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REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary version	Apr 03
0.2	Corrected pinout of RS422 ports on Figure 3	May 03
0.3	Added CARD ID Jumper	Jul 03
1.0	Updated signal connection drawing, first release of manual	May 04
1.1	VistaLINK™ Updates	Sept 04
1.2	Updated Rear Plate Diagrams	Sept 04
1.3	Updated safety section and added assembly and labeling sections	Aug 05
1.4	Added Terminal Block wiring diagram	Nov 07
1.5	Updated *Bit Rate* specifications. Added tables to section 4. Added screen shots and information to VistaLINK® section.	Jan 09
1.6	Modified description for "Selecting the Card ID" in section 6.1.	May 09

WARNING

Never look directly into an optical fiber. Non-reversible damage to the eye can occur in a matter of milliseconds.

Do not hook up the 7707IT DWDM cards directly with a short fiber optic cable. The 7707IT DWDM cards produce +7dBm of power, which will damage the receiver if connected directly.

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1. OVERVIEW

The 7707IT series Intercom Fiber Transceivers extend multiple channels of intercom communication over a single fiber optic link. The 7707IT-8 version accommodates eight channels of intercom, while the 7707IT-3 version accommodates three channels. Each channel is configurable as a matrix or party-line and will interface with industry-standard intercom systems. Bi-directional analog audio, serial data, and GPIO's are conveniently presented in a single product. A pair of 7707IT Intercom Transceivers permits communication over distances up to 50Km, with minimum possible latency.

Two optical interface configurations allow the user to choose the optimal function /price /performance ratio to suit a particular application. The standard configuration transmits and receives over a single fiber. The dual fiber configuration is compatible with CWDM & DWDM systems and is designed to transmit and receive over separate fibers. The optical output of the 7707IT is available in 1310nm, 1550nm, CWDM & DWDM wavelengths.

Features:
- Configurable interface to:
  - RTS-Telex Matrix   4-Wire Audio, RS-485 Data, GPIO
  - ClearCom Matrix   4-Wire Audio, RS-422 Data, GPIO
  - RTS-Telex Party-Line   1-Wire Audio, GPIO
  - ClearCom Party-line   1-Wire Audio, GPIO
- Multiple independent channels can simultaneously accommodate different intercom types.
- User-friendly selection of intercom interfaces via programmed profiles.
- All configuration settings are controllable through the card-edge user interface, or *Vista*LINK®.
- Comprehensive signal and status monitoring via four-digit card-edge display, or *Vista*LINK®.
- Unique self-calibration of party-line audio null levels.
- Provides 2 general-purpose inputs (GPI's), and 2 general-purpose outputs (GPO's).
- Selectable termination and failsafe bias settings for RS422/485 data inputs.
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant).
- DWDM wavelengths also available (ITU-T G.694.1 compliant).
- Compatible with multi-mode and single-mode fiber (dual fiber version).
- Fully hot-swappable from front of frame.
- *Vista*LINK® enabled for remote monitoring and control when installed in 7700FR-C frame with 7700FC *Vista*LINK® Frame Controller.

Fiber Type	Fiber Links	Optical/Link Budget	Transmit Side		Receive Side		Description
			Ordering Product Info	TX Power	Ordering Product Info	RX Sensitivity	
Multi-Mode	2	< 3km	7707IT13-3-F2 7707IT13-8-F2	-7dBm	7707IT13-3-F2 7707IT13-8-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707IT13-3-F2 7707IT13-8-F2	-7dBm	7707IT13-3-F2 7707IT13-8-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km[*]	7707IT13-3 7707IT13-8	-10dBm	7707IT13-3 7707IT13-8	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707IT13M-3-W 7707IT13M-8-W	-1dBm	7707IT15M-3-W 7707IT15M-8-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km[**]	7707ITxx-3-F2 7707ITxx-8-F2	0dBm	7707ITyy-3-F2 7707ITyy-8-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km[**]	7707ITDxxx-3-F2 7707ITDxxx-8-F2	+7dBm	7707ITDyyy-3-F2 7707ITDyyy-8-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux**

*With >20dB return loss on fiber Interface
**Assume 8 Ch CWDM Mux/Demux loss of 3.5dB
***Assumes 8Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1dBm
Fiber Loss = 0.35/0.25dB per km @ 1310nm/1550nm

Table 1-1: Typical Application Configurations
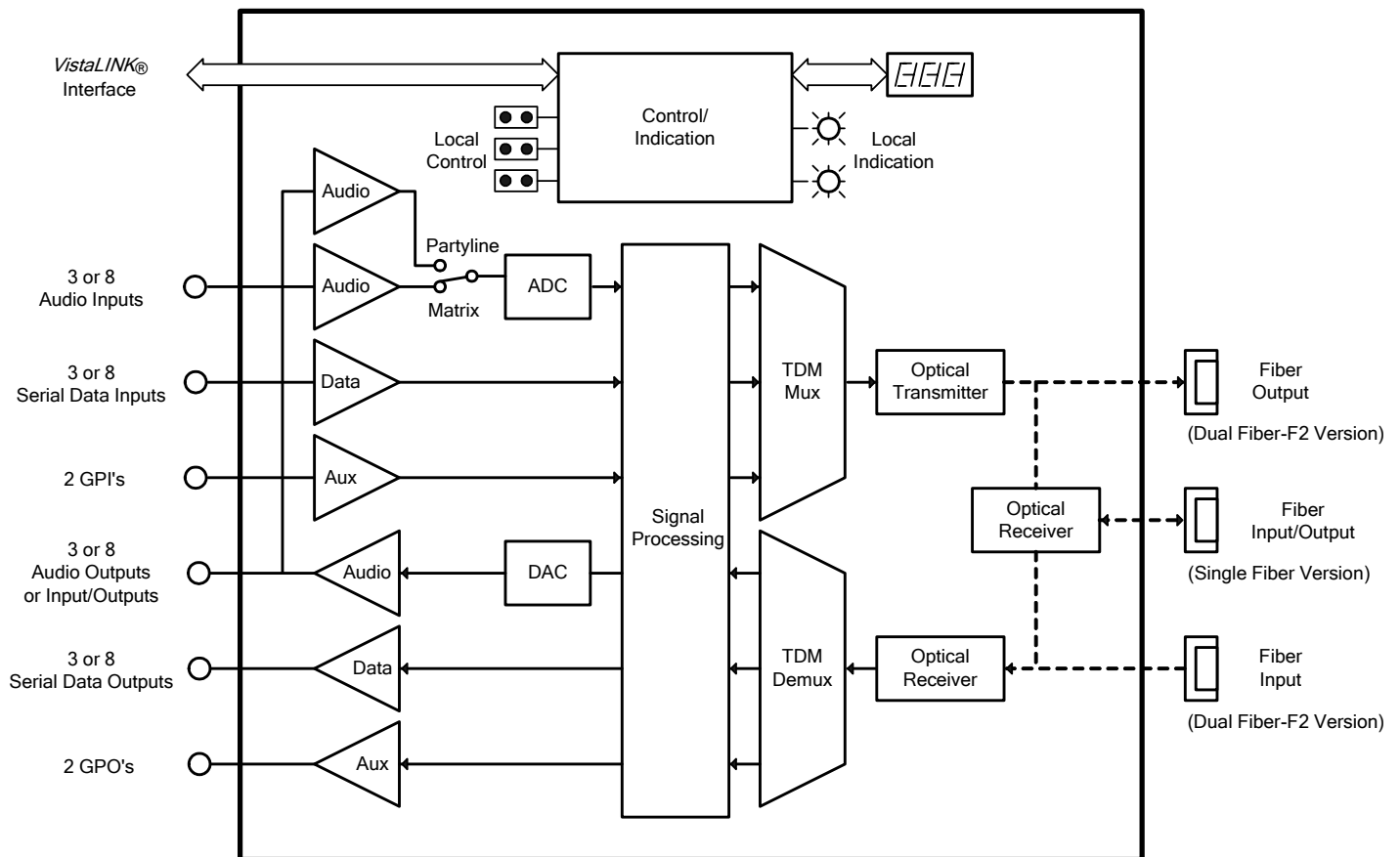
Figure 1-1: 7707IT Block Diagram

2. INSTALLATION

The 7707IT series modules come with a companion rear plate that has multi-pin removable terminal block connections, and an SC/PC (shown), ST/PC or FC/PC optical connector. For information on mounting the rear plate and inserting the module into the frame see section 3 of the 7700FR chapter. The following diagram shows four rear plate options.
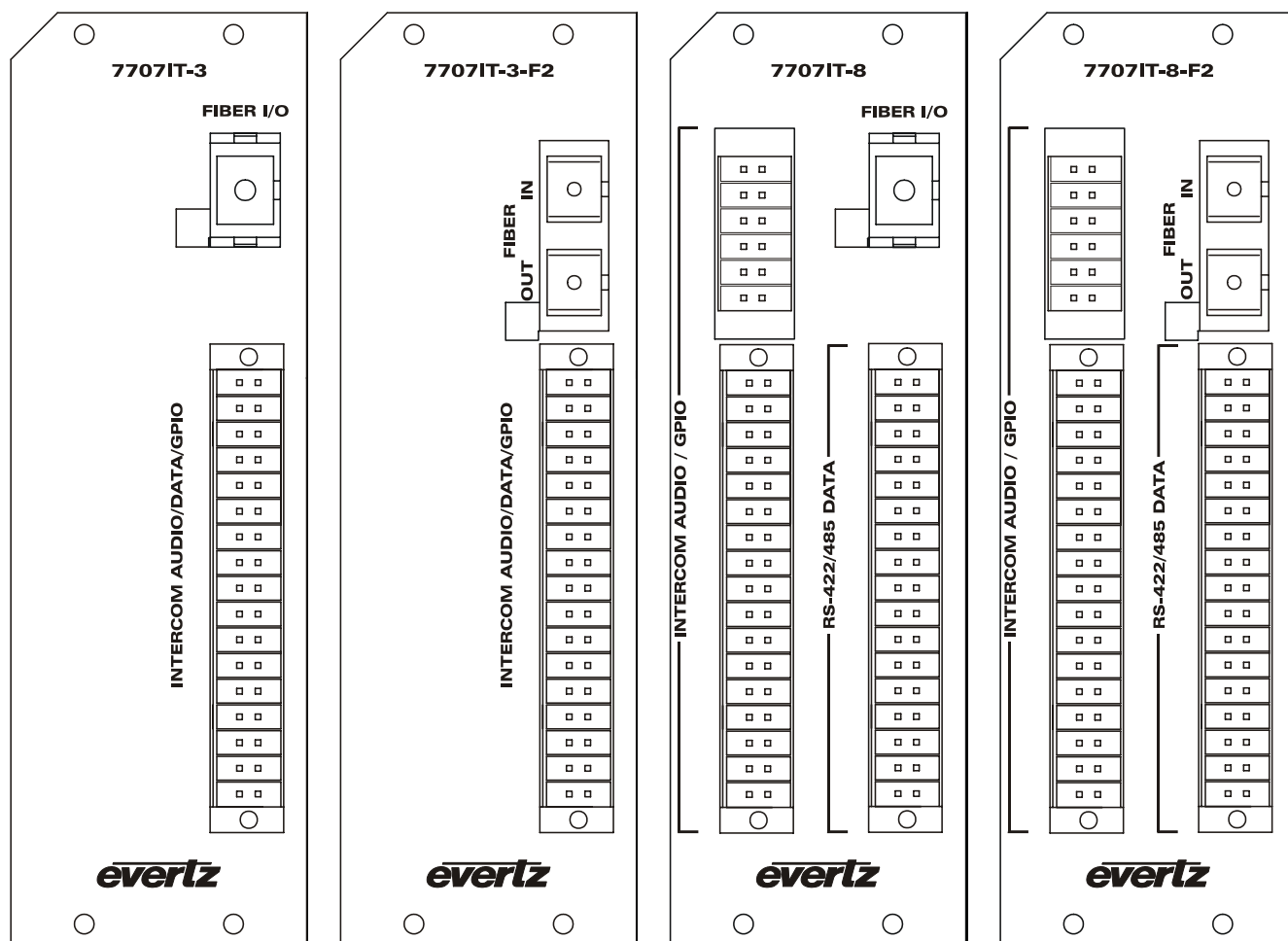
Figure 2-1: 7707IT Rear Panel

2.1. OPTICAL CONNECTIONS

> ✎ **The 7707IT modules are designed to work with single-mode or multi-mode optical fiber depending on the version ordered.**

> ✎ **The CARD ID jumper must be configured in order to establish a robust optical link between the two 7707IT modules. (See section 6.1)**

2.1.1. Single Fiber Versions

FIBER I/O: There is one SC/PC (shown), ST/PC or FC/PC female connector with the optical input/output for the 7707IT-8 and 7707IT-3 (single fiber) versions. This connector should be connected to the matching connector of a matching single fiber 7707IT module at the destination end with a suitable fiber optic cable.

All single fiber versions of the 7707IT are designed to work with single-mode fiber optic cable. Single fiber 7707IT-3 and 7707IT-8 versions use 1310nm wavelengths. Single fiber 7707IT-3-W and 7707IT-8-W versions use 1310nm or 1550nm wavelengths and have their associated transmit wavelength marked on the rear panel.

2.1.2. Standard Dual Fiber Version (-F2 version)

FIBER IN: There is one SC/PC (shown), ST/PC or FC/PC female connector with the optical input to the module. This connector should be connected to the FIBER OUT connector of a matching dual fiber 7707IT-F2 module at the destination end with a suitable fiber optic cable. The dual fiber 7707IT-F2 versions receive on wavelengths in the 1270 to 1610nm range accommodating standard, CWDM or DWDM transmission schemes.

FIBER OUT: There is one SC/PC (shown), ST/PC or FC/PC female connector with the optical output from the module. This optical output is available in 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant). This connector should be connected to the FIBER IN connector of a matching dual fiber 7707IT-F2 module at the destination end with a suitable fiber optic cable. The dual fiber 7707IT-F2 versions transmit on the wavelength marked on the rear panel and are designed to work with either single-mode fiber optic cable. The dual fiber 7707IT-F2 versions are compatible with multi-mode fiber when connected directly to a companion 7707IT-F2 module.

2.2. SIGNAL CONNECTIONS
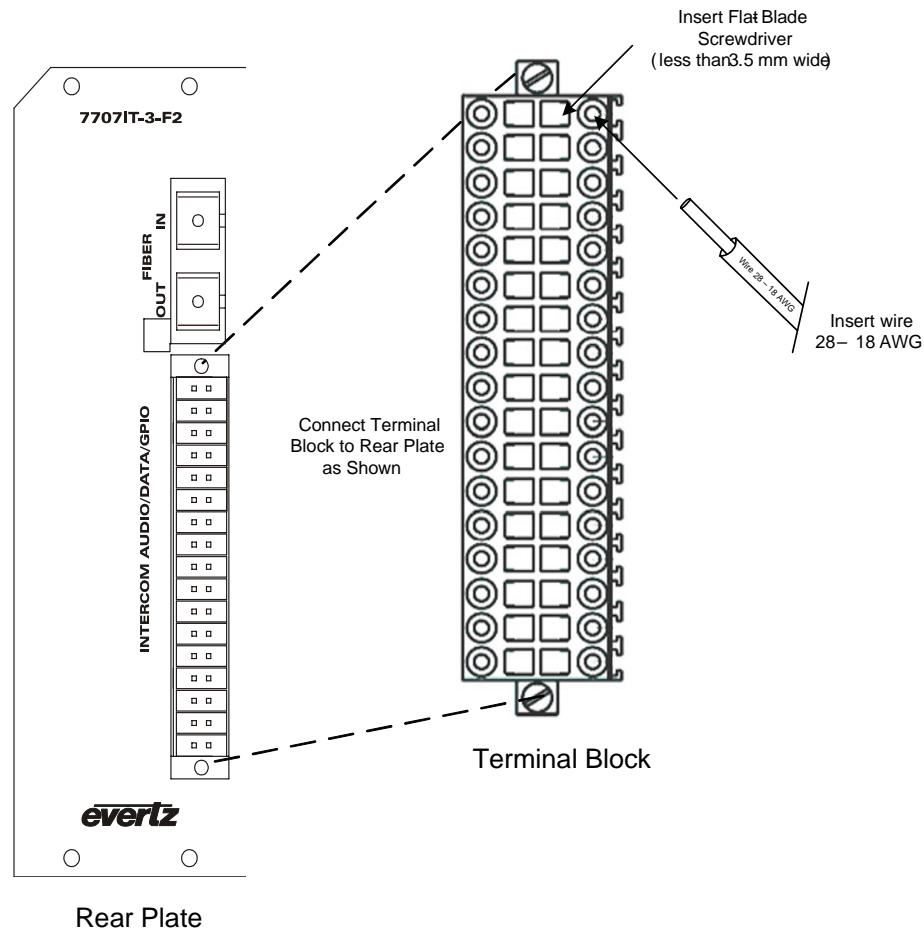
Figure 2-2: Terminal Block Wiring

Simultaneously insert a signal wire (28-18 AWG) and use a screwdriver to secure it into the block as shown in Figure 2-2. The screwdriver will push a tension clamp and will allow the insertion of the wire. Wire positions correspond to detailed pin-outs as shown in Figure 2-4. Fasten screws to the rear plate at the top and bottom once connected.

INTERCOM/AUDIO/DATA/GPIO: These multi-pin removable terminal blocks have the connections for bi-directional analog intercom audio, bi-directional serial data and general purpose input/outputs. The functions of some of the pins change with configuration. Please refer to the pinout diagram shown in Figure 2-4.

> **Never apply a powered or "wet" party-line intercom signal to a terminal that is not designated as a party-line connection.**
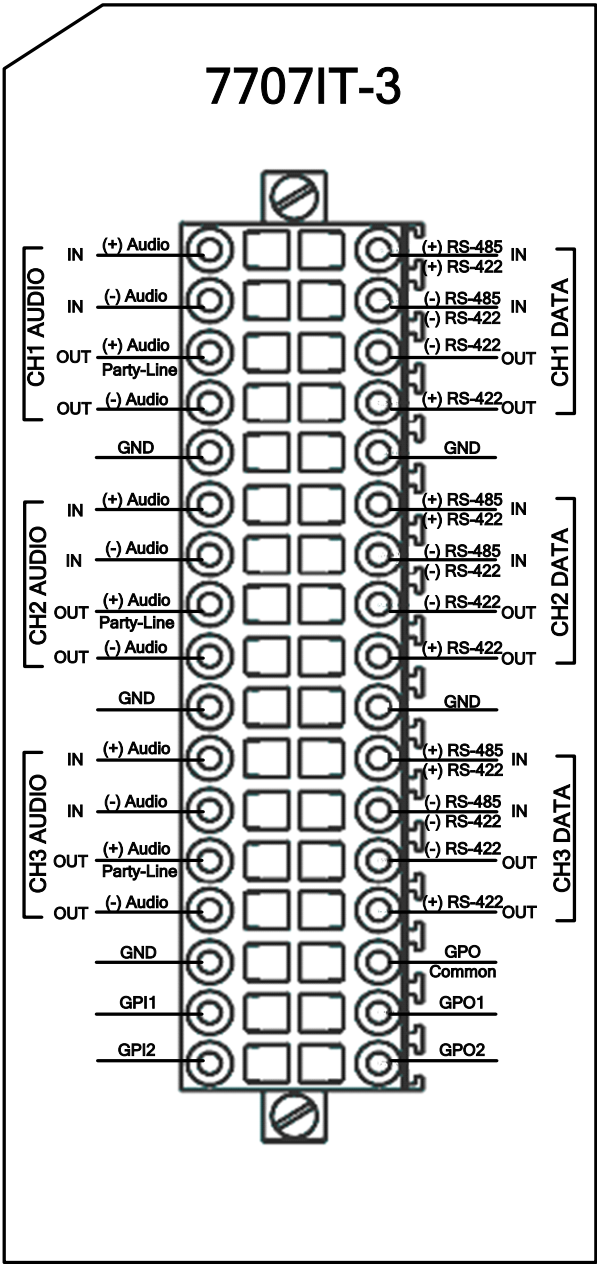
7707IT-3

Figure 2-3: 7707IT-3 Terminal Block Signal Connections
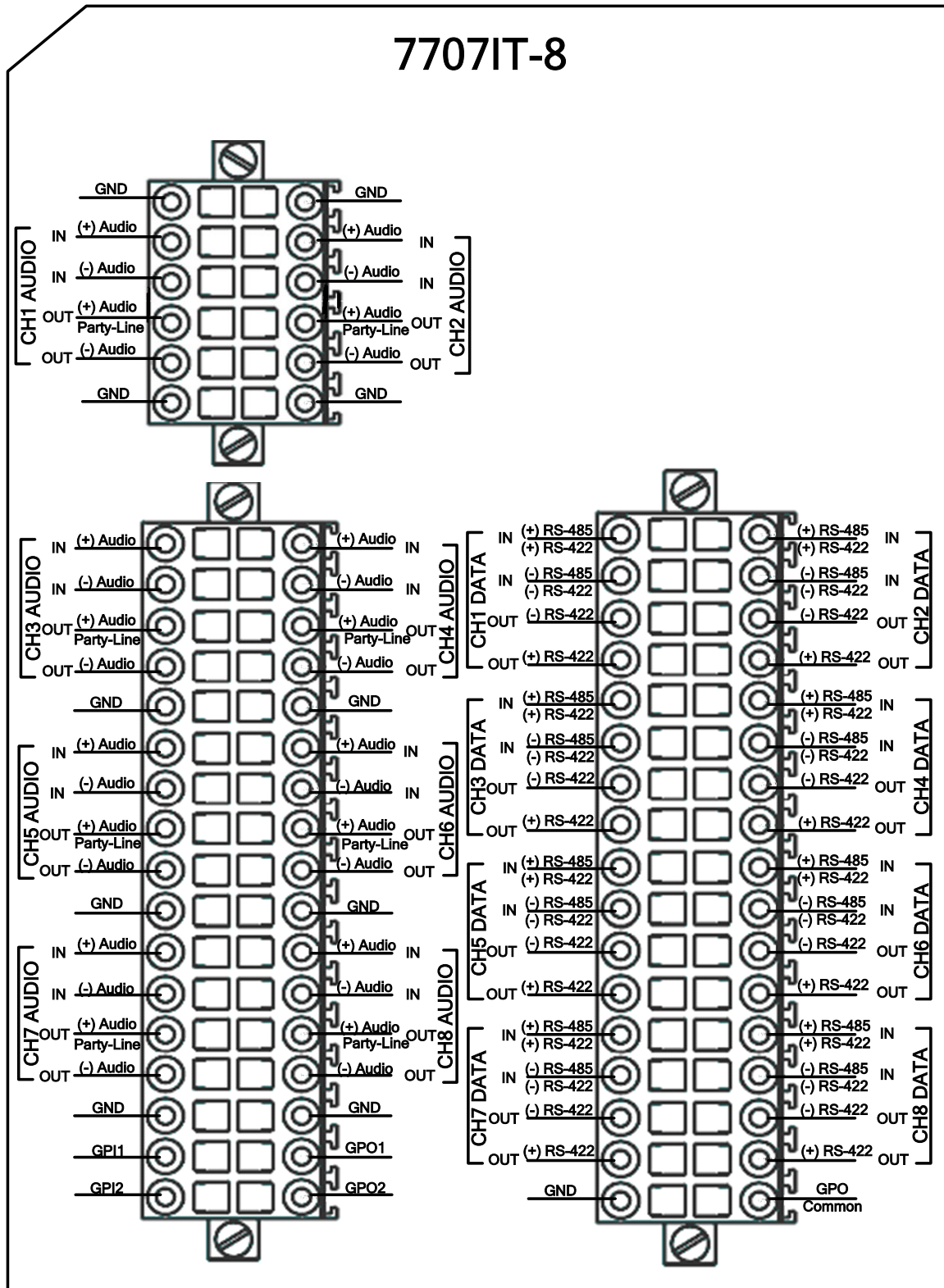
7707IT-8

Figure 2-4: 7707IT-8 Terminal Block Signal Connections

2.2.1. Audio Connections

+AUDIO IN: Positive balanced audio input. Usable only while the associated channel is configured for use with matrix type intercom systems. This pin is DC coupled, and should not be connected to a party-line type intercom system.

-AUDIO IN: Negative balanced audio input. Usable only while the associated channel is configured for use with matrix type intercom systems. This pin is DC coupled, and should not be connected to a party-line type intercom system.

+AUDIO OUT /PARTY-LINE: Positive balanced audio output, or party-line input/output. This pin is AC coupled, and is always safe to connect to a party-line type intercom system, regardless of card configuration. While the associated channel is configured for use with matrix type intercom systems, this connection becomes one half of the balanced audio output. While the associated channel is configured for use with party-line type intercom systems, this connection becomes an unbalanced audio input/output. While the associated channel is configured for use with party-line type intercom systems, this connection also implements circuitry for the detection and generation of call signals.

-AUDIO OUT: Negative balanced audio output. Usable only while the associated channel is configured for use with matrix type intercom systems. This pin is DC coupled, and should not be connected to a party-line type intercom system.

2.2.2. Data Connections

+RS485/+RS422 IN: Positive RS-422 input, or RS-485 input/output. When the associated channel is configured for use with RTS-Telex matrix type intercom systems, this pin becomes an RS-485 input/output. When the associated channel is configured for use with ClearCom matrix type intercom systems or any party-line type intercom, this pin becomes an RS-422 input.

-RS485/-RS422 IN: Negative RS-422 input, or RS-485 input/output. When the associated channel is configured for use with RTS-Telex matrix type intercom systems, this pin becomes an RS-485 input/output. When the associated channel is configured for use with ClearCom matrix type intercom systems or any party-line type intercom, this pin becomes an RS-422 input.

+RS422 OUT: Positive RS-422 output. The RS-422 interface is usable while the associated channel is configured for use with ClearCom matrix type intercom systems or any party-line type intercom system.

-RS422 OUT: Negative RS-422 output. The RS-422 interface is usable while the associated channel is configured for use with ClearCom matrix type intercom systems or any party-line type intercom system.

2.2.3. GPIO Connections

GPI1, GPI2: General purpose inputs to the 7707IT. See section 3.5 for electrical characteristics, and section 0 for connection details.

GPO1, GPO2: General purpose outputs from the 7707IT. See section 3.4 for electrical characteristics, and section 0 for connection details.

GPO COMMON: This is the common connection for the GPO contact closures. See section 0 for connection details.

2.3. CARE AND HANDLING OF OPTICAL FIBER

2.3.1. Safety

⚠ !	CLASS 1 LASER PRODUCT

Background colour: yellow
Triangular band: black
Symbol: black

2.3.2. Assembly

Assembly or repair of the laser sub-module is done only at Evertz facility and performed only by qualified Evertz technical personnel.

2.3.3. Labeling

Certification and Identification labels are combined into one label, as there is not enough room on the product to place the label it is reproduced here in the manuals.
- There is no date of manufacture on this label as it can be traced by the bar code label placed on the Printed circuit board of each Evertz plug-in module
- The Model number is one of: 7707IT13-3, 7707IT13M-3-W, 7707IT15-3-W, 7707IT13-3-F2, 7707IT13-8, 7707IT13M-8-W, 7707IT15-8-W, 7707IT13-8-F2
7707ITxx, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61)
7707ITDyyy (Dyyy represents ITU Grid Channel: D200, D210, D220, D230, D240, D250, D260, D270, D280, D290, D300, D310, D320, D330, D340, D350, D360, D370, D380, D390, D400, D410, D420, D430, D440, D450, D460, D470, D480, D490, D500, D510, D520, D530, D540, D550, D570, D580, D590, D600)

evertz Evertz Microsystems Ltd.
5288 John Lucas Drive
Burlington, ON, CANADA L7L 5Z9
www.evertz.com

Model#:

Serial#:   Made in Canada

CLASS 1 LASER PRODUCT
Complies with 21 CFR 1040.10 and 1040.11
except for deviations pursuant to
LN No. 50, dated July 26/2001
Complies with IEC 60825-1, Am.2
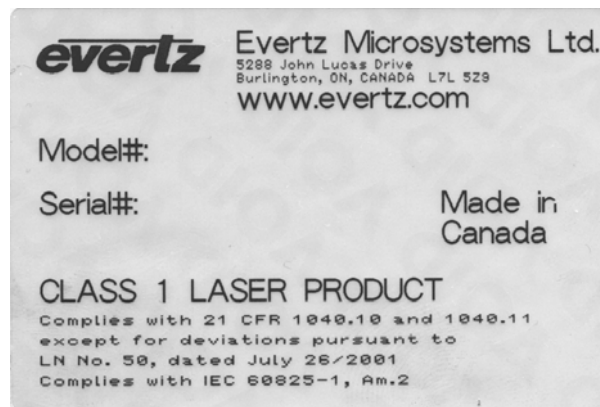
Figure 2-5: Reproduction of Laser Certification and Identification Label

2.3.4. Handling and Connecting Fibers

> **Never touch the end face of an optical fiber. Always keep dust caps on optical fiber connectors when not connected and always remember to properly clean the optical end face of a connector before making a connection.**

The transmission characteristics of the fiber are dependent on the shape of the optical core and therefore care must be taken to prevent fiber damage due to heavy objects or abrupt fiber bending. Evertz recommends that you maintain a minimum bending radius of 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. The Evertz fiber optic modules come with cable lockout devices, to prevent the user from damaging the fiber by installing a module into a slot in the frame that does not have a suitable I/O module. For further information about care and handling of fiber optic cable see section 3 of the Fiber Optics System Design section of this manual binder.

3. SPECIFICATIONS

3.1. ANALOG AUDIO

3.1.1. Balanced/Matrix Type Audio

Number of Signals:
7707IT-8:	8 Inputs, 8 Outputs
7707IT-3:	3 Inputs, 3 Outputs

Type:	Analog Audio, Balanced
Connector Type:	Multi-pin Removable Terminal Block
Input Impedance:	> 10KΩ
Output Impedance:	66Ω
Signal Resolution:	24-Bits
Sampling Rate:	52.7KHz
Frequency Response:	20Hz to 20KHz
Gain Flatness:	$\pm$ 2dB
Input Level (max):	+20dBu
Output Level (max):	
Into 10KΩ:	+20dBu
Into 600Ω:	+19dBu
Signal/Noise Ratio:	> 90dB
THD @1KHz:	< 0.01%
Crosstalk:	< -80dB
Controllable Gain:	-10dB to +10dB

3.1.2. Unbalanced/Party-Line Type Audio

Number of Signals:
7707IT-8:	8 Inputs, 8 Outputs
7707IT-3:	3 Inputs, 3 Outputs

Type:	Analog Audio, Full-duplex, Unbalanced
Connector Type:	Multi-pin Removable Terminal Block
Signal Coupling:	AC coupled (accommodates 30V 'wet' inputs)
Bridging Impedance:	>10KΩ
Signal Resolution:	24-Bit
Sampling Rate:	52.7KHz
Sidetone Null:	> 25dB
Sidetone Null Range:	100Ω to 300Ω load
Frequency Response:	120Hz to 20KHz
Gain Flatness:	$\pm$ 2dB
Input Level (max):	+5dBu
Output Level (max):	+5dBu (into 200Ω load)
Signal/Noise Ratio:	> 75dB
THD @1KHz:	< 0.1%
Crosstalk:	< -60dB
Controllable Gain:	-5dB to +5dB (into 200Ω load)
Receive Signaling:	4VDCmin (ClearCom), 20KHz $\pm$500Hz (RTS)
Send Signaling:	11VDCmin (ClearCom), 20KHz $\pm$100Hz (RTS)

3.2. SERIAL DATA

Number of Signals:
7707IT-8:	8 Inputs, 8 Outputs
7707IT-3:	3 Inputs, 3 Outputs
Connector at Breakout:	Multi-pin Removable Terminal Block
Signal Type:	RS-485 or RS-422 (selectable)
Input Termination:	120Ω or Open (selectable)
Input Failsafe Bias:	200mV (3.3mA into 60Ω) or None (selectable)
Bit Rate (max):	460Kb/s

3.3. OPTICAL INPUT/OUTPUT

Connector:
Single Fiber version:	1 Bi-directional optical connector: SC/PC, ST/PC or FC/PC female housing
Dual Fiber (F2) version:	2 optical connector: SC/PC, ST/PC or FC/PC female housing

Maximum Input Power:
Single fiber versions:	0 dBm
Dual fiber (F2) versions:	0 dBm

Input Optical Sensitivity:
Single fiber versions:	-24 dBm
Single fiber (W) versions:	-26 dBm
Dual fiber (F2) versions:	-28 dBm

Fiber Size and Type:
Single Fiber versions:	9 μm core / single mode
Dual Fiber (F2) versions:	9 μm core / single-mode on TX, 62.5 μm core / multi-mode on RX

Output Wavelengths:
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (ITU-T G.694.2 compliant).
DWDM:	1530nm to 1560nm (ITU-T G.694.1 compliant).

Output Power:
Single fiber version:
1310nm FP (Standard):	-10 dBm ±1dBm
1310 & 1550 (W Versions):	-1 dBm ±1dBm

Dual fiber version:
1310nm FP (Standard):	-7 dBm ±1dBm
CWDM DFB:	0 dBm ±1dBm
DWDM DFB:	+7 dBm ±1dBm

3.4. GENERAL PURPOSE OUPUTS (GPO)

Number of Signals:	2 GPO Outputs, 1 Common Reference (GPO COMMON)
Connector at Breakout:	Multi-pin Removable Terminal Block
Output Type:	Dry contact relay closure to GPO COMMON, normally open
Output Current (min):	100mA

3.5.   GENERAL PURPOSE INPUTS (GPI)

Number of Signals:	2 Inputs
Connector at Breakout:	Multi-pin Removable Terminal Block
Type:	Opto-isolated, Active low
Input Voltage:	
Safe Voltage Range:	-20V to +10V
Off Condition (min):	+3.5V
On Condition (max):	+2.5V(active low)
Input Current (min):	1mA
Input Current (max):	10mA(internally limited)

3.6.   ELECTRICAL

Voltage:	12V DC
Power (max):	24 Watts
EMI/RFI:	Complies with FCC regulations for class A devices
	Complies with EU EMC directive

3.7.   PHYSICAL

7700 Frame Mounting:
  Number of Slots:

7707IT-8:	2
7707IT-3:	1

7701 Frame Mounting:
  Number of Slots:

7707IT-8:	1
7707IT-3:	1

4. CARD-EDGE MONITORING AND CONTROL

The 7707IT has one LED status indicator per channel and a 4-digit dot-matrix display on the front card-edge to show operational status of the card at a glance. The card-edge pushbutton and toggle switch are used to select various indications to the dot-matrix display and LED's. Figure 4-1 shows the locations of the indicators and pushbutton.
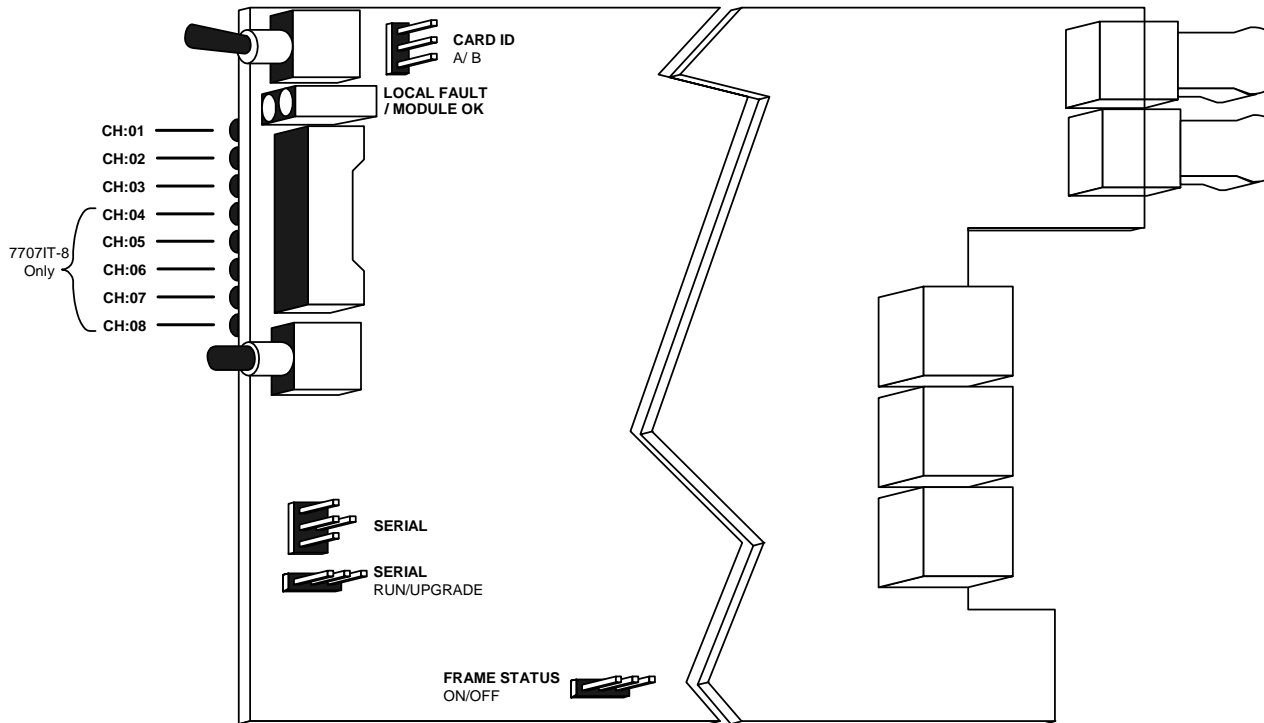
Figure 4-1: Location of Status Indicators and Jumpers

4.1. STATUS INDICATOR LEDS

LOCAL FAULT: This red LED indicates poor module health. Three conditions could cause this fault indication to be active: A link with a companion 7707IT has not been achieved, operation of the output laser is erroneous, or if a card power fault exists (i.e. a blown fuse). If a link is not maintained between two companion 7707IT cards, refer to section 6.1, and verify the selection of the CARD ID jumper. The LOCAL FAULT indication can also be reported to the frame by setting the FRAME STATUS jumper.

MODULE OK: This green LED indicates good module health. It will be on while a link is maintained with a companion 7707IT, the output laser is operating properly, and the card power is good.

CH:01 to **CH:08:**   These green LED's indicate the signal status of the respective intercom channels. Selectable modes accommodate discrete signal presence indication of input audio, output audio, input data, or output data. Presence of audio, data, input, and output signals may also be combined to the LED of the respective channel. Selectable modes of signal status indication are described in section 4.2 of this manual.

4.2. CARD-EDGE DISPLAY AND CONTROLS

Additional signal and status monitoring is provided via the 4-digit dot-matrix display located at the card-edge. The card-edge pushbutton and toggle-switch are used to navigate through the display menu. Figure 4-2 provides a quick reference to the display menu structure.

Pressing the pushbutton advances the display to the next menu level. The toggle-switch may then be used to move up or down through selections of that menu level. Select BACK to return to the previous menu level.

If a specific menu selection has a configuration value associated with it, then this may be changed using the toggle switch. Pressing the pushbutton will apply the displayed value and return you to the previous menu level.

The most recent user selection will be maintained in non-volatile memory in the event of power loss to the module.

	Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4
	Pushbutton⇨	Pushbutton⇨	Pushbutton⇨	Pushbutton⇨
	Menu Selections:	**Configuration Values:**		
	LASR…ERR (Laser Error) Overrides **LINK…LOS** (Link Loss) Overrides **OK**			
	PWR (Optical Power)	**-40** to **+04** (dBm) **LOW** (less than -40dBm) **OVR** (greater than +4dBm)		
.	**STAT** (Status)	**Configuration Values:** **ALL** (Channel Status) **AIN** (Audio In Status) **AOUT** (Audio Out Status) **DIN** (Data In Status) **DOUT** (Data Out Status)		
⇧ Toggle Switch ⇩ **CTRL** (Control)		**Menu Selections:** **CH01** thru **CH03 or CH08** (Channel Control)	**Menu Selections:** **PROF** (Intercom Profile)	**Configuration Values:** **TXMX** (RTS-Telex Matrix) **CCMX** (ClearCom Matrix) **TXPL** (RTS-Telex Party-Line) **CCPL** (ClearCom Party-line)
			NULL (Party-line Null)	**DONE or FAIL** For TXPL or CCPL Profiles
			DET (Detection Level)	**-30** to **+10** (dBu) For TXMX or CCMX Profiles **-40** to **0** (dBu) For TXPL or CCPL Profiles
			GAIN (Audio Gain)	**-10** to **+10** (dBu) For TXMX or CCMX Profiles **-5** to **+5** (dBu) For TXPL or CCPL Profiles
			TERM (Termination)	**ON or OFF**
			BIAS (Failsafe-bias)	**ON or OFF**
.			**BACK**	Return to Level 2
		GLBL (Global Control)	**Menu Selections:** **PROF** (Profile)	**Configuration Values:** **TXMX** (RTS-Telex Matrix) **CCMX** (ClearCom Matrix) **TXPL** (RTS-Telex Party-Line) **CCPL** (ClearCom Party-line)
			BACK	Return to Level 2
		BACK	Return to Level 1	

Figure 4-2: Card-edge Menu Quick Reference

4.2.1. Card-Edge Display Warning Indications

There are flashing warning indicators that may appear on the display of the 7707IT. These warning indications can overwrite other display text, and supersede each other by order of priority. By pressing the pushbutton, a warning indication can be cleared from the display, and access to other menu items is maintained. Possible warning indications are:

`LASR…ERR:`	Laser error - warns of laser (if equipped) end-of-life condition.
`LINK…LOSS:`	Optical link not established.
`OK:`	Optical link established, no video input or laser (if equipped) problems.

4.2.2. Displaying the Optical Power

The 7707IT can measure and display optical power over a range of –40 to +4dBm in 1dBm increments. Please heed the maximum optical input power specification for the specific product option you possess. Optical power monitoring is accommodated through the card-edge interface or *Vista*LINK®.

```
PWR
  -40 to +04 (dBm)
  LOW
  OVR
```

To display the optical power to the card-edge select the `PWR` indication in menu level 1. The following list describes all possible indications for this menu selection:

`-40` to `+04:`	Optical input power in dBm units.
`LOW:`	Optical input powers below –40dBm.
`OVR:`	Optical input powers exceeding +4dBm.

4.2.3. Selecting the Signal Status Indication Mode

The eight card-edge LEDs indicate the signal status of the eight respective intercom channels. Selectable modes accommodate discrete signal presence indication of input audio, output audio, input data, and output data. Presence of audio, data, input and output signals may also be combined to the LED of the respective channel.

```
STAT
  ALL
  AIN
  AOUT
  DIN
  DOUT
```

To change the card-edge LED indication mode, select the `STAT` menu item in menu level 1. Toggle to the desired status indication selection shown in the list below.

`ALL:`	Combines all of the below signal presence indications for each channel.
`AIN:`	Input audio presence indication as per configured detection threshold.
`AOUT:`	Output audio presence indication as per configured detection threshold.
`DIN:`	Input data presence indication indicating signal transitions.
`DOUT:`	Output data presence indication indicating signal transitions.

The factory default status display is `ALL`.

4.2.4. Selecting an Interface Profile

The 7707IT can be easily configured for different applications using the programmed profiles, selectable using the card-edge interface or through *Vista*LINK® control. Each channel is configurable as party-line or matrix, and to interface with the following industry-standard intercom systems.

- RTS-Telex Matrix   4-Wire Audio, and RS-485 (plus GPIO auxiliary signals)
- ClearCom Matrix   4-Wire Audio, and RS-422 (plus GPIO auxiliary signals)
- RTS-Telex Party-line   1-Wire Audio (plus RS-422, and GPIO auxiliary signals)
- ClearCom Party-line   1-Wire Audio (plus RS-422, and GPIO auxiliary signals)

Each of these industry-standard intercom interface types requires different intercom audio levels and call-signaling types. The 7707IT provides a factory-default interface profile for each of the above intercom types. Selection of a profile will match intercom audio and call-signaling settings for a typical installation of that type. Each channel can be individually profiled for different intercom types.

Audio for each channel may be configured for interface to Matrix or Party-line systems. Specifications for these two intercom audio types are provided in section 3.1 of this manual. These specifications are designed to accommodate systems from multiple manufacturers. Input/output functions of some audio pins change with configuration. Please refer to the pin-out diagrams as shown in Figure 2-3 and Figure 2-4.

✎ | **Never apply a powered or "wet" party-line signal to a terminal that is not designated as a party-line connection.**

Among the industry-standard matrix intercom products, two types of serial data are used for call signaling. RTS-Telex uses RS-485 serial data, while ClearCom uses RS-422 serial data. The 7707IT accommodates either of these through selection of the associated profiles. Input/output functions of some serial data pins change with configuration. Please refer to the pinout diagram depicted in Figure 2-3 and Figure 2-4.

Among the industry-standard party-line intercom products, two types of call-signaling are used. RTS-Telex uses a 20kHz frequency component superimposed upon the audio signal. ClearCom uses a DC voltage component superimposed upon the audio signal. The 7707IT accommodates either of these through selection of the associated profiles.

Therefore, four types of call-signaling are present in the industry; two types for matrix, and two types for party-line. The 7707IT accommodates all of these via selection of an interface profile. This provides a user-friendly means of configuring the 7707IT for a specific application.

```
CTRL
   CH01 to CH03 or
   CH08
      PROF
         TXMX
         CCMX
         TXPL
         CCPL
```

To change the programmed profile, select the `CTRL` menu item in menu level 1. The 7707IT allows independent configuration of each channel, or common configuration of all channels (See section 4.2.10 for information on the **GLBL** menu option). Use the toggle switch to choose the channel to which the profile will be applied and press the pushbutton to apply the displayed selection.

`CH01 to CH08:`   Range of channels for the 7707IT-8
`CH01 to CH03:`   Range of channels for the 7707IT-3

Use the toggle switch to select the `PROF` menu item and press the pushbutton. Use the toggle switch to select the desired profile as per the list below.

`TXMX:`   RTS-Telex Matrix   (4-Wire Audio and RS-485 serial data)
`CCMX:`   ClearCom Matrix   (4-Wire Audio and RS-422 serial data)
`TXPL:`   RTS-Telex Party-line (1-Wire Audio and frequency call signaling)
`CCPL:`   ClearCom Party-line (1-Wire Audio and voltage call signaling)

The factory default profile is the `TXMX` profile.

Selecting one of the programmed profiles sets all audio gain, null, and detection levels to the factory defaults specified in the following sections. Press the pushbutton to apply the displayed selection and return to menu level 3. You can modify these settings from the factory default by using the toggle switch to select the *NULL, DET, GAIN, TERM or BIAS* menu items on menu level 3, or select the *BACK* menu item to return to menu level 2.

4.2.5. Setting the Party-Line Audio Null Level (Future)

This section applies only to installations using party-line type intercom systems. The 7707IT has a self-calibration capability for automatic null adjustment. This user-friendly feature is unique in the industry. Party-line null adjustment is accomplished using the card-edge interface.

Party-line intercom systems use bi-directional signals over a single wire with transmit and receive signals superimposed. This means that each intercom station will receive its own transmit signal. Party-line nulling cancels the transmitted audio output signal from the received audio input signal. Without proper null adjustment, the user would hear their own voice as an echo, making it difficult for them to distinguish from other input audio signals. The combined impedances of all connected intercom devices in a party-line system create different signal characteristics for each intercom system. Therefore, it may be desirable to calibrate the party-line nulling each time the system is changed.

To cancel interfering audio signals, a null value is applied. Party-line nulling is digitally controlled but implemented in the analog domain. This unique design allows the 7707IT to automatically self-calibrate the nulling value. The self-calibration procedure is similar to manual methods commonly used in the industry, but is performed automatically. Automatic null adjustment results in an accurate calibration in a much shorter period of time than by manual means.

The self-calibration feature of the 7707IT requires that all other intercom devices be connected and powered, but that none are actively being used to communicate audio. The 7707IT will apply an audio test signal to the system, and automatically adjust its null value for accurate cancellation. Other intercom devices will receive this test signal, but must not apply an output signal to the system. Automatic calibration is completed in approximately 5 seconds. Interference from another intercom device will be indicated on the card edge display, and will result in the factory default calibration value being selected.

```
CTRL
   CH01 to CH03 or
   CH08
      NULL
         DONE
         FAIL
```

To initiate the self-calibration procedure, select the CTRL menu item in menu level 1. The 7707IT accommodates independent configuration of each channel. Use the toggle switch to choose the channel to which the calibration will be applied and press the pushbutton to apply the displayed selection.

CH01 to **CH08:**   Range of Independent channels for the 7707IT-8.
CH01 to **CH03:**   Range of Independent channels for the 7707IT-3.

Use the toggle switch to then select the Null menu item and press the pushbutton to initiate the self-calibration procedure. Approximately 5 seconds after initiating the self-calibration procedure, one of the following messages will be displayed:

DONE: Calibration completed successfully.
FAIL: Interference detected, or load impedance is beyond calibration range. Check other devices. Default calibration value applied.

Provided that the calibration is completed successfully, and the DONE indication is present on the display, the user may then press the pushbutton to return to menu level 3. Selection of this automatic calibration value is the normal case. While the DONE or FAIL messages are shown in the display, the toggle switch can be used to manually adjust the calibration value up or down. Press the pushbutton to apply the displayed value and return to menu level 3.

0000 to **1024:**   Range of manually adjustable calibration values. Manual adjustment is intended as a tool for factory test and debug.

The factory default applies a party-line null configuration value of 305. Changing the interface profile will restore the factory default threshold value for the respective channel(s).

4.2.6. Setting the Analog Audio Detection Threshold

In order to properly indicate audio signal presence, a detection threshold is used. The audio detection threshold adjustment is implemented in the digital domain. For matrix type intercom signals the specified range of threshold adjustment is –30dBu to +10dBu, in 1dB increments. For party-line type intercom signals the specified range of threshold adjustment is –40dBu to 0dBu, in 1dB increments. Threshold adjustment is done using the card-edge interface or through *Vista*LINK® control.

The audio detection threshold is independently adjustable for each channel, and is applied to both the input and output of each respective channel. The detection thresholds are applied to the audio signals at the input and output connections, which may have gain applied. Refer to section 4.2.3 for information on how to display the audio signal presence on the card-edge LEDs.

```
CTRL
    CH01 to CH03 or
    CH08
        DET
            -30 to +10
            -40 to 0
```

To change the audio detection threshold, select the `CTRL` menu item in menu level 1. The 7707IT allows an audio detection threshold to be set for each channel. Use the toggle switch to choose the channel for which you want to adjust the detection threshold. Press the pushbutton to apply the displayed selection.

`CH01` to `CH08:`   Range of channels for the 7707IT-8.
`CH01` to `CH03:`   Range of channels for the 7707IT-3.

Use the toggle switch to select the `DET` menu item and press the pushbutton. The toggle switch may then be used to change the threshold value. Use the toggle switch to select the desired value then press the pushbutton to apply the displayed selection and return to menu level 3. You can select other items on menu level 3, or select the `BACK` menu item to return to menu level 2.

`-30` to `+10:`   Detection threshold range for matrix intercom types, describing a dBu value.
`-40` to `0:`   Detection threshold range for party-line intercom types, describing a dBu value.

The factory default configuration applies the following audio detection threshold values:
- `+8` for the TXMX (RTS-Telex Matrix) profile
- `0` for the CCMX (ClearCom Matrix) profile
- `0` for the TXPL (RTS-Telex Party-line) profile
- `-8` for the CCPL (ClearCom Party-line) profile

Changing the interface profile will restore the factory default threshold value for the respective channel(s).

4.2.7. Setting the Audio Gain

Audio gain adjustment is implemented in the digital domain. For matrix type intercom signals the specified range of gain adjustment is -10dBu to +10dBu, in 0.1dB increments. For party-line type intercom signals the specified range of gain adjustment is -5dBu to +5dBu, in 0.1dB increments. Gain adjustment is done using the card-edge interface or through *Vista*LINK® control.

Matrix audio types use a balanced voltage output signal. The selected gain value describes voltage gain, and is accurate for high impedance loads. Analog audio output design dictates that the amplitude will reduce slightly as the load impedance is reduced. Subtract approximately 1dB for 600Ω loads.

Party-line audio types use an unbalanced current output signal. This current output signal produces a voltage signal across an external termination which is normally 200Ω. The termination is shared by all connected intercom devices, and usually resides within the power source of the system. The selected gain value describes voltage gain, and is accurate for a 200Ω termination. Other termination values will yield a different gain as per the current-resistance product of the signal.

CTRL
CH01 to CH03 or CH08
GAIN
-10 to +10 *-5 to +5*

To change the audio gain, select the `CTRL` menu item in menu level 1. The 7707IT allows independent configuration of each channel. Use the toggle switch to choose the channel for which the audio gain will be adjusted and press the pushbutton to apply the displayed selection.

`CH01` to `CH08:`   Range of channels for the 7707IT-8.
`CH01` to `CH03:`   Range of channels for the 7707IT-3.

Use the toggle switch to select the `DET` menu item and press the pushbutton. The toggle switch may then be used to change the audio gain value. Toggle to the desired value then press the pushbutton to apply the displayed selection and return to menu level 3. You can select other items on menu level 3, or select the `BACK` menu item to return to menu level 2.

`-10` to `+10:`   Gain range for matrix intercom types, describing a dB value.
`-5.0` to `+5.0:`   Gain range for party-line intercom types, describing a dB value.

The factory default audio gain setting is `0`dB. Changing the interface profile will restore the factory default gain value for the respective channel(s).

4.2.8. Selecting the Serial Data Termination

To simplify installation, the 7707IT provides a selectable input termination of 110Ω for the balanced serial data signals. This termination should be active as required by the specific application, and common practice. Selection of the termination is done using the card-edge interface or through *Vista*LINK® control.

```
CTRL
   CH01 to CH03 or
   CH08
      TERM
         ON
         OFF
```

To turn the termination on or off, select the CTRL menu item in menu level 1. Use the toggle switch to choose the channel to which the termination will be applied. Press the pushbutton to apply the displayed selection.

CH01 to **CH08:**   Range of channels for the 7707IT-8.
CH01 to **CH03:**   Range of channels for the 7707IT-3.

Use the toggle switch to select the TERM menu item and press the pushbutton. The toggle switch may then be used to turn the termination on or off. Use the toggle switch to select the desired state then press the pushbutton to apply the displayed selection and return to menu level 3. You can select other items on menu level 3, or select the BACK menu item to return to menu level 2.

ON: The 110Ω is selected as active.
OFF: The 110Ω is selected as inactive, and the input is high impedance.

The factory default configuration turns the termination OFF. Changing the interface profile will restore the factory default termination state for the respective channel(s).

4.2.9. Selecting the Serial Data Failsafe Bias

To simplify installation, the 7707IT provides a selectable failsafe bias for balanced serial data signals. This bias should be active as required by the specific application, and common practice. The failsafe bias will apply a differential +200mV bias to a properly designed RS-485 system while in the idle state. As a protection feature, the failsafe bias will not become active unless the termination is also active for the respective channel. The failsafe bias circuit of the 7707IT will function properly over the specified input common mode range. Selection of the failsafe bias is done using the card-edge interface or through *Vista*LINK® control.

CTRL
CH01 to CH03 or CH08
BIAS
ON
OFF

To turn the failsafe bias on or off, select the `CTRL` menu item in menu level 1. The 7707IT allows a failsafe bias threshold to be set for each channel. Use the toggle switch to choose the channel for which you want to adjust the detection threshold. Press the pushbutton to apply the displayed selection.

CH01 to **CH08:**   Range of channels for the 7707IT-8.
CH01 to **CH03:**   Range of channels for the 7707IT-3.

Use the toggle switch to select the `BIAS` menu item and press the pushbutton. The toggle switch may then be used to turn the failsafe bias on or off. Use the toggle switch to select the desired state then press the pushbutton to apply the displayed selection and return to menu level 3. You can select other items on menu level 3, or select the `BACK` menu item to return to menu level 2.

ON: The failsafe bias is selected as active.
OFF: The failsafe bias is selected as inactive.

The factory default configuration turns the failsafe bias `OFF`. Changing the interface profile will restore the factory default failsafe bias state for the respective channel(s).

Select `BACK` to return to the previous level.

4.2.10. Global Control

CTRL
GLBL
PROF
TXMX
CCMX
TXPL
CCPL

To apply a profile to all channels select the CTRL menu item in menu level 1. Use the toggle switch to choose the Global Control option (*GLBL*) and press the pushbutton to apply the displayed selection. Please refer to section 4.2.4 for information regarding *Profiles*.

GLBL: Global configuration. Applies profile to all Channels.

Use the toggle switch to select the PROF menu item and press the pushbutton. Use the toggle switch to select the desired profile as per the list below.

TXMX:	RTS-Telex Matrix	(4-Wire Audio and RS-485 serial data)
CCMX:	ClearCom Matrix	(4-Wire Audio and RS-422 serial data)
TXPL:	RTS-Telex Party-line	(1-Wire Audio and frequency call signaling)
CCPL:	ClearCom Party-line	(1-Wire Audio and voltage call signaling)

The factory default profile is the **TXMX** profile.

✎ | **Select BACK to return to the previous level.**

---

5.   GENERAL PURPOSE INPUTS AND OUTPUTS

The 7707IT provides the user with 2 General Purpose Inputs (GPI's) and 2 General Purpose Outputs (GPO's). Figure 5-1 shows the input and output circuitry. Refer to sections 3.4 and 3.5 for electrical specifications. The GPI input stage uses opto-isolators for isolation. In a typical application, providing a contact closure or transistor connection to ground would activate the GPI inputs. The GPO output stage uses dry contact relay closures. GPO COMMON acts as a common reference connection for both contact closures, and accommodates closure to ground, or some other reference signal level.
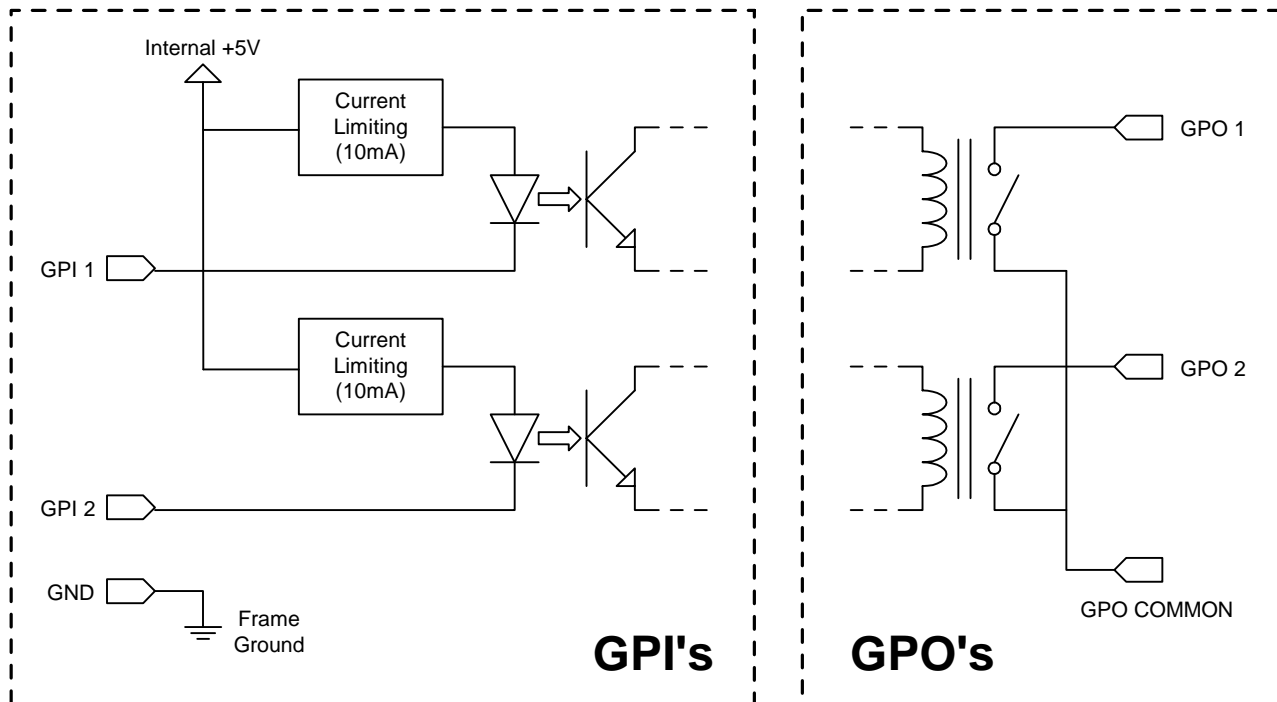
Figure 5-1: General Purpose Inputs and Outputs

6.   JUMPER CONTROLS

Several jumpers, located at the front of the module are used to preset various operating modes. Figure 4-1 shows the locations of the jumpers.

6.1.   SELECTING THE CARD ID

To maintain a link between two companion 7707IT cards, the CARD ID jumper must be set differently on each. This is required to guarantee synchronization of data in either direction.

CARD ID: To maintain a link between two 7707IT cards, set this jumper to position A on one card, and to position B on the other card.

6.2.   SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED
BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the Power Supply FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position (default)

When this jumper is installed in the Off position local faults on this module will not be monitored.

6.3.   CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

RUN/UPGRADE: The RUN/UPGRADE jumper is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position. See the *Upgrading Firmware* chapter in the front of the binder for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move the RUN/UPGRADE jumper J16 into the *UPGRADE* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of the binder) onto SERIAL header J27 at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* chapter in the front of the binder. Once the upgrade is completed, remove the module from the frame, move J16 into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

7.   *VISTA*LINK® REMOTE MONITORING/CONTROL

7.1.   WHAT IS *VISTA*LINK®?

*Vista*LINK® is Evertz's remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. *Vista*LINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through *Vista*LINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, *Vista*LINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz VL-Fiber demo Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled fiber optic products.

2. Managed devices (such as 7707IT cards) each with a unique address (OID) communicate with the NMS through an SNMP Agent. Evertz *Vista*LINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC *Vista*LINK® frame controller module, which serves as the Agent.

3. A virtual database, known as the Management information Base (MIB), lists all the variables being monitored, which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

For more information on connecting and configuring the *Vista*LINK® network, see the 7700FC Frame Controller chapter.

7.2.   *VISTA*LINK® MONITORED PARAMETERS

The following parameters can be remotely monitored through the *Vista*LINK® interface.

Parameter	Description
Optical Power	Optical input power from –40dBm to 0dBm
Optical Link Loss	Indicates a fiber link fault condition
Laser Fault	Indicates a laser fault condition
Audio Input Status	Indicates signal Presence for each channel
Audio Output Status	Indicates signal Presence for each channel
Data Input Status	Indicates signal Presence for each channel
Data Output Status	Indicates signal Presence for each channel
Card Type	Indicates Version of Hardware

Table 7-1: *Vista*LINK® Monitored Parameters

7.3. *VISTA*LINK® CONTROLLED PARAMETERS

The following parameters can be remotely controlled through the *Vista*LINK® interface.

Parameter	Description
Interface Profile	Selects intercom interface type
Audio Gain	Adjusts audio gain level
Audio Detection Threshold	Adjusts audio detection threshold
Data Termination	Selects serial data input termination state
Data Failsafe-bias	Selects serial data failsafe-bias state
Optical Power Alarm	Selects Optical Power Level Where Trap will be Sent

Table 7-2: *Vista*LINK® Controlled Parameters

7.4. *VISTA*LINK® TRAPS

The following traps will be reported through the *Vista*LINK® interface.

Trap	Description
Laser Fault	Indicates the laser has stopped working
Optical Link Loss	Indicates optical level is below operational sensitivity
Optical Power Alarm Threshold	Indicates optical power is below Optical Power Alarm setting

Table 7-3: *Vista*LINK® Traps

7.5. *VISTA*LINK® CONFIGURATION

7.5.1. Control Settings

Through *Vista*LINK® control, as illustrated in Figure 7-1, the 7707IT can be easily configured for different applications using the programmed profiles. Each channel is configurable as party-line or matrix, and to interface with the following industry-standard intercom systems.

> **Please note that three channels will be available while using the 7707IT-3-F2 and eight channels will be available while using the 7707IT-8-F2.**
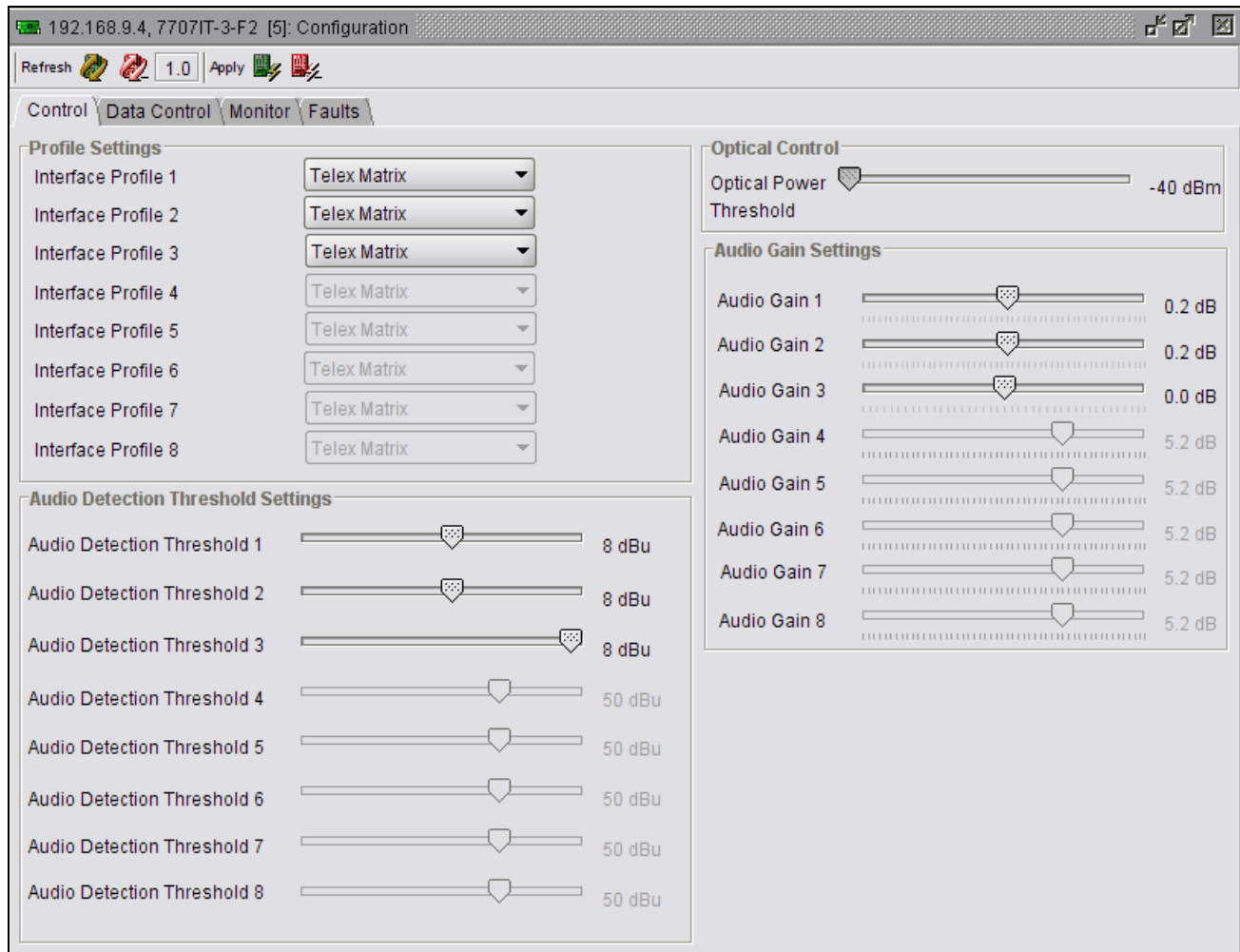
Figure 7-1: Control Tab

7.5.1.1.   Profile Settings

There are three Interface Profiles available when using the 7707IT-3-F2. For the sake of brevity, only *Interface Profile 1* will be discussed in the manual.

The *Interface Profile 1* drop down menu enables the user to choose from the following list of interface types:

RTS-Telex Matrix: 4-Wire Audio, and RS-485 (plus GPIO auxiliary signals)
ClearCom Matrix: 4-Wire Audio, and RS-422 (plus GPIO auxiliary signals)
RTS-Telex Party-line: 1-Wire Audio (plus RS-422, and GPIO auxiliary signals)
ClearCom Party-line: 1-Wire Audio (plus RS-422, and GPIO auxiliary signals)

Each of these industry-standard intercom interface types requires different intercom audio levels and call-signaling types. The 7707IT provides a factory-default interface profile for each of the above intercom types. Selection of a profile will match intercom audio and call-signaling settings for a typical installation of that type. Each channel can be individually profiled for different intercom types.

Audio for each channel may be configured for interface to Matrix or Party-line systems. Specifications for these two intercom audio types are provided in section 3.1 of this manual. These specifications are designed to accommodate systems from multiple manufacturers. Input/output functions of some audio pins change with configuration. Please refer to the pin-out diagrams as shown in Figure 2-3 and Figure 2-4.

> **Never apply a powered or "wet" party-line signal to a terminal that is not designated as a party-line connection.**

Among the industry-standard matrix intercom products, two types of serial data are used for call signaling. RTS-Telex uses RS-485 serial data, while ClearCom uses RS-422 serial data. The 7707IT accommodates either of these through selection of the associated profiles. Input/output functions of some serial data pins change with configuration. Please refer to the pinout diagram depicted in Figure 2-3 and Figure 2-4.

Among the industry-standard party-line intercom products, two types of call-signaling are used. RTS-Telex uses a 20kHz frequency component superimposed upon the audio signal. ClearCom uses a DC voltage component superimposed upon the audio signal. The 7707IT accommodates either of these through selection of the associated profiles.

Therefore, four types of call-signaling are present in the industry; two types for matrix, and two types for party-line. The 7707IT accommodates all of these via selection of an interface profile. This provides a user-friendly means of configuring the 7707IT for a specific application.

7.5.1.2. Optical Control

This parameter enables the user to set the *Optical Power Threshold* over a range of –40 to +4dBm in 1dBm increments. Please heed the maximum optical input power specification for the specific product option you possess.

7.5.1.3. Audio Detection Threshold Settings

This parameter enables the user to set the *Audio Detection Threshold* in order to properly indicate audio signal presence. The audio detection threshold adjustment is implemented in the digital domain. For matrix type intercom signals the specified range of threshold adjustment is –30dBu to +10dBu, in 1dB increments. For party-line type intercom signals the specified range of threshold adjustment is –40dBu to 0dBu, in 1dB increments.

The audio detection threshold is independently adjustable for each channel, and is applied to both the input and output of each respective channel. The detection thresholds are applied to the audio signals at the input and output connections, which may have gain applied.

7.5.1.4. Audio Gain Settings

This parameter enables the user the set the *Audio Gain*. For matrix type intercom signals, the specified range of gain adjustment is -10dBu to +10dBu, in 0.1dB increments. For party-line type intercom signals the specified range of gain adjustment is -5dBu to +5dBu, in 0.1dB increments.

Matrix audio types use a balanced voltage output signal. The selected gain value describes voltage gain, and is accurate for high impedance loads. Analog audio output design dictates that the amplitude will reduce slightly as the load impedance is reduced. Subtract approximately 1dB for 600Ω loads.

Party-line audio types use an unbalanced current output signal. This current output signal produces a voltage signal across an external termination which is normally 200Ω. The termination is shared by all connected intercom devices, and usually resides within the power source of the system. The selected gain value describes voltage gain, and is accurate for a 200Ω termination. Other termination values will yield a different gain as per the current-resistance product of the signal.

7.5.2. Data Control

The *Data Control* settings, as illustrated in Figure 7-2, allow the user to enable or disable the *Data Termination Status* and the *Data Fail Safe Bias Status*.

> **Please note that three channels will be available while using the 7707IT-3-F2 and eight channels will be available while using the 7707IT-8-F2.**

Figure 7-2: Data Control Tab

7.5.2.1. Data Termination Status

The 7707IT provides a selectable input termination of 110Ω for the balanced serial data signals. This termination should be active as required by the specific application, and common practice. For the sake of brevity, only *Data Termination 1* will be discussed in the manual.

Data Termination 1: When set to "Active," the 110Ω is on. When set to "Not Active, the 110Ω is off and the input is high impedance.

7.5.2.2. Data Fail Safe Bias Status

The 7707IT provides a selectable failsafe bias for balanced serial data signals. This bias should be active as required by the specific application, and common practice. The failsafe bias will apply a differential +200mV bias to a properly designed RS-485 system while in the idle state. As a protection feature, the failsafe bias will not become active unless the termination is also active for the respective channel. The failsafe bias circuit of the 7707IT will function properly over the specified input common mode range. For the sake of brevity, only *Data Fail Safe Bias 1* will be discussed in the manual.

Data Fail Safe Bias 1:   When set to "Active," the failsafe bias is on. When set to "Not active," the failsafe bias is off.

7.5.3. Monitor

The *Monitor* tab, as illustrated in Figure 7-3, indicates the signal status of input audio, output audio, input data, and output data.

> **Please note that three channels will be available while using the 7707IT-3-F2 and eight channels will be available while using the 7707IT-8-F2.**
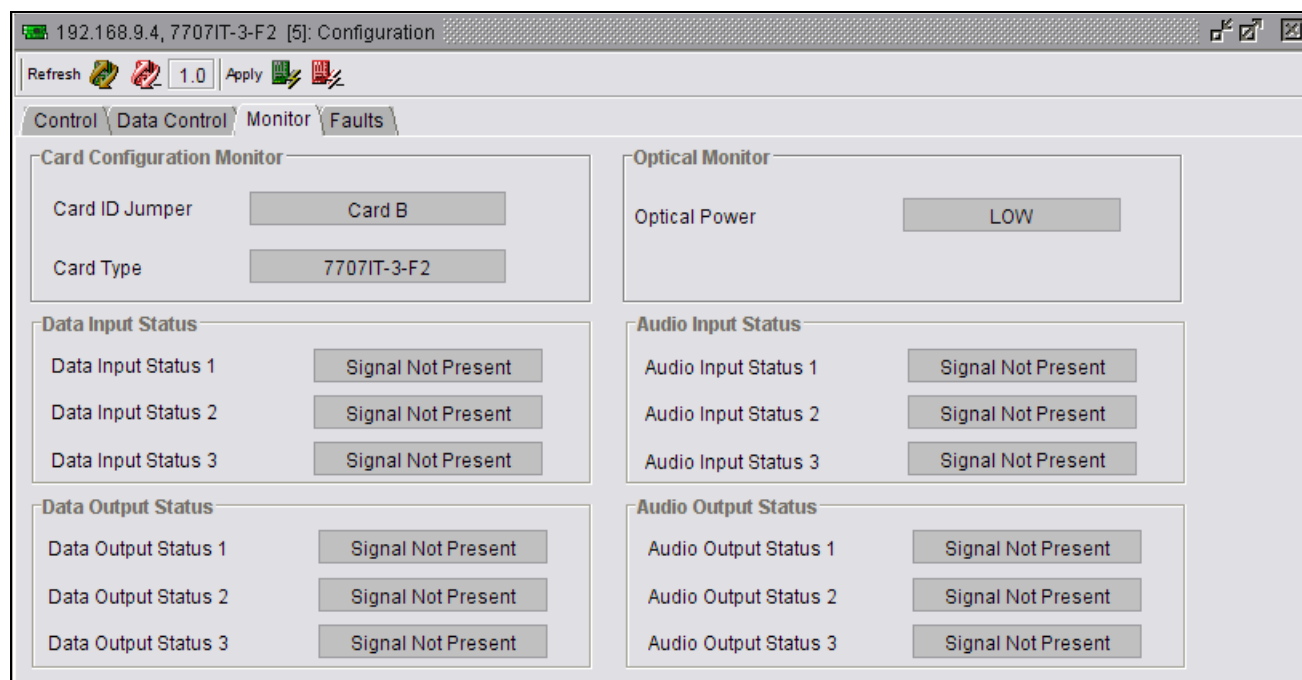

Figure 7-3: Monitor Tab

7.5.3.1. Card Configuration Monitor

Card ID Jumper: Indicates the position of the "CARD ID Jumper."

Card Type: Indicates the hardware version.

7.5.3.2.   Optical Monitor

Optical Power: Displays the "Optical Power" level.

7.5.3.3.   Data Input & Output Status

These fields indicate the presence of "Data Input" and "Data Output" signals.

7.5.3.4.   Audio Input & Audio Output Status

These fields indicate the presence of "Audio Input" and "Audio Output" signals as per configured detection threshold.

7.5.3.5.   Faults

The *Faults* control, as illustrated in Figure 7-4, allows the user to enable or disable traps and view trap status. To enable a particular trap, simply click the box located beside each trap so that a check-mark appears. When a check-mark is present, the trap is enabled. When a check-mark is not present, the trap is disabled.

The *Trap Status* section defines whether a trap is present or missing. If the box is green, then the corresponding trap is present. If the box is red, then the corresponding trap is missing.
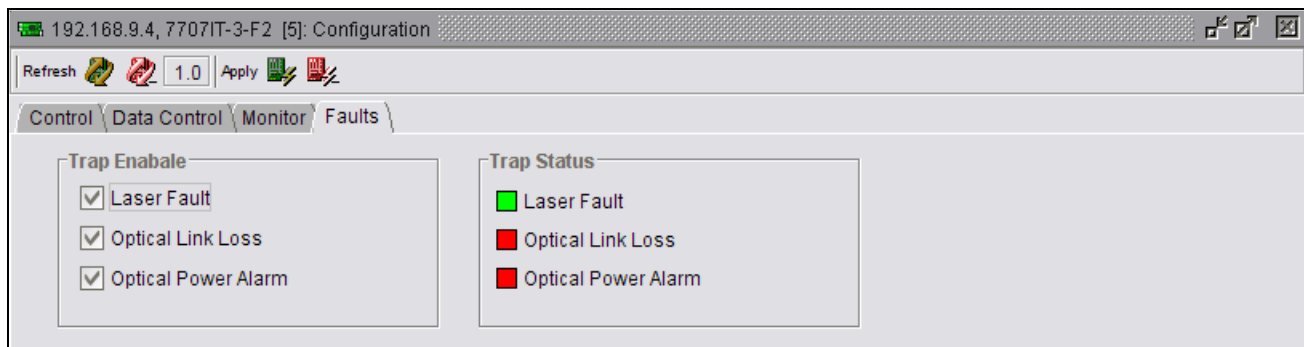

Figure 7-4: Faults Tab