.
- **key** – refers to a PHYSICAL object on the unit for the Operator to change and/or view a parameter or to navigate through the menus.
- **media card** – refers to any approved card in *Table 1-1* {**p.9**}.
- **{p.##}** – refers to the page number where the referenced item is located.
- **starting value** – refers to a value that should be used for a particular parameter and for all of the parameters when the Operator is having difficulty getting the unit to work correctly. The value is highlighted.
- **STAxxx** – refers to the STA100 and STA150.
- **TRX900 (/ AA)** – refers to the TRX900 and TRX900AA.
- **TRX900 (/ AA / L)** – refers to the TRX900, TRX900AA, TRX900LT and TRX900LTS.
- **TRX900 (L)** – refers to the TRX900LT and TRX900LTS.
- **TRX9xx** – refers to the TRX900, TRX900AA, TRX900LT, TRX900LTS and TRX992.
- **TRXxxx** – refers to the TRX900, TRX900AA, TRX900LT, TRX900LTS, TRX992, TRX800 and TRX700.
- **ZFRxxx** – refers to the ZFR100, ZFR200 and ZFR800.
- **ZFR (1/2)** – refers to the ZFR100 and ZFR200.

NOTE: A green **NOTE** is a helpful hint or bit of information.

IMPORTANT: A blue **IMPORTANT** note indicates something more important than a green NOTE.

CAUTION: A yellow **CAUTION** note indicates a situation that, if ignored, could cause a significant problem.

WARNING: A red **WARNING** note indicates a situation that, if ignored, could cause damage to your equipment and/or you.

System Features

- Fault tolerant broadcast quality recording
- Audio recording at 24 bits/48 kHz
- 96 hours of audio directly on a 16 GB removable card
- Supports both record/stop and continuous loop recording
- Backlit graphic liquid crystal display
- Frequency selectable highpass filter
- Selectable peak limiter
- Lightweight rugged design
- Integrated TC reader/generator accurate to 1 frame in 6 hours
- Efficient keypad for one-handed operation
- Integrated & encrypted IFB channel in recorder (ZFR100 & ZFR200)
- Integrated timecode reception (ZFR100 & ZFR200)
- RF remote control of recorders (ZFR100 & ZFR200):
  - Audio gain (Raise/Lower)
  - Recording (Start/Stop)
- Battery runtime:
  - IFB100 – no internal batteries, always runs on external power
  - ZFR100 – up to twenty hours on two AA Lithium batteries
  - ZFR200 – up to eight hours on one AA Lithium batteries

- ZFR800 – up to ten hours on one CR123 battery
- Size and weight: (H x W x D – while looking at the screen)
  - IFB100 – 3.44" x 3.88" x 0.9" – 87 mm x 99 mm x 23 mm – 6.0 oz – 170g
  - ZFR100 – 3.31" x 2.3" x 0.65" – 84 mm x 58 mm x 17 mm – 4.0 oz – 113g
  - ZFR200 – 2.38" x 2.38" x 0.69" – 60 mm x 60 mm x 17 mm – 3.1 oz – 88g
  - ZFR800:
    - Body – 6.12" x 1.5" – 155 mm x 38 mm – 8.2 oz – 232g
    - Capsule (ex.) – 3.0" x 3.0" – 76 mm x 76 mm – 4.9 oz – 139g

What's Included with the ZFR100

- 1 – media slot dust plug
- 1 – belt clip
- 1 – blue Zaxcom storage/carrying case
- this user's manual on CD-ROM

Options

- TCR100 – Receive timecode and remote control signals from the optional IFB100
- TRX10 – Receive audio portion of IFB100 transmission (requires EA100 or STAxxx for monitoring IFB audio)
- TCA100 – Timecode adapter
- STA100 – Stereo adapter
- STA150 – Stereo adapter
- EA100 – Earpiece adapter
- IFB100 – Timecode/Remote Control Transmitter

What's Included with the ZFR200

- TCR100 – Receive timecode and remote control signals from the optional IFB100
- 1 – belt clip
- 1 – blue Zaxcom storage/carrying case
- this user's manual on CD-ROM

Options

- IFB100 – Timecode/Remote Control Transmitter

What's Included with the ZFR800

- 1 – blue Zaxcom storage/carrying case
- this user's manual on CD-ROM

Options

- Shure microphone capsule(s)

Menu System

Figure 1-1 ZFR100 Front View

The user interface for each unit consists of a Liquid Crystal Display with keys, as follows:

- ***MENU*** – Each time the ***MENU*** *key* is pressed, the next page/field in the current menu is displayed on the screen.
- ***INC*** (up arrow) – ♦ Increment the current parameter selected by the ***MENU*** *key*.
  ♦ While in the ***Transport Control page*** {**p.21**}, pressing it while in PLAYBACK mode, moves the playback pointer forward several seconds in the current recorded segment. If you continue pressing it you will eventually advance to the next recorded segment, if any.
- ***DEC*** (down arrow) – ♦ Decrement the current parameter selected by the ***MENU*** *key*.
  ♦ While in the ***Transport Control page*** {**p.21**}, pressing it while in STOP mode, moves the playback pointer backward several seconds in the current recorded segment. If you continue pressing it, you will eventually move backward into the previous recorded segment, if any.
- ***PLAY*** – Pressing it replays the last recording from its beginning.
- ***STOP*** – Pressing it puts the unit into STOP mode.
- ***REC (RECORD)*** – Pressing it puts the unit into RECORD mode. While in RECORD mode, pressing it for less than 1 second closes the current file and immediately starts recording in a new file. The green LED (if present) blinks to confirm the creation of a new file. This makes it easier to find in Post.

Each menu has several pages allowing you to change configuration settings. All of these settings are stored in Flash ROM immediately after making the change.

Media

Some of the units read from and/or record to a MiniSD/MicroSD card, which is inserted into the media slot. All of the transmitters use a MiniSD/MicroSD card to update the unit's firmware. To be safe, you must use approved media:

Media	Manufacturer's ID	Approved?
Transcend Micro SDHC card, 4GB (w/ mini & SD adapter)	TS4GUSDHC6-2	**YES**
Transcend Micro SDHC card, 4GB (w/ SD adapter)	TS4GUSDHC6	**YES**
Transcend Micro SDHC card, 4GB (no adapter)	TS4GUSDC6	**YES**
SanDisk 4GB SDHC MiniSD/MicroSD		**YES**
Transcend 4GB SDHC MiniSD/MicroSD		**YES**
ALL SanDisk MicroSD 4GB & Larger (with/without MiniSD adapter)		**YES**
Transcend 2GB (x80) MiniSD	TS2GSDM80	**YES**
Transcend 4GB MiniSD	TS4GSDM80	**YES**
ALL Dane-Elec		**NO**
SanDisk 2GB MiniSD		**NO**
ALL SanDisk Ultra		**NO**
ALL SanDisk Ultra II		**NO**
ALL Transcend (x45)		**NO**
Any brand that prints the info on a sticker applied to the chip		**NO**
Transcend 2GB MicroSD (no speed rating)		**NO**
HP 4GB SDHC MicroSD (class 4)		**NO**
Adata 4GB SDHC MicroSD (class 2)		**NO**

Table 1-1 Approved vs. Unapproved Media

IMPORTANT: To use any 4GB card, V5.53 or greater is required

If unapproved media is used, it can become jammed in the media socket and damage it.

CAUTION: Damage resulting from using unapproved media is not covered by the warranty.

Do **not** use SanDisk Ultra II cards. Formatting one of them may make it unusable.

We have been shipping a regular SanDisk 2GB MiniSD card (for programming purposes), and it turns out to be right on the edge of recording reliability. The symptoms involve the TRX or ZFR periodically going in to and out of record because the card holds off the processor for too long.

Here is a testing procedure to determine if the card will function correctly:

1) Format the card in the Zaxcom unit.
2) Power cycle the unit.
3) Record audio to the card for several hours or more while in standalone mode (with no timecode source to prevent a re-jam event).
4) Look at the ***Transport Control page*** {**p.21**}. Assuming the unit did not have any external timecode applied, it should still be recording in segment #1.

IMPORTANT: If you see the timecode stop (or pause), that is when the card is not accepting data. Alternatively, the Power/Record LED (where present), stays Red when the processor is waiting for the card to accept data and Green when the processor is writing to the card. If the card refuses to accept data for more than 1/2 second (a solid Red LED) the unit will stop recording to the current segment and try to start recording in the next segment.

Compatible Lavs

RF Resistant Lavs

Use one of the following microphone models:

Brand	Model	Voltage	Notes
Countryman	B6	1.5	
Countryman	B3		
Countryman	E6 omni		
Countryman	EMW	1.5	Specify for use with Zaxcom
DPA	4063-BMZ	3	Use only the Zaxcom 3.3 V model
Sanken	COS-11D		
Sennheiser	MKE-2 Platinum	3	
Sennheiser	MKE-2 Gold	3	New model – YES. Older models – NO
Shure	WL50	5	
Sony	ECM77		
Tram	TR-50		
Voice Tech.	VT401HS		
Voice Tech	VT506		
Voice Tech.	VT910		

Table 1-2 Compatible RF Resistant Lavalier Microphones

Additional microphones will be added to this list after a review of their 3.3v power performance and RF interference susceptibility has been completed.

Non-RF Resistant Lavs

Use one of the following microphone models:

Brand	Model	Voltage	Notes
Audio-Technica	892*CL4	3	
Audio-Technica	898*L4	3	
Audio-Technica	899*L4	3	
Countryman	Isomax Instrument M2H*W3	3	Hypercardioid
Countryman	Isomax Instrument M2C*W3	1.5	Cardioid
DPA	Headband 4067	3	Other headband requires 5 volts

Table 1-3 Compatible Non-RF Resistant Lavalier Microphones

Additional microphones will be added to this list after a review of their 3.3v performance.

General

The ZFR100 / ZFR200 has an unbalanced microphone input accessed through a 3-pin micro-LEMO connector. You can use an unbalanced dynamic microphone or a powered lavaliere. It is recommended that you use 3-wire lavalieres with separate pins for ground, audio and power.

When using a line-level input, an inline pad is required on the standard dynamic microphone input cable (XLR-3 to 3-pin micro-LEMO).

When using a phantom powered microphone with the ZFR100 / ZFR200, you must use an external 48 VDC power supply.

NOTE: Once upon a time, the Denecke 48V power supply could damage the now discontinued Goldline transmitter's preamp. This is NOT the case with the ZFR100 / ZFR200.

Battery Installation

Each unit may require one or two batteries.

CAUTION: Always observe the correct battery polarity. The negative contact on the battery is always connected to the spring contact.

Never use any battery that is missing insulation on its body. If you do, it can cause a short circuit in the battery compartment, causing damage to the unit.

Battery Life

IMPORTANT: If operating using internal batteries, it is recommended that you use only Lithium or rechargeable NiMH. Any other battery chemistry including Alkaline and Ultra batteries have a substantially reduced runtime compared to Lithium or NiMH cells. This is true for all Zaxcom units.

External Power

Some of the units can be powered from an external power source. The external power connection is a 2.5 mm (0.1") barrel connector. The center pin is positive. The connector for the STAxxx and IFB100 is the Switchcraft 760K.

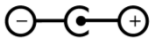


Figure 1-2 External Power Polarity

Common Settings for Associated IFB Transmitter and Receivers

The following settings must agree, to allow associated IFB transmitters and receivers to work together, (this assumes that the same or compatible versions have been installed in all units):

IFB Receiver side	IFB Transmitter side
Extended Menu	**Extended Menu**
Allow IFB Remote Control page	
IFB Signal Format page	*IFB Signal Format page*
IFB Receiver Enable page	
Group ID page	*Group ID page*
	Standard Menu
Unit ID page	*Remote Unit ID page*
IFB Frequency page	*IFB Frequency page*

Table 1-4 IFB Settings that Must be Consistent

IFB Antenna

CAUTION: The location(s) of the antenna(s) are indicated in the images for each unit. Don't place anything in front of this area that could block reception. Also, don't allow anything to press in on this area, the antenna and/or receiver could be damaged.

Associated Products User's Manuals

Zaxcom Digital Wireless System, IFB & Remote Control – User's Manual
Zaxcom ZaxConvert Utility – User's Manual

Product Support

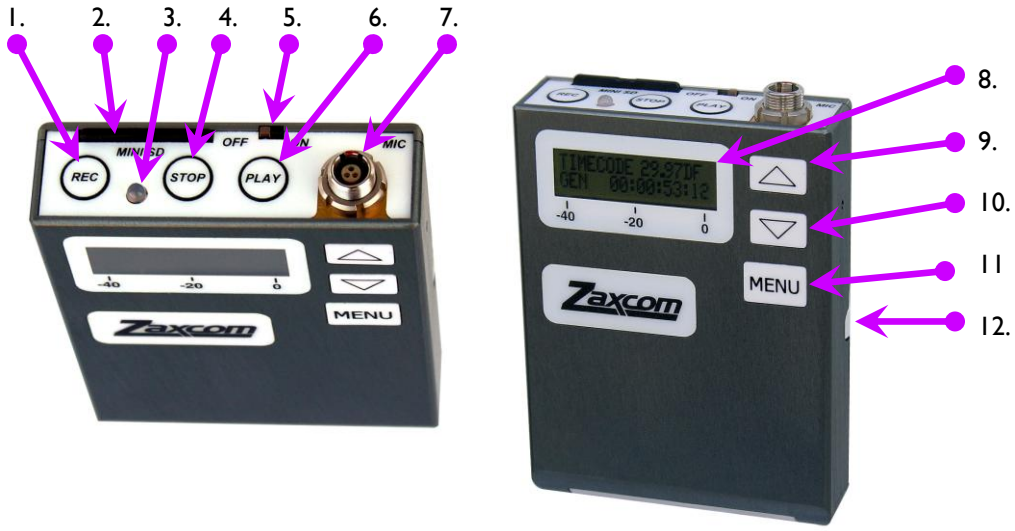
Download the latest **Firmware** from: http://www.zaxcom.com/support_software_updates.htm.
Download the latest **User Manuals** from: http://www.zaxcom.com/support_instructional_manuals.htm.
Register your new Zaxcom Product at: http://www.zaxcom.com/support_product_registration.htm.
Submit Technical Questions at: http://www.zaxcom.com/support_submit_tech_questions.htm.
Request an **RMA #** at: http://www.zaxcom.com/support_repair_services.htm

Chapter 2 – Digital Wireless System Recorders

This chapter is intended to quickly familiarize you with the functions of each of the Digital Wireless System recorders.

Getting to Know Your ZFR100 Bodypack Recorder

The ZFR100 uses two AA batteries (Lithium or NiMH). This section was written based on firmware version **6.80**.



1. ***REC*** *key*
2. Media Slot
3. Power/Record LED
4. ***STOP*** *key*
5. Power Switch
6. ***PLAY*** *key*
7. Microphone/Timecode Input
8. LCD Screen
9. ***INC*** *key*
10. ***DEC*** *key*
11. ***MENU*** *key*
12. Battery Door and Compartment (on back)

Figure 2-1 ZFR100 Top and Front Views

Device Interface

Media Slot

This slot holds a media card for recording and is protected from accidental ejection by a guard bar. To insert a card, with the screen facing you, turn the card so the finger contacts are facing you and down toward the slot. Insert it into the slot and press it down until you here a slight click. To remove it, press it in until you hear the same click again.

IMPORTANT: While inserting / removing the card, if your finger slides off of the card, it could fly a respectable distance. Be VERY care or you could lose a card containing hours of recording in an instant.

Unit Power Switch – Internal/External Power Switch

The Power switch is intentionally set below the frame of the unit to prevent accidentally turning it 'OFF' during use.

When the Zaxcom Stereo Adapter (STAxxx) is attached to the ZFR100, the ON/OFF switch becomes an internal or external power select switch.

Switch Position	No Stereo Adapter Installed	Stereo Adapter Installed
'ON'	'ON'	Internal Power
'OFF'	'OFF'	External Power

Table 2-1 ZFR100 Power Switch Alternate Functionality

ZFR100 Configuration Menus

There are ten **Standard** and twenty-eight **Extended** menu pages, as follows:

Standard Menu		Extended Menu	
Transport Control page	{p.21}	Highpass Filter page	{p.25}
Audio Gain page	{p.21}	Limiter page	{p.25}
Highpass Filter page	{p.22}	1K Notch Filter Enable page	{p.25}
Limiter page	{p.22}	1K Notch Filter Frequency page	{p.25}
Timecode Frame-rate page	{p.22}	Recording Format page	{p.26}
Timecode Jam Mode page	{p.22}	IFB Signal Format page	{p.26}
Timecode Source page	{p.23}	IFB Receiver Enable page	{p.26}
Earpiece Source page	{p.23}	IFB Voting Enable page	{p.26}
Format Recording Card page	{p.23}	IFB Frequency page	{p.27}
Lock page	{p.24}	IFB Dropout Compensator page	{p.27}
		Power-up Mode page	{p.27}
		Format Recording Card page	{p.28}
		Timecode Jam Mode page	{p.28}
		Timecode Source page	{p.29}
		Timecode Output Enable page	{p.29}
		Group ID page	{p.29}
		Unit ID page	{p.29}
		Expander page	{p.30}
		Dynamics page	{p.30}
		ADC Select page	{p.31}
		Battery Type page	{p.31}
		Recording Mode page	{p.31}
		Side Tone Gain page	{p.32}
		Allow IFB Remote Control page	{p.32}
		IFB Jam Threshold page	{p.32}
		Send QRX Program page	{p.32}
		Track Name page	{p.32}
		Encryption Code page	{p.33}

Table 2-2 ZFR100 Standard & Extended Menus

Each time the ***MENU*** *key* is pressed, the menu advances to the next page, in sequence.

Getting to Know Your ZFR200 Bodypack Recorder

The ZFR200 uses one AA battery (Lithium or NiMH). This section was written based on firmware version **6.80.**

1. – Unit Power Switch
2. – Media Slot
3. – 3-pin Micro-LEMO Connector
4. – Graphic LCD Screen
5. – ***INC*** *key* / ***REC*** *key*
6. – ***DEC*** *key* / ***STOP*** *key*
7. – ***MENU*** *key* / ***PLAY*** *key*
8. – ***CARD*** *key*
9. – IFB Antennas and Receiver
10. – Battery Compartment Door

Figure 2-2 ZFR200 Top, Front and Back Views

Device Interface

Media Slot

This slot holds a media card for local recording and is protected from accidental ejection by a guard bar. To insert a card, with the screen facing you, turn the card so the finger contacts are facing you and down toward the slot. Insert it into the slot and press it down until you here a slight click. To remove it, press it in until you hear the same click again.

IMPORTANT: While inserting / removing the card, if your finger slides off of the card, it could fly a respectable distance. Be VERY care or you could lose a card containing hours of recording in an instant.

Unit Power Switch

The power switch is intentionally set below the frame of the unit to prevent accidentally turning it 'OFF' during use.

ZFR200 Configuration Menus

There are nine **Standard,** and twenty-two **Extended** menu pages, as follows:

Standard Menu		Extended Menu	
Transport Control page	{p.21}	*Highpass Filter page*	{p.25}
Audio Gain page	{p.21}	*Limiter page*	{p.25}
Highpass Filter page	{p.22}	*Recording Format page*	{p.26}
Limiter page	{p.22}	*IFB Signal Format page*	{p.26}
Timecode Frame-rate page	{p.22}	*IFB Receiver Enable page*	{p.26}
Timecode Jam Mode page	{p.22}	*IFB Voting Enable page*	{p.26}
Timecode Source page	{p.23}	*IFB Frequency page*	{p.27}
Format Recording Card page	{p.23}	*Power-up Mode page*	{p.27}
Lock page	{p.24}	*Format Recording Card page*	{p.28}
		Timecode Jam Mode page	{p.28}
		Timecode Source page	{p.29}
		Group ID page	{p.29}
		Unit ID page	{p.29}
		Expander page	{p.30}
		Dynamics page	{p.30}
		Battery Type page	{p.31}
		Recording Mode page	{p.31}
		Allow IFB Remote Control page	{p.32}
		IFB Jam Threshold page	{p.32}
		Send QRX Program page	{p.32}
		Track Name page	{p.32}
		Encryption Code page	{p.33}

Table 2-3 ZFR200 Standard, Extended & Factory Setup Menus

Each time the ***MENU*** *key* is pressed, the menu advances to the next page, in sequence.

Getting to Know Your ZFR800 Handheld Recorder

The ZFR800 uses a single CR123 battery.

Uses screw-on microphone capsules made by Shure™ and Neumann™. Be aware that to use a Neumann capsule, a special adapter is required. Check with Zaxcom Sales for price and availability.

This section was written based on firmware version **6.10**.

1. Mic Capsule
2. Mic Body
3. Capsule Contacts
4. Body Contact Pins
5. Pad Switch (10 dB)
6. 1/8" headphone monitor jack
7. Media Slot
8. Battery Door (power switch inside)
9. **RECORD** *key*
10. ***MENU*** *key*
11. ***DEC*** *key*
12. ***INC*** *key*
13. LCD Screen

Figure 2-3 ZFR800 Side, Mic Capsule, Body Threaded End, Body Antenna End & Body Side Views

Device Interface

Media Slot

This slot holds a media card for local recording. To insert a card, with the screen facing you, turn the card so the finger contacts are facing away from you and down toward the slot. Insert it into the slot and press it down until you here a slight click. To remove it, press it in until you hear the same click again.

IMPORTANT: While inserting / removing the card, if your finger slides off of the card, it could fly a respectable distance. Be VERY care or you could lose a card containing hours of recording in an instant.

Unit Power Switch

Located inside the battery compartment, in the opposite end from the antenna.

ZFR800 Configuration Menus

There are seven **Standard** and ten **Extended** menu pages, as follows:

Standard Menu		Extended Menu	
Transport Control page	{p.21}	Highpass Filter page	{p.25}
Audio Gain page	{p.21}	Limiter page	{p.25}
Highpass Filter page	{p.22}	Power-up Mode page	{p.27}
Limiter page	{p.22}	Format Recording Card page	{p.28}
Timecode Frame-rate page	{p.22}	Timecode Output Enable page	{p.29}
Format Recording Card page	{p.23}	Expander page	{p.30}
Lock page	{p.24}	Dynamics page	{p.30}
		Battery Type page	{p.31}
		Recording Mode page	{p.31}
		Track Name page	{p.32}

Table 2-4 ZFR800 Standard & Extended Menus

Each time the ***MENU*** *key* is pressed, the menu advances to the next page, in sequence.

Recorder Bootup Sequences

Standard Bootup Sequence (without any card inserted)

LCD SYNTH AB	
LOWER POWER MODE IFB IS OFF 0	(**OPTIONAL PAGE:** Only appears if Low Power mode is fully enabled.)
PCB REVB BBBB VER A-AAA (CC)	(**PCB REVB** – Indicates the printed-circuit board is revision "B".) (**A-AAA** – Indicates the currently installed firmware version.) (**BBBB** – Programmable logic device revision code. '0000'=no timecode input '0150'=timecode input available.) (**CC** – Indicates which options are available: 00=none, 01=Record, 02=IFB, 03=IFB & Record.)
NO CARD	
NAME: DDDDDDDD	(**DDDDDDDD** – Displays the "Name" entered in the Extended Menu. The initial default is "SN:", followed by the unit's serial number.)
ENCRYPTION IS ON	(**OPTIONAL PAGE:** This statement indicates that an encryption code has been entered. Verify the code matches the associated receiver's code.)
AUDIO	
ZAXCOM VA-AAA WWWWWW SN:ZZZZZ	(**WWWWWW** – Indicates what hardware is being initialized.) (**ZZZZZ** – Indicates the unit's serial number.)
STOP 00:00:00:00 000:	
	(Be aware, if you get this alert, the unit will not go into RECORD mode.)
LOW BATTERY 1.60V	(This page appears, when the battery HAS to be changed.)

Table 2-5 Standard Bootup Sequence (without any card inserted)

Standard Bootup Sequence (with a formatted card inserted)

LCD SYNTH AB	
PCB REVB BBBB VER A-AAA (CC)	
FOUND SD CARD EEEEEEEEEE	(**EEEEEEEEEE** – Indicates the size of the card {i.e. 2 GBYTES or 512 MBYTES)
NAME: DDDDDDDD	
ENCRYPTION IS ON	
RECOVERING SEG F MM KB_	(**OPTIONAL PAGE:** Occurs if the recording was not correctly closed.) (**F** – Indicates how many previous recording(s) were found.) (**MM** – Indicates the size of the recovered audio.)
FOUND F SEGS MODE=GGGGGGG	(**GGGGGGG** – Indicates which Transmission Format is set in the Extended Menu.)
AUDIO	
ZAXCOM VA-AAA WWWWWW SN:ZZZZZ	
STOP 00:00:00:00 000:	(The unit does not automatically go into Record mode once it has completed its boot-up sequence.)

Table 2-6 Standard Bootup Sequence (with a formatted card inserted)

Extended Menu Bootup Sequence (without any card inserted)

LCD SYNTH AB	
PCB REVB BBBB VER A-AAA (CC)	
NO CARD	
EXT MENU HHH II A-AAA JJ:KK:LL	(**HHH II** – Indicates the month & day the version was created.) (**JJ:KK:LL** – Indicates the time of day the version was created.)
AUDIO	
ZAXCOM VA-AAA WWWWWW SN:ZZZZZ	
EXTENDED MENU PRESS UP TO EXIT	

Table 2-7 Extended Menu Bootup Sequence (without any card inserted)

Extended Menu Bootup Sequence (with a formatted card inserted)

LCD SYNTH AB
PCB REVB BBBB VER A-AAA (CC)
FOUND SD CARD PCB REVB BBBB
EXT MENU HHH II A-AAA JJ:KK:LL
RECOVERING SEG F MM KB_
FOUND F SEGS MODE=GGGGGGG
AUDIO
ZAXCOM VA-AAA WWWWWW SN:ZZZZZ
EXTENDED MENU PRESS UP TO EXIT

Table 2-8 Extended Menu Bootup Sequence (with a formatted card inserted)

Common Recorder Standard Menu

Transport Control page

```
STOP 00:00:00:00
000:
```

Page purpose: This is the default page at startup and displays the following information:

- Recorder mode
- Current timecode
- Current recording segment
- Current audio level

Recording Modes (top line, left side):

- **STOP** – Recording is stopped (accompanied by 1 beep).
- **LREC** – Recording is started and LOOP RECORD mode is enabled (accompanied by 2 beeps).
- **REC** – Recording is started and NON-LOOP RECORD mode is enabled (accompanied by 2 beeps).
- **WAIT** – May appear just before going into record, or if the card is ejected while recording.

Timecode based on the current mode (top line, right side; hours : minutes : seconds : frames):

- While in STOP mode – displays the location where playback will start.
- While in PLAY mode – displays the current location as the segment plays back.
- While in RECORD mode – displays the timecode coming from the generator.

Current recording segment (bottom line, left side):
Currently the maximum number of recording segments that can be on any one card is 254.

Current audio level at the pre-amp: measured in dBFS with zero on the far right side

The current playback timecode is displayed in the transport control page.

Audio Gain page

```
GAIN 20dB
```

Page purpose: This page adjusts the mic gain, using the ***INC*** or ***DEC*** *key*.

Parameters:

Audio Gain Board	Valid Range	Front panel Chg (*INC* / *DEC* key)	IFB100 chg	ZaxNet Cmd
Original	0 - 18 - 36 dB	2dB	2dB*	1dB*
Updated	0 - 25 - 52 dB	1dB	2dB*	1dB*

Table 2-9 Audio Gain Valid Range and Step Size

When audio is applied to the microphone input, the LCD indicates the signal strength using a bar graph displayed horizontally from left to right (@ -32 to 0 dBFS). The gain should be set so that the meter is averaging around -20 dBFS for normal conversation with peaks below -5 dBFS. This is about a quarter of the way down from 0 dBFS, toward the -20 dBFS marking printed below the screen. If no microphone is connected, the bar graph remains blank.

The unit features a digitally controlled analog limiter that is situated before the A/D converter. This prevents the A/D convertor from clipping by automatically attenuating the mic gain when excessive audio is detected.

When activated, the limiter engages based on the settings in the ***Limiter page*** {**p.22**}. The gain level should be set low enough to prevent it from engaging, even when Talent is screaming.

Highpass Filter page

```
HIGH PASS: OFF
```

Page purpose: This page maintains the cutoff frequency for the highpass filter.

Parameters:

- (valid range: **30** to **220Hz**, value step: **10**)
- **OFF**

Limiter page

```
LIMITER: OFF
```

Page purpose: This page enables/disables the limiter function.

Parameters:

- (Valid range: **-2dB** to **-30dB**, value step: **1**)
- **OFF**

NOTE: This page applies to the mic input only. It does not come into play for the STAxxx.

When the input signal is too high for the gain setting, it is clipped and results in distortion and popping. The limiter is used to prevent clipping by beginning to engage at the specified value. When using a microphone, normally you would enable the limiter. However, if the input signal is coming from a mixer that is using a limiter, you should disable this limiter.

Since it is implemented in the digital domain, the automatic limiter may engage even when you don't hear any substantial audio. The purpose of the limiter is to prevent the mic preamp from over-driving the A/D converter, so the limiter operates on audio before it has been processed by the highpass filter. If there is a massive amount of low frequency audio content being filtered out, such as wind noise, you may hear the effects of the limiter without hearing the audio that caused the limiter to engage. If this occurs, the gain is set too high and you must reduce it to below the level that triggers the limiter.

Timecode Frame-rate page

```
TIMECODE 30NDF
GEN   00:00:00:00
```

Page purpose: This page sets the frame-rate used to record audio on the inserted media card and displays the timecode as it is being recorded.

Parameters: [23.98] / [24] / [25] / [29.97NDF] / [29.97DF] / [30NDF] / [30DF]

Timecode Jam Mode page

```
TC JAM MODE:
MANUAL (OFF)
```

Page purpose: This page maintains how received timecode will be used.

Parameters:

- **AUTO-LOAD** – start and stop the recorder, based on the *Timecode Source page* {**p.23**} selection:
  - If an IFB100 is being used - when the IFB100 timecode starts and stops.
  - If an STAxxx/TCA100 is being used and the timecode source is connected to it when the timecode source starts and stops.
- **AUTO-JAM** – continuously jams timecode, based on the *Timecode Source page* {**p.23**} selection.
- **MANUAL (OFF)** – jam timecode once, based on the *Timecode Source page* {**p.23**} selection.

Timecode Source page

```
TC SOURCE:
IFB (RF)
```

Page purpose: This page maintains which input to use as the timecode source.

Parameters:

- **SIDE CONNECTOR** – Accept a timecode source connected to the attached STAxxx's side connector.
- **IFB (RF)** – Accept a timecode source connected to the IFB100.
- **AUDIO INPUT** – Accept a timecode source connected to the Audio Input connector.

Earpiece Source page (requires IFB Audio Option) (ZFR100 ONLY)

```
IFB EARPIECE:
IFB RX AUDIO
```

Page purpose: This page establishes the source for the audio being monitored during operation.

Parameters:

- **IFB MIX REMOTE** – the earpiece mix is controlled from the connected Mix-8 w/IFB100.
- **IFB MIX ALL** – the earpiece receives its audio from both the media and the IFB receiver.
- **IFB RX AUDIO** – the earpiece receives its audio from the IFB receiver.
- **REC/PLAY** – the earpiece receives its audio from the media.

Format Recording Card page

```
PRESS UP KEY 5X
TO ERASE CARD
```

```
SUCCESS (REBOOT)
#### MBYTES
```

```
FORMAT FAILED
ERROR ##
```

Page purpose: This page erases and formats a media card. This must be done before the card can be used (or to erase the contents) in the recorder.

NOTE: To display this page it is necessary to have the card **INSTALLED** in the media slot **PRIOR** to booting up the unit.

To Format a Card:

1. Before formatting the card, enter the name (*Track Name page* {**p.32**}) to be used for this card.
2. With the power 'OFF', insert the memory card into the media slot with the label to the back of the unit. Press it all the way in; it will lock down.
3. Repeatedly press the ***MENU*** *key* until the screen displays **PRESS UP KEY 5X TO ERASE CARD**.
4. Press the ***INC*** *key* 5 times. (displays **FORMATTING FAT32**)
5. Sometime later displays **ERASING SEGMENTS.**
6. And finally displays **SUCCESS #### MBYTES** or **FORMAT FAILED ERROR ##**, where **####** indicates the space on the card available for recording and **##** is one of the following error codes:

Error Code	Description
- 1	No SD card found
- 2	No FAT32 format found
- 3	Invalid SD card sector size

Table 2-10 Format Error Codes

Be sure the recorder displayed **SUCCESS #### MBYTES** before using it to record.

If the recorder displayed **FORMAT FAILED ERROR ##**, do not use the card in the recorder.

7. Once the Success message (see above) appears, you will need to reboot so the unit can mount the card.

To Recreate the Wrapper Files (will not destroy existing audio takes):

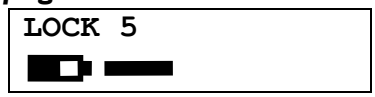
Repeat each of the steps above, but substitute the following for step 4:

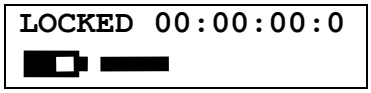
4. Press the ***DEC*** *key* 9 times. (displays **FORMATTING FAT32**)

NOTE: The Recreate Function is available in 5.92 and later. "Wrapper Files" are everything on the card except the DELETE.ME file, which consists of the folder and the files in the folder,

IMPORTANT: This function will not work if you record audio and then delete the files. It only works if you initialize the card, then delete the wrapper files and then record audio on it.

Lock page





Page purpose: This page enables a lock function to prevent accidentally changing settings.

This page has a five-second countdown. After the timer expires, the display indicates **LOCKED**.

Locking the controls prevents accidently changing settings. As a safety feature, while the unit is locked, only the unlock combination is available.

Press the ***INC*** or ***DEC*** *key* to temporarily display the current battery voltage in place of the battery icon.

If you advance to the next page after the **LOCK** page, the **LOCK** will not engage.

Unlocking the Unit

Simultaneously press the ***MENU*** and ***INC*** *keys*. Once it is unlocked, the screen will display the ***Transport Control page*** {**p.21**}. Powering down the unit will also clear the lock.

Common Recorder Extended Menu

These menu pages contain parameters that are infrequently changed.

Entering the Extended Menu

1. Power down the unit.
2. Press and hold the ***MENU*** *key* while powering up the unit.

Exiting the Extended Menu

- Cycle the power.
  OR
- Hold down the ***MENU*** *key* to get back to this page and press the ***INC*** *key*.

NOTE: All changes are saved to Flash ROM as soon as they are committed.

Highpass Filter page

```
HIGH PASS: OFF
```

Page purpose: This page maintains the cutoff frequency for the highpass filter.

Parameters:

- (valid range: **30** to **220Hz**, value step: **10**)
- **OFF**

Limiter page

```
LIMITER: OFF
```

Page purpose: This page manages the limiter function.

Parameters:

- (valid range: **-2dB** to **-30dB**, value step: **1**)
- **OFF**

NOTE: This page applies to the mic input only. It does not come into play for the STAxxx.

When the input signal is too high for the gain setting, it is clipped and results in distortion and popping. The limiter is used to prevent clipping by beginning to engage at the specified value. When using a microphone, normally you would enable the limiter. However, if the input signal is coming from a mixer that is using a limiter, you should disable this limiter.

Since it is implemented in the digital domain, the automatic limiter may engage even when you don't hear any substantial audio. The purpose of the limiter is to prevent the mic preamp from over-driving the A/D converter, so the limiter operates on audio before it has been processed by the highpass filter. If there is a massive amount of low frequency audio content being filtered out, such as wind noise, you may hear the effects of the limiter without hearing the audio that caused the limiter to engage. If this occurs, the gain is set too high and you must reduce it to below the level that triggers the limiter.

1K Notch Filter Enable page (requires IFB Audio Option)

```
1K NOTCH FILTER
OFF
```

Page purpose: This page enables/disables the 1 kHz notch filter to prevent Tone from harming the listener.

Parameters: [**OFF**] / [**ON**]

Before you hand out any ERX receiver, turn 'ON' Tone at your bag/cart, enable this page and go to the next page (*1K Notch Filter Frequency page*) to adjust the frequency this notch filter is blocking until the tone has been eliminated or minimized.

NOTE: Minimized … you say? Some tone generators do not output a pure 1 kHz tone. They may be off in frequency and/or include harmonic frequencies.

1K Notch Filter Frequency page (requires IFB Audio Option)

```
1K NOTCH FREQ
1000 HZ
```

Page purpose: This page sets the frequency that is blocked by the previous page (*1K Notch Filter Enable page*).

Parameters: (valid range: **960** to **1040 HZ**, value step: **2**)

Recording Format page

```
RECORD FORMAT:
MONO (US)
```

Page purpose: This page maintains the recording format.

Parameters:

- **STEREO** – This setting records in stereo mode, when used with an attached stereo adapter (STAxxx).
- **MONO (US)** – This setting records in mono mode.

IMPORTANT: Any change made to this page requires a reboot before the new setting will take effect.

IFB Signal Format page (requires IFB Audio Option) (ZFR100 ONLY)

```
IFB FORMAT:
HIGH Q
```

Page purpose: This page controls the quality of the received IFB signal.

Parameters:

- **HIGH Q** – enables high quality audio reception.
- **LOW Q** – enables standard quality audio reception.

IMPORTANT: All units (TRX9xx / ZFR100 / ZFR200 / ERX) in the same group **MUST** use the same format to function correctly.

IMPORTANT: Any change made to this page requires a reboot before the new setting will take effect.

NOTE: As of version 6.08, it is now possible to receive High Quality audio and receive timecode and remote control signals. As a result, it is **HIGHLY** recommended to always run with the **HIGH Q** setting.

IFB Receiver Enable page

```
RXMODE=RX
RXED BLOCKS 000
```

Page purpose: This page enables/disables the IFB receiver.

Parameters: [**OFF**] \ [**RX**]

Disabling the IFB receiver will reduce power consumption by 20 mA and increase battery run time by ~10%.

IFB Voting Enable page

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

Page purpose: This page enables/disables the IFB Voting function.

Parameters: [**NORMAL (OFF)**] / [**2 TXERS (ON)**]

To use this function, you will need a second IFB100 that is also connected by audio cable to your cart and placed some distance away in the direction you expect Talent to travel. Set the frequency of this second IFB to 2 MHz (0.002 GHz on the ***IFB Frequency page***) above the first unit. Also be sure to set the ***IFB Frequency page*** {**p.27**} on the unit(s) (ZFR100 / ZFR200) to the lowest frequency assigned to the two IFB100s.

In operation, the first IFB100 will be closer to (or on) your cart and the second IFB100 will be some distance away to cover the area you anticipate using. While the unit (ZFR100 / ZFR200) is within range of the first IFB100, it will be receiving IFB audio on that lower IFB frequency. Once the unit has gone out-of-range of the first IFB and gone into-range of the second IFB, the unit's IFB receiver will switch to receiving on the frequency assigned to the second IFB. If over time, the unit moves out-of-range of the second IFB and back into-range of the first IFB, the unit's IFB receiver will once again start receiving on the first IFB's assigned frequency.

IFB Frequency page

```
FREQ: 2.403 RX
SIGNAL: 01      .
```

Page purpose: This page maintains the IFB receiver's center frequency and displays the signal strength for the antennas in a numerical and graphical format.

Parameters: (valid range: **2.403** to **2.475** GHz, value step: **0.001**)

While a valid signal is received, the **RX** flag is displayed on the right side of the top line.

IFB Dropout Compensator page (requires IFB Audio Option)

```
IFB DROPOUT
COMPENSATOR ON
```

Page purpose: This page enables/disables Dropout Compensation on the IFB audio.

Parameters: [**OFF**] / [**ON**]

Drop out compensation looks at the received audio data surrounding a short duration drop out. It intelligently replaces the lost audio that will match together the audio surrounding the drop out. This eliminates any noticeable distortion that would be caused by the missing audio data. This improves the performance of digital wireless as interfering signals and drop outs of short duration have no effect on received audio quality. It will also fade out the received audio smoothly when the transmitter is turned 'OFF' or if the receiver goes out of the transmitters range. Single drop outs of up to 30MS are very effectively eliminated. If the drop out is longer the audio begins to fade out smoothly. If there are multiple drop outs over a longer period the compensation can do a good job of hiding the problem as long as there is audio in between to process.

Power-up Mode page

```
POWER UP MODE:
  UNLOCKED
```

Page purpose: This page determines whether the keys will be consistently locked after power-up.

Parameters:

- **LOCKED** – After power-up has completed, the menu repositions to the *Lock page* {**p.24**}.
- **UNLOCKED** – The keys are unlocked upon power-up.

The *Lock page* {**p.24**} is the gate keeper. Once **LOCKED** is selected, every time the unit is powered up (and after the countdown clock has expired), the keys will be locked and it will be necessary to unlock them before you can view/change anything.

Unlocking the Unit

Simultaneously press the ***MENU*** and ***INC*** *keys*. Once it is unlocked, the screen will display the *Transport Control page* {**p.21**}.

Format Recording Card page

```
PRESS UP KEY 5X
TO ERASE CARD
```

```
SUCCESS (REBOOT)
#### MBYTES
```

```
FORMAT FAILED
ERROR ##
```

Page purpose: This page erases and formats a media card. This must be done before the card can be used in the unit, or to erase the contents.

NOTE: To display this page it is necessary to have the card **INSTALLED** in the media slot **PRIOR** to booting up the unit.

To Format a Card:

1. Before formatting the card, enter the name (*Track Name page* {**p.32**}) to be used for this card.
2. With the power 'OFF', insert the memory card into the media slot with the label to the back of the unit. Press it all the way in; it will lock down.
3. Press and hold the ***MENU*** *key* while the unit is powered up.
4. Repeatedly press the ***MENU*** *key* until the screen displays **PRESS UP KEY 5X TO ERASE CARD**.
5. Press the ***INC*** *key* 5 times. (displays **FORMATTING FAT32**)
6. Sometime later displays **ERASING SEGMENTS**.
7. And finally displays **SUCCESS #### MBYTES** or **FORMAT FAILED ERROR ##**, where **####** indicates the space on the card available for recording and **##** is one of the following error codes:

Error Code	Description
- 1	No SD card found
- 2	No FAT32 format found
- 3	Invalid SD card sector size

Table 2-11 Format Error Codes

   Be sure the unit displayed **SUCCESS #### MBYTES** before using it to record.
   If it displayed **FORMAT FAILED ERROR ##**, do not use the card for recording.
8. Once the Success message (see above) appears, you will need to reboot so the unit can mount the card.

To Recreate the Wrapper Files (will not destroy existing audio takes):

Repeat each of the steps above, but substitute the following for step 5:

5. Press the ***DEC*** *key* 9 times. (displays **FORMATTING FAT32**)

NOTE: The Recreate Function is available in 5.92 and later. The "Wrapper Files" are everything on the card except the DELETE.ME file, which consists of the folder and the files in the folder,

IMPORTANT: This function will not work if you record audio and then delete the files. It only works if you initialize the card, then delete the wrapper files and then record audio on it.

Timecode Jam Mode page

```
TC JAM MODE:
MANUAL (OFF)
```

Page purpose: This page maintains how received timecode will be used.

Parameters:

- **AUTO-LOAD** – start and stop the recorder, based on the *Timecode Source page* {**p.29**} selection:
  - If an IFB100 is being used - when the IFB100 timecode starts and stops.

  - If an STAxxx/TCA100 is being used and the timecode source is connected to it when the timecode source starts and stops.
- **AUTO-JAM** – continuously jams timecode, based on the *Timecode Source page* {**p.29**} selection.
- **MANUAL (OFF)** – jam timecode once, based on the *Timecode Source page* {**p.29**} selection.

IMPORTANT: While you are controlling the recorder using ZaxNet, or directly from the IFB100, you would be wise to use **AUTO-LOAD** here. If it becomes necessary to make changes using the unit's menu buttons, the mere act of scrolling past the *Transport Control page* {**p.21**}, will immediately put it in RECORD mode and unless you are watching the LED indicator, you won't have visual confirmation.

Timecode Source page

```
TC SOURCE:
IFB (RF)
```

Page purpose: This page maintains which input to use as the timecode source.

Parameters:

- **SIDE CONNECTOR** – Accept a timecode source connected to the attached STAxxx's side connector.
- **IFB (RF)** – Accept a timecode source connected to the IFB100.
- **AUDIO INPUT** – Accept a timecode source connected to the Audio Input connector.

Timecode Output Enable page

```
TIMECODE OUTPUT:
OFF
```

Page purpose: This page enables/disables timecode output and specifies the output connector.

Parameters:

- **ON: OUT BOTH** – Sends timecode to both (attached STAxxx's TC output & headphone output).
- **ON: OUT RIGHT** – Sends timecode to the attached STAxxx's timecode output connection.
- **ON: OUT LEFT** – Sends timecode to the headphone output.
- **OFF** – Timecode is not output.

Group ID page

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

Page purpose: This page identifies which IFB100 can remotely control this unit.

Parameters: (valid range: 0 to 99, value step: 1)

It is highly desirable to have all transmitters and recorders in a given group assigned to the same IFB100.

Unit ID page

```
REMOTE CONTROL
UNIT ID=001
```

Page purpose: This page maintains the number used to uniquely identify this unit.

Parameters:

- (valid range: 1 to 200, value step: 1)
- **ALL**

When using the IFB100, this identifier is used to remotely control one specific unit out of the entire group. This information is also useful in Post to identify the unit since it is recorded in the BWF metadata.

Expander page

EXPANDER

Page purpose: This page maintains the info used to expand the unit's dynamic range.

Parameters: To enter this page, press the ***INC*** or ***DEC*** *key*, "**PARMS**" is displayed on the right. To move to the next parameter, momentarily press the ***MENU*** *key*. To exit this page, press the ***MENU*** *key* for 1 second.

- **PARMS:** [**OFF**] / [**ON**]
- **RATIO:** (valid range: **1:1.01** to **1:1.30** to **1:4.00**, value step: **0.01**)
- **THRESH:** (valid range: **0** to **-40** to **-96dB**, value step: **1**)
- **REDUCE:** (valid range: **0** to **-6** to **-36dB**, value step: **1**)
- **SPEED:** [**SLOW**] / [**NORMAL**] / [**FAST**]

Dynamics page (ADVANCED USERS ONLY!)

DYNAMICS

Page purpose: This page controls a compressor effect that will decrease the gain during loud passages.

Parameters: To enter this page, press the ***INC*** or ***DEC*** *key*, "**PARMS**" is displayed on the right. To move to the next parameter, momentarily press the ***MENU*** *key*. To exit this page, press the ***MENU*** *key* for 1 second.

- **PARMS:** [**OFF**] / [**ON**]
- **SIDECHAIN:**
  (Sidechain Selection) This parameter selects the audio used to control the dynamics, specifically it selects the audio feed to the dynamics peak detector. The options are:
  - **HFB**: Input audio to the mic high-passed
  - **LP2**: Input audio to the mic low passed more
  - **LP1**: Input audio to the mic low passed
  - **IN**: Input audio to the mic

  Note that this selection does not change the audio that is being processed by the dynamics, rather it changes the audio signal used to determine the level or "loudness" of the audio.
- **SPEED:** [**SLOWEST**] / [**SLOW**] / [**NORMAL**] / [**FAST**] / [**FASTEST**]
  (Decay Speed) Controls the decay speed of the peak detector used by the dynamics processing.
- **ATTACK:** [**SLOWEST**] / [**SLOW**] / [**NORMAL**] / [**FAST**] / [**FASTEST**]
  (Attack Speed) Controls the amount of gain slewing which will generally slow the response to attack transients only.
- **CMP RATIO:** (valid range: **1.0:1** to **3.0:1** to **5.0:1**, value step: **0.1**)
  (Compressor Ratio) Sets the compressor ratio i.e. 2.0:1 means for every 1 dB above the compressor threshold the gain will be reduced 2 dB.
- **CMP THRESH:** (valid range: **0** to **-20dB** to **-96dB**, value step: **1**)
  (Compressor Threshold) Sets the threshold below which gain reduction occurs according to the compressor ratio setting.

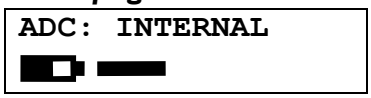
- **CMP KNEE:** (valid range: **0** to **20dB**, value step: **1**)
  (Compressor Soft Knee) Sets the "depth" of the compressor's soft knee. A soft knee of 6 dB will result in more gradual gain reduction in the 6 dB range over the compressor's set threshold. Note that settings below 6 dB have very little effect.
- **EXP RATIO:** (valid range: **1:1.00** to **1:1.10** to **1:4.00**, value step: **0.01**)
  (Expansion Ratio) Sets the expansion ratio i.e. 1:2.0 means for every 1 dB above the expansion threshold the gain will be reduced 2 dB.
- **EXP THRESH:** (valid range: **0** to **-40** to **-96dB**, value step: **1**)
  (Expansion Threshold) Sets the threshold above which gain reduction occurs according to the expansion ratio setting.
- **REDUCE:** (valid range: **0** to **-12** to **-36dB**, value step: **1**)
  (Expander Gain Reduction) Sets the absolute limit on the amount of gain reduction caused by the expander.
- **GAIN:** (valid range: **0** to **30dB**, value step: **1**)
  (Make-up Gain) Used to compensate for the gain reduction caused by the action of the compressor.

Dynamics is comprised of both a compressor and an expander, which operate jointly.

The compressor in Dynamics can perform mild or extreme compression and features a soft knee for more transparent operation. The expander in Dynamics can perform subtle or extreme noise reduction.

NOTE: Dynamics processing is done before the existing Expander (which is still functional). Thus, the expander can be used as a stand-alone noise gate while the dynamics can shape the sound as desired.

ADC Select page



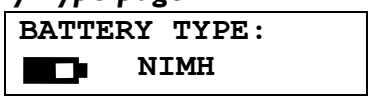
Page purpose: This page indicates where the analog to digital conversion (ADC) is performed.

Parameters:

- **STA-150** – AD conversion is done in the attached STA-150.
- **STA-100** – AD conversion is done in the attached STA-100.
- **INTERNAL** – AD conversion is done internally for use with the mic input connector.

NOTE: STA-100/150 only applies when an STAxxx is attached.

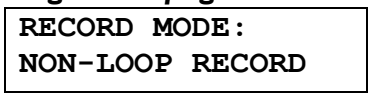
Battery Type page



Page purpose: This page adjusts the algorithm used to display the remaining battery capacity.

Parameters: [**LITHIUM**] / [**ALKALINE**] / [**NIMH**]

Recording Mode page



Page purpose: This page maintains the Recording mode.

Parameters:

- **NON-LOOP RECORD** – Once the media has filled up, recording stops and **FULL** is displayed. This prevents over-writing any portion of the audio.

- **LOOP RECORD** – Once the media has filled up, the new audio will begin over-writing the oldest audio on the card.

Side Tone Gain page (requires IFB Audio Option)

```
SIDE TONE GAIN
0dB
```

Page purpose: This boosts the audio being fed to the earpiece / headphone.

Parameters: [0dB] / [+6dB] / [+9dB] / [+12dB]

Allow IFB Remote Control page

```
ALLOW IFB REMOTE
CONTROL: ON
```

Page purpose: This page enables/disables remote control of this unit.

Parameters: [OFF] / [ON]

IFB Jam Threshold page

```
IFB JAM THRESH
1000 MS(DEFAULT)
```

Page purpose: This page determines how far off the timecode has to jump before a new file is forcibly created.

Parameters: (valid range: 10 to 1000 to 3000 MS, value step: 1)

IMPORTANT: When a new file is created, while a Take is in progress, about 1/2 second of the audio is lost.

Send QRX Program page

```
PRESS ↑ TO SEND
QRX PROG FILE
```

```
NO QRX-XXX.BIN
FILE ON SD CARD
```

Page purpose: This page causes the QRX program on the mounted MiniSD / MicroSD card to be sent over-the-air on the Audio channel.

Parameters: N/A

NOTE: This page is slated for removal. It does not belong here.

Track Name page

```
NAME:FREDERIC
      ↑
```

Page purpose: This page maintains the Track Name applied to the card and to the audio's metadata.

Parameters: _____ (max. length: 8 characters, selected from: 0 to 9, space, A to Z)

The name entered into the unit becomes part of the name of the audio files generated by the unit and is also included in the metadata of the BWF file. When powered up, this name appears in the unit's screen after several seconds.

To set/change the name, do the following:

1. Press the ***INC*** or ***DEC*** *key* to change the character in the current position.
2. Press the ***MENU*** *key* to proceed to the next character.
3. When finished, press and hold the ***MENU*** *key* to leave this function or cycle the power.

Encryption Code page

```
ID1:000 ID0:000
                ↑
```

Page purpose: This page maintains the code used to decrypt the audio received from the IFB transmitter.

Parameters: (valid range: 000 to **FFF**, value step: 1)

- To move to the next character, momentarily press the ***MENU*** *key*.
- To change the designated character position, press the ***INC*** or ***DEC*** *key*.
- To exit this page, press the ***MENU*** *key* for 1 second.

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

Encryption Code Part 1 (ID1) and Encryption Code Part 0 (ID0)
On this page, 2 three-digit numbers are entered. These two numbers are formed into a single six-digit encryption code. This code is your decryption key for this unit. An identical code must be entered into the associated IFB transmitter for the audio to be properly decoded.

Enabling this function is useful when sensitive information must not be made public. Standard FM wireless transmitters can be picked up using scanners and other electronic devices. Unless a Zaxcom receiver is used, even an uncoded transmitter signal cannot be picked up using a scanner.

The six-digit encryption code provides a total of 16,777,216 possible choices.

If a Zaxcom receiver has been programmed with an encryption code, it will also continue to receive an uncoded transmitter (both ID#0 and ID#1 set to 000). Since the receiver has to check for two possible code situations, a slight performance penalty may be incurred during long-range reception. To avoid this, it is highly recommended that both the transmitter and receiver codes be set to 000:000 (uncoded) when high security communication is not required.

Chapter 3 – Recording Audio using the Miniature Digital Recorders

Recording Format

The media card is formatted using the FAT32 file system. While recording, the unit places all recorded audio in a single file on the media.

The FAT32 file system can be read on both Windows and Mac OS computers. However, the single file generated by the recorder can only be understood by the Zaxcom ZaxConvert program. It converts the file into a format (Broadcast Wave Format = BWF), that is useable in Post. This utility is available to anyone for free from the Zaxcom website.

Recording Mode

The audio can be recorded in LOOP RECORD mode or NON-LOOP RECORD mode.

In **LOOP RECORD** mode (indicated by **LREC** in the *Transport Control page* {**p.21**}), as the card fills-up, it eventually loops back to the beginning of the card and records over the oldest material. To prevent audio from being erased, do not exceed the recording length of the media (see *Table 3-1 Available Recording Time* {**p.34**}).

In **NON-LOOP RECORD** mode (indicated by **REC** in the *Transport Control page* {**p.21**}), as soon as the card is full, recording ceases and the screen displays **FULL**.

Media Capacity

You can use MiniSD / MicroSD cards (as appropriate), ranging in size from 128 MB to 16 GB. A 16 GB card records a single track of audio for 96 hours without erasing any recorded audio on the card. Available recording times are as follows:

Media Size	Available Recording Time
128 MB	45 minutes
256 MB	1.5 hours
512 MB	3 hours
1 GB	6 hours
2 GB	12 hours
4 GB	24 hours
8 GB	48 hours
16 GB	96 hours

Table 3-1 Available Recording Time

IMPORTANT: The unit will **NOT** record onto the card if it was not present when the unit was powered up, if it was removed while the power was 'ON' or if the LOW BATTERY page {**p.18**} is being displayed. If the card was ejected while the power was 'ON', the card must be reinserted before its power is cycled, in order to resume recording.

Dual Color LED

The dual color LED on top of the unit indicates the recorder's transport status:

Color	Indication
Solid Green	STOP mode or PLAYBACK mode (displays when no card was inserted)
Green and flickers Red	RECORD mode
Solid Red	Recording connection lost. The card may have been ejected, is full or was not formatted correctly.

Table 3-2 Recorder LED Indications

Recording Operation

This section describes the steps necessary to record audio.

Formatting the Media Card

Many cards are sold preformatted; however, you must reformat it in the recorder prior to recording on it. Only cards formatted in the unit will work correctly.

To prepare a card for use, or to erase the contents before reuse, perform the format procedure on the *Format Recording Card page* {**p.23**}.

Upon completion of the formatting process, the following files remain on the card (example based on a 2GB card):

SN01752 (This folder's name initially defaults to the unit's serial #, thereafter it uses what was entered in the *Track Name page* {**p.32**}.)
- ZBLK0000.ZAX (size = 1,048,576 KB)
- ZBLK0001.ZAX (size = 932,684 KB)
- ZDIR.ZZZ (size = 538 KB)

DELETE.ME (size = 512 KB)

The ZBLK****.ZAX files store the recording segments, and the ZDIR.ZZZ file stores metadata about each segment (i.e.: pointer into the .ZAX file, associated start timecode, track name, etc.)

The DELETE.ME file can in fact be deleted. Doing this frees up enough room for a copy of the firmware.

CAUTION: Do not delete any other files from the card. Doing so will prevent it from working correctly. If for some reason you proceed to delete the wrapper files, follow the instructions *To Recreate the Wrapper Files (will not destroy existing audio takes):* {**p.24**}.

NOTE: If you move a unit from one actor to another actor and enter the new actor/character name, the folder name will remain the same and any audio from the new actor will be stored in the same folder. The metadata will contain the correct name.

IMPORTANT: If it is important to you that the Track Name folder is correct, prepare a card for each actor/character and have it follow each actor. This does not eliminate the need to change the track name, so the correct name appears in the metadata.

Current Timecode and Frame-rate Display

The current timecode generator value and frame-rate appear on the *Timecode Frame-rate page* {**p.22**}.

Jamming Timecode into the Unit

While the unit is being jammed, it identifies the timecode rate and type, and sets itself to that rate.

NOTE: The unit's timecode accuracy is approximately 1 frame in 6 hours (1.54 PPM).

Jamming timecode into the unit starts a new recording file. The Zaxcom conversion utility starts the transfer and conversion process at the point where the unit's timecode was jammed.

NOTE: The unit does **NOT** continue to keep timecode when it is powered down. Every time its power is cycled, it will be necessary to jam its TC generator.

Manually Jamming TC with a Cable

Timecode can be jammed into the unit by connecting the timecode source to the microphone input or using the stereo adapter. When timecode is connected, it takes the unit approximately three (3) seconds to recognize the TC input. The screen displays **TIME CODE** followed shortly by **JAMMED** when it is recognized. When the word **JAMMED** disappears, the timecode input source can be disconnected and normal operation can be resumed.

When using the mic input connector with a Mic-level source, the audio level of the timecode signal needs to be between -30 and -10 dBFS on the unit's meter. Any level above -10 may cause clipping, which will prevent proper reading of timecode.

When using the mic input connector with a Line-level source, a Line-level to Mic-level cable should be used to attenuate the timecode signal out of a generator to the correct audio level.

When using the Line-level input connector (STAxxx/TCA100) with a Line-level source, a non-attenuating cable should be used.

In the recorder {ZFR100}, (Standard Menu):

a. Set the ***Timecode Jam Mode page*** {**p.22**} to **MANUAL**.
b. Set the ***Timecode Source page*** {**p.23**} to **SIDE CONNECTOR** or **AUDIO INPUT** (as appropriate).

NOTE: The TRX800 cannot be jammed. Its timecode will **ALWAYS** start at 00:00:00.

Continuously Jamming TC using the IFB100

1. In the recorder {ZFR100 & ZFR200}, (Standard Menu):
   a. Set the ***Timecode Jam Mode page*** {**p.22**} to **AUTO-JAM**.
   b. Set the ***Timecode Source page*** {**p.23**} to **IFB (RF)**.
2. In the IFB100:
   a. Connect the TC source to the TC-IN connector.
   b. Set the ***Timecode Jam Mode page*** to **AUTO-LOAD** or **AUTO-JAM**.
   c. Set the ***Timecode Source page*** to **SIDE CONNECTOR**.

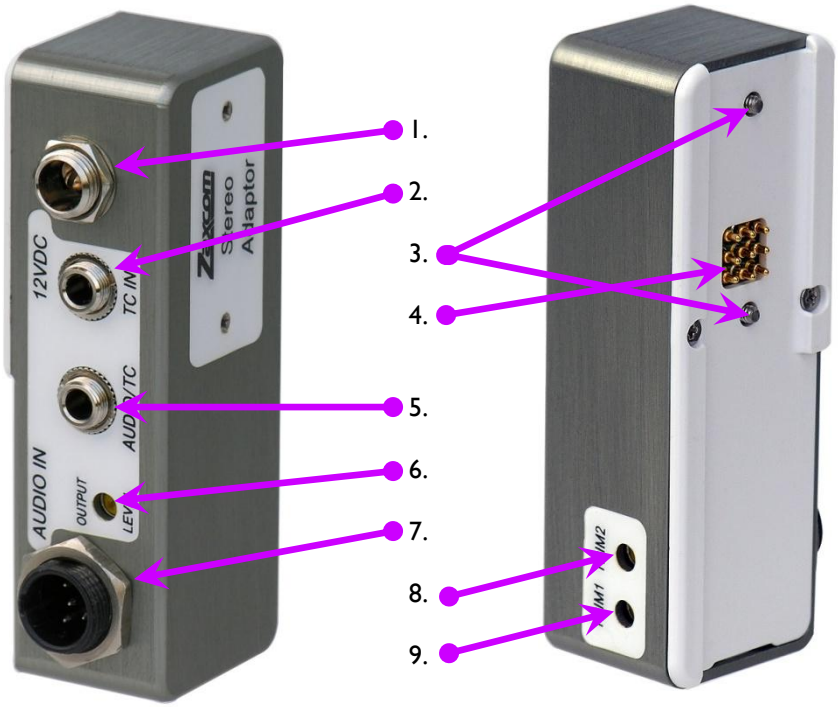
Remote Control Recording Mode (with IFB100)

1. In each transmitter {TRX9xx}, (Extended Menu) or recorder {ZFR100 & ZFR200}, (Extended Menu):
   a. Set the ***IFB Receiver Enable page*** {**p.26**} to **RX**.
   b. Set the ***IFB Frequency page*** {**p.27**} to match the IFB100's frequency
   c. Set the ***Timecode Jam Mode page*** {**p.28**} to **AUTO-LOAD**.
   d. Set the ***Timecode Source page*** {**p.29**} to **IFB (RF)**.
   e. Set the ***Group ID page*** {**p.29**} to match the IFB100's Group ID.
   f. Set the ***Recording Mode page*** {**p.31**} as desired.
   g. Set the ***Allow IFB Remote Control page*** {**p.32**} to **ON**.
2. In the IFB100:
   a. Set the ***Timecode Jam Mode page*** to **AUTO-LOAD**.
   b. Set the ***Timecode Source page*** to **SIDE CONNECTOR**.
3. Connect the TC source to the TC-IN connector.
4. Power cycle the IFB100.
5. The degree to which remote control can occur:
   a. Using the IFB100, whether or not it is connected to any recorder, you can manually: start and stop all associated recorders, adjust the mic gain at the transmitter, independently adjust each transmitter's UHF frequency and put all of the units into and out of low power mode.
   b. For a TC source that is not a Zaxcom Deva or Fusion recorder; if the TC output counts as normal while the recorder is in RECORD and freezes when the recorder is in STOP, the IFB100 can automatically start and stop all recorders with the same Group ID number as the recorder is started and stopped.
   c. For a Zaxcom Deva or Fusion connected to the IFB100, the recorder can automatically start and stop all recorders with the same Group ID number as the recorder is started and stopped. In addition, it can independently control the input gain, at each transmitter, from the channel faders.

Chapter 4 – ZFR100 Adapters

STA100 Stereo Adapter

The STA100 allows the unit to record in stereo from a Line-level source.



1. Power Connector
2. Timecode Input Connector
3. Screws to Attach to ZFR100
4. Electrical Contacts for ZFR100
5. Audio/Timecode Output Connector
6. Output Level Adjustment
7. TA-5M Audio Input Connector
8. Level Trim for Channel #2 (right)
9. Level Trim for Channel #1 (left)

Figure 4-1 STA100 Front & Back Views

Installation

The STAxxx attaches to the ZFR100 with two screws.

Tighten the two screws, alternating between them, until the adapter and recorder are tightly connected.

CAUTION: Do not over-tighten the screws.

Connect a Line-level source to the TA-5M connector. The Line-level input needs to be between -6 and +8 dBu.

Adjusting the Input Level

Output tone from a mixer and adjust the 2 input pots so the meter on the LCD screen is at a level of -20 dBFS. The stereo adapter does not have a limiter function so it is important not to overdrive or clip the input of the stereo adapter.

Powering the STAxxx

Connection of 12 VDC power to the stereo adapter is optional. If no power source is connected to the STAxxx, it operates from the unit's internal battery.

Using an External Power Source

When the 12 VDC input is connected to a power source, it supplies power to the unit when its power switch is in the 'OFF' position.

If batteries are installed in the unit and external power is connected, it will not be able to power down unless an external power switch is available to remove the external power.

Using the STAxxx to Power the Unit

The adapter can be used to power the unit while it is in Mono mode and using a Mic-level input.

The Audio/Timecode Output Connection

The audio output connection is used to monitor the audio functions of its host unit or to allow timecode to pass through the STAxxx. The unit's output setting (*Timecode Output Enable page* {**p.29**}) determines if audio or timecode is sent through the output.

Timecode Input

The timecode input is used to jam the unit's timecode generator. If the auto-load function (*Timecode Jam Mode page* {**p.28**}) is enabled, the timecode input of the stereo adapter can be used.

Operation of the STAxxx

For the stereo adapter to operate, the Operator must select **STEREO** (*Recording Format page* {**p.26**}) and select **STA-100** or **STA-150** (as appropriate) (*ADC Select page* {**p.31**}).

Host Unit functions

Selecting the stereo setting causes the unit to combine the two input signals together and record them on one channel. The ADC selection: **INTERNAL** – selects the internal mic input, **STA-100** or **STA-150** selects the appropriate stereo adapter's audio.

Figure 4-2 STA100 attached to ZFR100

STA150 Stereo Adapter

Figure 4-3 STA150 & STA150 attached to ZFR100

The STA150 is based on the STA100. The difference is the cables exit from the side, instead of out of the back.

EA100 Earpiece Adapter

Figure 4-4 EA100 alone & EA100 attached to ZFR100

The EA100 is used for monitoring audio (IFB or from the recording) when attached to the side of a ZFR100.

TCA100 Timecode Adapter

Figure 4-5 TCA100 attached to ZFR100 & TCA100

The TCA100 timecode adaptor provides a dedicated timecode input to the ZFR100. This is especially helpful for using the auto-load feature manually (without the IFB100).

Chapter 5 – New System Capabilities

Introduction

Our Software Engineers make changes to the firmware to make it easier to use or to correct a problem that an Operator has encountered. But, every once-in-a-while, they come up with some truly ground-breaking additions to the system. This chapter is dedicated to letting all of you, the Owners and Operators, know about all of these new capabilities. As part of that, I will do my best to explain how to use them.

Improvements

Improved Timecode Sync

What units are effected and when introduced: **TRX9xx, ZFR (1/2), IFB100 ERX1TCD**
TRX-6.76 (2010-08-31) ERX-1.06 (2010-07-22)

Timecode syncing has been drastically improved to within 0.01 frames. This version or later must be installed in the IFB100 and TRXxxx. In addition, the benefits can be seen while using the ERX1TCD to feed a camera.

Using Remote Control and Timecode while in HQ Mode

What units are effected and when introduced: **TRX9xx, ZFR (1/2)**
TRX-6.08 (2009-06-03)

This version now allows receiving timecode and the using remote control while High Quality Audio mode is selected.

Using High Capacity SD Cards

What units are effected and when introduced: **TRXxxx, ZFRxxx**
TRX-5.98 (2009-03-03)

A problem with using 4GB, 8GB and 16GB cards has been fixed. This change could possibly cause some older cards to stop working. If you upgrade to this version and find that your brand of SD card no longer works, you may need to use another brand of SD card to downgrade to an older version.

NOTE: Large cards slow down the boot process.

New IFB Audio Codec

What units are effected and when introduced: **TRX9xx, ZFR (1/2), IFB100**
TRX-5.50a (2008-05-21)

The IFB audio transmission format has changed. To maintain IFB audio compatibility, both the IFB transmitter(s) and the UHF transmitter(s) must be loaded with this version or higher.

Know Firmware Problems

Recorders

- **PROBLEM:** Naming your unit "ZAXCOMSD" in the *Track Name page* {**p.32**}, will cause the Format function in the *Format Recording Card page* {**p.23**} to fail.
  WORKAROUND: Don't do that.
- **PROBLEM:** The first audio segment is always timecode stamped with 00:00:00.
  WORKAROUND: Go into RECORD mode for a few seconds, after the card has been initialized. Any recording after this point will have the correct timecode recorded in the file.

IFB

NONE

Chapter 6 – Equipment Specifications

ZFR100 Specifications

Recorder Audio

Dynamic Range	103 dB
Distortion	0.001%
Frequency Response	20 Hz to 16 kHz
Highpass Filter	'OFF' or 30 to 220 Hz, step: 10 (6 dB per octave)
Mic Power	3.3 VDC @ 10mA max
Mic Connector	3-pin micro-LEMO (mic side = FGB.00.303.CLAD.22)
Input Range	–60 to –24 dBu
Impedance	4.7 k ohms
ADC Bit-depth	24 bits
ADC Sampling-rate	48 kHz

Timecode Reader/Generator

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

Recording

Media	MiniSD card (Flash memory)
File Format	.ZAX
Recording Time	96 hours (16 GB card)

IFB Receiver (optional)

RF Frequency Range	2.403 to 2.475 GHz
RF Modulation	Digital Spread Spectrum
RF Frequency Step	0.001 GHz (1 MHz)
RF Bandwidth	1 MHz
Channel Separation	2 MHz
Sensitivity	-96 dBm
DAC Bit-depth	24 bit
DAC Rate	48 kHz
Frequency Response	20 Hz to 12 kHz
Output Impedance	8-ohm minimum

Physical

Weight	4.0 oz (113 grams) without battery
Dimensions (H x W x D)	3.31" x 2.3" x 0.65" (84 mm x 58 mm x 17 mm)
External Power (STAxxx)	9 to 18 VDC @ 125 mA
Internal Power (Battery)	up to 20 hours (two AA Lithium)
Display	Graphic LCD panel

ZFR200 Specifications

Recorder Audio

Dynamic Range	103 dB
Distortion	0.001%
Frequency Response	20 Hz to 16 kHz
Highpass Filter	'OFF' or 30 to 220 Hz, step: 10 (6 dB per octave)
Mic Power	3.3 VDC @ 10mA max
Mic Connector	3-pin micro-LEMO (mic side = FGB.00.303.CLAD.22)
Input Range	–60 to –24 dBu
Impedance	4.7 k ohms
ADC Bit-depth	24 bits
ADC Sampling-rate	48 kHz

Timecode Reader/Generator

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

Recording

Media	MiniSD card (Flash memory)
File Format	.ZAX
Recording Time	96 hours (16 GB card)

IFB Receiver (optional)

RF Frequency Range	2.403 to 2.475 GHz
RF Modulation	Digital Spread Spectrum
RF Frequency Step	0.001 GHz (1 MHz)
RF Bandwidth	1 MHz
Channel Separation	2 MHz
Sensitivity	-96 dBm
DAC Bit-depth	24 bit
DAC Rate	48 kHz
Frequency Response	20 Hz to 12 kHz
Output Impedance	8-ohm minimum

Physical

Weight	3.1 oz (88 grams) without battery
Dimensions (H x W x D)	2.38" x 2.38" x 0.69" (60 mm x 60 mm x 17 mm)
External Power (STAxxx)	N/A
Internal Power (Battery)	up to 8 hours (one AA Lithium)
Display	Graphic LCD panel

ZFR800 Specifications

Recorder Audio

Dynamic Range	103 dB
Distortion	0.001%
Frequency Response	20 Hz to 16 kHz
Highpass Filter	'OFF' or 30 to 220 Hz, step: 10 (6 dB per octave)
Mic Power	9 VDC
Mic Connector	Compatible with Shure™ screw-on microphone capsules
Input Range	-60 to -30 dBu
Impedance	10 k ohms
ADC Bit-depth	24 bits
ADC Sampling-Rate	48 kHz

Timecode Reader/Generator

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

Recording

Media	MiniSD card (Flash memory)
File Format	.ZAX
Recording Time	96 hours (16 GB card)

Physical

Weight	8.2 oz (232 grams) without a battery and mic capsule
Dimensions (L x Dia)	6.12" x 1.5" (155mm x 38mm) without windscreen and mic capsule
External Power	N/A
Internal Power (Battery)	up to 10 hours (one CR123)
Display	Graphic LCD panel

Chapter 7 – Wiring Diagrams

NOTE: All of the diagrams in this chapter show the solder side of each connector.

ZFR100 and ZFR200 cables

NOTE: The following 3-pin micro-LEMO connectors mate with the microphone connector:

- FGB.00.303.CLAD.22 – has a latch with a pull release. (HIGHLY recommended for RFI prevention)
- FVB.00.303.NLA – has a latch with a twist release.

CAUTION: When wiring a microphone for the ZFR100 / ZFR200, the microphone shield/ground must be connected to the LEMO shell as well as the correct pin on the microphone connector itself.
This connection stops RF energy from entering the bodypack through the shield of the microphone cable. If this happens, the user can experience RF dropouts at any distance from a transmitter.
Use of the push-in type LEMO connector, rather than the screw in type, is advised as it is easier to make the ground connection to the connector shell.

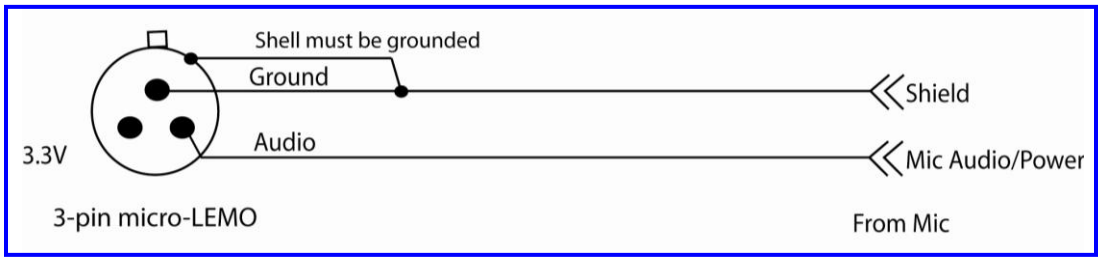


Figure 7-1 Two-wire microphone configuration (current transmitters)

Contact your Mic's Manufacturer.

Figure 7-2 Three-wire microphone configuration (current transmitters)

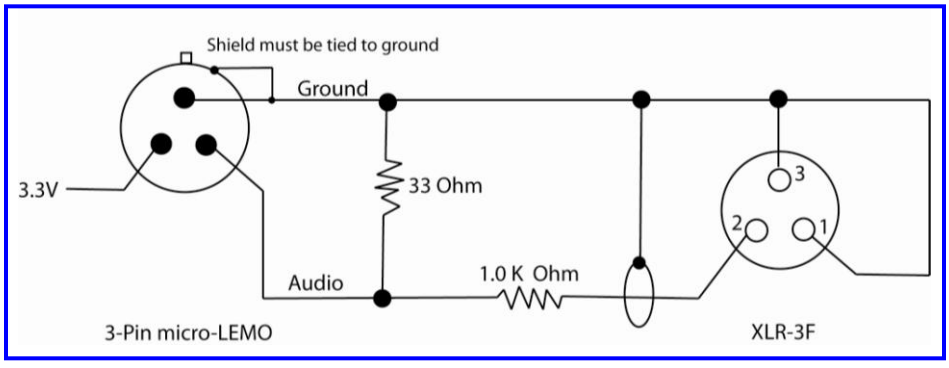
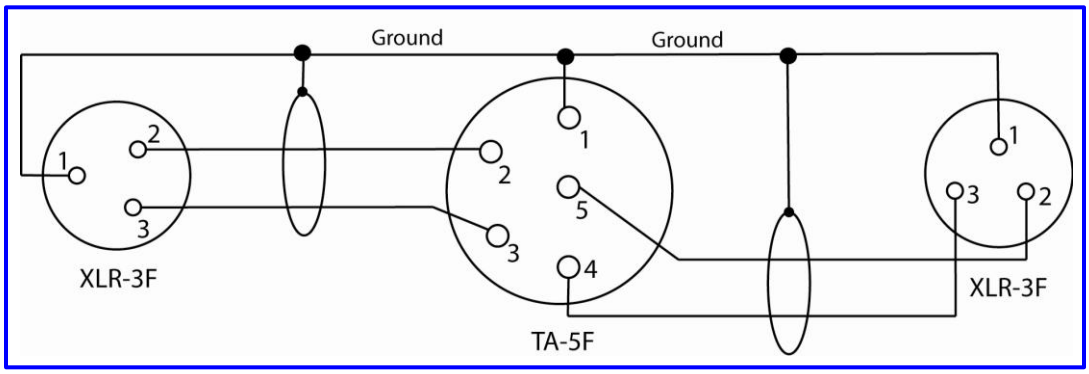


Figure 7-3 Balanced Line to ZFR100 and ZFR200

STAxxx Cables



Left (Channel 1) Right (Channel 2)

Figure 7-4 Standard XLR-3F to TA-5F Line-level input cable

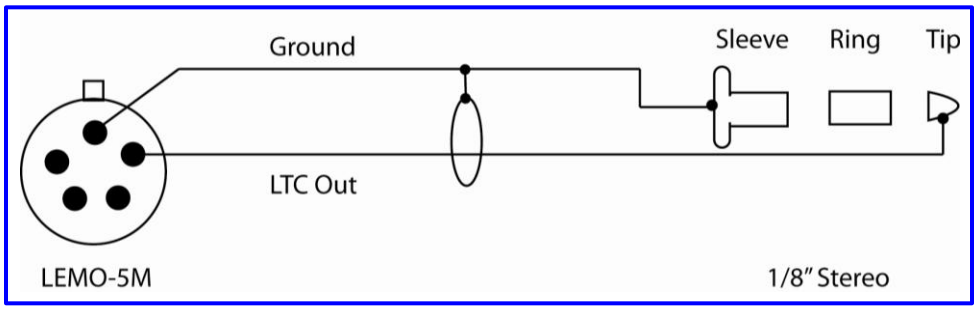


Figure 7-5 LEMO-5M to 1/8" male timecode input cable

IMPORTANT: A stereo plug is required for external timecode sync. Do **NOT** connect to the ring on the plug. **You cannot use a mono plug.** A mono plug will not destroy any components but it will short out the signal.

Chapter 8 – Firmware Information

Firmware

Each unit is shipped with the latest firmware version installed. As newer firmware becomes available, it can be downloaded from the Zaxcom website (http://zaxcom.com/software_up dates.htm).

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.

Advantages to Upgrading the Firmware

By upgrading the software, the range and feature set have and will continue to dramatically increase over time. Zaxcom has a reputation for constantly adding additional features and user suggestions during the product's lifetime. This ensures that your wireless system will perform better and better, the longer you own it.

Upgrading the Firmware in each ZFR series unit

Perform the following:

1) Download the firmware from the Zaxcom website and load it onto a media card.
2) Insert the card (with the downloaded firmware) into the unit.
3) Simultaneously hold down the ***INC*** and ***DEC*** *keys* while powering up the unit.
4) The screen will display the sequence below. From power up to "**DONE**" takes about 30 seconds.
5) Upon completion, cycle the power to run on the new version.

LCD SYNTH AB	
PCB REV B 0150 VER #-### {03}	(**#-###** – indicates the currently installed version.)
FOUND SD CARD PCB REV B 0150	
BURN ROM TRX-####.bin	(**TRX-####.BIN** – indicates the firmware package being loaded.)
ERASE0... TRX-####.bin	
ERASE1 . . . TRX-####.bin	
BURNING ROM . . . TRX-####.bin	
READ BACK TEST	(At this point, the firmware has been installed and the system is verifying the install.)
DONE	(The install process has completed successfully.)

WARNING: Do not power down the unit during the upgrade process.
Before installing the upgrade, be sure to insert a fresh set of batteries. If the unit should lose power during the upgrade, it will need to be sent back to Zaxcom for repair.

TRX / ZFR / IFB Firmware History

==========

Version 6.80: 2010-08-31

Fixed	problem with AUTO-LOAD and record-run timecode support (in conjunction with ERX 1.07)
Changed	increased the record buffer size to help with slow SD cards popping out of RECORD mode

==========

Version 6.76: 2010-08-31

Added	TRX900LTS – new stereo mode limiter
Forced	If SD Card speed < 7MHz then set to 10MHz
Added	DSP speed indicator during slowed boot display (INC key)
Changed	no longer slow down DSP unless there is no card inserted
Changed	increased record buffer size from 36 to 40
Added	super low power standby mode (with remote IFB Wakeup) (INC key + MENU key exits this mode)
Changed	super LOW1 remote control command to WAKEUP command

==========

Version 6.69: 2010-xx-xx

Fixed	always TCjamming from the IFB even if TCsource is NOT IFB
Fixed	boot-up jam that caused 2 recordings everytime (assuming no TC source available)
Changed	Reduced debug tone frequency
Changed	ZFR*** – enabled Encryption page if IFB option exists

==========

Version 6.62: 2010-07-23

Deleted	test code in the Gain page

==========

Version 6..61: 2010-07-22

Fixed	RXG flags overwriting remaining recording time in Home page
Changed	extensive TC handling modifications to improve TC sync to within 0.01 frame (when used in IFB100 and TRXxxx, with ERX 1TCD loaded with V1.06+)

==========

Version 6.60: 2010-07-19

Changed	Timecode jam software to allow 0.01 frame accuracy
Added	IFB100 – new page for over the air program installation for the QRX100, similar to the ERX

==========

Version 6.54: 2010-06-01

Changed	Jam threshold while recording in TimeCode-SetSPM()

==========

Version 6.49C: 2010-05-14

Added	TC Jam Threshold page
Changed	Allowed popup but don't Punchin if early in boot process

==========

Version 6.49A: 2010-05-14

Fixed	Stopped popup screen from jamming if TCPlayback is jammed

==========

Version 6.49: 2010-05-13

Added	Remote Control Cmds = OFF Page
Changed	IFB100 – Enabled Format SD Card page

==========

Version 6.46: 2010-04-01

Removed	Notch page from ZFR

==========

Version 6.43: 2010-03-18

Added	Safe Boot Mode

==========

Version 6.42: 2010-03-12

Fixed	TC reader screen problem (sometimes it would not go away) TC may not have been jammed on IFB units in software versions 6-30 thru 6-41 (when using audio input JAM mode)

==========

Version 6.41: 2010-03-11

Changed	made NotchFilter operate on IFB audio (TRX) or MIC audio (IFB100)
Changed	removed N suffix for notch filter versions (notch is now standard)
Enabled	IFB encryption page in ZFR

==========

Version 6.40: 2010-02-02

Added model number "TRX992"
Added drop out compensator to IFB reception – DRAMITICALLY INCREASED IFB PERFORMANCE
Fixed various ZaxNet bugs

==========

Version 6.39B: 2010-02-11
Removed TC READER popup window in IFB
Changed Debug page to fit gain code properly

==========

Version 6.39A: 2010-02-11
Added gain code parm display in Debug page (for unit 1 only)

==========

Version 6.39: 2010-02-11
Re-added ADCgainslew (if gainmod gets out of whack we do a forced update and set gainmod to zero.)

==========

Version 6.38: 2010-02-16
Changed made high side of gain table monotonic
Changed reduced max gain table index by one (in parms.c)
Changed reduced limits on gainmode from 4000 to 1000

==========

Version 6.37: 2010-02-16
Removed ADC gain slewing and added more checks to prevent TRX992 remote gain lock up bug
Fixed gainmod problems in adgain slewing by making gain table monotonic
Added bounds check for gainmod just in case

==========

Version 6.36: 2010-02-16
** Warning: 992 can still change its gain to zero randomly when ZaxNet is turned on ***
Fixed TRX900 & 992 - missing Timecode Jam Mode page
Fixed IFB100 - forced IFB_OPTION bit
Changed IFB100 - how ID codes are being saved to make it more reliable
Changed disallowed lying in Product page wrt 992
Changed forced adcgainL to valid limits in UpdateCDScellGain_CHUNK()

==========

Version 6.35A: 2010-01-28
Changed stamping TC in TXhandler now for IFB for accurate TC

==========

Version 6.35: 2010-02-11
Fixed TC offset error of 1.2 frames the RF link

==========

Version 6.34: 2010-02-09
Fixed some things resulting from CPP compile

==========

Version 6.33T: 2010-02-09
Added Auto repeat to Group ID page
Changed TRX992 - forcing proper option bits
Changed removed meter when battery voltage is displayed
Changed moved ENCRYPTION IS ON warning to boot area

==========

Version 6.32C: 2010-02-09
Changed modified GS_ONOFF to use 2nd line for ON / OFF text

==========

Version 6.32B: 2010-02-08
Changed IFB100 – display FORMAT_DISK page when SD card is present on Bootup
Changed IFB100 – re-added Frame Rate page (previously relied on RECORD option being turned on)
Changed forced uint==0xFF to unit=0 since ZNET SPEC uses FF to mean ALL (but not the rest of the system)

==========

Version 6.32A: 2010-02-06
Fixed IFB100 & TRX992 – ZaxNet remote gain bug (unit==0xff)

==========

Version 6.31T: 2010-02-06
* This is TRX992 software that changes the model number to 0x0992 which prepares it to use later versions of regular TRX900 firmware

==========

Version 6.30T: 2010-02-04
Changed * pulled in most of the new ERX style heuristics to 992 side

==========

Version 6.29T: 2010-02-04
Added some of the new RXhandler heuristics to make smarter packet choices

==========

Version 6.27A: 2010-02-04
Changed attempting to combine TRX900 and TR992 software builds

==========

Version 6.26C: 2010-02-04
recompile of TRX900 with TRX992 build changes from ERX should not change anything

==========

Version 6.26B: 2010-01-28
Fixed temp in place of items in Process Packet part of Trans2Gig.c (was not checking for stuffed decode condition properly)

==========

Version 6.26A: 2010-01-28
Added IFB audio Encryption and Decryption

==========

Version 6.25H: 2010-01-25
Changed reset RX FIFO len to 8*3 (from 8*4) this seems to work well now

==========

Version 6.25G: 2010-01-25
Changed removed PrevPrevDropActive

==========

Version 6.25F: 2010-01-25
trying to make it like 6.25b - removed buffer read from RXOW err case
Changed moved RX_GO to start of CRC err buffer read

==========

Version 6.25E: 2010-01-27
Added made gIFB struct

==========

Version 6.25D: 2010-01-26

==========

Version 6.25C: 2010-01-26
Changed adding bad block code to fix dropped block detection

==========

Version 6.25B: 2010-01-25
This one works the best so far! (better than 6.25e)
Fixed space in dropout page
Removed UPKEY dropout forcer

==========

Version 6.25A: 2010-01-25
Changed tweaks

==========

Version 6.25T: 2009-11-27
Changed dropout fade-in-out to tend to fade out more
Changed reduced IFB RX FIFO size to 8*3 words
made 992 version (untested)

==========

Version 6.25: 2010-01-25
Removed TRX990 – support for stereo monitoring
Added TX Gain slewing to prevent thumps

==========

Version 6.24: 2010-01-23
Changed dropout: adding fade-out fade-in table .. maybe a ramp would be better than log
Removed TRX990 – ********* stereo monitor support *********

==========

Version 6.23: 2010-01-22
Changed BloombergNotch #def to 1 or 0 and added BloomBergConfig.h
Removed program ERX page from non-IFB units
Removed PSH and POP instructions in Chunk Int
Removed all occurrences of Gain_ScreenR and related code
(billy's since TRX900 does not do stereo so there is never a case where we have to control a left and right LED independently)
Added trying gregs dropout compensator...

==========

Version 6.22: 2009-12-08
Added upsidedown mask adjustment in LowPwrLED screen (UP*20 = set, DN*20 = clear it)

==========

Version 6.21A: 2009-12-01
burn ERX works

==========

Version 6.20G: 2009-11-30
Added UBCMD_END_PROG

==========

Version 6.20F: 2009-11-28
Added IFB100 – reset flag to GetERXProgram
Added more delays

==========

Version 6.20E: 2009-11-28
Changed IFB100 – debug version for ERX program (programERX is in main menu!)

==========

Version 6.20D: 2009-11-27
Changed IFB100 – SendERXProgram()

==========

Version 6.20C: 2009-11-24
Re-added IFB800 – ADC Select page

==========

Version 6.20B: 2009-10-30
Added BLOOMBERG_NOTCH #def in Build options

==========

Version 6.19D: 2009-11-23
Changed notch filters to 5Hz spacing
Changed GotoNextScreen() now forces an immediate bClearScreen (LCDupdate)
Changed handling of KeyStroke==INIT_SCREEN
Fixed GotoNextScreen update problem
Changed Format Page is displayed if there is a card installed on bootup
Removed some scary boot key conditions in hardware.c
Changed increased notch count to 40 freq settings

==========

Version 6.19C: 2009-111-21
Changed moved notch pages closer to top of Extended Menu
Fixed GS_CLEAR setting

==========

Version 6.19B: 2009-11-21
Changed widened Notch filter - added fudge factor of 3
Fixed Limiter threshold page text problem on Line1 if expander or dynamics are on then run at fast DSP speed to prevent crash on boot
Added OPT_NOTCH option (0x08)

==========

Version 6.19A: 2009-11-17
Notch filter seems to work now (20 filters from 900 to 1100 Hz)

==========

Version 6.18C: 2009-11-16
Added TRX900 – notch settings
Added adjustable limiter threshold (using same RamParms.limiter)

==========

Version 6.18B: 2009-11-13
Added IFB100 – more of the IFB ERX programming feature (IFB side of wireless program transfer seems to work)

==========

Version 6.18A: 2009-11-10
Added GenericScreen1() to screens.c

==========

Version 6.17A: 2009-10-30
Removed Fila restrictions.
Changed moved modulate() to start of chunk for billy

==========

Version 6.16F: 2009-10-28
Added Fila restrictions (ADCexternal and TCoutEnable)

==========

Version 6.15D: 2009-10-27
Re-added IFB100 – remote channel change page

==========

Version 6.15C: 2009-10-14
Added IFB100 – ERX programming feature

==========

Version 6.15B: 2009-10-06
Changed ClipOutputBuffers to separate ClipTXBuffers func
Changed moved ClipOutputBuffers func lower in chunk
Changed forced gADCgainSlew in IncDecGainL to fix gain freeze problem
check IFB MONOMIX input select menu - missing?
Added IFB100 – Display channel change and gain change pages when appropriate

==========

Version 6.15A: 2009-10-13
Added Side Tone Gain page for Fila

==========

Version 6.14W: 2009-10-06
Changed PLAY_STOP mode from a PLAYSTOP_CMD to a transport mode

==========

Version 6.14V: 2009-10-05
Added IFB100 – support pass-thru for new UBCMD_PLAYSTOP cmd.

==========

Version 6.14U: 2009-10-05
Changed DATA32_THRESH setting (was forced by DBITS to zero) back to 0x2 which caused lots of errors in IFB

==========

Version 6.14S: 2009-10-03
Changed IFB100 – RS232 text to RS422

==========

Version 6.14R: 2009-09-16
Added Userbits check in chase search

==========

Version 6.14Q: 2009-09-16
Added RS232_MIX8HALF mode (actually version 6.14P for IFB only?)
Check SCIportIsInUse flag

==========

Version 6.14N: 2009-09-16
Changed made IFBMIX slew faster

==========

Version 6.14M: 2009-09-22
Changed gain commands a bit and tinkered with RS232

==========

Version 6.14K: 2009-09-22
Added gRS232rxCharCounter to RS232 screen
Added IFB100 – inverted TC input

==========

Version 6.14J: 2009-09-21
working on IFB Mix-8 support
Changed renamed TCoutEnable to TCoutMode
Added TCOUT_MODE_BOTH

==========

Version 6.14H: 2009-09-16
MIX8 works,
Added wireless IFBMIX support

==========

Version 6.14G: 2009-09-16
Changed parsing commands

==========

Version 6.14F: 2009-09-16
Changed made sure RS232 can't be turned on yet - ZaxNet Demo test

==========

Version 6.14E: 2009-09-16
Changed RS232 2400 baud receive works - adding Mix8 parsing

Fixed TXPWRCAL menu so values can't go negative

==========

Version 6.14D: 2009-09-15
Added RS232 support thru TC input pin for MIX8->IFB

==========

Version 6.14C: 2009-09-15
Changed don't force UNKNOWN_MODE forever either (IFB) in TransmitIFBblock()

==========

Version 6.14B: 2009-09-14
Changed when Chase command comes in take unit out of record mode immediately
Changed unit goes back to UNKNOWN_MODE now 1.5s after a ZaxNet tpmode command

==========

Version 6.14A: 2009-09-11
just a rebuild after CPP test - few non-functional changes

==========

Version 6.13R: 2009-08-18
Changed moved RecordHandler to before SCRAMBLE routine in audioIO.c to fix scrambling of recorded audio

==========

Version 6.13Q: 2009-08-18
Fixed sturct *aud not being initialized in chase

==========

Version 6.13P: 2009-08-18
Changed IFBTC jam to twiddle SPM a little better - should converge in 50 seconds
Fixed chase TCoffset overflow problems

==========

Version 6.13N: 2009-08-18
Changed if CHASE_CMD then IFB100 sets TXifb.NS_RemoteTPmode=UNKNOWN_MODE to allow chase to happen on TRX

==========

Version 6.13M: 2009-08-18
Changed cleaned out clenmes so we should be back to normal except DBITS no longer controls packet timing thing

==========

Version 6.13L: 2009-08-18
Changed undid most of the experimental stuff in trans2gig.c
DBITS controls SOP THRESHOLD (was set to 2)
cneanme in screens.c and init 2gig

==========

Version 6.13K: 2009-08-18
Changed forcing one antenna

==========

Version 6.13J: 2009-08-18
Added IFB100 – test to ignore CRC errors (trans2Gig.c see cleanme)

==========

Version 6.13I: 2009-08-18
Changed more chase stuff

==========

Version 6.13H: 2009-08-10
Changed group code handling to make chase work
Changed group code in UBcmds from Deva is now replaced with IFB's group code setting

==========

Version 6.13D: 2009-08-03
Changed FindTimecodeInDir seems to work

==========

Version 6.13C: 2009-05-28
Added IFB100 – automatic UNKNOWN TP mode change

==========

Version 6.13B: 2009-07-13
Changed two down key presses in Pacifier page now reverts to UNKNOWN transport mode (like when the unit boots)

==========

Version 6.13A: 2009-07-12
Changed starting remote chase mode

==========

Version 6.12M: 2009-05-28

Changed demo works now (not continuous commands from Deva)

==========

Version 6.12J: 2009-05-28
Added TC debug vars to INC DEC Pacifier page

==========

Version 6.12I: 2009-05-28
Fixed 16bit userbits (caused by parse TC cmd block) safe_UB was int not int32
Fixed timecode slate jitter problem

==========

Version 6.12H: 2010-02-06
Changed gLAST_GAIN_TBL_ENTRY = gsizeofTRX900_CDScellTBL-3;

==========

Version 6.12G: 2009-05-28
Fixed gLAST_GAIN_TBL_ENTRY from running over the end of the useful table contents
Changed stopped slewing ADC gain after remote command was done
Added asterisk to gain change for ZaxNet case

==========

Version 6.12F: 2009-05-28
Fixed ZaxNet IFB words16[] to words32[] translation

==========

Version 6.12E: 2009-07-08
Added auto setup for ZaxNet direction

==========

Version 6.12D: 2009-07-07
Added IFB to ZaxNet command translation for all string commands

==========

Version 6.12C: 2009-05-28
Changed properly updated gsizeofTRX900_CDScellTBL depending on AudioBoardMod state
Changed scaled ZaxNet gain better

==========

Version 6.12B: 2009-07-02
Changed IFB100 – prevent recording
Added remote Gain Slew so cgain changes smoothly

==========

Version 6.12A: 2009-06-27
Added support for generic ZaxNet command - replaces remote channel change command

==========

Version 6.11: 2009-06-23
Added ZaxNet
Fixed conflict between TX and RX (by allowing only one mode active)

==========

Version 6.10: 2009-06-19 Release build
Changed mod_test.c to full symbolic debug and IQdat.c to function profile to fix bug: hold menu key while booting causes IQ to be the same signal when Dynamics=ON

==========

Version 6.09: 2009-06-15 Release build
Changed

==========

Version 6.09C: 2009-06-15
Changed allowed DropCompAdd right away to prevent burst of noise that lasted 3 seconds after boot

==========

Version 6.09B: 2009-06-15
Changed audioIO to "RESET" == DWARF debug mode

==========

Version 6.09A: 2009-06-15
Changed modified IQ buffer targets to prevent booting up in bad TX data mode
Added IFB100 - more code to mute transmitted audio during bootup (noise burst protection)

==========

Version 6.08: 2009-05-28
Changed Almost the same as 6.07 but in Release configuration

==========

Version 6.07: 2009-05-28

Changed recompiled with build options from 5.99 to fix strange intermittent TX modulation problems (mostly stereo)

==========

Version 6.06: 2009-05-18
Added IFB100 – remote control and timecode to high quality codec

==========

Version 6.03: 2009-04-08
Added Prevent large SD cards from slowing down boot process
Added SD card speed page in Factory menu, which changes the SD cards clock speed in MHz and displays latency in milliseconds
Deleted Double occurrence of Gain change on Revc boards, which may have corrupted recordings when Gain in changed (manually or via the limiter)

==========

Version 6.01: 2009-04-28
Added IFB Earpiece page to ZFR

==========

Version 6.00: 2009-04-08
Added STA-150 setting to ADC external mode page
Changed IFB100 - force ADCexternal==1

==========

Version 5.99: 2009-03-13
Changed rounding of MBytes and GBytes display (round up using 999.9)

==========

Version 5.98: 2009-03-03
Fixed formatting cards larger than 4GB

==========

Version 5.97: 2009-02-19
Changed Transmitter stops transmitting for 1 second while changing frequency to prevent stomping on intermediate frequencies
Changed PACIFIER Page – display of remaining recording time

==========

Version 5.96: 2009-02-12
Added "FORMAT CANCELED" text when just writing wrapper files to card using 9 ***DEC*** *key* presses

==========

Version 5.95: 2009-02-12
Fixed Remaining Recording Time display area in the Pacifier page

==========

Version 5.94: 2009-02-11
Removed Group ID and Unit ID pages if IFBMODE = not installed
Removed TRX800 – Mute Switch Enable page
Changed Moved all four of the Audio Transmitter Power Calibration pages to the XXXXX
Added Tx power display value to Audio Transmitter Power Calibration pages
Changed Display of Remaining Recording time while IFBMODE = not installed
Fixed Card Size Display during bootup
Removed IFB100 & ZFRxxx – Private Line Key Assignment page
Removed IFB100 – NAME display during bootup

==========

Version 5.93T: 2009-02-05
Fixed loud clicking sound when IFB signal started to get weak

==========

Version 5.93: 2009-02-04
Added CRC error check in IFB RX interrupt
Changed IFB Mode page to include the new CRC error counters

==========

Version 5.92: 2009-01-29
Added Card reformat to the FORMAT MINISD CARD page (9 DEC *key* presses)
Changed SD card's volume label from ZAXCOM to ZAXCOMSD

==========

Version 5.90: 2009-01-27
Added re-start if recording was forced into STOP mode due to an SD card problem

==========

Version 5.89: 2009-01-27
Changed IFB100 – hardcoded the previously updatable record status, preventing the display of "LREC", to prevent confusion.
Changed Disallow Recording Mode page if the record option is not installed.
Added IFB100 – TV Channel Minimum & TV Channel Maximum pages to Extended menu to support the Remote Audio Frequency Change page
Changed IFB100 – TV Channel Minimum & TV Channel Maximum pages display the frequency as well as the existing TV channel
Changed Increased size of RECFIFO buffer
Removed TRX700 – Earpiece Source page

Removed IFB100 – IFB Audio Input Mix page

==========

Version 5.88: 2009-01-26
Added TRX992 – VPX battery formula
Changed TRX992 – swapped IFB mixer knob rotation to match the silk screening

==========

Version 5.87: 2009-01-25
Deleted remnants of BlownPA detector
Changed Moved ICAL, QCAL and Diamond pages to XXXXXX

==========

Version 5.86T: UNKNOWN
Changed HeadPhone Beep tones are now SUMMED into HP
Changed location of channel changer in RX-INT handler (gIFBSlotTimer==1)

==========

Version 5.85T: 2009-01-22
Added 500Hz headphone beep to LRSWitch mode
Added tone64[]

==========

Version 5.84T: 2009-01-22
Changed TRX900 text to TRX992

==========

Version 5.83: 2009-01-21
Added TRX900 & TRX800 – LRSWitch option

==========

Version 5.82: UNKNOWN
Changed problem with IFB format and TXformat overlap

==========

Version 5.81: UNKNOWN
Changed IFB channel changing scheme

==========

Version 5.80T: UNKNOWN
Added new format scheme that separates TX and RX formats for IFB and Txer
Added IFB Format page
Added high quality IFB format mode (no timecode or remote control in this mode)
Deleted IFB100 - QCAL page

==========

Version 5.75T: UNKNOWN
Changed PROBLEM WITH STUFFED DECODE CONDITION

==========

Version 5.74T: 2009-01-12
Disabled IFB100 – IFB Audio Input Mix page if IFBoptioncode == 0
Changed LCD opts back 'ON'

==========

Version 5.73: 2009-01-11
Added TRX800 - MENU *key* to enter Extended Menus (REC key already does this)
Changed "UNIT CODE" to "UNIT ID"
Changed "GROUP CODE" to "GROUP ID"
Removed IFB100 - ADC Select page, Battery Type page, ICAL page, QCAL page
Removed IFB100 – battery graphic from the Pacifier page
Deleted IFB100 – IFB Frequency Band page since it's always set to the 2GHz band
Changed sub channel keys to use Pre-Lock key status (added gXkeyStatesPreLOCK)
Added sub channel support for bXKEYS_8PUNCH key press (and RECORD key)

==========

Version 5.72: 2008-12-11
Added Support for wireless remote channel changing via IFB100
Fixed OLD LCD lines were swapped due to wrong page numbers

==========

Version 5.71: 2008-12-03
Added Support for new LCD module (serial 1988 & above)

==========

Version 5.7LL: 2008-12-03
Changed ** SPECIAL VERSION ** hold UP key to force a LCD mode change

==========

Version 5.70T: 2008-11-29

Added TRX992 – mute chunk in IFB audio codec when no packets are arriving

==========

Version 5.70R: 2009-01-29
Changed parm==0 problem and some more tweaks to terminal and Trx900.c

==========

Version 5.69R: 2008-11-28
Added special IQ cal mode in Terminal.c

==========

Version 5.68R: 2008-11-24
Changed working on RXpacket / power up / down feature for RCR

==========

Version 5.67R: 2008-11-22
Changed command line seems to work

==========

Version 5.66R: 2008-11-21
Changed RAW RS232 in and out work at 300 baud

==========

Version 5.65R: 2008-11-17
Changed forced unit = 1 in RCR software

==========

Version 5.64R: 2008-11-15
Changed turn 'ON' PTT pin for RCR (remove this for normal units!)
Changed forced settings for RCR uint (IFB = 'ON') Group=42 etc

==========

Version 5.62g: 2008-10-23
Added MUTE switch option
Changed a RED LED also means MUTE
Changed Lock page now locks out the transport keys as well as the INC, DEC & MENU keys
Added Dynamics page
Added theatrical mod support
Fixed FORMAT_CARD to fix last wrapper file size corruption
Fixed removed several useless menus from IFB products
Changed renamed menu item LED Reverse page to Hardware Options page
Changed extended GAIN range from 0 – 38 dB to 0 – 52 dB
Changed allow US_MONO_R format with a hand held mic (for new audio board mod)

==========

Version 5.53: 2008-07-15
Added support for high capacity SD cards (4GB and higher) and more support for other smaller cards.

==========

Version 5.51: 2008-05-21
Fixed recent IFB jam bug (could cause timecode to stop)

==========

Version 5.50a: UNKNOWN
Changed re-wrote IFB audio codec (sounds less crunchy)

==========

Version 5.36a: 2008-05-13
Changed Reversed cursor direction in the OPT and IDCODES pages
Fixed bug in OPT page

==========

Version 5.34a: 2008-04-23
Added IFB100 - always allow IFB Transmitter Power page in the Extended Menu
Disabled IFB100 – Expander and IDCODES pages

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Version 5.33c: 2008-04-21
Added Timecode Output Enable page
Added New user power level settings for high power RF boards
Moved Expander page to bottom of Extended Menu
Added TRX990 - separate Left and Right gain setting
Fixed TRX990 - a new gain problem in Mono mode
Changed TRX990 - GAIN-L to GAIN-1
Changed TRX990 - GAIN-R to GAIN-2
Fixed IFB100 - IFB power setting to work above power level 3

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Version 5.33b: UNKNOWN

Fixed TC Reader no longer jams on seconds boundary

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Version 5.33a: UNKNOWN

Changed Loosened jam requirements

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Version 5.20: 2008-03-07

Added Higher resolution transmit waveform to increase TX range

==========

Version 5.19: 2008-02-29

Added Timecode display in Lock page
Added Timecode debug codes to Debug page
Fixed 23/24/25 fps TC reader problems
Fixed Transmitter's name initialization (was always NLD by default now it's SN######)

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Version 5.17: 2008-02-18

Fixed Timecode problem with 23.98, 24 and 25fps timecode. This was causing autoload to trigger several times in a take. This version should be used in an IFB transmitter if using the wireless autoload feature

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Version 5.13: 2007-12-18

Added Low battery warning text on Pacifier page
Added Expander page (experimental version)
Added Battery Type page (LITHIUM, ALKALINE and NIMH) NIMH needs some tweaking
Added Voltage display in Pacifier page (press ***INC*** *key*)
Added 500ms delay in Audio Gain page to prevent accidental gain change when leaving the Lock page
Added Support for Non-Loop Record mode
Added "FULL" message to Pacifier page for Non-Loop Record mode
Changed Lock page to prevent unintended GAIN changes
Fixed Left/right audio channel swap problem (effected only some units)
Modified IFB100 – IFB Transmitter Power page to Extended Menu to adjust transmitter output power

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Version 5.04: 2007-11-12

Fixed Stereo TONE transmit problem (*since 5.02)

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Version 5.03: 2007-11-09

Added Accurate voltage display on the Pacifier page and Audio Gain page (press DOWN or UP *key*)
Added IFB100 - IFB Transmitter Power page (range = 0 to 7)
Modified Low Power mode triggers a new experimental Low Power mode.

This mode is triggered if:
LED mode = "LOW POWER MODE"
TX Format = US (MONO)
IFBMODE = "OFF"

Timecode, IFB and Recording features are turned 'OFF' in this mode

To change to Low Power mode:

1. Go to Extended Menu (hold ***MENU*** while powering up the unit)
2. Change IFB Mode page to 'OFF' (if you have that option)
3. Go to the LED Reverse page (one of the last menu pages). The LED Reverse page allows you to change the default color of the LED. The LED should usually be green.
4. Change the setting to LED LOW PWR MODE while keeping the LED Reverse setting the same digit as it was previously.
5. If the conditions have been met, the unit will display LOW POWER MODE, IFB IS OFF when the unit boots up again and the LED turns 'OFF' when not in use. This setting should increase the battery life by over 15% depending on the chemistry of the batteries you are using.

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Version 5.00d: UNKNOWN

Added Timecode wrap at 24 hours for non-jammed timecode setting using last recorded segment as TCjam
Fixed a serious record bug that prevented the unit from going into record if the timecode had wrapped around the 24-hour mark.

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Version 5.00b: UNKNOWN

Added Special super Low Power operating mode: It is triggered if:
LED mode = LOW POWER MODE
TX Format = US (MONO)
(**NOTE:** no timecode, IFB or recording is available in this mode)

Changed battery meter table

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Version 5.00a: 2007-11-03

Added LED OFF mode in the LED Reverse page

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Version 5.00: 2007-10-29

Fixed TRX900 - swapped LOW1 / LOW2 display in the Pacifier page's remote power display

==========

Version 4.99a: UNKNOWN

Fixed IFB side autoload (would not go into STOP because it never really went into RECORD)

==========

Version 4.99: 2007-10-04

Added support for RCR dual mic side adapter

Changed stereo to always be ISO

Changed FORMAT_EUNB to FORMAT_MONO_R

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Version 4.98: 2007-09-25

Fixed IFB Autoload function (remote transport commands TXifb.NS_RemoteTPmode not being set)

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Version 4.97a: 2007-09-25

Changed sector size from 32k to 16k (or less) for Digital Foci PhotoSafe (FAT16 vs. FAT32 problem)

==========

Version 4.97: 2007-08-31

Fixed a serious bug regarding the RecoverOpenSegment feature. If the unit is powered down while in record, the next recorded segment could begin at the start of the card, which would overwrite previous audio and make only that last recorded segment available.

The new ZaxConvert software (v5-97) fixes a minor problem with the RecoverOpenSegment feature and now appends the segment number (in decimal) to the end of each generated WAV or MP3 file.

==========

Version 4.95: 2007-08-10

Added IFB Voting Enable page. Turn 'ON' voting only if you have two IFB transmitters transmitting 2MHz apart from each other. If a receiver has voting turned 'ON' and it loses its IFB signal it will try to acquire an IFB signal on a channel that is 2MHz higher than its current RX frequency. For example: set the IFB to receive on 2.403GHz and set up two IFB transmitters (far apart from each other) one at 2.403GHz and one at 2.405 GHz. The IFB receiver(s) will switch from one channel to the other if the IFB signal degrades. This feature dramatically increases the IFB range when using two or more IFB transmitters.

Added Safe Boot Mode feature. If the unit crashes after boot (and the battery is OK), hold the ***MENU*** and ***DEC*** *keys* while powering up. This will turn 'OFF' the IFB. An older unit may crash if IFB and STEREO are both enabled. There is a modification to the power supply board that will fix this.

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Chapter 9 – Menu Sheets

Menu Sheet for ZFR100

MENU SETTINGS

Standard Menu

i. (*Transport Control page* {**p.21**})
- While in STOP mode, press the ***DEC*** *key* to move the playback pointer backward.
- To PLAY, press the ***INC*** *key*.
- While in PLAY, press the ***INC*** *key* to move the playback pointer forward.

ii. **GAIN:** _____ (*Audio Gain page* {**p.21**})
(0 to 36 dB, step 2)

iii. **HIGH PASS:** _____ (*Highpass Filter page* {**p.22**})
([OFF] / [valid range: 30 to 220Hz, value step: 10])

iv. **LIMITER:** _____ (*Limiter page* {**p.22**})
([OFF] \ [valid range: -2 to -30dB, value step: 1])

v. **TIMECODE:** _____ (*Timecode Frame-rate page* {**p.22**})
([23.98] / [24] / [25] / [29.97NDF] / [29.97DF] / [30NDF] / [30DF])

vi. **TC JAM MODE:** _____ (*Timecode Jam Mode page* {**p.22**})
([MANUAL (OFF)] / [AUTO-JAM] / [AUTO-LOAD])

vii. **TC SOURCE:** _____ (*Timecode Source page* {**p.23**})
([AUDIO INPUT] / [IFB (RF)] / [SIDE CONNECTOR])

viii. **IFB EARPIECE:** _____ (*Earpiece Source page* {**p.23**})
([REC/PLAY] / [IFB RX AUDIO] / [IFB MIX ALL] / [IFB MIX REMOTE])

ix. **PRESS UP KEY 5X** (*Format Recording Card page* {**p.23**})

x. **LOCK** (*Lock page* {**p.24**})
(5 sec countdown once entered)
(To unlock, simultaneously press the ***MENU*** & ***INC*** *keys*)

Extended Menu – to reach these, turn 'OFF' the TX and hold the ***MENU*** *key* down while powering up.
(Displays EXTENDED MENU PRESS UP TO EXIT)

i. **HIGH PASS:** _____ (*Highpass Filter page* {**p.25**})
([OFF] / [valid range: 30 to 220Hz, value step: 10])

ii. **LIMITER:** _____ (*Limiter page* {**p.25**})
([OFF] \ [valid range: -2 to -30dB, value step: 1])

iii. **1K NOTCH FILTER: _____** (*1K Notch Filter Enable page* {**p.25**})
([OFF] \ [ON])

iv. **1K NOTCH FREQ: _____** (*1K Notch Filter Frequency page* {**p.25**})
(valid range: 960 to 1040 Hz, value step: 2)

v. **RECORD FORMAT: _____** (*Recording Format page* {**p.26**})
([STEREO] \ [MONO(US)])

vi. **IFB FORMAT: _____** (*IFB Signal Format* page {**p.26**})
([LOW Q] / [HIGH Q])

vii. **RXMODE: _____** (*IFB Receiver Enable* page {**p.26**})
([OFF] / [RX])

viii. **IFB VOTING: _____** (*IFB Voting Enable page* {**p.26**})
([NORMAL (OFF)] / [2 TXERS (ON)])

ix. **FREQ: _____** (*IFB Frequency page* {**p.27**})
(valid range: 2.403 to 2.475 GHz, value step: 0.001)

x. **IFB DROPOUT COMPENSATOR: _____** (*IFB Dropout Compensator page* {**p.27**})
([OFF] / [ON])

xi. **POWER UP MODE: _____** (*Power-up Mode page* {**p.27**})
([UNLOCKED] / [LOCKED])

xii. **PRESS UP KEY 5X** (*Format Recording Card page* {**p.28**})
(See *To Format a Card:* {**p.23**} for additional information.)

xiii. **TC JAM MODE: _____** (*Timecode Jam Mode page* {**p.28**})
([MANUAL (OFF)] / [AUTO-JAM] / [AUTO-LOAD])

xiv. **TC SOURCE: _____** (*Timecode Source page* {**p.29**})
([AUDIO INPUT] / [IFB (RF)] / [SIDE CONNECTOR])

xv. **TIMECODE OUTPUT: _____** (*Timecode Output Enable page* {**p.29**})
([OFF] / [ON: OUT LEFT] / [ON: OUT RIGHT] / [ON: OUT BOTH])

xvi. **REMOTE CONTROL GROUP ID: _____** (*Group ID page* {**p.29**})
(valid range: 0 to 99, value step: 1)

xvii. **REMOTE CONTROL UNIT ID: _____** (*Unit ID page* {**p.29**})
([ALL] / [valid range: 1 to 200, value step: 1])

xviii. **EXPANDER** (*Expander page* {**p.30**})

PARMS: ([OFF] / [ON])

RATIO: _____
(valid range: 1:1.01 to 1:1.30 to 1:4.00, value step: 0.01)

THRESH: _____
(valid range: 0 to -40 to -96 dB, value step: 1)

REDUCE: _____
(valid range: 0 to -6 to -36 dB, value step: 1)

SPEED: ([SLOW] / [NORMAL] / [FAST])

xix. **DYNAMICS** (*Dynamics page* {**p.30**})

PARMS: ([OFF] / [ON])

SIDECHAIN: ([IN] / [LP1] / [LP2] / [HFB])

SPEED: ([SLOWEST] / [SLOW] / [NORMAL] / [FAST] / [FASTEST])

ATTACK: ([SLOWEST] / [SLOW] / [NORMAL] / [FAST] / [FASTEST])

CMP RATIO: _____
(valid range: 1.0:1 to 3.0:1 to 5.0:1, value step: 0.1)

CMP THRESH: _____
(valid range: 0 to -20 to -96 dB, value step: 1)

CMP KNEE: _____
(valid range: 0 to 20 dB, value step: 1)

EXP RATIO: _____
(valid range: 1:1.00 to 1:1.10 to 1:4.00, value step: 0.01)

EXP THRESH: _____
(valid range: 0 to -40 to -96 dB, value step: 1)

REDUCE: _____
(valid range: 0 to -12 to -36 dB, value step: 1)

GAIN: _____
(valid range: 0 to 30 dB, value step: 1)

xx. **ADC: _____** (*ADC Select page* {**p.31**})
([INTERNAL] / [STA-100] / [STA-150])

xxi. **BATTERY TYPE: _____** (*Battery Type page* {**p.31**})
([LITHIUM] / [ALKALINE] / [NIMH])

xxii. **RECORD MODE: _____** (*Recording Mode page* {**p.31**})
([LOOP RECORD] / [NON-LOOP RECORD])

xxiii. **SIDE TONE GAIN: _____** (*Side Tone Gain page* {**p.32**})
([0dB] / [+6dB] / [+9dB]/ [+12dB])

xxiv. **ALLOW IFB REMOTE CONTROL: _____** (*Allow IFB Remote Control page* {**p.32**})
([OFF] / [ON])

xxv. **IFB JAM THRESH: _____** (*IFB Jam Threshold page* {**p.32**})
(valid range: 10 to 1000 to 3000 MS, value step: 1)

xxvi. **NAME: _____** (*Track Name page* {**p.32**})
(max: 8 chars, char = 0 to 9, space, A to Z)

xxvii. **ID1: _____ ID0: _____** (*Encryption Code page* {**p.33**})
(valid range: 000 to FFF, value step: 1, unless necessary, use 000)

RECORDING TO THE CARD

i. **Format the card:**

1) With the power 'OFF', insert the card into the slot.
2) Hold the ***MENU*** *key* while powering up.
3) Once up, release the ***MENU*** *key*.
4) Press the ***MENU*** *key* repeatedly until **PRESS UP KEY 5X** appears.
5) Press the ***INC*** *key* 5 times to erase and format the card.
6) The display indicates its progress.
7) Wait for successful completion before using. If it fails, do not use it to record.

ii. **Record to the card:**

1) Turn 'OFF' the unit.
2) Insert the card.
3) Turn 'ON' the unit.
4) Press the ***REC*** *key*.

INSTALLING A NEW OPERATING SYSTEM

i. Copy the program to a card.
ii. Insert the card into the media slot.
iii. Simultaneously press the ***INC*** & ***DEC*** *keys* while powering up the unit.
iv. Unit displays **BurningROM**. Process takes 20 seconds.
v. Once **DONE** is displayed, cycle the power to run on the new version.

SAFE BOOT MODE

Simultaneously press the ***MENU*** and ***DEC*** *keys* while powering up.

Menu Sheet for ZFR200

MENU SETTINGS

Standard Menu

i. (*Transport Control page* {**p.21**})
- While in STOP mode, press the ***DEC*** *key* to move the playback pointer backward.
- To PLAY, press the ***INC*** *key*.
- While in PLAY, press the ***INC*** *key* to move the playback pointer forward.

ii. **GAIN:** _____ (*Audio Gain page* {**p.21**})
(0 to 36 dB, step 2)

iii. **HIGH PASS:** _____ (*Highpass Filter page* {**p.22**})
([OFF] / [valid range: 30 to 220Hz, value step: 10])

iv. **LIMITER:** _____ (*Limiter page* {**p.22**})
([OFF] \ [valid range: -2 to -30dB, value step: 1])

v. **TIMECODE:** _____ (*Timecode Frame-rate page* {**p.22**})
([23.98] / [24] / [25] / [29.97NDF] / [29.97DF] / [30NDF] / [30DF])

vi. **TC JAM MODE:** _____ (*Timecode Jam Mode page* {**p.22**})
([MANUAL (OFF)] / [AUTO-JAM] / [AUTO-LOAD])

vii. **TC SOURCE:** _____ (*Timecode Source page* {**p.23**})
([AUDIO INPUT] / [IFB (RF)] / [SIDE CONNECTOR])

viii. **PRESS UP KEY 5X** (*Format Recording Card page* {**p.23**})

ix. **LOCK** (*Lock page* {**p.24**})
(5 sec countdown once entered)
(To unlock, simultaneously press the ***MENU*** & ***INC*** *keys*)

Extended Menu – to reach these, turn 'OFF' the TX and hold the ***MENU*** *key* down while powering up.
(Displays EXTENDED MENU PRESS UP TO EXIT)

i. **HIGH PASS:** _____ (*Highpass Filter page* {**p.25**})
([OFF] / [valid range: 30 to 220Hz, value step: 10])

ii. **LIMITER:** _____ (*Limiter page* {**p.25**})
([OFF] \ [valid range: -2 to -30dB, value step: 1])

iii. **RECORD FORMAT:** _____ (*Recording Format page* {**p.26**})
([STEREO] \ [MONO(US)])

iv. **IFB FORMAT:** _____ (*IFB Signal Format page* {**p.26**})
([LOW Q] / [HIGH Q])

v. **RXMODE: _____** (*IFB Receiver Enable page* {**p.26**})
([OFF] / [RX])

vi. **IFB VOTING: _____** (*IFB Voting Enable page* {**p.26**})
([NORMAL (OFF)] / [2 TXERS (ON)])

vii. **FREQ: _____** (*IFB Frequency page* {**p.27**})
(valid range: 2.403 to 2.475 GHz, value step: 0.001)

viii. **POWER UP MODE: _____** (*Power-up Mode page* {**p.27**})
([UNLOCKED] / [LOCKED])

ix. **PRESS UP KEY 5X** (*Format Recording Card page* {**p.28**})
(See *To Format a Card:* {**p.23**} for additional information.)

x. **TC JAM MODE: _____** (*Timecode Jam Mode page* {**p.28**})
([MANUAL (OFF)] / [AUTO-JAM] / [AUTO-LOAD])

xi. **TC SOURCE: _____** (*Timecode Source page* {**p.29**})
([AUDIO INPUT] / [IFB (RF)] / [SIDE CONNECTOR])

xii. **REMOTE CONTROL GROUP ID: _____** (*Group ID page* {**p.29**})
(valid range: 0 to 99, value step: 1)

xiii. **REMOTE CONTROL UNIT ID: _____** (*Unit ID page* {**p.29**})
([ALL] / [valid range: 1 to 200, value step: 1])

xiv. **EXPANDER** (*Expander page* {**p.30**})

PARMS: ([OFF] / [ON])

RATIO: _____
(valid range: 1:1.01 to 1:1.30 to 1:4.00, value step: 0.01)

THRESH: _____
(valid range: 0 to -40 to -96 dB, value step: 1)

REDUCE: _____
(valid range: 0 to -6 to -36 dB, value step: 1)

SPEED: ([SLOW] / [NORMAL] / [FAST])

xv. **DYNAMICS** (*Dynamics page* {**p.30**})

PARMS: ([OFF] / [ON])

SIDECHAIN: ([IN] / [LP1] / [LP2] / [HFB])

SPEED: ([SLOWEST] / [SLOW] / [NORMAL] / [FAST] / [FASTEST])

ATTACK: ([SLOWEST] / [SLOW] / [NORMAL] / [FAST] / [FASTEST])

CMP RATIO: _____
(valid range: 1.0:1 to 3.0:1 to 5.0:1, value step: 0.1)

CMP THRESH: _____
(valid range: 0 to -20 to -96 dB, value step: 1)

CMP KNEE: _____
(valid range: 0 to 20 dB, value step: 1)

EXP RATIO: _____
(valid range: 1:1.00 to 1:1.10 to 1:4.00, value step: 0.01)

EXP THRESH: _____
(valid range: 0 to -40 to -96 dB, value step: 1)

REDUCE: _____
(valid range: 0 to -12 to -36 dB, value step: 1)

GAIN: _____
(valid range: 0 to 30 dB, value step: 1)

xvi. **BATTERY TYPE:** _____ (***Battery Type page*** {**p.31**})
([LITHIUM] / [ALKALINE] / [NIMH])

xvii. **RECORD MODE:** _____ (***Recording Mode page*** {**p.31**})
([LOOP RECORD] / [NON-LOOP RECORD])

xviii. **ALLOW IFB REMOTE CONTROL:** _____ (***Allow IFB Remote Control page*** {**p.32**})
([OFF] / [ON])

xix. **IFB JAM THRESH:** _____ (***IFB Jam Threshold page*** {**p.32**})
(valid range: 10 to 1000 to 3000 MS, value step: 1)

xx. **NAME:** _____ (***Track Name page*** {**p.32**})
(max: 8 chars, char = 0 to 9, space, A to Z)

xxi. **ID1:** _____ **ID0:** _____ (***Encryption Code page*** {**p.33**})
(valid range: 000 to FFF, value step: 1, unless necessary, use 000)

RECORDING TO THE CARD

i. **Format the card:**

1) With the power 'OFF', insert the card into the slot.
2) Hold the ***MENU** key* while powering up.
3) Once up, release the ***MENU** key*.
4) Press the ***MENU** key* repeatedly until **PRESS UP KEY 5X** appears.

5) Press the ***INC*** *key* 5 times to erase and format the card.
6) The display indicates its progress.
7) Wait for successful completion before using. If it fails, do not use it to record.

ii. **Record to the card:**

1) Turn 'OFF' the unit.
2) Insert the card.
3) Turn 'ON' the unit.
4) Press the ***REC*** *key*.

INSTALLING A NEW OPERATING SYSTEM

i. Copy the program to a card.
ii. Insert the card into the media slot.
iii. Simultaneously press the ***INC*** & ***DEC*** *keys* while powering up the unit.
iv. Unit displays **BurningROM**. Process takes 20 seconds.
v. Once **DONE** is displayed, cycle the power to run on the new version.

SAFE BOOT MODE

Simultaneously press the ***MENU*** and ***DEC*** *keys* while powering up.

Menu Sheet for ZFR800

MENU SETTINGS

Standard Menu

i. (*Transport Control page* {**p.21**})
- While in STOP, press the ***DEC*** key to move the playback pointer backward.
- To PLAY, press the ***INC*** *key*.
- While in PLAY, press the ***INC*** *key* to move the playback pointer forward.

ii. **GAIN:** _____ (*Audio Gain page* {**p.21**})
(0 to 36 dB, step 2)

iii. **HIGH PASS:** _____ (*Highpass Filter page* {**p.22**})
([OFF] / [valid range: 30 to 220Hz, value step: 10])

iv. **LIMITER:** _____ (*Limiter page* {**p.22**})
([OFF] \ [valid range: -2 to -30dB, value step: 1])

v. **TIMECODE:** _____ (*Timecode Frame-rate page* {**p.22**})
([23.98] / [24] / [25] / [29.97NDF] / [29.97DF] / [30NDF] / [30DF])

vi. **PRESS UP KEY 5X** (*Format Recording Card page* {**p.23**})

vii. **LOCK** (*Lock page* {**p.24**})
(5 sec countdown once entered)
(To unlock, simultaneously press the ***MENU*** & ***INC*** *keys*)

Extended Menu – to reach these, turn 'OFF' the TX and hold the ***MENU*** *key* down while powering up.
(Displays EXTENDED MENU PRESS UP TO EXIT)

i. **HIGH PASS:** _____ (*Highpass Filter page* {**p.25**})
([OFF] / [valid range: 30 to 220Hz, value step: 10])

ii. **LIMITER:** _____ (*Limiter page* {**p.25**})
([OFF] \ [valid range: -2 to -30dB, value step: 1])

iii. **POWER UP MODE:** _____ (*Power-up Mode page* {**p.27**})
([UNLOCKED] / [LOCKED])

iv. **PRESS UP KEY 5X** (*Format Recording Card page* {**p.28**})
(See *To Format a Card:* {**p.23**} for additional information.)

v. **TIMECODE OUTPUT:** _____ (*Timecode Output Enable page* {**p.29**})
([OFF] / [ON: OUT LEFT] / [ON: OUT RIGHT] / [ON: OUT BOTH])

vi. **EXPANDER** (*Expander page* {**p.30**})

PARMS: ([OFF] / [ON])

RATIO: _____
(valid range: 1:1.01 to 1:1.30 to 1:4.00, value step: 0.01)

THRESH: _____
(valid range: 0 to -40 to -96 dB, value step: 1)

REDUCE: _____
(valid range: 0 to -6 to -36 dB, value step: 1)

SPEED: ([SLOW] / [NORMAL] / [FAST])

vii. **DYNAMICS** (*Dynamics page* {**p.30**})

PARMS: ([OFF] / [ON])

SIDECHAIN: ([IN] / [LP1] / [LP2] / [HFB])

SPEED: ([SLOWEST] / [SLOW] / [NORMAL] / [FAST] / [FASTEST])

ATTACK: ([SLOWEST] / [SLOW] / [NORMAL] / [FAST] / [FASTEST])

CMP RATIO: _____
(valid range: 1.0:1 to 3.0:1 to 5.0:1, value step: 0.1)

CMP THRESH: _____
(valid range: 0 to -20 to -96 dB, value step: 1)

CMP KNEE: _____
(valid range: 0 to 20 dB, value step: 1)

EXP RATIO: _____
(valid range: 1:1.00 to 1:1.10 to 1:4.00, value step: 0.01)

EXP THRESH: _____
(valid range: 0 to -40 to -96 dB, value step: 1)

REDUCE: _____
(valid range: 0 to -12 to -36 dB, value step: 1)

GAIN: _____
(valid range: 0 to 30 dB, value step: 1)

viii. **BATTERY TYPE:** _____ (*Battery Type page* {**p.31**})
([LITHIUM] / [ALKALINE] / [NIMH])

ix. **RECORD MODE:** _____ (*Recording Mode page* {**p.31**})
([LOOP RECORD] / [NON-LOOP RECORD])

x. **NAME**: _____ (*Track Name page* {**p.32**})
(max: 8 chars, char = 0 to 9, space, A to Z)

RECORDING TO THE CARD

i. **Format the card:**

1) With the power 'OFF', insert the card into the slot.
2) Hold the ***MENU*** *key* while powering up.
3) Once up, release the ***MENU*** *key*.
4) Press the ***MENU*** *key* repeatedly until **PRESS UP KEY 5X** appears.
5) Press the ***INC*** *key* 5 times to erase and format the card.
6) The display indicates its progress.
7) Wait for successful completion before using. If it fails, do not use it to record.

ii. **Record to the card:**

1) Turn 'OFF' the unit.
2) Insert the card.
3) Turn 'ON' the unit.
4) Press the ***REC*** *key*.

INSTALLING A NEW OPERATING SYSTEM

i. Copy the program to a card.
ii. Insert the card into the media slot.
iii. Simultaneously press the ***INC*** & ***DEC*** *keys* while powering up the unit.
iv. Unit displays **BurningROM**. Process takes 20 seconds.
v. Once **DONE** is displayed, cycle the power to run on the new version.

SAFE BOOT MODE

Simultaneously press the ***MENU*** and ***DEC*** *keys* while powering up.

Chapter 10 – 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 Zaxcom Digital Miniature Recorder System Component ("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

Zaxcom 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.

Return Material Authorization (RMA)

No Product may be returned directly to Zaxcom without first contacting Zaxcom for a Return Material Authorization ("RMA") number. If it is determined that the Product may be defective, you will be given an RMA number and instructions for Product return. An unauthorized return, i.e. one for which an RMA number has not been issued, will be returned to you at your expense. Authorized returns are to be shipped prepaid and insured to the address on the RMA in an approved shipping container. Your original box and packaging materials should be kept for storing or shipping your Product. To request an RMA, please visit the Zaxcom Repair Services page (***http://www.zaxcom.com/support_repair_services.htm***) and complete the form. You will receive an email or telephone call with the RMA #. Please write the RMA# on the front of the package. If you don't have internet access, you may request an RMA # by telephone. Zaxcom will return the warranty repair via 2nd day UPS or FedEx at their discretion. If overnight service is required, a FedEx or UPS account number must be provided to Zaxcom to cover shipping expenses.

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:
  1. Is not present,
  2. Cannot reasonably be fixed because of damage occurring when the Product is in the possession of someone other than Zaxcom, or
  3. 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.