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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	July 2011
1.1	Updated specifications, corrections	Sept 2011
1.2	Updated rear plates and block diagrams	June 2014

CAUTION

If the LNB POWER LED is on, there will be DC voltage for LNB power at the associated RF INPUT connector. This can damage some test equipment. The user can turn off the LNB power under using the card-edge control system under the LNBV menu item. See section 6.1.8 for details.

1. OVERVIEW

The 7807LT-2 is a dual fiber optic transmitter for RF signals in the extended L-Band frequency range and below, for frequencies such as over-the-air DTV. It accepts two RF inputs from coaxial cable and provides two outputs for optical transmission. An RF monitor output is provided for each input, which offers a convenient means of obtaining peak satellite signal strength, or additional signal distribution. With two optical transmitters per single-slot card, the 7807LT-2 provides an economical, high density solution.

Individual monitoring and control is provided for each signal path. Gain may be adjusted manually or managed automatically via AGC. With SmartMON™, incoming RF signal strength, LNB current, and other data are relayed over the fiber output for monitoring through SNMP/VistaLINK® at the fiber receiver (requires SmartMON™ capable companion fiber receiver). LNB power with selectable 13/18V DC and 22 kHz tone is also provided on each RF input.

Features:

- Extended frequency response for extended L-Band, off-air DTV and other signals
- Protocol independent design - transports all modulation formats
- LNB power with selectable 13/18V DC, per input
- LNB current limit & short circuit protection
- LNB current monitoring for advance warning of LNB failure
- 22kHz tone on/off for LNB local oscillator control, per input
- RF monitoring output ports for signal peaking and signal distribution
- Manual gain and AGC modes for tuning optimal CNR performance
- Multiple versions of the 7807LT-2 are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications.
- The 7807LT13/15-2-W is a dual channel card that features and on-board fiber coupler, requiring only a single fiber for the link (companion receiver is the 7807LR-2-W)
- Dual fiber transmitters on a single-slot card provides the industry's highest density solution
- SmartMON™ capability provides remote status monitoring via SNMP without a separate data connection
- VistaLINK® capability is available for monitoring and control when modules are used in a 3RU 7800FR frame and a 7700FC VistaLINK® frame controller is installed in slot 1 of the frame
- Form-C dry contact GPO alarm contacts for monitoring
- Fiber link provides electrical isolation between antenna and facility, mitigating ground loop and lightning issues
- Compatible with all 2406LR, 7706LR, 7708LR and 7807LR-2 series receivers

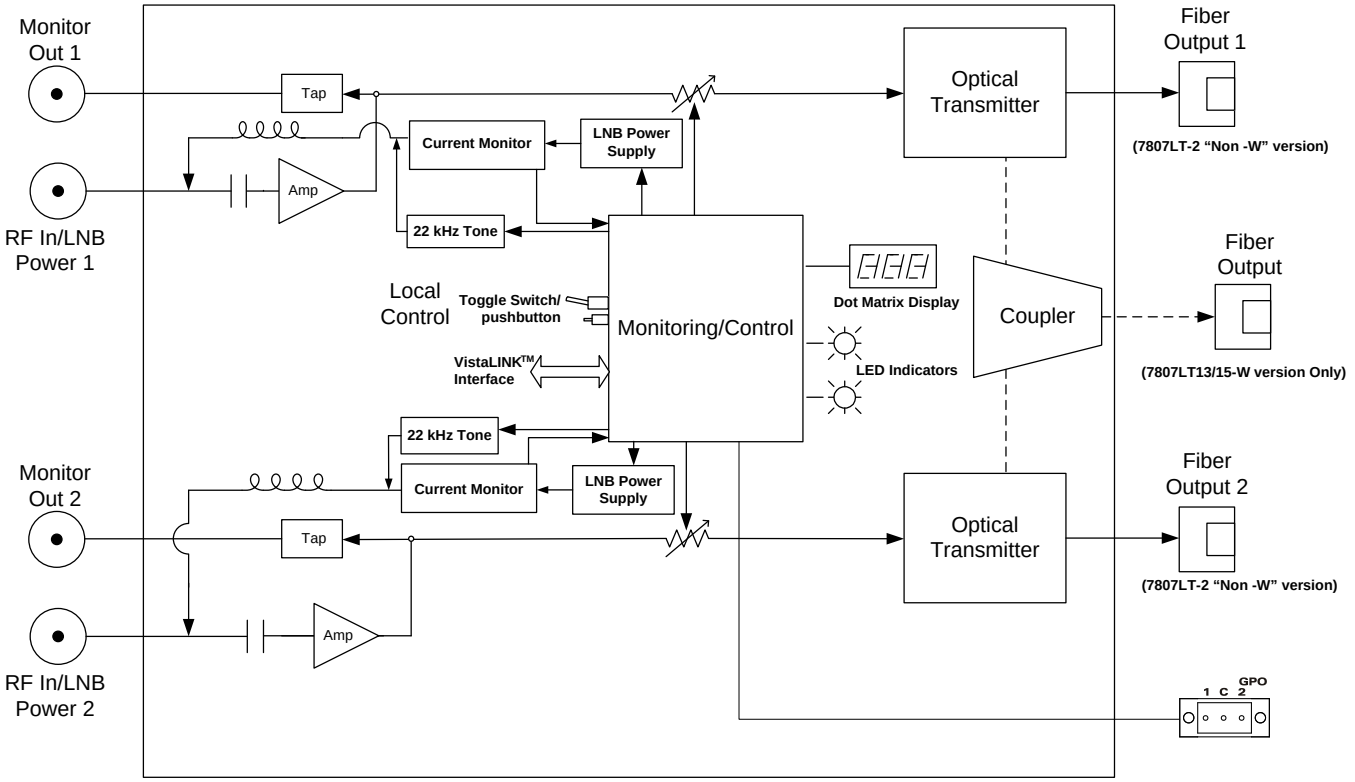


Figure 1-1: 7807LT-2 Block Diagram

2. INSTALLATION

The 7807LT-2 comes with a companion rear plate appropriate for a 1RU, 3RU or standalone enclosure as specified at the time of order. SC/UPC, SC/APC, ST/UPC, FC/UPC or FC/APC optical connectors are available and the type specified at the time of order will be installed. For information on mounting the rear plate and inserting the module into the frame, see the 7700FR/7800FR manual for detailed instructions.

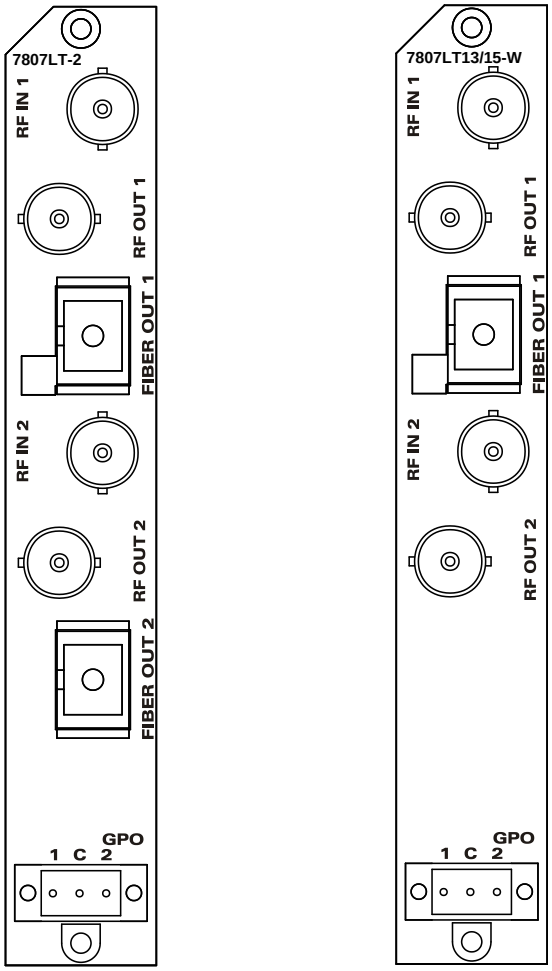


Figure 2-1: 7807LT-2/7807LT13/15-W Module

2.1. 7807LT-2 CONNECTIONS

FIBER OUTPUTS: SC/UPC, SC/APC, FC/UPC, FC/APC or ST/UPC female connectors with the optical outputs from the 7807LT-2. These connectors should be connected to the FIBER IN connectors of an appropriate Evertz companion receiver model at the destination end with suitable fiber optic cables. The 7807LT-2 may transmit 1310nm, 1550nm or CWDM wavelengths as indicated by the part number on the card ejector. The standard connector type is UPC. This connector type is compatible with standard PC connectors, but for optimal return loss performance, Evertz recommends the use of UPC fiber terminations throughout the system. The optional APC connectors provide further enhanced return loss performance, and when specified, should be used throughout the system.

RF IN: Input connectors for RF signals. These connectors can also provide LNB power and 22 kHz tone back to the LNB.

RF OUT: Output connector provides buffered copy of the incoming RF signal for monitoring purposes (signal peaking, etc.) or coaxial distribution. Although not essential, if this connector is to remain unused, it is recommended that it be terminated with an appropriate 75 Ohm or 50 Ohm load.

GPO's: The 3 pin terminal strip is used for the General Purpose Outputs (GPO). Pin1 and Pin2 refer to GPO1 and GPO2 respectively, whose behavior (NC/NO) can be selected by a jumper. (Refer to section 5.1 for Jumper Positions). Signal on GPO Common (C) is to be provided by the user. A minor alarm between Common and GPO1 is triggered in a state of RF outside of threshold and major alarm between Common and GPO2 is triggered in a state of Laser failure and/or LNB short. Each GPO output is a set of normally open and normally closed relay contacts as shown in Figure 2-2.

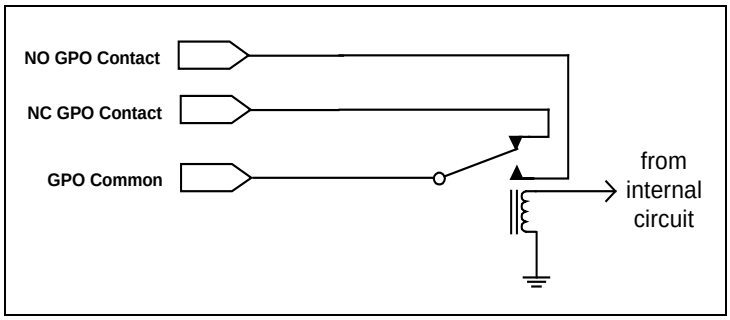


Figure 2-2: GPO Configuration

When connecting cables to the GPO terminal block, a ferrite core should be placed around the cable in order to reduce the electromagnetic interference to limits acceptable for Class A digital devices. The ferrite impedance should be greater than 70 ohms at 25MHz and greater than 135 ohms at 100MHz.

2.2. CARE AND HANDLING OF OPTICAL FIBER

2.2.1. Safety

2.2.1.1. **7807LT-2 1310nm FP and CWDM Versions**

CLASS 1 LASER PRODUCT

Background colour: yellow
Triangular band: black
Symbol: black

2.2.2. Assembly

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

2.2.3. Labeling

Certification and Identification labels are combined into one label. As there is inadequate space 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 bar code label placed on the PCB of each Evertz plug-in product
- Class 1 Laser Products: Model number is one of 7807LT-213 or 7807LT-2xx (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61)

Figure 2-3: Reproduction of 7807LT-2 Certification and Identification Label for Models that are Class 1 Laser Products

2.2.4. 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 facet 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 the user maintain a minimum bending radius of 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. Evertz fiber optic modules are equipped with lockout devices that prevent the user from damaging the fiber connector by installing a module into a slot in the frame that does not have a suitable rear plate installed.

3. SPECIFICATIONS

3.1. RF INPUT

Number of Inputs: 2
Connector: BNC per IEC 61169-8 Annex A (F-Type Optional)
Input Impedance: 75Ω (50Ω Optional)
Return Loss: >14dB to 2100MHz
>10dB from 2100MHz to 2800MHz
Frequency Range:
1310nm FP laser: 850MHz-2800MHz
1550nm/CWDM DFB laser: 100MHz-2800MHz
Input Power Range: -10dBm to -60dBm
AGC Gain Range: -10 to +30dB
Input IP3: +10dBm
LNB Power:
Voltage: 13V DC, 18V DC, off (selectable)
Current: 400mA
Protection: Short Circuit, current limited
LO Control: 22kHz on/off (selectable)

3.2. RF MONITOR OUTPUT

Number of Outputs: 2
Connector: BNC per IEC 61169-8 Annex A (F-Type Optional)
Output Impedance: 75Ω (50Ω Optional)
Return Loss: > 15dB
Frequency Range: 100MHz to 2800MHz
Output Level: within -2.0dB of input signal

3.3. OPTICAL OUTPUT

Number of Outputs: 2
Connector: Female FC/UPC, ST/UPC, FC/UPC, SC/APC, FC/APC
Operating Wavelength: 1310nm (1550nm and CWDM optional)

Output Power: +2dBm

3.4. GENERAL PURPOSE OUTPUTS

Number of Outputs: 2
Type: Dry relay contacts - normally open and normally closed contact provided
Connector: 3 pin removable terminal strip

3.5. ELECTRICAL

Voltage: +12 VDC
Power: 6W max excluding LNB Power
GPO Common: +12VDC, 250mA (Max switching Voltage and Current)

3.6. PHYSICAL (NUMBER OF SLOTS)

7800FR: 1
7701FR: 1
S7701FR: 1

3.7. COMPLIANCE

Laser Safety: Class 1 laser product for 1310nm FP and CWDM versions
Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI: Complies with FCC regulations for Class A devices.
Complies with EU EMC directive 89/336/EEC

3.8. RF SYSTEM PERFORMANCE 7807LT-2+7807LR-2 PAIR

Flatness:
950MHz-2150MHz: ±1.5dB

850MHz-2800MHz (1310nm): ±1.5dB

100MHz-2800MHz (1550nm/CWDM): ±2dB

4. STATUS INDICATORS

The 7807LT-2 has fourteen LED status indicators on the front card edge to show operational status of the card at a glance. See Figure 5-1 for LED locations.

Two large LEDs on the front of the board indicate the general health of the module:

LOCAL FAULT: This red LED will be ON during the absence of a valid RF input signal on Channel 1 or 2 (too low, too high or equal to corresponding upper and lower threshold setting), or AGC Channel 1 or 2 is ON but unable to maintain output power setting, or LNB short/overload (fault) on Channel 1or 2, or if a local internal power fault exists (i.e.: a blown fuse). Whether or not this LOCAL FAULT indication is reported to the frame may be selected by the FRAME STATUS jumper (see section 5.1).

MODULE OK: This green LED will be ON when both the RF input signals are within range, LNB power conditions are normal and the board power is good.

There are twelve small LEDs that indicate the status of the input RF signals, LNB, and AGC mode signals.

RF HIGH CH1/CH2: These red LED's will be ON respectively, when the input RF signals on CH1and CH2 are higher than or equal to the respective RF high threshold settings.

RF OK CH1/CH2: These green LED's will be ON when the respective input RF signals on CH1 and CH2, are within threshold settings.

RF LOW CH1/CH2: These yellow LED's will be ON when the respective input RF signals on CH1 and CH2, are lower than or equal to the RF low threshold setting.

GAIN MODE CH1/CH2: These LED's are ON when AGC mode is enabled and OFF when Manual mode is enabled for CH1 and CH2. These will be green when power levels are within the AGC hold range and a constant RF output levels are being maintained. These will be red if power levels are above the power levels required for the AGC circuit to be able to maintain constant levels. These will be yellow if power levels are below the power levels required for the AGC circuit to be able to maintain constant levels.

LNB MODE CH1/CH2: These LED's are ON when LNB power is ON. These will green when LNB's are active and OK (no short). These will be red when LNB's are short or overload is detected (fault present).

SQUELCH MODE CH1/CH2: These LED's are ON when squelch is enabled for respective Channel. These will be green when squelch modes are enabled but not active. These will be red when squelch modes are enabled and the output signals are squelched.

LED #	Colour	Function
LOCAL / FAULT	RED	RF Input Power on Channel 1 or 2 is greater than or equal to the corresponding upper threshold setting, or AGC Channel 1 or 2 is ON but unable to maintain output power setting, or RF Input Power on Channel 1 or 2 is less than or equal to the lower threshold setting, or LNB is Short (fault) on Channel 1 or 2.
	GREEN	RF Channel 1 and 2 are green and AGC Status Channel 1 and 2 are OFF or green, and LNB Power Status Channel 1 and 2 are OFF or green.
RF High CH1	RED	RF Input Power on CH1 is greater than or equal to the upper threshold setting.
	OFF	RF Input Power on CH1 is less than the upper threshold setting.
RF High CH2	RED	RF Input Power on CH2 is greater than or equal to the upper threshold setting.
	OFF	RF Input Power on CH2 is less than the upper threshold setting.
RF OK CH1	GREEN	RF Input Power on CH1 is less than upper threshold setting and greater than the lower threshold setting.
	OFF	RF Input Power on CH1 is less than the lower threshold setting or greater than the upper threshold setting.
RF OK CH2	GREEN	RF Input Power on CH2 is less than upper threshold setting and greater than the lower threshold setting.
	OFF	RF Input Power on CH2 is less than the lower threshold setting or greater than the upper threshold setting.
RF Low CH1	YELLOW	RF Input Power on CH1 is less than or equal to the lower threshold setting.
	OFF	RF Input Power on CH1 is greater than the lower threshold setting.
RF Low CH2	YELLOW	RF Input Power on CH2 is less than or equal to the lower threshold setting.
	OFF	RF Input Power on CH2 is greater than the lower threshold setting.
AGC Status CH1	RED	AGC on CH1 is on but unable to maintain output power setting – Signal too high.
	GREEN	AGC on CH1 is on and can maintain output power setting.
	YELLOW	AGC on CH1 is on but unable to maintain output power setting – Signal too low.
	OFF	AGC on CH2 is off (manual mode)
AGC Status CH2	RED	AGC on CH2 is on but unable to maintain output power setting – Signal too high.
	GREEN	AGC on CH2 is on and can maintain output power setting.
	YELLOW	AGC on CH2 is on but unable to maintain output power setting – Signal too low.
	OFF	AGC on CH2 is off (manual mode)
Squelch Status CH1	RED	SQUELCH ON: Input Power is less than the squelch threshold on CH1
	GREEN	SQUELCH ON: Input Power is greater than the squelch threshold on CH1
	OFF	SQUELCH OFF on CH1
Squelch Status CH2	RED	SQUELCH ON: Input Power is less than the squelch threshold on CH1
	GREEN	SQUELCH ON: Input Power is greater than the squelch threshold on CH1
	OFF	SQUELCH OFF on CH1
LNB Power	RED	LNB Short (fault) on CH1
	BLINKS GREEN	LNB OK (no short) LNBV SET TO 13V on CH1
	GREEN	LNB OK (no short) LNBV SET TO 18V on CH1

	OFF	LNB OFF on CH1
LNB Power Status CH1	RED	LNB Short (fault) on CH1
	BLINKS GREEN	LNB OK (no short) LNBV SET TO 13V on CH1
	GREEN	LNB OK (no short) LNBV SET TO 18V on CH1
	OFF	LNB OFF on CH1

Table 4-1: LED Status Indicators

5. JUMPER POSITIONS

5.1. 7807LT-2 JUMPERS AND LEDS

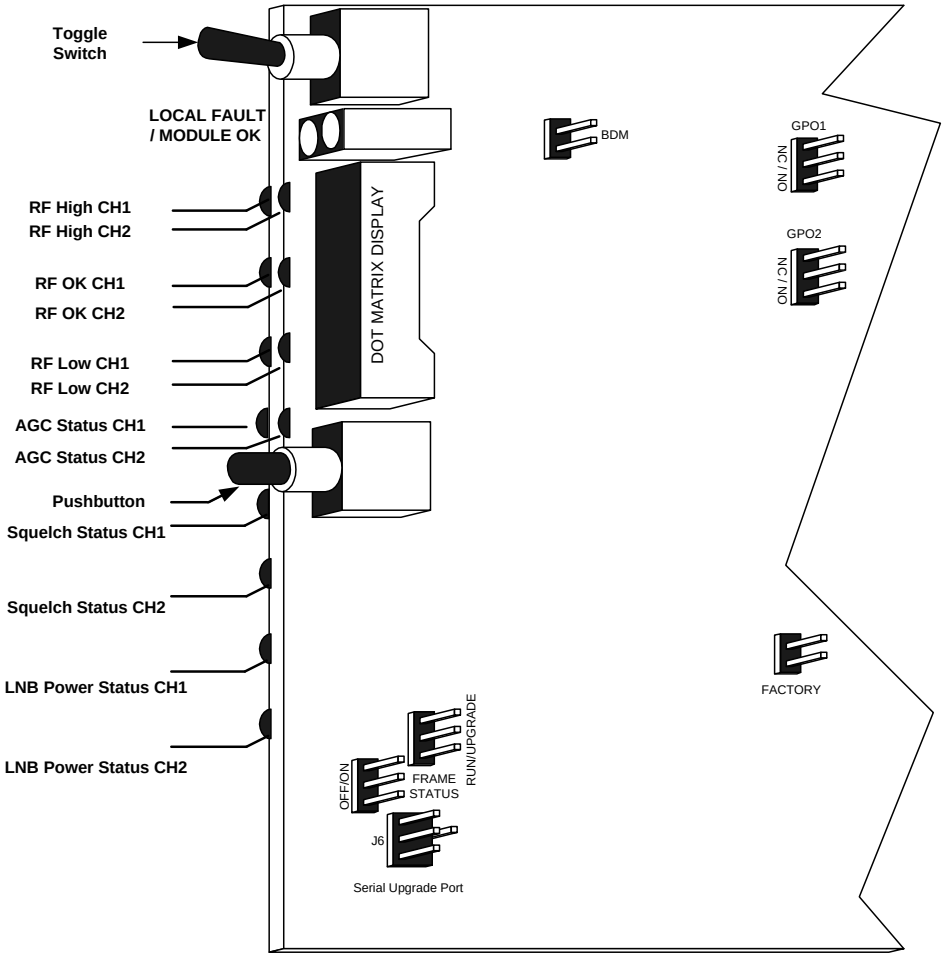


Figure 5-1: Location of 7807LT-2 Jumpers and LEDs

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

The FRAME STATUS jumper J3 determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7800FR/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 LEDs 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.

5.3. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J5 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* section of this manual for more information.

To upgrade the firmware:

1. Pull the module out of the frame.
2. Move the UPGRADE jumper into the *UPGRADE* position.
3. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header at the card edge.
4. Re-install the module into the frame.
5. Run the upgrade as described in the *Upgrading Firmware* section of this manual.
6. When the upgrade is completed, remove the module from the frame, move the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module.

The module is now ready for normal operation.

If installed in a frame with a 7800FC/7700FC frame controller, the 7807LT-2 may also be conveniently upgraded through Evertz VistaLINK® PRO, without service interruption. Consult VistaLINK® PRO documentation for details on this feature.

5.4. FACTORY AND BDM JUMPERS

When shipped from the Evertz facility, the FACTORY and BDM jumpers will not be installed. These jumpers ***should not*** be installed for any reason. If jumpers are on these positions they should be removed.

5.5. GPO JUMPERS

The Jumpers GPO1 and GPO2 allow user to select the behavior of Outputs of GPO's.

In NC (Normally Closed) jumper position of GPO1, an OPEN circuit is present between C (common) pin and pin 1 of GPO connector and in NO (Normally Open) position of GPO1 a CLOSED circuit is present between C (common) pin and pin 1 of GPO connector.

In NC (Normally Closed) jumper position of GPO2, an OPEN circuit is present between C (common) pin and pin 2 of GPO connector and in NO (Normally Open) position of GPO2 a CLOSED circuit is present between C (common) pin and pin 2 of GPO connector.

6. DOT-MATRIX DISPLAY

Signal and status monitoring and control of the card's parameters are provided via the four-digit alphanumeric display located on the card edge. The card-edge toggle-switch (see Figure 5-1) is used to navigate through the display menus and the push button is used to select options. Figure 6-1 provides a quick reference to the display menu structure.

CTRL menu items have user-adjustable configuration values associated with them. STAT menu items display operating conditions or configuration values, but do not allow adjustment.

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.

Level 1	Level 2	Level 3		Level 4	Level 5
DEFD selection	BACK				
	CTRL	BACK			
		RFTH	LWR	CH1	0 to -60 dBm. Default -60 dBm
				CH2	0 to -60 dBm. Default -60 dBm
			UPPR	CH1	0 to -60 dBm. Default 0 dBm
				CH2	0 to -60 dBm. Default 0 dBm
		MODE	CH1	AGC MAN (default)	
			CH2	AGC MAN (default)	
		SQL	CH1	ON OFF (default)	
			CH2	ON OFF (default)	
		SQTH	CH1	0 to -60dBm. default: -60dBm	
			CH2	0 to -60dBm. default: -60dBm	
		GAIN (visible in manual mode only)	CH1	0 to 30dB default: 0dB	
			CH2	0 to 30dB default: 0dB	
		OUTL (visible in AGC mode only)	CH1	0 to -50dBm default: -20dBm	
			CH2	0 to -50dBm default: -20dBm	
		LNBV (visible only for -LNB versions)	CH1	18V 13V OFF (default)	
			CH2	18V 13V OFF (default)	
		22KT (visible only for -LNB versions)	CH1	ON OFF (default, also can only be off if LNBV is off)	
			CH2	ON OFF (default, also can only be off if LNBV is off)	

	CTRL (continued)	LNTH (visible only for -LNB versions)	LWR	CH1	0 to 500mA default = 0
				CH2	0 to 500mA default = 0
			UPPR	CH1	0 to 500mA default = 500
				CH2	0 to 500mA default = 500
		MON	CHAN	CH1	
				CH2	
			DEFD	Fault status(default)	
				PWR	
				MODE	
				SQL	
				GAIN	
				OUTL	
				LNBV (-LNB only)	
				22KT (-LNB only)	
				LNBC (-LNB only)	
		DISP		HORZ	
				VERT (default)	
	STAT	BACK			
		PWR	CH1	0 to -60dBm	
			CH2	0 to -60dBm	
		RFTH	LWR	CH1	0 to -60 dBm
				CH2	0 to -60 dBm
			UPPR	CH1	0 to -60 dBm
				CH2	0 to -60 dBm
		MODE	CH1	AGC	
				MAN	
			CH2	AGC	
				MAN	
		GAIN (visible in manual mode only)	CH1	0 to 30dB	
			CH2	0 to 30dB	
		SQL	CH1	ON	
				OFF	
			CH2	ON	
				OFF	
		LASR	CH1	OK	
				OFF	
				FALT	
			CH2	OK	
				OFF	
				FALT	

	STAT (continued)	LNBV (visible only for -LNB versions)	CH1	18V 13V OFF	
			CH2	18V 13V OFF	
		22KT (visible only for -LNB versions)	CH1	ON OFF	
			CH2	ON OFF	
		LNBC (visible only for -LNB versions)	CH1	0 to 500mA	
			CH2	0 to 500mA	
		LNTH (visible only for -LNB versions)	LWR UPPR	CH1	0 to 500mA 0 to 500mA
			LWR UPPR	CH2	0 to 500mA 0 to 500mA
		VER		Firmware version	

Figure 6-1: Card Edge Menu Structure

6.1. 7807LT-2 CONTROLLED PARAMETERS

To change the 7807LT-2 parameters, select the CTRL menu item in menu level 1. The toggle switch may then be used to select the parameter to change as described below.

6.1.1. Adjusting the RF Input Power Alarm

The 7807LT-2 measures and can display the input RF power over a range of 0dBm to –60dBm in increments of 1dBm. Alarms may be set for high and low input RF power that will appear locally on the card edge LEDs (see Section 4) and remotely via SNMP traps. To set the alarm threshold points, select the CTRL menu item in the first menu level and then use the toggle switch to display the RFTH option and press the pushbutton to select it.

CTRL *RFTH* *LWR* *CH1/CH2* *0 to –60 dBm*	**0** to **–60** dBm	Lower RF power alarm threshold (default -60 dBm).
CTRL *RFTH* *UPPR* *CH1/CH2* *0 to -60 dBm*	**0** to **-60** dBm	Upper RF power alarm threshold (default 0 dBm).

The 7807LT-2 will not allow threshold settings where the lower threshold is greater than the upper threshold.

6.1.2. Selecting the Input Gain Mode

The 7807LT-2 has two gain modes available:

Manual gain mode allows the user to select a fixed gain level for the RF signal.

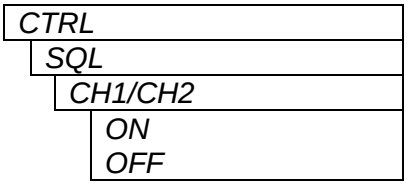
AGC (automatic gain control) will maintain a constant output level even if the input RF level changes, as long as this input level does not go outside of the AGC hold range (the 7807LT-2 has from 0 to +31.5 dB of gain available to automatically apply to the incoming signal to maintain the target level). The AGC target level is user adjustable (see Section 6.1.6).

To select the gain mode, select the CTRL menu item in the first menu level, then use the toggle switch to display the MODE option and press the pushbutton to select it.

CTRL *MODE* *CH1/CH2* *AGC* *MAN*	**AGC** **MAN**	AGC mode (default). Manual mode.

6.1.3. Enabling/Disabling Squelch Mode

Squelch mode will turn off the laser output if the RF input drops below the squelch threshold setting (see section 6.1.4). This feature is useful for triggering downstream automatic main/standby protection switches, and for other such applications. To enable or disable squelch mode, select the CTRL menu item in the first menu level, then use the toggle switch to display the SQL option and press the pushbutton to select it.

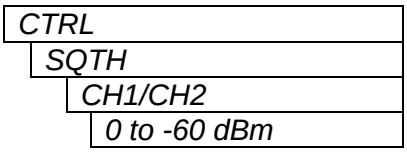


ON	Enable squelch mode.
OFF	Disable squelch mode (default).

6.1.4. Adjusting the Squelch Mode Threshold

The RF Squelch threshold may be set from this menu via the SQTH selection. The squelch level is based on the RF input power to the transmitter.

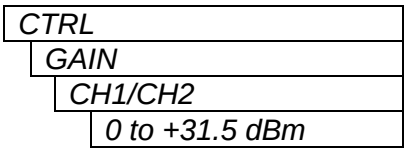
To select the RF Squelch threshold, select the CTRL menu item in the first menu level, then use the toggle switch to display SQTH option and press the pushbutton to select it.



0 to **–60** dBm	RF Squelch threshold range (default -60 dBm).

6.1.5. Adjusting the RF Gain

The 7807LT-2 can apply gain to adjust the level of the input signals in 0.5 dB increments. This allows weaker signals to be gained up for optimal laser depth of modulation and CNR performance. For optimal performance tuning, it is recommended that a spectrum analyzer be connected at the receive side of the link while the gain value is adjusted to provide the best CNR performance while not introducing distortion products which may appear as an increase in the noise floor while increasing gain level, or as “spectrum skirts”. To set the gain, select the CTRL menu item in the first menu level, then use the toggle switch to display the GAIN option and press the pushbutton to select it.



0 to +**31.5** dBm	Output signal gain level (default 0 dBm).

Note that this menu item is not applicable and therefore not visible when in AGC mode.

6.1.6. Adjusting the AGC Target Level

The target output level to be maintained by the 7807LT-2 when AGC mode is user adjustable. Adjustment of this parameter allows optimal laser depth of modulation and CNR performance to be achieved. A typical value is –20 to –10 dBm, but for optimal performance it is recommended that a spectrum analyzer be connected at the receive side of the link while this value is adjusted to provide the best CNR performance while not introducing distortion products which may appear as an increase in the noise floor while increasing the target level, or as "spectrum skirts". To set the AGC target level, select the CTRL menu item in the first menu level, then use the toggle switch to display the OUTL option and press the pushbutton to select it.

CTRL *OUTL* *CH1/CH2* *0 to -50 dBm*	**0** to **-50** dBm AGC output signal target level (default –20 dBm).

Note that this menu item is only applicable and visible when the card is set to operate in AGC mode.

6.1.7. Setting the Passcode (DWDM versions only)

Due to the high-powered lasers used on the DWDM version of these cards, it is possible to turn the laser on and off and protect this function with a passcode. This provides added optical safety. Depress the pushbutton and select the PSWD option. Actuate the toggle switch to achieve the correct code number (Factory Default Passcode = 0000).

CTRL *PSWD* *0-9999* *PSWL+* *LASR+* *0000-9999* *ON* *OFF*	**PWSD** Store a new passcode (0-9999) required for BLOCK configuration. This menu is not available without entering the correct passcode. **LASR+** Enable / Disable Laser. Only visible for DWDM versions.

6.1.8. Setting the LNB Voltage Level

The voltage level for LNB power is user adjustable. To set the LNB output voltage level, select the CTRL menu item in the first menu level, then use the toggle switch to display the LNBV option and press the pushbutton to select it.

CTRL *LNBV* *CH1/CH2* *18V* *13V* *OFF*	Sets the LNB output voltage. **18V** Sets the LNB output voltage to 18 volts. **13V** Sets the LNB output voltage to 13 volts. **OFF** Disables the LNB output voltage.

6.1.9. Configuring the 22KHz Tone

A 22KHz tone may be combined with the LNB voltage for universal LNB local oscillator control. The 22KHz tone can be enabled or disabled via the 22KT selection menu. To select the 22KHz tone, select the CTRL menu item in the first menu level, then use the toggle switch to display the 22KT option and press the pushbutton to select it.

- *CTRL*
  - *22KT*
    - *CH1/CH2*
      - *ON*
      - *OFF*

Indicates whether the 22KHz tone on LNB output is enabled or disabled.

ON 22KHz tone is enabled.
OFF 22KHz tone is disabled.

6.1.10. Setting the LNB Current Threshold Level

The 7807LT-2 monitors the amount of current being drawn by the LNB. Upper and lower thresholds may be set, which when exceeded will trigger an SNMP alarm. This function may be used to provide an early warning of impending LNB failure. To set the LNB current threshold, select the CTRL menu item in the first menu level, then use the toggle switch to display the LNTH option and press the pushbutton to select it.

- *CTRL*
  - *LNTH*
    - *LWR / UPPR*
      - *CH1/CH2*
        - *0 to 500A*

LWR Lower RF threshold level.
UPPR Upper RF threshold level.

0 to 500A RF threshold range.

6.1.11. Default Card-Edge Display

This allows configuration of which operating condition will be displayed as the top-level item on the dot-matrix display. The default is NORM, which displays “OK” or “LASER FAULT” in the event of a problem with the laser. To choose an alternate parameter, select the CTRL menu item in the first menu level, then use the toggle switch to display the DEFD option and press the pushbutton to select it.

- *CTRL*
  - MON
    - DEFD
      - *NORM*
      - *PWR*
      - *MODE*
      - *SQL*
      - *GAIN*
      - *OUTL*
      - *LNBV*
      - *22KT*
      - *LNBC*

NORM Laser status
PWR Measured RF Input power
MODE Gain mode
SQL Squelch setting
GAIN Gain setting (manual mode only)
OUTL AGC output level setting (AGC mode only)
LNBV LNB voltage setting
22KT 22kHz tone setting
LNBC Measured LNB current

6.1.12. Setting the Display Orientation

The *DISP* option allows the user to set a horizontal or vertical orientation for the card edge display. To set the display orientation, select the *CTRL* menu item in the first menu level, then use the toggle switch to display the *DISP* option and use the pushbutton to select it.

- *CTRL*
  - *DISP*
    - *HORZ*
    - *VERT*

HORZ	Horizontal display used when the module is housed in the one-rack unit 7701FR frame or the stand-alone enclosure.
VERT	Vertical display used when the module is housed in the three-rack unit 7700FR frame.

6.1.13. Displaying the RF Threshold

To display the RF input power threshold, select the STAT menu item in the first menu level, then use the toggle switch to display the RFTH option and press the pushbutton to select it.

- *STAT*
  - *RFTH*
    - *LWR / UPPR*
      - *CH1/CH2*
        - *0 to -60dBm*

LWR	Indicates the lower RF threshold level.
UPPR	Indicates the upper RF threshold level.
0 to **-60** dBm	RF threshold range (in dBm units).

6.1.14. Displaying the Gain Mode

To display the gain mode, select the STAT menu item in the first menu level, then use the toggle switch to display the MODE option and press the pushbutton to select it.

- *STAT*
  - *MODE*
    - *CH1/CH2*
      - *AGC*
      - *MAN*

AGC	Gain mode is AGC (automatic gain control).
MAN	Gain mode is manual.

6.1.15. Displaying the Gain Level

To display the gain level, select the STAT menu item in the first menu level, then use the toggle switch to display the GAIN option and press the pushbutton to select it. This status item is only available when the card is set to manual gain mode.

- *STAT*
  - *GAIN*
    - *CH1/CH2*
      - *0 to 31.5 dB*

0 to **+31.5** dB	Gain level (manual gain mode only)

6.1.16. Displaying the Squelch Status

To display the squelch mode setting, select the STAT menu item in the first menu level, then use the toggle switch to display the SQL option and press the pushbutton to select it.

STAT	**ON**	Squelch mode enabled.
SQL	**OFF**	Squelch mode disabled.
CH1/CH2		
ON		
OFF		

6.1.17. Displaying the Laser Status

To display the laser status, select the STAT menu item in the first menu level, then use the toggle switch to display the LASR option and press the pushbutton to select it.

STAT		
LASR		
CH1/CH2		
OK	**OK**	Laser is operating normally.
OFF	**OFF**	Laser is disabled.
FALT	**FALT**	Fault in laser operation.

6.1.18. Displaying the LNB Voltage Level

To display the LNB Voltage, select the STAT menu item in the first menu level, then use the toggle switch to display the LNBV option and press the pushbutton to select it.

STAT	Indicates the LNB output voltage.
LNBV	
CH1/CH2	
18V	
13V	
OFF	

6.1.19. 22KHz Tone Status

To display the 22KHZ tone status, select the STAT menu item in the first menu level, then use the toggle switch to display the 22KT option and press the pushbutton to select it.

STAT	Indicates whether the 22KHz tone on LNB output is enabled or disabled.	
22KT		
CH1/CH2	**ON**	22KHz tone is enabled.
ON	**OFF**	22KHz tone is disabled.
OFF		

6.1.20. Displaying the LNB Current

To display the LNB Current, select the STAT menu item in the first menu level, then use the toggle switch to display the LNBC option and press the pushbutton to select it.

STAT *LNBC* *CH1/CH2* *0 to 500mA*	Indicates the LNB current. Visible for -LNB versions only. **0** to **500mA** LNB current range.

6.1.21. Displaying the LNB Current Threshold Level

To display the LNB Current threshold, select the STAT menu item in the first menu level, then use the toggle switch to display the LNTH option and press the pushbutton to select it.

STAT *LNTH* *LWR / UPPR* *CH1/CH2* *0 to 500mA*	**LWR** Indicates the lower RF threshold level. **UPPR** Indicates the upper RF threshold level. **0** to **500mA** LNB current threshold range.

6.1.22. Displaying the Firmware Version

To display the firmware version, select the STAT menu item in the first menu level, then use the toggle switch to display the VER option and press the pushbutton to select it. The firmware version will scroll across the display.

For example: VER 1.0 BUILD 006

7. VISTALINK® REMOTE MONITORING/CONTROL

7.1. WHAT IS VISTALINK®?

VistaLINK® is Evertz' 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. VistaLINK® 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 VistaLINK® 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, VistaLINK® 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 VistaLINK® Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz VistaLINK® enabled fiber optic products.

2. Managed devices, each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz VistaLINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC VistaLINK® 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 VistaLINK® network, see the 7700FC Frame Controller chapter.

7.2. VISTALINK® MONITORED PARAMETERS

The following parameters can be remotely monitored through the VistaLINK® interface.

Parameter	Description
RF Input Power Threshold	A range of values indicating the lower/upper RF threshold levels.
RF Input Power	RF power level at the inputs.
Gain Mode	Indicates RF mode settings.
RF Gain	A range of values indicating RF gain settings.
Squelch Status	Indicates squelch function status.
Laser Status	Indicates general laser health and laser enable status.
22KHz Tone	Indicates the on/off status of the 22KHz tone.
Output Level	A range of values indicating
LNB Voltage	Indicates LNB voltage levels.
LNB Current	Displays LNB current value.
LNB Current Threshold	A range of values indicating the LNB current threshold.
Firmware Version	Displays firmware version number.

Table 7-1: VistaLINK® Monitored Parameters

7.3. VISTALINK® CONTROLLED PARAMETERS

The following parameter can be remotely controlled through the VistaLINK® interface.

Parameter	Description
RF Input Power	Sets RF power level at the inputs.
Gain Mode	Enables RF mode settings.
Squelch Enable	Enables squelch functions.
Squelch Threshold	Sets squelch threshold levels.
Gain	Sets RF gain level settings.
AGC Target Level	Sets the RF power target levels.
Passcode	Sets the password.
LNB Voltage Level	Sets the LNB voltage levels.
22KHz Tone	Enables/disables 22KHz tones.
LNB Current Threshold	Sets the LNB current threshold.

Table 7-2: VistaLINK® Controlled Parameters

7.4. VISTALINK® TRAPS

The following traps can be controlled through the VistaLINK® interface. Each trap will indicate a fault condition when its value is True.

Trap	Description
RF Input Power High	Input power is above the threshold.
RF Input Power Low	Input power is below the threshold.
Laser Fail	Laser fault detected.
AGC Out of Range	RF input out of AGC range.
LNB Short	LNB short or overload.
LNB Current High	LNB current is above the threshold.
LNB Current Low	LNB current is below the threshold.
Output Squelched	Output is being Squelched

Table 7-3: VistaLINK® Traps

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