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REVISION	DESCRIPTION	DATE
1.0	First Release	January 2005
2.0	Updated Menu System, *Vista*LINK® information for Revision 1 boards	May 2005
2.1	Updated *Vista*LINK® description and fixed format	Nov 08

DANGER

INVISIBLE RADIATION IS EMITTED FROM THE END OF THE FIBER OR CONNECTOR. AVOID DIRECT EXPOSURE TO THE BEAM. DO NOT VIEW WITH OPTICAL INSTRUMENTS.

WARNING

DO NOT CONNECT THE 7707CATVT/CATVR CARDS DIRECTLY WITH A SHORT FIBER OPTIC CABLE. THE 7707CATVT-110-11 CARD PRODUCES +11dBm OF OPTICAL POWER WHICH WILL DAMAGE THE RECEIVER IF CONNECTED DIRECTLY. DO NOT EXCEED +7dBm OPTICAL POWER INTO THE RECEIVER.

1. OVERVIEW

The 7707CATVT and 7707CATVR CATV Transmitter/Receiver modules are used for transmission of wide band CATV signals over fiber optic cable. The 7707CATVT accepts one wide band RF coaxial input and provides a fiber optic output signal. A F-Type (BNC optional) RF output is also available for monitoring or further signal distribution. The 7707CATVR accepts a fiber optic input from the 7707CATVT and provides two output signals via F-Type (BNC optional) connectors. Monitoring and control of card status and parameters is provided locally via card edge and remotely via *Vista*LINK® capability.

The 7707CATVT and 7707CATVR modules each occupy one card slot and can be housed in either a 1RU frame, which will hold up to three modules, or a 3RU frame which will hold up to 15 modules.

Features:

- 80/110 Channel PAL/NTSC CATV fiber optic transmitter
- 40-860 MHz operational bandwidth
- Supports single mode fiber
- Low CSO and CTB intermod products
- Fully hot swappable from front of frame
- Provides up to 35km extension of CATV systems
- Comprehensive signal and card status monitoring via four digit card-edge display or remotely through SNMP and *Vista*LINK® capability

7707CATVT Features

- Two optical output power versions available at 1310nm wavelength, +11dBm and +8dBm
- RF input power monitoring and alarm thresholds
- Two setting adjustable optical output power level

7707CATVR Features

- Two RF outputs for extra signal distribution or monitoring functions
- Adjustable gain setting from –3 to +3 dB
- Optical power monitoring and alarm thresholds
- RF output power monitoring and alarm thresholds

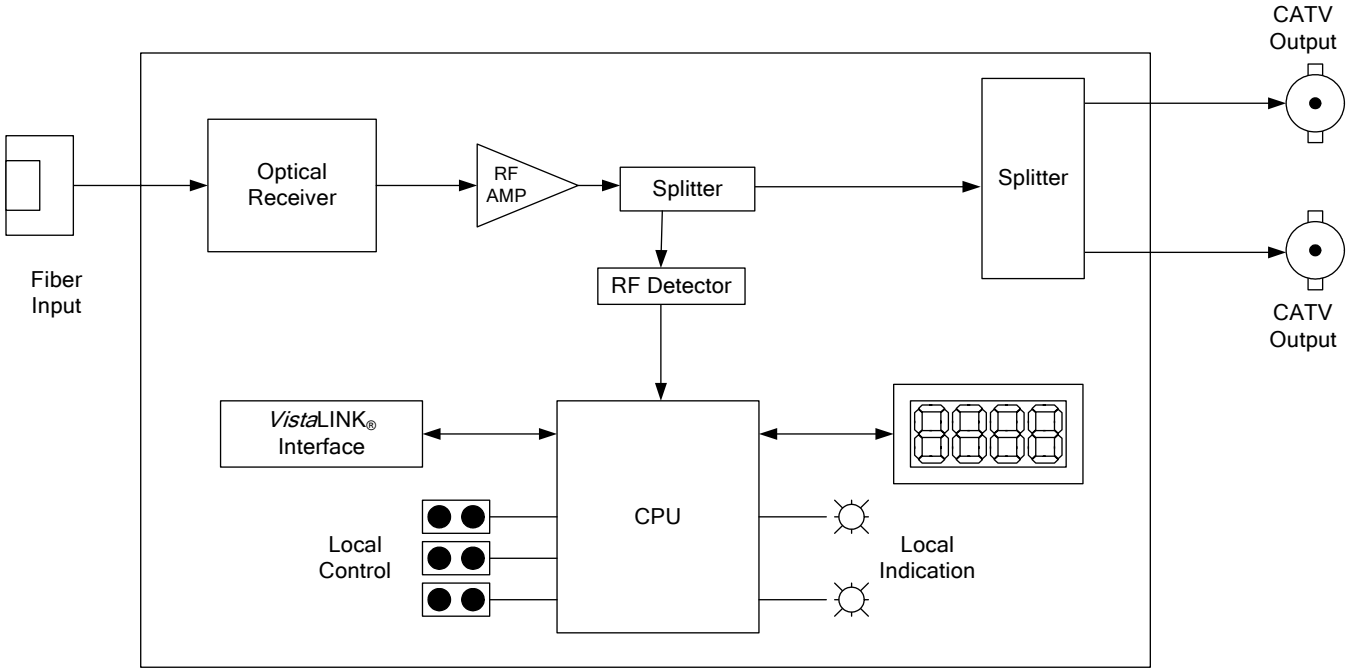

Figure 1-1: 7707CATVT Block Diagram

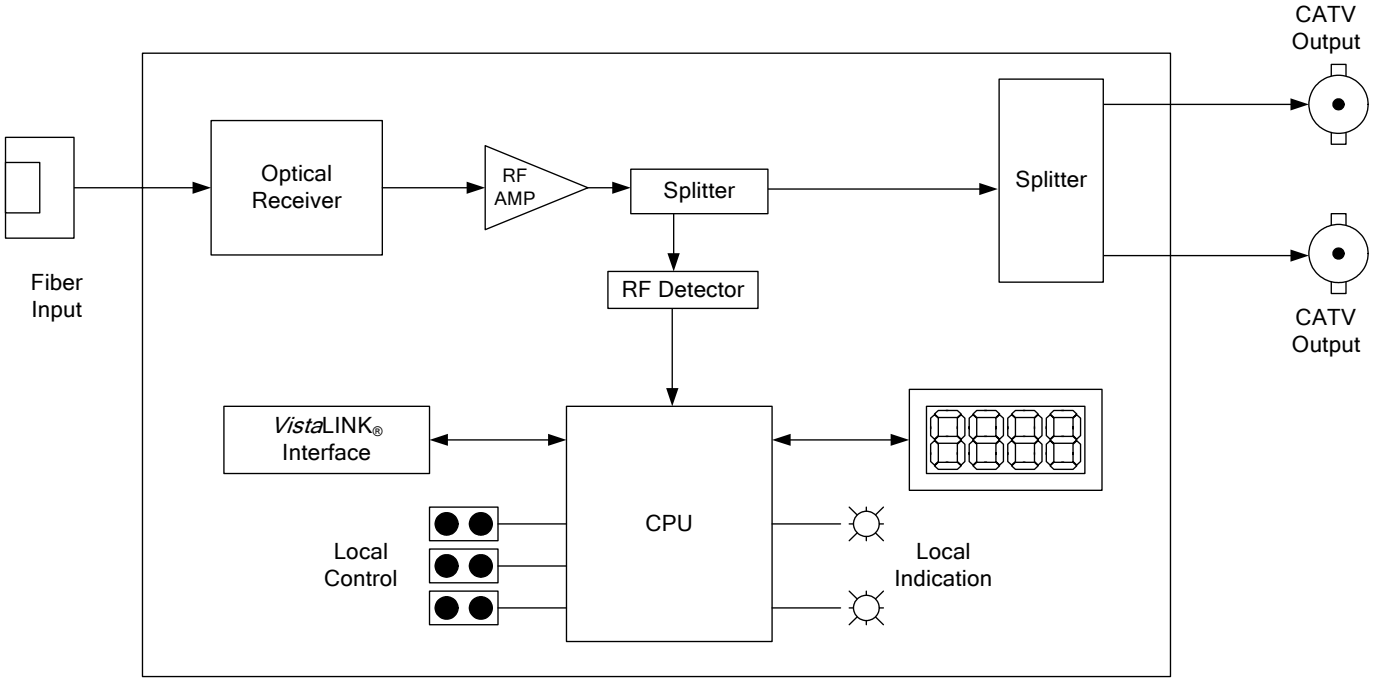

Figure 1-2: 7707CATVR Block Diagram

2. INSTALLATION

Each of the modules in the 7707CATV series comes standard with a companion +3RU rear plate. The rear plate must be specified during the time of order. SC/APC or FC/APC optical connectors are available for these modules and must be specified during the time of order. For information on mounting the rear plate and inserting the module into the frame, see the 7700FR manual for detailed instructions.

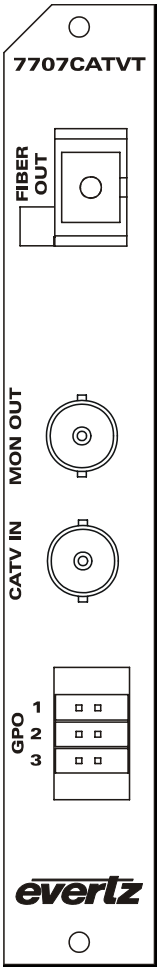

Figure 2-1: 7707CATVT Rear Panel

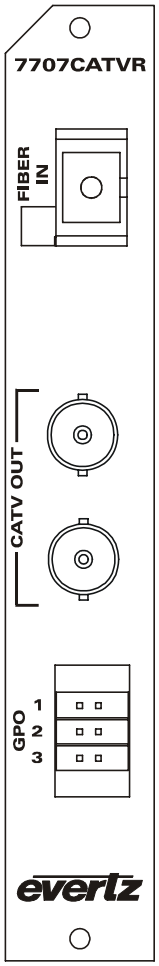

Figure 2-2: CATVR Rear Panel

2.1. 7707CATVT CONNECTIONS

CATV IN: Input F-Type (BNC optional) connector for CATV signals.

CATV OUT: Output F-Type (BNC optional) is a CATV wide band RF output for monitoring or further signal distribution of your CATV signals.

FIBER OUTPUT: There is one SC/APC (shown) or FC/APC female connector that is the optical output from the 7707CATVT. This connector should be coupled to the FIBER IN connector of a 7707CATVR module at the destination end with a suitable fiber optic cable. The 7707CATVT transmits at 1310nm wavelength.

2.2. 7707CATVR CONNECTIONS

FIBER INPUT: There is one SC/APC (shown) or FC/APC female connector that is the optical input to the 7707CATVR as shown in section. This connector should be coupled to the FIBER OUT connector of a 7707CATVT module at the destination end with a suitable fiber optic cable. The 7707CATVT transmits at 1310nm wavelength.

CATV OUT: Two F-Type (BNC optional) CATV wide band RF outputs for monitoring and further signal distribution of the CATV signals.

2.3. GPO CIRCUIT

GPO: The **NC, NO** and **COM** pins on the 6 pin terminal strip are used for the General Purpose Output (GPO). The GPO output is a set of normally open and normally closed relay contacts as shown in Figure 2-3.

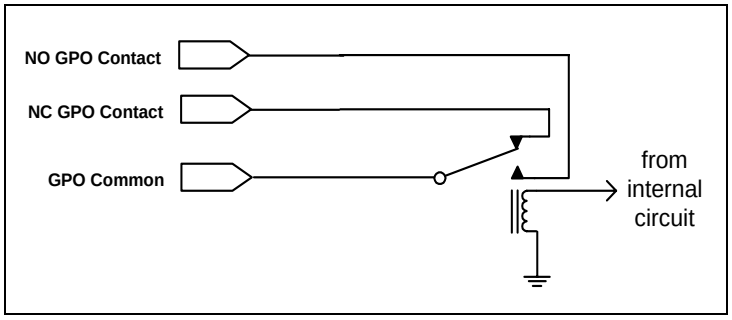

Figure 2-3: GPO Configuration

2.4. CARE AND HANDLING OF OPTICAL FIBER

2.4.1. Safety

DANGER:
Never look directly into an optical fiber. Non-reversible damage to the eye can occur in a matter of milliseconds.
Invisible radiation is emitted from the end of the fiber or connector. Avoid direct exposure to the beam. Do not view with optical instruments.
Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.

The laser modules used in the Evertz 7707CATVT fiber optic modules are Class I (7707CATVT-110-6) and Class IIIB (7707CATVT-110-11).

2.4.2. 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 maintains 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.

Never connect a PC optical connector to an APC optical connector. APC stands for Angle Polish Contact and means the end face has been angled to reduce optical back reflection. A PC connector has a flat end face. APC connectors have GREEN plastic connector housings whereas the PC type has BLUE housings. Never mate a GREEN connector to a BLUE connector. Due to the angle polish, both connectors can be physically damaged and will need to be replaced.

3. 7707CATVT SPECIFICATIONS

3.1.1. RF INPUT

Connector:	1 F type, (BNC optional)
I/O Impedance:	75 Ω (50 Ω optional)
Return Loss:	> 18dB
Input Frequency Range:	50MHz – 850MHz
Maximum Input Power:	+45dBmV / channel (+40dBmV / channel typical)

3.1.2. RF OUTPUT

Connector:	1 F type, (BNC optional)
I/O Impedance:	75 Ω (50 Ω optional)
Signal Level:	Input level – 25dB
Return Loss:	> 15dB
Output Frequency Range:	50MHz – 850MHz
Flatness:	±1dB* @ 50MHz – 850MHz
Composite Second Order:	>65dB*
Composite Triple Beat:	> 67dB*
Carrier to Noise:	> 50dB*

- Measured with input level: +40dBmV / channel, fully loaded spectrum

3.1.3. OPTICAL OUTPUT

Number of outputs:	1
Connector:	Female SC/APC, FC/APC
Operating Wavelength:	1310nm
Optical Power:	+11dBm ± 1dBm (7707CATVT13-110-11) +8dBm ± 1dBm (7707CATVT13-110-8)
Fiber Size:	9 μm core / 125 μm overall

3.1.4. ELECTRICAL

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC regulations for class A devices Complies with EU EMC directive.

3.1.5. GENERAL PURPOSE OUTPUTS

Number of Outputs:	3 (Revision A board), 2 (Revision 1 board, GPOs 1 and 3 only)
Type:	“Dry Contact” relay contacts - normally open and normally closed contact provided
Connector:	6 pins on 6 pin terminal strip

Please refer to section 6 for GPO function.

3.1.6. PHYSICAL

7700 or 7701 frame mounting:
Number of slots: 1

4. 7707CATVR SPECIFICATIONS

4.1.1. OPTICAL INPUT

Number of outputs:	1
Connector:	Female SC/APC, FC/APC
Operating Wavelength:	1310nm
Maximum Optical Power:	+6dBm
Fiber Size:	9 μm core / 125 μm overall

4.1.2. CATVR OUTPUT

Number of outputs:	2
Connector:	F-Type (BNC optional)
I/O Impedance:	75 Ω
Return Loss:	> 17dB
Flatness:	±1dB* @ 50MHz – 850MHz
Composite Second Order:	>65dB*
Composite Triple Beat:	> 67dB*
Carrier to Noise:	> 50dB*

* Measured with input to CATVT at +40dBmV / channel, fully loaded spectrum with 0dBm optical input power into CATVR and 0dB gain setting on the CATVR. In this configuration, the RF peak level / channel is 11dB down from the input.

4.1.3. ELECTRICAL

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC regulations for class A devices Complies with EU EMC directive.

4.1.4. GENERAL PURPOSE OUTPUTS

Number of Outputs:	3
Type:	“Dry Contact” relay contacts - normally open and normally closed contact provided
Connector:	6 pins on 6 pin terminal strip

Please refer to section 6 for GPO function.

4.1.5. PHYSICAL

7700 or 7701 frame mounting:
Number of slots: 1

5. STATUS INDICATORS AND DISPLAYS

5.1.1. 7707CATVT (rev. 1) STATUS INDICATORS

The 7707CATVT module has 6 LED Status indicators on the front card edge to show operational status of the card at a glance.

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

LOCAL FAULT: This Red LED indicates poor module health and will be illuminated if a board power fault exists (i.e. a blown fuse) or if the laser is nearing the end of the life cycle. The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be On when the board power is good and has a valid CATV RF input signal.

There are 4 small LEDs that indicate the status of the incoming RF signal, laser status.

LASER OK: This green LED (LED D24) will be On when the output laser is operating at the maximum output power, +8dBm (Selectable in CTRL/OPWR).

RF LOW: This green LED (LED D13) will be On when the input RF signal is below the lower RF threshold range.

RF HIGH: This red LED (LED10) will be On when the input RF signal is higher than the upper threshold RF signal range.

RF OK: This green LED (LED D1) will be On when the RF signal is above the lower RF threshold and below the upper RF threshold.

5.1.2. 7707CATVR (rev. 1) STATUS INDICATORS

The 7707CATVR module has 4 LED Status indicators on the front card edge to show operational status of the card at a glance.

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

LOCAL FAULT: This Red LED indicates poor module health and will be On during the absence of a valid optical input signal, or if a local power fault exists (i.e. a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be On when a valid optical input signal is present, and the board power is good.

There are 2 small LEDs that indicate the status of the incoming optical signal.

RF HIGH: This red LED (D14) will be On when the input RF signal is above the upper threshold level.

RF OK: This green LED (D16) will be On when the RF input signal is within the lower and upper threshold level.

5.1.3. 7707CATVT (rev. A) STATUS INDICATORS

The 7707CATVT module has 6 LED Status indicators on the front card edge to show operational status of the card at a glance.

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

LOCAL FAULT: This Red LED indicates poor module health and will be illuminated if a board power fault exists (i.e. a blown fuse) or if the laser is nearing the end of the life cycle or if the RF input level is outside the threshold levels. The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be On when the board power is good and has a valid CATV RF input signal.

There are 4 small LEDs that indicate the status of the incoming RF signal, laser status.

LASER OUTPUT POWER: This green LED (D24) will be On when the output laser is set to the highest output level, +11dBm for –11 version and +8dBm for –8 version.

RF HIGH: This red LED (D13) will be On when the input RF signal is above the upper threshold level.

RF LOW: This yellow LED (D10) will be On when the input RF signal is below the lower threshold level.

RF OK: This green LED (D1) will be On when the RF input signal is within the lower and upper threshold level.

5.1.4. 7707CATVR (rev. A) STATUS INDICATORS

The 7707CATVR module has 6 LED Status indicators on the front card edge to show operational status of the card at a glance.

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

LOCAL FAULT: This Red LED indicates poor module health and will be On during the absence of a valid optical input signal, or if a local power fault exists (i.e.: a blown fuse) or the optical level is outside the threshold levels. The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be On when a valid optical input signal is present, and the board power is good.

There are 4 small LEDs that indicate the status of the incoming optical signal.

OPTICAL INPUT OK: This green LED (D25) will be On when the input optical power is within the lower and upper threshold levels.

RF HIGH: This red LED (D14) will be On when the output RF power is above upper threshold level.

RF LOW: This yellow LED (D15) will be On when the output RF power is below the lower threshold level.

RF OK: This green LED (D16) will be On when the output RF power is within the lower and upper threshold levels.

6. JUMPERS AND SETTINGS

6.1. 7707CATVT / 7707CATVR (REVISION 1 BOARD) JUMPERS

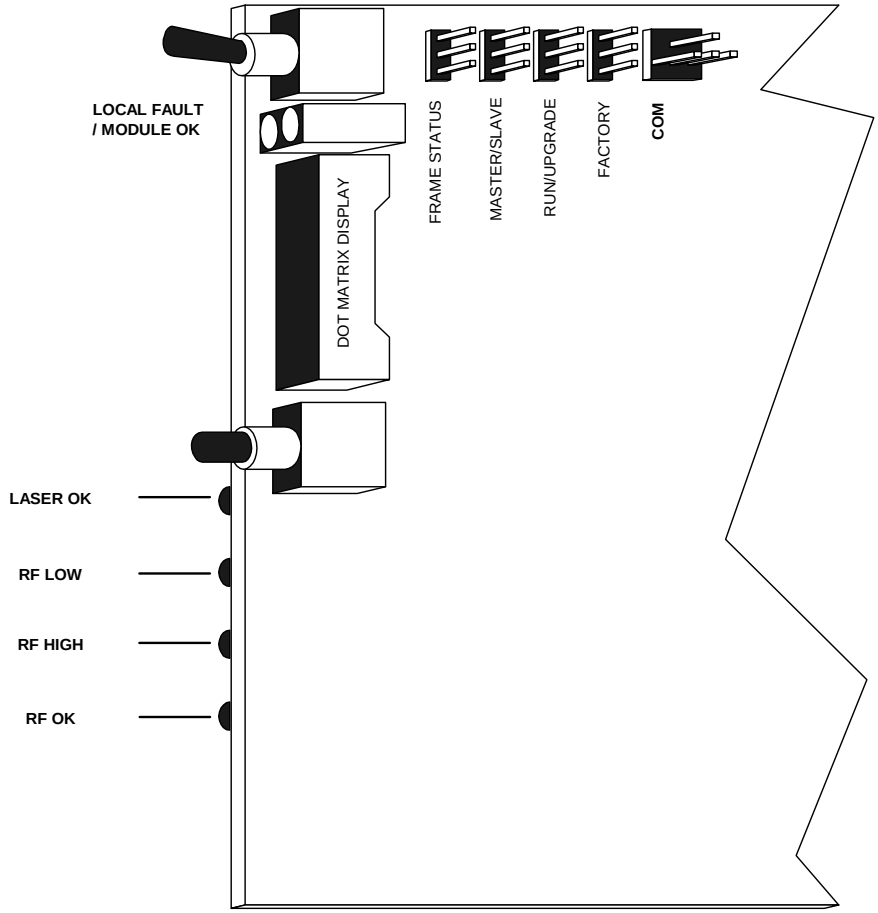

Figure 6-1: Location of 7707CATVT (Rev. 1) Jumpers and LEDs

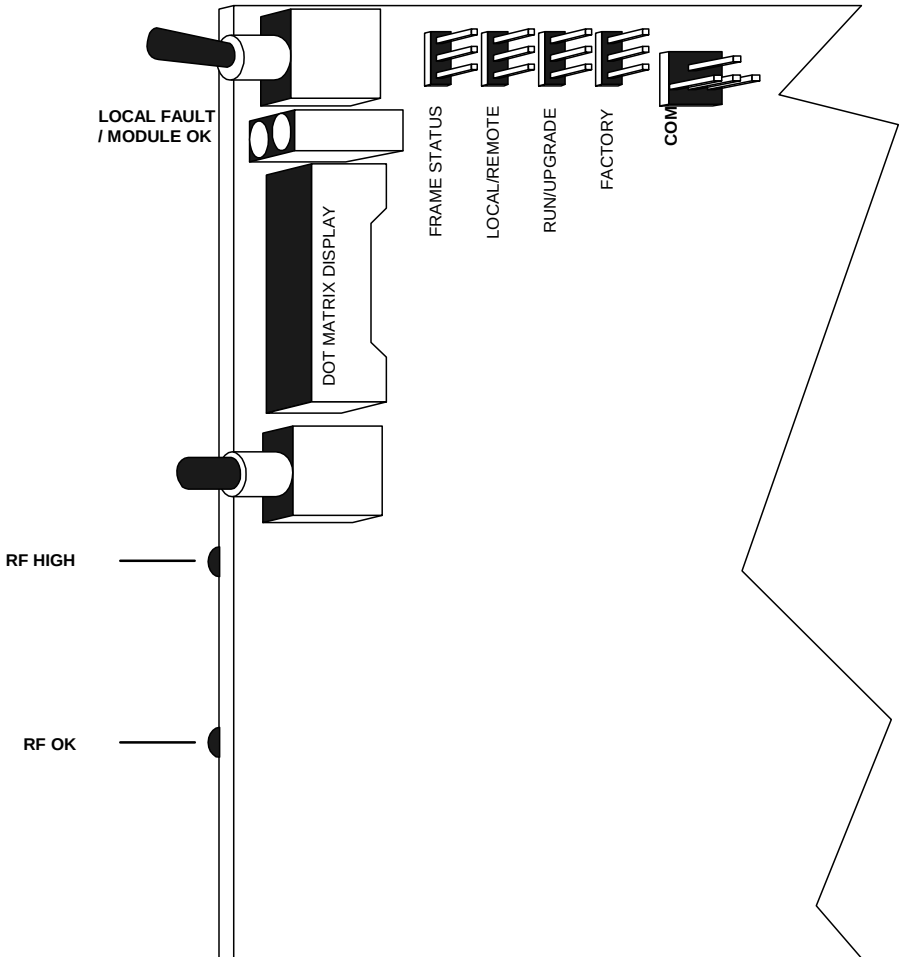

Figure 6-2: Location of 7707CATVR (Rev. 1) Jumpers and LEDs

6.2. 7707CATVT / 7707CATVR (REVISION A BOARD) JUMPERS

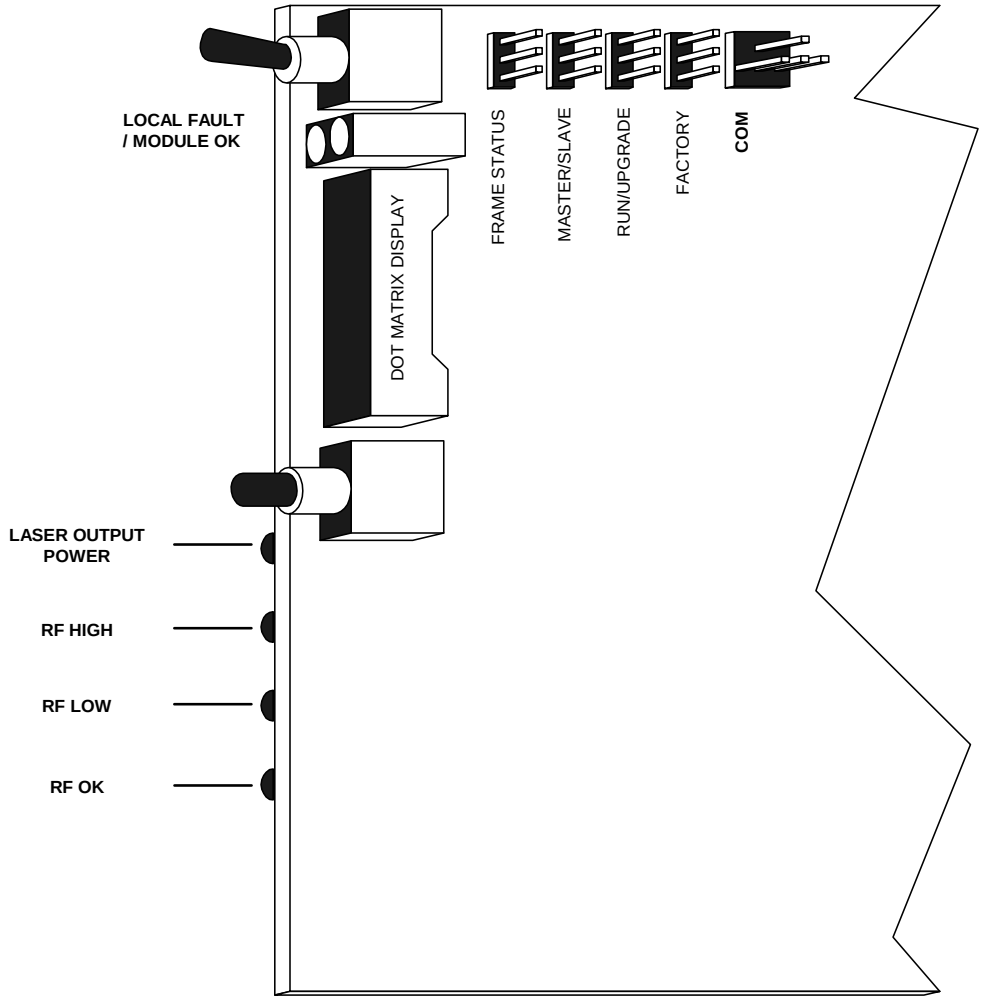

Figure 6-3: Location of Jumpers and LEDs on CATVT (Rev. A) Card Edge

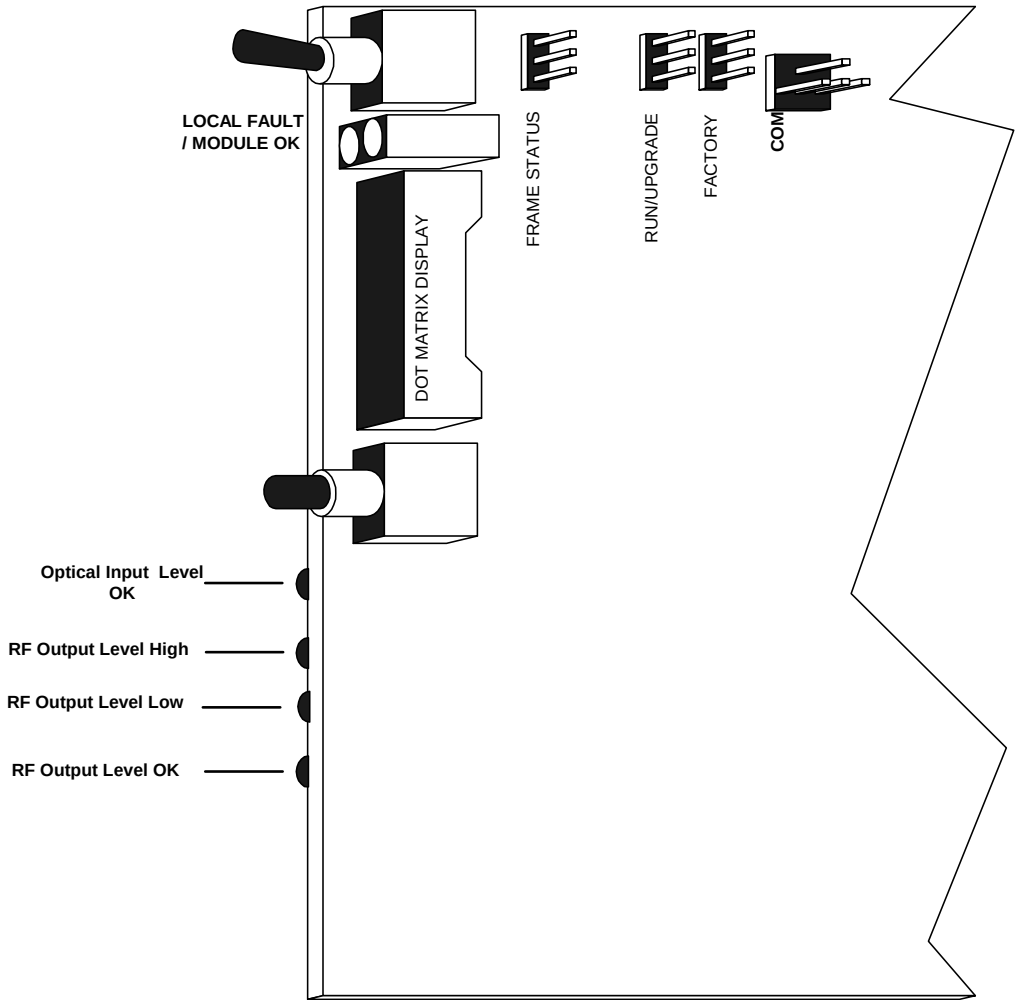

Figure 6-4: Location of 7707CATVR (Rev. A) Jumpers and LEDs

6.2.1. 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 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.

6.2.2. SELECTING WHETHER MODULE WILL BE CONTROLLED FROM THE LOCAL CONTROLS OR THROUGH THE *VISTA*LINK® INTERFACE (REVISION 1 Board ONLY)

The MASTER jumper J38 on CATVT and J5 on CATVR selects whether the module will be controlled from the local user controls or through the *Vista*LINK® interface.

MASTER: When this jumper is installed in the MASTER position, the card functions are controlled through the local controls.

SLAVE When this jumper is installed in the SLAVE position, the card functions are controlled through the *Vista*LINK® interface.

Simultaneous local and remote control is used on the revision A board.

6.2.3. CATVT (Rev. A board) GPOs

There are 3 GPOs on this module. They have logical functions as follows:

GPO1: Module Fault / OK
GPO2: RF Input Level Low
GPO3: RF Input Level High

They are tied to the corresponding LEDs, which have the same logical function, see section 6 for details. The jumpers J12, J25 and J26 for GPOs 1, 2 and 3 respectively control whether the GPO is normally open or normally closed. Switching this jumper will alternate between these two states. The cards are shipped from the factory with jumpers in the normally closed position.

6.2.4. CATVT (Rev. 1 board) GPOs

There are 3 GPOs on this module. They have logical functions as follows:

GPO1: Module Fault / OK
GPO2: RF Input Level High
GPO3: RF Input Level Low

They are tied to the corresponding LEDs, which have the same logical function, see section 6 for details. The jumpers J26, J25 and J12 for GPOs 1, 2 and 3 respectively control whether the GPO is normally open or normally closed. Switching this jumper will alternate between these two states. The cards are shipped from the factory with jumpers in the normally closed position.

6.2.5. CATVR (Rev. A board) GPOs

There are 3 GPOs on this module. They have logical functions as follows:

GPO1: Module Fault / OK
GPO2: RF Output Level Low
GPO3: RF Output Level High

They are tied to the corresponding LEDs, which have the same logical function, see section 6 for details. The jumpers J19, J20 and J18 for GPOs 1, 2 and 3 respectively control whether the GPO is normally open or normally closed. Switching this jumper will alternate between these two states. The cards are shipped from the factory with jumpers in the normally closed position.

6.2.6. CATVR (Rev. 1 board) GPOs

There are 3 GPOs on this module. They have logical functions as follows:

GPO1: Module Fault / OK
GPO2: Not used
GPO3: RF Output Level High

They are tied to the corresponding LEDs, which have the same logical function, see section 6 for details. The jumpers J18, J20 and J19 for GPOs 1, 2 and 3 respectively control whether the GPO is normally open or normally closed. Switching this jumper will alternate between these two states. The cards are shipped from the factory with jumpers in the normally closed position.

6.2.7. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J43 on CATVT and J6 on CATVR 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 in the module unit pull it out of the frame. Move the UPGRADE jumper into the *UPGD* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* section of this manual. Once 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.

The CATVR firmware is board revision specific. Please use the binary file that begins with catvr_rev1 for revision 1 boards.

There is one version of CATVT firmware that can be used on both revisions of the board.

7. DOT-MATRIX DISPLAY

Additional signal and status monitoring and control over the card's parameters are provided via the 4-digit alphanumeric display located on the card edge. The card edge toggle switch is used to select whether the user is displaying status from the card (monitoring mode) or setting control parameters for the card (control mode). To select one of the display modes, press the pushbutton one or more times to exit the current display mode and return to the mode select menu item (the display will show **MON** or **SET**). Press the toggle switch to select monitor mode (**MON**) or control mode (**SET**). Once the user has selected the desired mode press the pushbutton to enter that mode.

While in monitor mode, the toggle switch determines what data is being displayed on the alphanumeric display. Each time the toggle switch is pressed up/down, the display advances to the next/previous display. A message indicating what display mode is active is shown for one second. After one second without the toggle switch being pressed, the selected display data is shown. The card edge pushbutton is used to select sub-items where applicable.

7.1. CARD EDGE MENU SYSTEM

NOTE: When changes are made in the menu system, the user must exit the menu system and wait 30 seconds before the new menu settings are stored in flash.

7.1.1. NAVIGATING THE MENU SYSTEM

While in control mode, the toggle switch and pushbutton are used to navigate through a menu system to set various parameters for the module. To enter the menu system, press the pushbutton one or more times to exit the current display mode and return to the mode select menu item. The display will show MON or SET. Press the toggle switch to select control mode (SET) and then press the pushbutton to enter the control mode main setup menu. The user can use the toggle switch to move up and down the list of available sub menus. Once the desired submenu name is displayed, press the pushbutton to select the next menu level.

Once the user in the sub menu, there will be a list of parameters to adjust. To adjust any parameter, use the toggle switch to move up or down to the desired parameter and press the pushbutton. Using the toggle switch, adjust the parameter to its desired value. If the parameter is a numerical value, the number will increase if the toggle switch is pressed up and the number will decrease if the toggle switch is pressed down. If the parameter contains a list of choices, the user can cycle through the list by pressing the toggle switch in either direction.

Depress the pushbutton once the desired value is reached. This will update the parameter to the selected value and return to the mode select menu item (the display shows **SET**). To change another parameter, press the pushbutton to enter the main menu system again and continue selecting and adjusting other parameters.

Each time the toggle switch is pressed up/down, the display advances to the next/previous display. A message indicating what display mode is active is shown for one second. After one second without the toggle switch being pressed, the selected display data is shown. The card edge pushbutton is used to select sub-items where applicable.

7.2. 7707CATVT MENU STRUCTURE (REV. 1 BOARD)

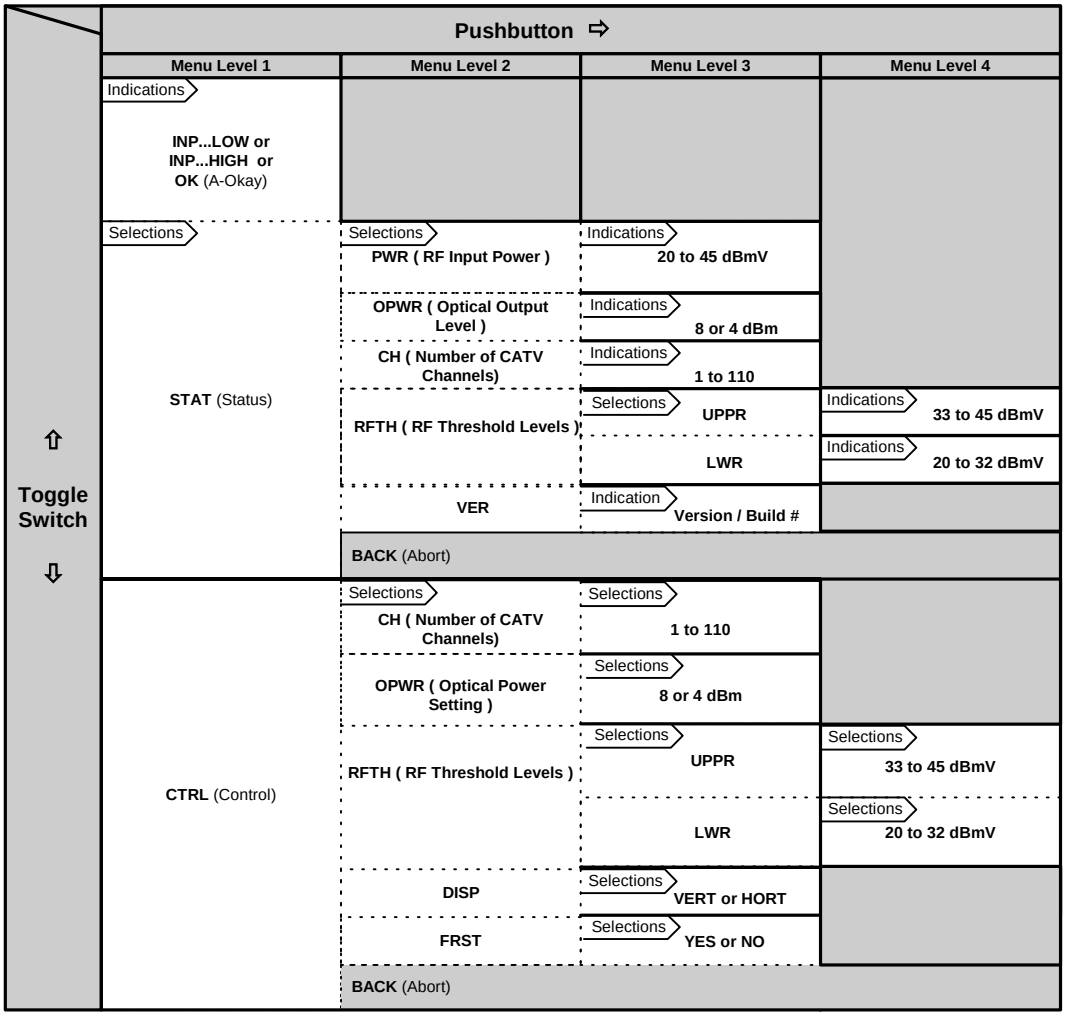

Figure 7-1: 7707CATVT (Revision 1 Board) Card Edge Menu Flow Chart

The following is a brief description of the top level of the menu tree that appears when the user enters the Control menu. Selecting one of these items will take the user down into the next menu level.

7.2.1. User Menu / CTRL (Control)

OPWR: Allows the user to set the optical power level to +4 or +8 ddBm.
RFTH: Allows the user to configure the upper and lower RF input signal threshold.
DISP: Allows the user to change the dot matrix display to vertical or horizontal.
CH: Allows the user to set the number of CATV channels in the input spectrum.
FRST: Allows the user to resets the module to its factory default values.

7.2.2. User Menu / STAT (Status)

PWR: Allows the user to monitor the CATV RF input level.
OPWR: Allows the user to monitor the laser output power.
CH: Allows the user to monitor the number of CATV channels in the input spectrum.
RFTH: Allows the user to monitor the upper and lower RF threshold levels.
VER: Allows the user to check the software version.

7.3. 7707CATVT (REVISION 1 BOARD) USER MENU-CTRL

The CTRL (configuration) menu allows the user to change status and values of the settings for the 7707CATVT card.

7.3.1. 7707CATVT Setting the RF Threshold

RFTH / UPPR
33 to 45dBmV

The RFTH / UPPR RF threshold setting enables the user to set the upper threshold. The lower ITL default threshold value is 45dBmV.

RFTH / LWR
20 to 32dBmV

The RFTH / LWR threshold setting enables the user to set the lower threshold. The upper RFTH / LWR default threshold value is 20dBmV.

7.3.2. 7707CATVT Laser Output Level

OPWR
8 *4*

The OPWR function allows the user to adjust the optical output power of the laser from +4 to +8 dBm. The default value is +8.

7.3.3. 7707CATVT Input Channel Number

CH
1 to 110

Allows the user to set the number of CATV channels applied to the input of the 7707CATVT. This information is used to apply a correction factor to the power reading of the CATV. The default input channel number is 110.

7.3.4. 7707CATVT Display Setting

DISP
VERT *HOR*

Allows the user to set the display to either horizontal or vertical configuration for mounting in either a 3RU or 1RU frame.

7.3.5. 7707CATVT Restoring Factory Defaults

FRST *YES* *NO*	To restore the factory defaults, enter the FRST control and choose yes to restore all factory settings to the 7707CATVT. All configurations previously made to the card will be lost.

7.4. 7707CATVT (REVISION 1 BOARD) USER MENU – STAT

The STAT (Status) menu allows the user to check the status and values of the settings for the 7707CATVT card. To make changes to the settings, please refer to the User Set menu outlined in section 7.6.

7.4.1. 7707CATVT RF Input Power

PWR *20 to 45dBmV*	The PWR allows the user to monitor the input CATV RF power.

7.4.2. 7707CATVT Optical Output Power

OPWR *+4 or +8dBm*	The OPWR allows the user to monitor the output power level setting of the laser.

7.4.3. 7707CATVT Number of CATV input channels

CH *1 to 110*	Displays the number of CATV channels in the input spectrum to the CATVT.

7.4.4. 7707CATVT Upper RF input threshold

RFTH / UPPR *33 to 45dBmV*	The RFTH / UPPR RF threshold setting enables the user to set the upper threshold. The lower ITL default threshold value is 45dBmV.

7.4.5. 7707CATVT Lower RF input threshold

RFTH / LWR *20 to 32dBmV*	The RFTH / UPPR RF threshold setting enables the user to set the upper threshold. The lower ITL default threshold value is 20dBmV.

7.4.6. 7707CATVT Software Version

VER	The VER function allows the user to check the version of software in the card.

7.5. 7707CATVT MENU STRUCTURE (REV. A BOARD)

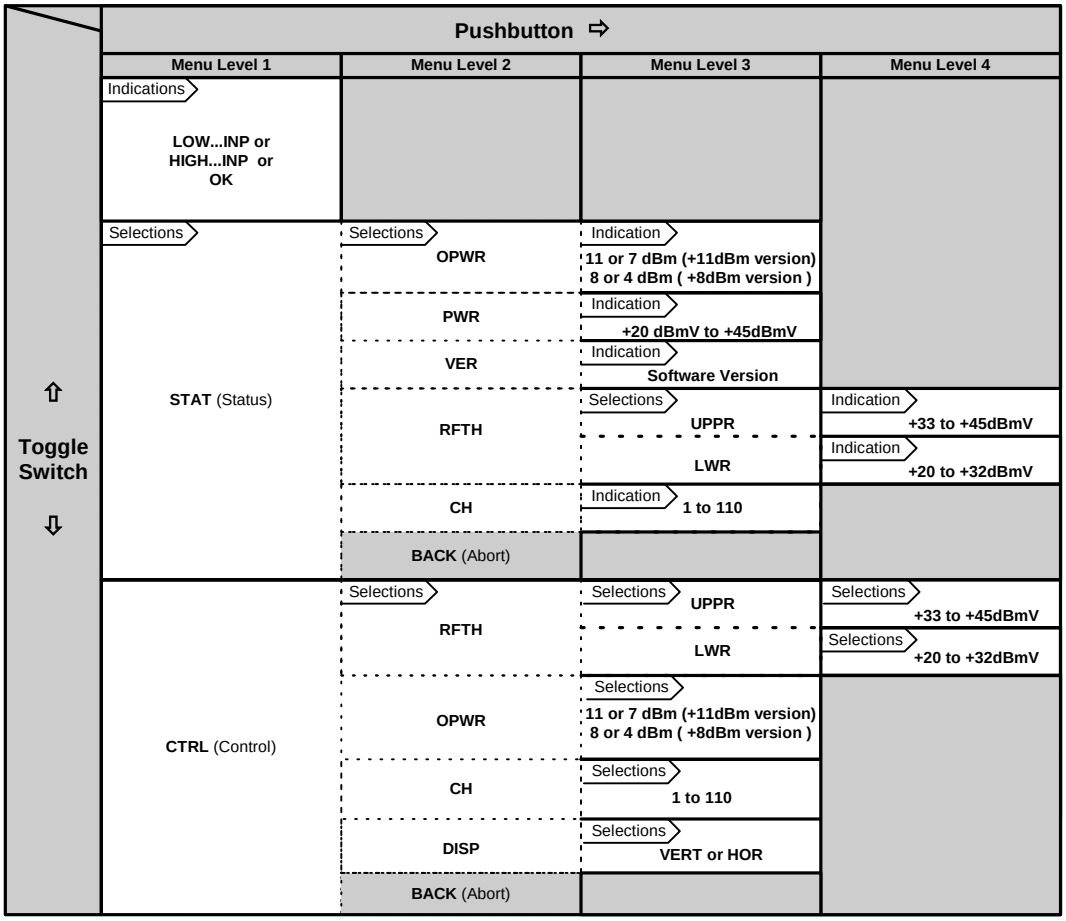

Figure 7-2: 7707CATVT (Revision A Board) Card Edge Menu Flow Chart

The following is a brief description of the top level of the menu tree that appears when the user enters the Control menu. Selecting one of these items will take you down into the next menu level.

7.5.1. User Menu / CTRL (Control)

RFTH: **UPPR:** Allows the user to configure the Upper RF input signal threshold.
LWR: Allows the user to configure the Lower RF input signal threshold.

OPWR: Allows the user to set the output optical power level.

CH: Allows the user to set the number of channels applied to the card.

DISP: Allows the user to set the dot matrix display to vertical or horizontal.

7.5.2. User Menu / STAT (Status)

OPWR : Allows the user to monitor the optical output power.

PWR: Allows the user to monitor the RF input power.

RFTH: **UPPR:** Allows the user to configure the Upper RF input signal threshold.
LWR: Allows the user to configure the Lower RF input signal threshold.

CH: Allows the user to monitor the number of channels configured for the card .

VER: Allows the user to check the software version.

7.6. 7707CATVT (REVISION A BOARD) USER MENU - CTRL

The SET (configuration) menu allows the user to change status and values of the settings for the 7707CATVT card.

7.6.1. 7707CATVT Setting the RF Threshold

RFTH - UPPR
+33 to +45dBmV

The UPPR RF threshold setting enables the user to set the upper RF input threshold. The upper default threshold value is +45dBmV.

RFTH – LWR
+20 to +32dBmV

The LWR RF threshold setting enables the user to set the RF input lower threshold. The lower default threshold value is +20dBmV.

7.6.2. 7707CATVT Input Channel Number

CH
1 to 110

Allows the user to set the number of CATV channels applied to the input of the 7707CATVT. This information is used to apply a correction factor to the reading of the CATV power level. The default input channel number is 110.

7.6.3. 7707CATVT Display Setting

DISP
VERT
HOR

Allows the user to set the display to vertical or horizontal text.

7.6.4. 7707CATVT Optical Power Setting

OPWR
11 or 7 (+11dBm)
8 or 4 (+8 dBm)

Allows the user to set the output optical power. For the +11dBm (-11) version, the user can select +11 or +7dBm output power. For the +8dBm version, the user can select +8 or + 4dBm output power.

7.7. 7707CATVT (REVISION A BOARD) USER MENU – STAT

The STAT (Status) menu allows the user to check the status and values of the settings for the 7707CATVT card. To make changes to the settings, please refer to the User Set menu outlined in section 7.6.

7.7.1. 7707CATVT RF Input Power

PWR
+20 to +45dBmV

The PWR item allows the user to monitor the RF input level.

7.7.2. 7707CATVT Optical Output Power

OPWR
+11 / 7 dBm *+8 / 4 dBm*

The OPWR allows the user to monitor the output power levels of the laser. For the +11dBm (-11) version, the values are +11 or +7dBm output power. For the +8dBm version, the values are +8 or + 4dBm output power.

7.7.3. 7707CATVT RF input thresholds

RFTH
UPPR
LWR

The RFTH item allows the user to monitor the upper and lower input threshold levels. The upper input threshold ranges from +33 to +45dBm and the lower from +20 to +32dBm.

7.7.4. 7707CATVT Number of channels

CH
1 to 110

The CH item allows the user to monitor the number of channels for the card configuration.

7.7.5. 7707CATVT Software Version

VER

The VER function allows the user to check the version of software in the card.

7.8. 7707CATVR (REVISION 1 BOARD) MENU STRUCTURE

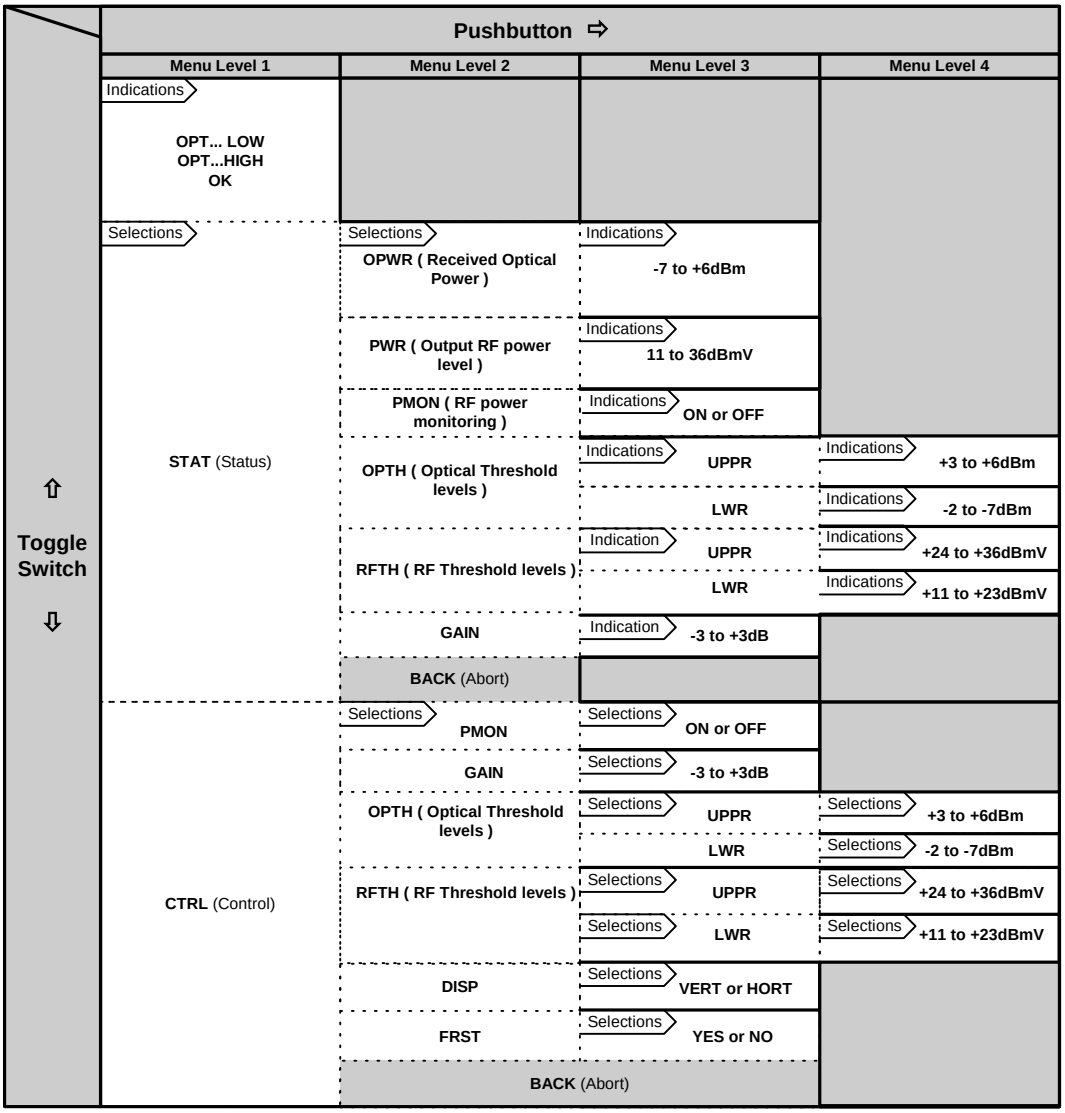

Figure 7-3: 7707CATVR (Revision 1 Board) Card Edge Menu Flow Chart

The following is a brief description of the top level of the menu tree that appears when the user enters the Control menu. Selecting one of these items will take the user down into the next menu level.

7.8.1. User Menu / CTRL (Control)

PMON Allows the user to enable or disable the RF power monitoring function.
GAIN Allows the user to set the RF gain.
OPTH Allows the user to set the optical threshold levels.
RFTH Allows the user to set the RF threshold levels.
DISP Allows the user to configure the card edge display.
FRST Allow the user to perform a factory reset.

7.8.2. User Menu / STAT (Status)

PWR	Displays the CATV RF output level
OPWR	Allows the user to monitor the received optical power.
PMON	Allows the user to monitor the status of the RF power monitoring.
OPTH	Allows the user to monitor the optical threshold levels.
RFTH	Allows the user to monitor the RF threshold levels.
GAIN	Allows the user to monitor the RF gain setting.

7.9. 7707CATVR (REVISION 1 BOARD) USER MENU-CTRL

The CTRL (configuration) menu allows the user to change status and values of the settings for the 7707CATVR card.

7.9.1. 7707CATVR Setting the Upper Optical Threshold

OPTH / UPPR
-2 to -7dBm

The OPTH / UPPR optical threshold setting enables the user to set the upper threshold. The default threshold value is –7dBm. The possible values are –7, -6, -5, -4, -3, -2 dBm.

OPTH / LWR
+3 to+ 6dBm

The OPTH / LWR optical threshold setting enables the user to set the lower threshold. The default threshold value is +6dBm. The possible values 3, 4, 5, 6dBm.

7.9.2. 7707CATVR RF Power Monitoring ON/OFF

PMON
ON *OFF*

The PMON function allows the user to turn the power monitoring ON or OFF. The default setting for the power monitoring is ON. Please note that any or all of channels 2, 3 and 4 in the CATV spectrum need to be populated in order for the power monitoring to function properly.

7.9.3. 7707CATVR RF Upper Threshold Level

RFTH / UPPR
+24 to +36 dBmV

Allows the user to set the upper RF threshold level for the input CATV spectrum.

7.9.4. 7707CATVR RF Lower Threshold Level

RFTH / LWR
+11 to +23 dBmV

Allows the user to set the lower RF threshold level for the input CATV spectrum.

7.9.5. 7707CATVR Display Setting

DISP *VERT* *HOR*	Allows the user to configure the display setting to be either vertical for 3RU frames or horizontal for 1RU frames.

7.9.6. 7707CATVR Gain Setting

GAIN *- 3 to +3*	Allows the user to set the gain value. The gain is adjustable from –3dB to +3dB in 1dB increments.

7.9.7. 7707CATVR Restoring Factory Defaults

FRST *YES* *NO*	To restore the factory defaults, enter the FRST control and choose yes to restore all factory settings to the 7707CATVT. All configurations previously made to the card will be lost.

7.10. 7707CATVR (REVISION 1 BOARD) USER MENU – STAT

The STAT (Status) menu allows the user to check the status and values of the settings for the 7707CATVR card. To make changes to the settings, please refer to the User Set menu outlined in section 7.6.

7.10.1. 7707CATVR RF Output Power

PWR *+11 to +36dBmV*	Displays the output CATV RF power.

7.10.2. 7707CATVR Optical Received Power

OPWR *-7dBm to +6dBm*	Displays the received optical power. Values range from –7dBm to +6dBm in 1dBm increments.

7.10.3. 7707CATVR RF Power Monitoring

PMON *ON or OFF*	Displays the status of the RF power monitoring.

7.10.4. 7707CATVR Software Version

VER	The *VER* function allows the user to check the version of software in the card.

7.10.5. 7707CATVR RF Upper Threshold Level

RFTH / UPPR
+24 to +36 dBmV

Allows the user to monitor the upper RF threshold level for the input CATV spectrum. This item is available only if PMON is ON.

7.10.6. 7707CATVR RF Lower Threshold Level

RFTH / LWR
+11 to +23 dBmV

Allows the user to monitor the lower RF threshold level for the input CATV spectrum. This item is available only if PMON is ON.

7.10.7. 7707CATVR Setting the Upper Optical Threshold

OPTH / UPPR
-2 to -7dBm

The OPTH / UPPR optical threshold setting enables the user to set the upper threshold. The default threshold value is –7dBm. The possible values are –7, -6, -5, -4, -3, -2 dBm.

7.10.8. 7707CATVR Setting the Lower Optical Threshold

OPTH / LWR
+3 to+ 6dBm

The OPTH / LWR optical threshold setting enables the user to set the lower threshold. The default threshold value is +6dBm. The possible values 3, 4, 5, 6dBm.

7.11. 7707CATVR (REVISION A BOARD) MENU STRUCTURE

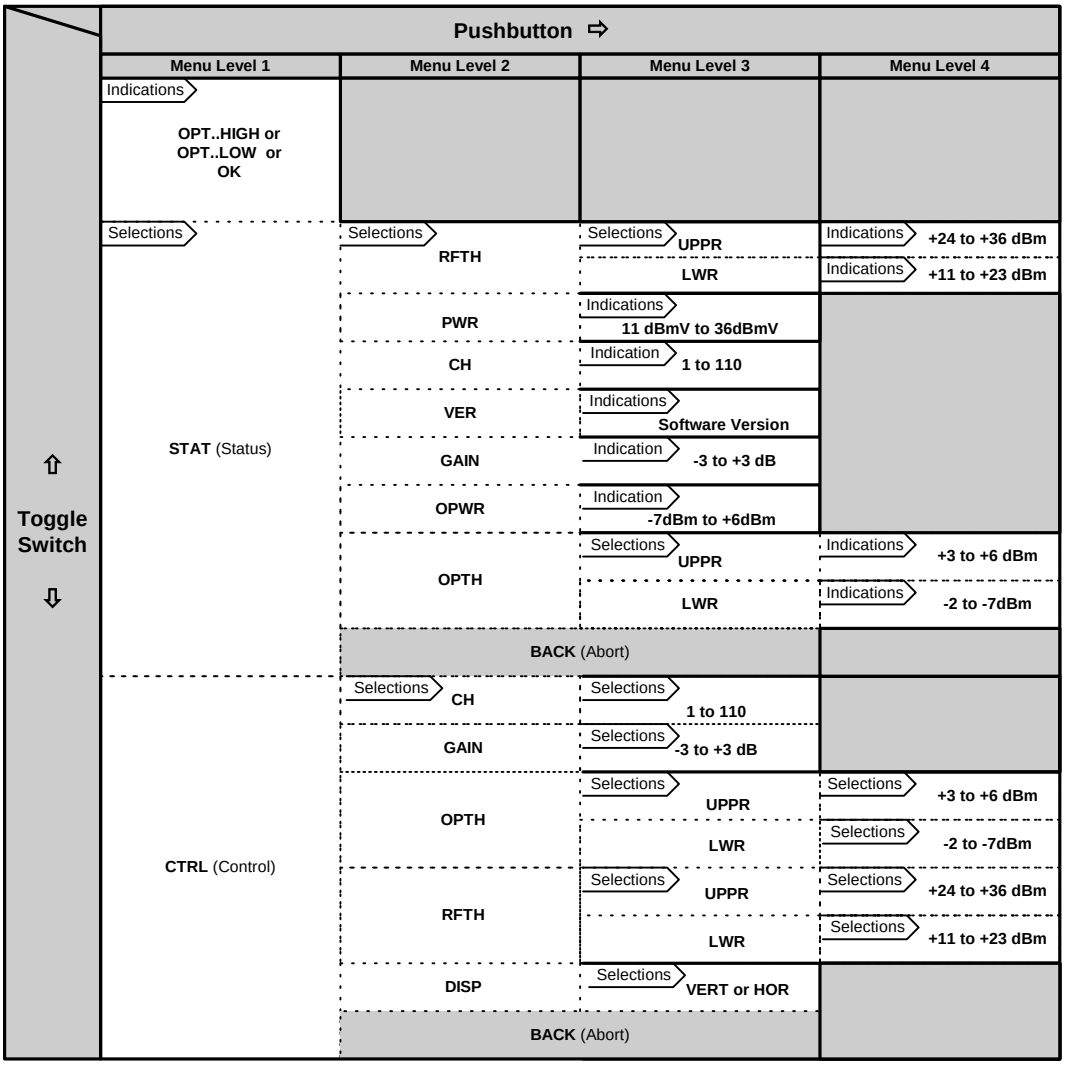

Figure 7-4: 7707CATVR (Revision A Board) Card Edge Menu Flow Chart

The following is a brief description of the top level of the menu tree that appears when the user enters the Control menu. Selecting one of these items will take the user down into the next menu level.

7.11.1. User Menu / CTRL (Control)

OPTH – LWR: Allows the user to configure the lower optical input signal threshold.
OPTH – UPPR: Allows the user to configure the upper optical input signal threshold.
CH: Allows the user to set the number of channels applied to the card.
RFTH – UPPR: Allows the user to configure the upper RF output threshold.
RFTH – LWR: Allows the user to configure the lower RF output threshold.
GAIN: Sets gain level.

7.11.2. User Menu / STAT (Status)

PWR:	Displays the CATV RF output level.
OPWR:	Allows the user to monitor the optical input power.
CH:	Allows the user to monitor the number of channels applied to the card.
VER:	Allows the user to check the software version.
RFTH – UPPR:	Allows the user to monitor the upper RF output threshold.
RFTH – LWR:	Allows the user to monitor the lower RF output threshold.
OPTH – LWR:	Allows the user to monitor the lower optical input signal threshold.
OPTH – UPPR:	Allows the user to monitor the upper optical input signal threshold.
GAIN:	Allows the user to monitor the gain level.

7.12. 7707CATVR (REVISION A BOARD) USER MENU-CTRL

The CTRL (configuration) menu allows the user to change status and values of the settings for the 7707CATVR card.

7.12.1. 7707CATVR Setting the Optical Input Threshold

OPTH – LWR
-2 to -7dBm

The OPTH - LWR optical threshold setting enables the user to set the lower threshold. The default threshold value is –7dBm. The possible values are –7, -6, -5, -4, -3, -2 dBm.

OPTH – UPPR
3 to 6dBm

The OPTH - UPPR optical threshold setting enables the user to set the upper threshold. The upper OPTH default threshold value is +6dBm. The possible values +3, +4, +5, +6dBm.

7.12.2. 7707CATVR Setting the RF output thresholds

RFTH – UPPR
+24 to +36dBm

The RFTH - UPPR function allows the user to configure the upper RF output threshold. The default setting for this threshold is +36dBm.

RFTH – LWR
+11 to 23dBm

The RFTH – LWR function allows the user to configure the lower RF output threshold. The default setting for this threshold is +11dBm.

7.12.3. 7707CATVR Input Channel Number

CH
1 to 110

Allows the user to set the number of CATV channels applied to the input of the 7707CATVR. This information is used to apply a correction factor to the reading of the CATV. The default input channel number is 110.

7.12.4. 7707CATVR Gain Setting

GAIN
-3 to +3 dB

Allows the user to set the gain of the module. The default value is 0dB.

7.12.5. 7707CATVR Display Setting

DISP
VERT or HOR

Allows the user to set the display for vertical (VERT) or horizontal (HOR) layout.

7.13. 7707CATVR (REVISION A BOARD) USER MENU – STAT

The STAT (Status) menu allows the user to check the status and values of the settings for the 7707CATVR card. To make changes to the settings, please refer to the User Set menu outlined in section 7.6.

7.13.1. 7707CATVR RF Output Power

PWR
+11 to +36dBmV

Displays the the output CATV RF power.

7.13.2. 7707CATVR Optical Received Power

OPWR
-7dBm to +6dBm

Displays the received optical power. Values range from –7dBm to +6dBm in 1dBm increments.

7.13.3. 7707CATVR Monitoring RF output thresholds

RFTH – UPPR
+24 to +36dBm

The RFTH - UPPR function allows the user to monitor the upper RF output threshold. The default setting for this threshold is +36dBm.

RFTH – LWR
+11 to +23dBm

The RFTH – LWR function allows the user to monitor the lower RF output threshold. The default setting for this threshold is +11dBm.

7.13.4. 7707CATVR Monitoring the Gain Setting

GAIN *-3 to +3 dB*	Allows the user to monitor the gain of the module. The default value is 0dB.

7.13.5. 7707CATVR Monitoring the Optical Input Threshold

OPTH – LWR *-2 to –7dBm*	The OPTH - LWR optical threshold setting enables the user to monitor the lower threshold. The default threshold value is –2dBm. The possible values are –7, -6, -5, -4, -3, -2 dBm.
OPTH – UPPR *3 to 6dBm*	The OPTH - UPPR optical threshold setting enables the user to monitor the upper threshold. The upper OPTH default threshold value is +6dBm. The possible values +3, +4, +5, +6dBm.

7.13.6. 7707CATVR Software Version

VER	The *VER* function allows the user to check the version of software in the card.

8. *VISTA*LINK® REMOTE MONITORING/CONTROL

8.1. 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 7707EO and 7707OE 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.

8.1.1. *7707CATVT VISTA*LINK® MONITORED PARAMETERS

7707CATVT Parameter	Description
Input Power	Input RF power presented to 7707CATVT. Values range from +20dBmV to +45dBmV.
Firmware Version	Displays the version number of current firmware in module.
Card Type String	Displays the card type. Possible values are 7707CATVT13-110-8 or 7707CATVT13-110-11 for revision A boards and 7707CATVT for revision 1 boards.

Table 8-1: 7707CATVT *Vista*LINK® Monitored Parameters

8.1.2. *7707CATVT VISTA*LINK® CONTROLLED PARAMETERS

7707CATVT Parameter	Description
RF Input Signal Lower Threshold	Enables the user to set the Lower RF Threshold of the input signal. Values range from +20 to 32 dBm.
RF Input Signal Upper Threshold	Enables the user to set the Upper RF Threshold of the input signal. Values range from +33 to +45 dBm.
Number of channels	Sets the number of video channels in the CATV spectrum. Default is 110.
Output Optical Power	Sets the output optical power of laser. Values are +11 or +7dBm for –11 version and +8 or +4dBm for –8 version.

Table 8-2: 7707CATVT *Vista*LINK® Controlled Parameters

8.1.3. *7707CATVR VISTA*LINK® MONITORED PARAMETERS

7707CATVR Parameter	Description
Output RF level **(Requires PMON is ON for revision 1 boards and channels 2, 3 or 4 populated)**	Displays the output RF level of the module. Values range from +11dBmV to +36dBmV, in 1dBmV increments.
Input Optical Power level	Displays the received optical power of the module. Values range from –7dBm to +6dBm, in 1dBm increments.
Firmware Version	Displays the version number of current firmware in module.
Card Type String	Displays the card type.

Table 8-3: 7707CATVR *Vista*LINK® Monitored Parameters

8.1.4. *7707CATVR VISTA*LINK® CONTROLLED PARAMETERS

7707CATVR Parameter	Description
Lower Optical Input Threshold	Enables the user to set the Lower optical Threshold. Values range from –2 to –7dBm.
Upper Optical Input Threshold	Enables the user to set the Upper optical Threshold. Values range from +3 to +6dBm.
Lower RF Input Threshold (Requires PMON is ON for revision 1 boards)	Enables the user to set the Lower RF output Threshold. Values range from +11 to +23dBm.
Upper RF Output Threshold (Requires PMON is ON for revision 1 boards)	Enables the user to set the Upper RF output Threshold. Values range from +24 to +36dBm.
Gain	Enables the user to set the gain of the module. Values range from –3 to +3dB in 1dB increments.
PMON (Revision 1 only)	Enables the user to enable / disable the RF power monitoring. This function is valid only when any or all of channels 2, 3 or 4 are populated.
Number of channels (Revision A only)	Enables the user to set the number of channels in the CATV spectrum. Values range for 1 to 110 in single increments.

Table 8-4: 7707CATVR *Vista*LINK® Controlled Parameters

8.1.5. *7707CATVT VISTA*LINK® Traps

7707CATVT Trap	Description of True Condition
Laser Failed	Laser has stopped working.
Radio Frequency: Input Power Low	Input RF signal power is below threshold setting.
Radio Frequency: Input Power High	Input RF signal power is above threshold setting.

Table 8-5: 7707CATVT *Vista*LINK® Traps

8.1.6. *7707CATVR VISTA*LINK® Traps

7707CATVR Trap	Parameter
RF output power Low (For revision 1 boards, this requires PMON is enabled (ON))	Output RF power is below threshold setting.
RF output power High (For revision 1 boards, this requires PMON is enabled (ON))	Output RF power is above threshold setting.
Optical Power Low	Input optical signal power is below threshold setting.
Optical Power High	Input optical signal power is above threshold setting.

Table 8-6: 7707CATVR *Vista*LINK® Traps

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