DISCONTINUED

TranScend

TranScend Chassis

HARDWARE INTERFACE MANUAL

TABLE OF CONTENTS

PRODUCT INTRODUCTION

1. Product Introduction

The TranScend is a modular chassis (1RU platform) that uses plug-in modules which can elegantly simplify the return path transport when used in conjunction with the I-HUB platform. This platform supports a variety of advanced products from ATX to revolutionize the CATV optical access industry. This product is available in either AC or redundant DC (-48V) powering. It can accommodate up to four plug-in modules. Currently available modules include:

1. High Sensitivity Quad Receiver for RFoG return path with the capability for built-in express ports.
2. Standard Sensitivity Quad Receiver for RFoG applications.
3. Frequency Stacker for upstream aggregation of four streams of 5-42 MHz.
4. Frequency Destacker to convert the four streams back to 5-42 MHz.
5. RFoG EDFA providing up to four ports at 18 dBm with or without express port capability.
6. Optical Switch for path redundancy.

The chassis provides extremely high density and with the express ports built-in, the amount of fiber interconnectivity is greatly reduced. The chassis supports hot-swapping of the modules. A high level of integration in the modules makes the modules very compact, thereby reducing the power requirements and minimizing heat dissipation. The chassis has a local RS232 port, a RJ45 for remote Ethernet communication with the unit and an alarm contact port. The LCD display in the front panel helps the operator to monitor all the modules plugged into the chassis.

The front and rear views of the chassis show the various ports available on TranScend chassis.

Figure 1: Front View - TranScend Chassis

Figure 2: Rear Top View - DC Chassis

Figure 3: Rear Top View - DC Chassis

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PRODUCT SPECIFICATIONS

2. Product Specifications

2.1 TranScend Chassis Specifications

SPECIFICATIONS		
OPERATING DC VOLTAGE		-42 to -56V
OPERATING AC VOLTAGE		90-240V
POWER CONSUMPTION (Without Modules)		11W
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)
	HARDENED	-40°C to +65°C (-40°F to +149°F)
STORAGE TEMPERATURE		-40°C to +85°C (-40°F to +185°F)
DIMENSIONS		1.75"H x 17.0"W x 17.0"D (4.45H x 43.2W x 43.2D cm)
WEIGHT (Without Modules)		< 7.0 lbs (3.2 kg)

2.2 High Sensitivity Quad Receiver: TSD-RRX-4HS-EPL (TSD-RRX-4HS-C) (No Express Port)

SPECIFICATIONS		TSD-RRX-4HS-EPL (TSD-RRX-4HS-C (No Express Port))
FREQUENCY RANGE		5-85 MHz(1)
OPTICAL INPUT LEVEL		-18 to -30 dBm
EXPRESS PORT PASSBAND (If Present)		1604-1617nm
EXPRESS PORT INSERTION LOSS		0.3-0.8 dB
EXPRESS PORT REFLECT BAND		1300-1620nm
RF OUTPUT LEVEL (Nominal)		40 dBmV(2)
RF TEST POINT (Relative to Output Level)		-20 ± 1 dB
POWER CONSUMPTION		14W
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)
	HARDENED	-40°C to +65°C (-40°F to +149°F)
WAVELENGTH OF OPERATION		1270-1620nm
NPR & DYNAMIC RANGE		30/15 dB(3)

NOTES:
(1) Frequency response for +/1 dB worst case, +/- 0.75 dB typical.
(2) At -20 dBm optical input, with 30% OMI on transmitter.
(3) Specified at -20 dBm optical input level, with a load of 5-42 MHz.

2.3 Standard Sensitivity Quad Receiver: TSD-RRX-4S-C

SPECIFICATIONS		TSD-RRX-4S-C
FREQUENCY RANGE		5-200 MHz(1)
OPTICAL INPUT LEVEL		0 to -20 dBm
EXPRESS PORT PASSBAND (If Present)		1604-1617nm
EXPRESS PORT INSERTION LOSS		0.3-0.8 dB
EXPRESS PORT REFLECT BAND		1300-1620nm
RF OUTPUT LEVEL (Nominal)		40 dBmV(2)(5)
RF TEST POINT (Relative to Output Level)		-20 dB
POWER CONSUMPTION		10W
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)
	HARDENED	-40°C to +65°C (-40°F to +149°F)
WAVELENGTH OF OPERATION		1270-1620nm
NPR & DYNAMIC RANGE		40/15 dB(3)(4)

NOTES:
(1) Frequency response for +/1 dB flatness worst case, +/- 0.75 dB typical.
(2) At -10 dBm optical input, with 10% OMI on transmitter.
(3) Specified at -10 dBm optical input level, with a load of 5-42 MHz.
(4) Ch. Attn. = 16 dB (factory default setting).
(5) Ch. Attn. = 0.0 dB.

2.4 Quad Return Stacker: TSD-REM-RF4-XX-C or TSH-REM-RF4-XX-C

XX is the ITU Wavelength Channel.

SPECIFICATIONS		TSD-REM-RF4-XX-C / TSH-REM-RF4-XX-C
FREQUENCY RANGE		5-85 MHz(1)
OPTICAL OUTPUT LEVEL		6 dBm
RF INPUT LEVEL		25 dBmV(2)
RF TEST POINT (Relative to Input Level)		-20 dB
POWER CONSUMPTION	STANDARD	10W
	HARDENED	13W
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)
	HARDENED	-40°C to +65°C (-40°F to +149°F)
WAVELENGTH OF OPERATION		ITU nm
NPR & DYNAMIC RANGE		40/10 dB(3)

NOTES:
XX = ITU Wavelength Channel
(1) Frequency response for +/-1 dB worst case, +/- 0.75 dB typical for 5-42 MHz.
(2) For 2.5% OMI on transmitter.
(3) Specified at -7 dBm optical input level, with a load of 5-42 MHz.

2.5 Quad Return Destacker: TSD-REM-RX4-C

SPECIFICATIONS		TSD-REM-RX4-C		
		MIN	TYP	MAX
FREQUENCY RANGE			5-85 MHz(1)	
OPTICAL INPUT LEVEL		-15 dBm	-7 dBm	0 dBm
RF OUTPUT LEVEL			40 dBmV(2)	
RF TEST POINT (Relative to Output Level)			-20 dB	
POWER CONSUMPTION			14W	
WAVELENGTH OF OPERATION			ITU nm	
NPR & DYNAMIC RANGE			40/10 dB(3)	
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)		
	HARDENED	-40°C to +65°C (-40°F to +149°F)		

NOTES:
(1) Frequency response for +/-1 dB worst case, +/- 0.75 dB typical for 5-42 MHz.
(2) For 2.5% OMI at -7 dBm optical input power.
(3) Specified at -7 dBm optical input level, with a load of 5-42 MHz.

2.6 RFoG EDFA: TSD-POA-0417-EPL (TSD-POA-0418-SC)

SPECIFICATIONS		TSD-POA-0417-EPL (TSD-POA-0418-SC)		
		MIN	TYP	MAX
NOISE FIGURE			4.0 dB(1)	4.5 dB(1)
OPTICAL OUTPUT POWER (Without EP)		+18 dBm(2)	+18.2 dBm(2)	+18.5 dBm(2)
OPTICAL OUTPUT POWER (With EP)		+17 dBm	+17.2 dBm	+17.5 dBm
EXPRESS PORT PASSBAND		1544nm		1559nm
EXPRESS PORT INSERTION LOSS		0.3 dB	0.4 dB	0.6 dB
EXPRESS PORT REFLECT BAND		1300nm		1620nm
OPTICAL INPUT POWER LEVEL		-6 dBm(3)	4 dBm(3)	10 dBm(3)
OPTICAL TEST POINT LEVEL (Below Total Output)		-21 dB	-20 dB	-19 dB
POWER CONSUMPTION	STANDARD		15W	
	HARDENED		18W	
AMPLIFICATION WAVELENGTH		1545nm		1562nm
OUTPUT POWER VARIATION OVER OPERATING TEMPERATURE			± 0.1 dB	± 0.2 dB
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)		
	HARDENED	-40°C to +65°C (-40°F to +149°F)		

NOTES:
(1) Measured at 0 dBm input power.
(2) When the express port is built-in, the output power requirement in the RFoG network is reduced & the EDFA O/P is reduced to reflect this reduced power requirement.
(3) The amplifier will show slight CNR & output power variations over this range of optical input power. For minimal CNR impact, an input power of +4 dBm is recommended. Amplifiers may shut down at input optical powers below -3 dBm to prevent excessive noise at the output.

2.7 Optical Switch: TSD-SW-C

SPECIFICATIONS		TSD-SW-C		
		MIN	TYP	MAX
INSERTION LOSS			1.2 dB(1)	1.6 dB(1)
NOMINAL WAVELENGTH RANGE		1525nm	1545nm	1565nm
OPTICAL INPUT POWER LEVEL		-10 dBm(2)		15 dBm(2)
SWITCHING THRESHOLD (Settable)		-13 dBm(3)		+14 dBm(3)
HYSTERESIS			± 0.3 dB	
SWITCHING TIME			10ms	15ms
CROSSTALK		50 dB		
OPTICAL RETURN LOSS		50 dB		
POWER CONSUMPTION				4W
OPERATING TEMPERATURE	STANDARD	0°C to +50°C (+32°F to +122°F)		
	HARDENED	-40°C to +65°C (-40°F to +149°F)		

NOTES:

(1) Assumes & includes a connector loss 0. 1 dB per end.

(2) This is the range of input powers for ALL the wavelengths in the downstream direction.

(3) The switching threshold can be set from -13 dBm to + 14 dBm.

PRODUCT INSTALLATION

3. Product Installation

3.1 Unpacking & Inspecting a New Unit

Before shipment, ATX inspects and packs all the essential items carefully. Nevertheless, damage may occur during shipment. The carrier assumes full responsibility for a safe delivery of the equipment.

1. Inspect the package for any physical damage.
2. Open the package.
3. Remove any packing material.
4. Inspect the unit for any physical damage.
5. Shake the unit with care, paying attention to any rattling loose parts that may suggest a concealed damage (some noise due to moving cables is normal).
6. Check for any missing accessories.

When any damage is noticed to the merchandise, please notify customer service (see Service & Support section) and file a claim with the carrier as noted below.

3.2 What To Do About Physical Damage

Record any evidence of physical damage or loss on the freight bill or receipt and have the carrier's agent sign it. If you fail to do so, the carrier may refuse to honor the damage claim. The carrier will supply you with any forms required to file such a claim.

3.3 What To Do About Concealed Damage

Damage which is not apparent until the unit has been unpacked is termed concealed damage. The contents may have been damaged due to rough handling even if there is no external evidence. If you should notice damage upon unpacking the unit you should make a written request for inspection by the carrier's agent within 10 days of the delivery date. Afterwards file a claim with the carrier.

3.4 How To Return Equipment

Call customer service (see Service & Support section) for a Return Materials Authorization (RMA) number. You will need the unit's serial number, description of the problem, and some shipping information. We must receive the unit within thirty (30) days from the date a RMA number is issued. If for any reason, you want to ship the unit 30 days after the RMA number has been issued, you must obtain a new RMA number by calling customer service. Units received without an RMA number or one with an expired RMA number will not be accepted by our receiving department.

3.5 Installation of the Equipment

Installation of the TranScend chassis is a multi-step process.

Step 1: Install the chassis to the rack with the mounting ears and the screws provided in the package, if they are not pre-installed.

Step 2: Using the ground lug on the back of the unit, ground the chassis to the rack.

Step 3: (Optional) If you want to monitor the unit using SNMP, connect the LAN cable to the LAN port in the back for remote monitoring. See section 8.3 for further details about remote management of the unit.

Step 4: (Optional) Connect the alarm cable to the DB9 connector in the back, if you want to monitor the unit using relay contacts.

Step 5: **(AC Unit)**: Connect the AC power cord from the unit to receptacle of the proper rating after making sure that the power switch is in OFF position OR, **FOR DC UNITS**: attach terminal lugs with wires of the proper gauge to the -48 DC feeds (A and B) in the rear of the chassis, **ensuring proper color coding or polarity**. Ideally, A and B feeds should be from independent power sources for redundancy. Connect the other end of the DC wires to the fuse panel after **ensuring that the fuses are pulled. Reversing the polarity will not harm the unit over the**

short term, but is to be avoided if possible. Each TranScend chassis unit will draw anywhere from 0.5 Amps to 2.0 Amps (maximum) at -48 Volts, depending on the number of modules plugged, the ambient temperature, the airflow configuration etc. Please ensure that the fuse panel is rated at 3A absolute minimum for safe operation of the units.

Step 6: Turn the chassis on either by using the switch in the rear of the AC chassis or by plugging in the fuses of appropriate rating in the case of DC units.

Step 7: (Optional) Using the local console port, set-up the IP address for the unit(s) to be monitored from remote location. The unit(s) is now set-up to go live.

Step 8: Plug in the required modules from the rear. The chassis is shipped with the blank panels in place. Remove the blank panel only in the slots where the modules are planned to be plugged. Leave the other panels in place to ensure efficient air flow in the chassis.

Step 9: Connect the optical fiber to the optical port in the rear of the chassis according to the design of the network. Connect the RF cables as needed by the modules.

OPERATION OF THE TRANSCEND CHASSIS

4. Operation of the TranScend Chassis

A detailed procedure for operating the TranScend chassis and various plug-in modules is described in this section. The menu operation of the plug-in modules is also described in this section. These modules include:

1. High Sensitivity Quad Receiver
2. Standard Sensitivity Quad Receiver
3. Return Stacker
4. Return Destacker
5. RFoG EDFA
6. Optical Switch

There are nine front panel LEDs, one indicates the chassis power supply status and four sets of two each indicate the status of the four plug-in units. The number labeled on the front panel corresponds to the slot identification; 1 on the most left and 4 on the most right (closest to power switch) when facing the rear of the chassis.

4.1 LED Color Codes

There are four possible colors of LEDs. They are observed during the following conditions.

Off: Indicates the monitored function is unavailable. This is also observed temporarily during power on LED test.

Example #1: Only slot 1 and slot 2 have plug-in units. The LEDs for slot 3 and slot 4 are off.

Example #2: The High Sensitivity Quad Return Receiver is detected in slot 1; the RF LED for slot 1 is turned off since RF detection is not available in this unit.

Green: Indicates the monitored function is healthy. This is also temporarily observed during power on LED test.

Example #1: The High Sensitivity Quad Return Receiver is detected in slot 1, and the OPT LED for slot 1 is green which indicates the monitored level of all four optical power receivers in slot 1 are within normal operating range.

Amber: Indicates the monitored function is in minor alarm condition. This is also temporarily observed during power on LED test.

Example #1: The High Sensitivity Quad Return Receiver is detected in slot 1, and the OPT LED for slot 1 is amber which indicates the level of any one or more of the four optical powers received in slot 1 are in minor alarm range. The minor alarm is triggered if the monitored level is between the high and high-high or low and low-low thresholds.

Red: Indicates the monitored function is in major alarm condition. This is also observed temporarily during power on LED test.

Example #1: The High Sensitivity Quad Return Receiver is detected in slot 1, and the OPT LED for slot 1 is red which indicates the level of any of the four optical powers received in slot 1 are within major alarm range. The major alarm is triggered if the monitored level is beyond the high-high or low-low thresholds.

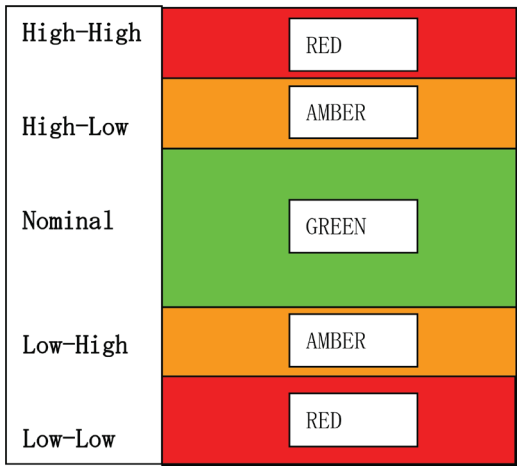

Figure 4: Generic Alarm and LED Table

4.2 Plug-in LED Definitions

High Sensitivity Quad Return Receiver

The High Sensitivity Quad Return Receiver detects the alarms and reflects them on the front panel LEDs based on the following schema.

LED Location	Trigger Events
Top	Optical Receive Power Module Temperature
Bottom	Disable

Example #1: The module temperature and optical receive power on channel #1, #2 are normal and the channel #3 is minor low, but the channel #4 is major low-low. The top LED associated with the slot shall be observed as "red", since this is the worst case scenario for any of the observed parameters. The top LED may show green regardless of the real-time alarm status if the per channel alarm enable switch is set as "OFF".

Standard Sensitivity Quad Return Receiver

The Quad Return Receiver detects the alarms and reflects them on the front panel LEDs based on the following schema.

LED Location	Trigger Events
Top	Optical Receive Power Module Temperature
Bottom	Software Version 2.6 and Before - Green Software Version 2.7 and Later - Disable

Example #1: The module temperature is normal, but optical receive power is major low-low. The top LED associated with the slot shall be observed as "red".

PON EDFA

The PON EDFA detects the alarms and reflects them on the front panel LEDs based on the following schema.

LED Location	Trigger Events
Top	Optical Input Power Optical Output Power Module Temperature
Bottom	Disable

Example #1: The module temperature and optical output power is normal, but the optical input power is at a level that indicates a major alarm. The top LED associated with the slot shall be observed as "red".

Destacker

The Destacker detects the alarms and reflects them on the front panel LEDs based on the following schema.

LED Location	Trigger Events
Top	Optical Power Module Temperature
Bottom	Synthesizer Lock State

Example #1: The module temperature is normal, but optical power is major low-low. The top LED associated with the slot shall be observed as "red".

Stacker

The Stacker detects the alarms and reflects them on the front panel LEDs based on the following schema.

LED Location	Trigger Events
Top	Optical Power Module Temperature
Bottom	Synthesizer Lock State

Example #1: The module temperature is normal, but optical power is major low-low. The top LED associated with the slot shall be observed as “red”.

Optical Switch

The Optical Switch detects the alarms and reflects them on the front panel LEDs based on the following schema.

LED Location	Trigger Events
Top	Primary and Secondary Optical Input Power Switch Alarm Module Temperature
Bottom	Disable

Example #1: The module temperature is normal, but primary optical power is major low-low. The top LED associated with the slot shall be observed as “red”.

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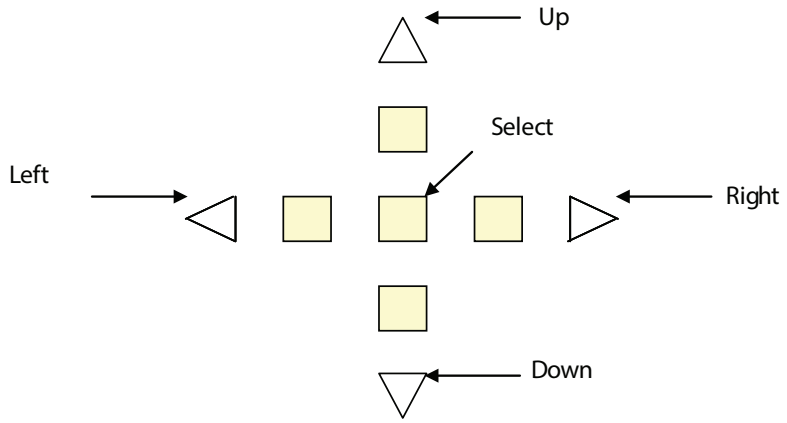
PUSHBUTTON OPERATIONS

5. Pushbutton Operations

There are five pushbuttons located at the front panel of chassis. They are designated as “Up” with an upper arrow indicator, “Right” with a right arrow indicator, “Left” with a left arrow indicator, “Down” with a down arrow indicator and “Select” as the center button.



5.1 Philosophy of Button Operations

5.1.1 Individual Button Operations

Up: The cursor moves up one line.

Down: The cursor moves down one line.

Right: Cycle through the available options for the line where cursor is located.

If the menu is for read-only attribute, the display shows the next available interface.

Example #1: If the current display is “#1 Optical Power”, then pressing the right button will display the “#2 Optical Power”.

Example #2: If the menu is for the quantitative write attributes, the “Right” button increases the value.

When in the “Gain Setting Menu”, the cursor displays Gain (steps): 1, then pressing the right button increments the gain steps and hence Gain (steps): 2 shall be displayed after the operation.

Left: Cycle through the available options for the line where cursor is located.

If the menu is for read-only attribute, the display shows the next available interface.

Example #1: If the current display is “#2 Optical Power”, then pressing the left button will display “#1 Optical Power”.

Example #2: If the menu is for the quantitative write attributes, then left button press operation decreases the value.

When in the “Gain Setting Menu”, the cursor displays Gain (steps): 3, then pressing the left button will decrease the gain steps and hence Gain (steps): 2 shall be displayed after the operation.

Select: There are multiple meanings to the select button.

1. Select to execute the action where the cursor is located.

   Example #1: If the cursor is located at the “Prev menu” line, the display shall change to the NEXT higher menu after the “Select” button is pressed once.

2. Select to commit the option.

   Example #1: In the “Gain Setting Menu”, if the cursor is located on the “Sel Ch: 1” line, the channel #1 shall be used for gain adjustment after “Select” button is pressed.

***NOTE:** Only after pressing the Select button, the gain settings option is operated on the selected channel.*

3. Select to commit the setting to NVRAM.

Example #1: In the "Gain Setting Menu", if cursor is on "Save: No (17)", user must toggle the right or left button to change the option to "Yes". Then press "Select" to commit the value, 17, in the bracket into the NVRAM.

***NOTE:** Only if the value is committed into NVRAM, the chassis will use the selected gain level next time the chassis recovers from power cycle .*

5.1.2 Combination Button Operations

The combination button operations are unique to TranScend chassis. Each combination operation is defined strictly for their specific usage as the following definition.

Up+Down: When pressing and holding the Up+Down button simultaneously when traversing the slot menu, the front panel displays current slot number. The front panel display will restore back to the previous display once the button combination is released.

Example #1: User is within the "Status Menu" of slot #1, press and hold the Up and Down buttons, the front panel displays "Current Slot: 1". The "Status Menu" returns after releasing the Up and Down button combinations.

FRONT PANEL LCD DISPLAY

6. Front Panel LCD Display

6.1 Menu Tree Structure

The TranScend chassis LCD menu is structured into bi-level trees. The top level is system related information and the second level is plug-in related information. The top level contains the menu for second level, but each has its own menu structure.

Level 1	Level 2	Level 3
Greeting	Slot	
	Chassis	Model
		Hardware Version
		Software Version
		Serial Number
		Prev Menu
	Alarm	Power Supply
		Fan
		Prev Menu
	Prev Menu	

Table 1: TranScend Front Panel System Menu Overview

TranScend chassis displays the greeting message upon chassis power up.

Greeting:

Press “Select” button to go into the system menus. The entries in system menus are described as follows:

Slot:

This displays the detected plug-in card type or “Empty” if none is detected. Press “Right” or “Left” button to cycle through available slots. Press “Select” to show the slot communication status. If the communication with slot establishes successfully, the display will go into the second level plug-in menu. Keep in mind that the slot numbering scheme is 1, 2, 3, 4, when going from the LEFT when you are facing the rear of the chassis.

Chassis:

Displays all system related information.

Model: Displays the chassis’ model name.

HW Ver: Displays the hardware version information of TranScend chassis.

SW Ver: Displays the software version information of TranScend chassis.

Ser #: Displays the serial number of TranScend chassis.

Alarm:

Display all system related alarm status.

Pwr Sply: Displays the health of chassis power supply.

Fan: Displays the collective health of the chassis fans.

Prev Menu:

Pressing “Select” will bring the Greeting Message screen back.

NOTE: *"Prev Menu" exists in all menu trees AT THE VERY BOTTOM. When you see it, place the cursor on this line and press the "Select" button to go back to the previous menu.*

The plug-in menu displays are driven by the card type. Each model provides its own display structure. In any sub menu, press "Select" on the **Prev Menu** line to return to the previous menu one level up.

6.2 High Sensitivity Quad Receiver

6.2.1 Overview

The High Sensitivity Quad Receiver is a TranScend plug-in meant to receive return path signals in the 5-85 MHz frequency range in RFoG networks. In these networks, the return path signal from the home ONU (Optical Network Unit) traverses an optical splitter (typically a 1x32 or a cascade of 1x4 and 1x8 splitters) in the reverse direction. The wavelength of the return path signal is typically 1610nm. In units that have an express port built-in, the receiver will work only in the 1610nm window (1610 +/- 8 nm); in other units the return path wavelength has a relatively minor impact on the receiver performance through changes in the responsivity of the photodiode.

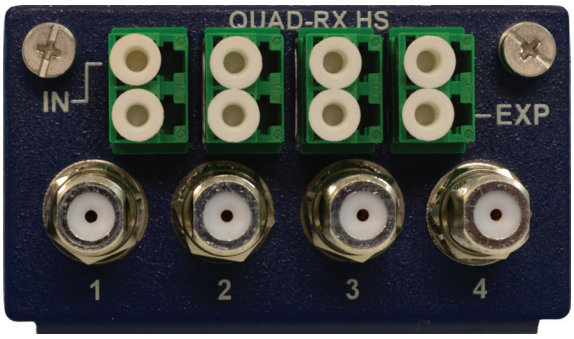


Figure 5: Front View of the High Sensitivity Quad Receiver

Figure 6: Isometric View of the High Sensitivity Quad Receiver

6.2.2 Menu Operation

Level 1	Level 2	Level 3	Level 4
Greeting	Setup	Attn Setting	Select Channel
			Attn (dB)
			Save
			Prev Menu
		Test Point	Select Channel
			Prev Menu
		Alarm Enable	Channel
			Enable
			Save
			Prev Menu
		Prev Menu	
	Status	Optical	
		Prev Menu	
	Alarm	Receiver Power	
		Module Temp	
		Prev Menu	
	Optical	Power (dBm)	
		Attn (dB)	
		Prev Menu	
	Chassis	Temperature (C)	
		Model	
		Hardware Version	
		Software Version	
		Serial Number	
		Prev Menu	
	Prev Menu		
Prev Menu			

Table 2: TranScend High Sensitivity Quad Return Receiver Front Panel Display Menu Overview

Greeting Message

InnoTrans Communications
HS Quad Return Rcvr

Press “Select” button to go into the plug-in menu.

Prev Menu:

Pressing “Select” will bring back to the System menu.

The entries in plug-in menu are described as follows:

Setup Menu:

Attn Setting Menu:

Sel Ch: Press “Select” to select the channel for attenuation adjustment. Press “Right” or “Left” button to cycle through available channels.

Attn (dB): Press “Select” to set the attenuation level. Press “Right” to increase or “Left” button to decrease the attenuation level.

***NOTE:** After the attenuation level adjustment, user must press “Select” to commit the attenuation level in order for the plug-in to operate at such level and for NVRAM storage. Fail to do so, the attenuation might revert back to previous level.*

Save: Press “Right” or “Left” button to select between “Yes” or “No”. Press “Select” to commit the value in bracket into NVRAM if “Yes” is selected. The value in bracket reflects the current NVRAM storage reading. If user presses “Select” when display is “No”, no NVRAM change takes place.

Test Point Menu: Select the test point connection to front panel “RF TEST” output.

Sel Ch: Press “Select” to select the channel to connect to the front panel “RF TEST” output. Press “Right” or “Left” button to cycle through available channels.

Alarm Enable Menu: Enable or disable alarms on the selected channel.

***NOTE:** The alarm, enable or disable switch only applies to the analog attributes on per channel basis. These attributes include Optical Power Level, RF and Laser Temperature.*

Channel: Press “Right” or “Left” button to cycle through available channels.

Enable: Press “Select” to enable or disable the alarm reporting. Press “Right” or “Left” button to cycle through the available options.

On: Report alarms on the selected channel.

Off: Disable alarm reporting on the selected channel.

Save: Press “Right” or “Left” button to select between “Yes” or “No”. Press “Select” to commit the value in bracket into NVRAM if “Yes” is selected. The value in bracket reflects the current NVRAM storage reading. If user presses “Select” when display is “No”, no NVRAM change takes place.

Status Menu:

Opt: Displays the reading of optical receiver power in dBm. This display does not include the reading after the decimal point.

Alarm Menu:

Rcvr Pwr: Displays the alarm status of optical receiver power.

Press “Right” or “Left” button to cycle through available channels.

Module Temp: Displays the alarm status of module temperature.

Optical Menu:

Power (dBm): Displays the optical receiver power reading in dBm.

Attn (dB): Displays the attenuation setting in dB on per channel basis.

Chassis Menu:

Temp (C): Displays the module’s temperature reading in Centigrade.

Model: Displays the model name of plug-in module.

HW Ver: Displays the hardware version information of plug-in module.

SW Ver: Displays the software version information of plug-in module.

Ser #: Displays the serial number of plug-in module.

Prev Menu:

Pressing “Select” will bring the plug-in’s greeting message screen back.

6.3 Return Stacker

6.3.1 Overview

The Return Stacker module is a TranScend plug-in meant to transmit up to four return path signals in the 5-42 MHz frequency range on one ITU wavelength. There is a node plug-in version also available for this unit, and that can be used to segment a node four ways to quadruple the upstream bandwidth from every node. Unlike RF combining, each stream in the Stacker is brought back in parallel, to truly increase the bandwidth. The advantages of this solution over other means of achieving similar results is that:

- One ITU laser is used as opposed to four, leading to a huge cost reduction.
- The passive Mux and DMux requirements are for one fourth as many wavelengths as single lasers.
- The unit can support bandwidth migration to 5-85 MHz from day one, unlike digital return solutions.
- It consumes only about 10 Watts in power, and is significantly less expensive than the alternatives.

6.3.2 Menu Operation

Level 1	Level 2	Level 3	Level 4
Greeting	Setup	Test Point Menu	Sel Channel
			Prev Menu
		Prev Menu	
	Alarm	Synthesizer Lock	
		Optical Power	
		Laser Temperature	
		Module Temperature	
		Prev Menu	
	Optical	Optical Power (dBm)	
		RF Level (dB)	
		Laser Temperature (C)	
		Attn (dB)	
		Prev Menu	
	Chassis	Temperature (C)	
		Model	
		Hardware Version	
		Software Version	
		Serial Number	
		Prev Menu	
	Prev Menu		
Prev Menu			

Table 3: TranScend Stacker Front Panel Display Menu Overview

Greeting Message

Press “Select” button to go into the plug-in menu.

Prev Menu:

Pressing “Select” will bring back to the System menu.

The entries in plug-in menu are described as follows:

Setup Menu:

Test Point Menu: Select the test point connection to front panel “RF TEST” output.

Sel Ch: Press “Select” to select the channel to connect to the front panel “RF TEST” output. Press “Right” or “Left” button to cycle through available channels.

Optical Menu:

Opt Pwr (dBm): Displays the optical power reading in dBm.

RF Level (dB): Displays the RF level in dB.

Attn (dB): Displays the attenuation reading in dB.

Laser Tmp (C): Displays the laser temperature in Centigrade.

Alarm Menu:

Syn Lock: Displays the alarm state of synthesizer lock status.

Press “Right” or “Left” button to cycle through available channels.

Opt Power: Displays the alarm status of optical receiver power.

Laser Temp: Displays the alarm status of laser temperature.

Module Temp: Displays the alarm status of module temperature.

Chassis Menu:

Temp (C): Displays the module’s temperature reading in Centigrade.

Model: Displays the model name of plug-in module.

HW Ver: Displays the hardware version information of plug-in module.

SW Ver: Displays the software version information of plug-in module.

Ser #: Displays the serial number of plug-in module.

Prev Menu:

Pressing “Select” will bring the plug-in’s greeting message screen back.

6.4 Return Destacker

6.4.1 Overview

The Return Destacker module is a TranScend plug-in that works in conjunction with the Return Stacker module (see above). It is meant to receive an optical signal and convert up to four return path signals in the 5-42 MHz frequency range and delivers them on four RF ports. It performs the function of an optical receiver and four band converters in one module. Unlike RF combining, each stream in the Destacker is brought back in parallel, to truly increase the bandwidth.

Figure 7: Isometric View of the Destacker

6.4.2 Menu Operation

Level 1	Level 2	Level 3	Level 4
Greeting	Setup	Attn. Setting	Sel. Channel
			Attn. (dB)
			Save
			Prev. Menu
		Test Point	Select Channel
			Prev. Menu
		Prev. Menu	
	Alarm	Synthesizer Lock	
		Receiver Power	
		Module Temperature	
		Prev. Menu	
	Optical	Receiver Power (dBm)	
		RF Level (dB)	
		Attn. (dB)	
		Prev. Menu	
	Chassis	Temperature (C)	
		Model	
		Hardware Version	
		Software Version	
		Serial Number	
		Prev. Menu	
	Prev. Menu		
Prev. Menu			

Table 4: TranScend Destacker Front Panel Display Menu Overview

Greeting Message

Press "Select" button to go into the plug-in menu.

Prev Menu:

Pressing "Select" will bring back to the System menu.

The entries in plug-in menu are described as follows:

Setup Menu:

Attn Setting Menu:

Sel Ch: Press "Select" to select the channel for gain adjustment. Press "Right" or "Left" button to cycle through available channels.

Attn (dB): Press "Select" to set the attenuation level. Press "Right" to increase or "Left" button to decrease the attenuation level.

***NOTE:** After the attenuation level adjustment, user must press "Select" to commit the attenuation level in order for the plug-in to operate at such level and for NVRAM storage. Failing to do so, the attenuation might revert back to previous level.*

Save: Press "Right" or "Left" button to select between "Yes" or "No". Press "Select" to commit the value in bracket into NVRAM if "Yes" is selected. The value in bracket reflects the current NVRAM storage reading. If user press "Select" when display is "No", no NVRAM change takes place.

Test Point Menu: Select the test point connection to front panel "RF TEST" output.

Sel Ch: Press "Select" to select the channel to connect to the front panel "RF TEST" output. Press "Right" or "Left" button to cycle through available channels.

Optical Menu:

Rcvr Pwr (dBm): Displays the optical receiver power reading in dBm.

RF Level (dB): Displays the RF level in dB.

Attn (dB): Displays the attenuation reading in dB.

Alarm Menu:

Syn Lock: Displays the alarm state of synthesizer lock status.

Press "Right" or "Left" button to cycle through available channels.

Rcvr Power: Displays the alarm status of optical receiver power.

Module Temp: Displays the alarm status of module temperature.

Chassis Menu:

Temp (C): Displays the module's temperature reading in Centigrade.

Model: Displays the model name of plug-in module.

HW Ver: Displays the hardware version information of plug-in module.

SW Ver: Displays the software version information of plug-in module.

Ser #: Displays the serial number of plug-in module.

Prev Menu:

Pressing "Select" will bring the plug-in's greeting message screen back.

6.5 RFoG EDFA

6.5.1 Overview

The RFoG EDFA is a TranScend plug-in meant to boost the optical power of the downstream 1550nm video overlay signal in RFoG networks. The EDFA has four optical ports, each having an output power of 18 dBm without an express port and 17 dBm with an express port. In units that have an express port built-in, the EDFA input (and therefore output) will be 1544 and 1559nm; in other units the EDFA will provide gain from 1530-1562nm.

Figure 8: Isometric View of the TranScend PON EDFA

6.5.2 Menu Operation

Level 1	Level 2	Level 3	Level 4
Greeting	Status	Laser Temperature (C)	
		Bias (mA)	
		Optical Input (dBm)	
		Optical Output (dBm)	
		3V3 Power (V)	
		Prev Menu	
	Alarm	Laser Temperature	
		Optical Input	
		Optical Output	
		Module Temperature	
		Prev Menu	
	Chassis	Temperature (C)	
		Model	
		Hardware Version	
		Software Version	
		Serial Number	
		Prev Menu	
	Prev Menu		
Prev Menu			

Table 5: TranScend PON EDFA Front Panel Display Menu Overview

Greeting Message

InnoTrans Communications
PON EDFA

Press “Select” button to go into the plug-in menu.

Prev Menu:

Press “Select” will bring back to the System menu.

The entries in plug-in menu are described as follows:

Status Menu:

Laser Temp (C): Displays the reading of laser temperature in Centigrade. Press “Left” or “Right” button to cycle through the available channels.

Bias (mA): Displays the reading of the laser bias in mA. Press “Left” or “Right” button to cycle through the available channels.

OPT Input (dBm): Displays the reading of optical input power in dBm.

OPT Output (dBm): Displays the reading of optical output power in dBm.

3V3 Power (V): Displays the reading of on board 3.3 power level.

Alarm Menu:

Laser Temp: Displays the alarm status of laser temperature. Press “Right” or “Left” button to cycle through available channels.

OPT Input: Displays the alarm status of the optical input power.

OPT Output: Displays the alarm status of the optical output power.

Module Temp: Displays the alarm status of module temperature.

Chassis Menu:

Temp (C): Displays the module's temperature reading in Centigrade.

Model: Displays the model name of plug-in module.

HW Ver: Displays the hardware version information of plug-in module.

SW Ver: Displays the software version information of plug-in module.

Ser #: Displays the serial number of plug-in module.

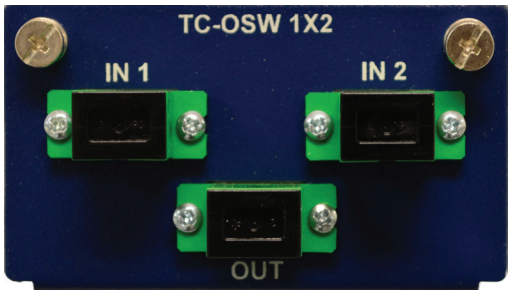
Prev Menu:

Pressing "Select" will bring the plug-in's greeting message screen back.

6.6 Optical Switch

6.6.1 Overview

The Optical Switch module in the TranScend chassis is meant for protecting the network with path redundancy. The switch operates in the C-Band, i.e. from 1530-1565nm. The switch has two inputs primary and secondary which are monitored for the signal quality. The switching threshold is the power at which the operator can choose to switch the signal from primary to secondary and it is settable with the specified limits. The switch will switch from primary to secondary when the primary power drops below the threshold and the secondary power is above the threshold in order to ensure an uninterrupted operation. However, if the secondary power for any reason is below the threshold, the switch will remain in the primary even when the primary fails. When the primary path is restored and the optical power in this path is above the threshold for duration longer than one second, the switch will automatically revert to this state.



IN1 : Primary IN2: Secondary

Figure 9: Front View of the TranScend Optical Switch

Figure 10: Isometric View of the TranScend Optical Switch

6.6.2 Menu Operation

Level 1	Level 2	Level 3
Greeting	Setup Menu	Threshold (dBm)
		Save
		Prev Menu
	Status Menu	OPin Pwr (dBm)
		Switch
		Prev Menu
	Alarm Menu	OPin Pwr
		Module Temperature
		Switch
		Prev Menu
	Chassis Menu	Temperature (C)
		Model
		Hardware Version
		Software Version
		Serial Number
		Prev Menu
	Prev Menu	
Prev Menu		

Table 6: TranScend Optical Switch Front Panel Display Menu Overview

Greeting Message

InnoTrans Communications
Optical Switch

Press “Select” button to go into the plug-in menu.

Prev Menu:

Press “Select” will bring back to the System menu.

The entries in plug-in menu are described as follows:

Setup Menu:

Threshold (dBm): Press “Right” or “Left” button to increase or decrease the level of threshold in dBm for switching between primary and secondary optical inputs. The factory default threshold is 0 dBm.

Save: Press “Right” or “Left” button to select between “Yes” or “No”. Press “Select” to commit the value in bracket into NVRAM if “Yes” is selected. The value in bracket reflects the current NVRAM storage reading. If user presses “Select” when display is “No”, no NVRAM change takes place.

Status Menu:

OPin Pwr (dBm): Displays the optical input power reading in dBm. Press “Right” or “Left” button to cycle through available channels. Note the primary input is marked as #1 and secondary is #2.

Switch: Displays the optical switch position, either “Primary” or “Secondary”.

Alarm Menu:

OPin Pwr: Displays the alarm state of optical input power status.

Press “Right” or “Left” button to cycle through available channels.

Module Temp: Displays the alarm status of module temperature.

Switch: Displays the alarm status of optical switch. The alarm is determined based on following conditions:

Severity	Condition
Major	Optical switch is faulty. Secondary input is invalid when primary input is below threshold. The secondary input shall be above the threshold to qualify as a valid signal.
Minor	Optical switch is on secondary input.

Chassis Menu:

Temp (C): Displays the module's temperature reading in Centigrade.

Model: Displays the model name of plug-in module.

HW Ver: Displays the hardware version information of plug-in module.

SW Ver: Displays the software version information of plug-in module.

Ser #: Displays the serial number of plug-in module.

Prev Menu:

Pressing "Select" will bring the plug-in's greeting message screen back.

Switch from Primary to Secondary: When the primary optical power drops below the user defined threshold and the secondary optical power is above the user defined threshold, the optical switch position moves over to the secondary optical power immediately.

Recover from Secondary to Primary: When the primary optical power is above the user defined threshold for one second, the optical switch recovers back to primary position.

The optical switch position is persistently stored and the unit that recovers from power cycle will restore the optical switch position according to its persistent value. The factory default is primary.

TROUBLESHOOTING THE TRANSCEND

7. Troubleshooting the TranScend

Condition	Steps to Check
Power LED OFF (AC)	1. Check if Power Cable is plugged in and Power Switch is in ON position. 2. Verify AC Outlet is functional and confirm fuse on the AC feed is fine, replacing it if necessary. 3. Look for other signs of life in unit like running fan, LCD display etc.
Power LED OFF (DC)	1. Verify DC Feed is active and fuse is intact on fuse panel. 2. Verify DC Feed is not reversed. 3. Look for other signs of life in unit like running fan, LCD display etc.
Optical LED is Amber or Red	Check the User Interface document for the TranScend chassis or the individual plug-in module.
RF LED is Amber or Red	Check the User Interface document for the TranScend chassis or the individual plug-in module.
Communication Issue with Unit	1. Please confirm set-up is as described in the User Interface document. 2. If problem persists, please contact ATX for further help.

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PROVISIONING & MONITORING

8. Provisioning & Monitoring

8.1 Overview

Each TranScend chassis has a microcontroller and a microprocessor that together allows the operator to provision and monitor various parameters. The microcontroller and microprocessor combination will generate an alarm in the case of a failure. For instance, if one of the parameters is out of range and may affect the operational performance of the unit, an alarm is generated. These alarms can be monitored locally via a RS232 console or remotely using RJ45 connector via a modem. To establish a local serial connection with the unit, the following equipment is needed:

1. A computer running HyperTerminal. (HyperTerminal can be found in the Microsoft® Windows® Accessories Menu.)
2. A RS232 cable with proper DB-9 mating connector.

Section 8.3 Remote Management will walk you through the procedure to set-up the unit for remote monitoring.

8.2 Craft Line Interfaces

8.2.1 Command Structure

Similar to the LCD menu, the TranScend chassis Craft Line Interface (CLI) is structured into bi-level trees. The top level is system related information and the second level is plug-in related information. The top level contains the commands for second level, but each has its own command structure.

Upon power up, the CLI attaches to the front panel DB9 console port by default. The following is a sample greeting screen:

```
**********************************************************
    InnoTrans Craft Line Interface
**********************************************************
TranScend [slot-1] >
```

The slot number in square bracket indicates the plug-in that CLI is currently in communication with. The above example selects the slot number 1.

8.2.2 System Commands

The commands in this section are system related.

Help: Displays all available commands or help on individual command.

Example #1: Displays all available commands.

```
TranScend [slot-1] >help
Following commands are supported.
Common Commands:
help        uptime      info        logout      status
alarm       DownloadStatus  slot        SwVer       HwVer
ModelName   SerialNum   Network     Download    Reboot

Date        Hostname    Community   TrapAddr    sysContact
sysLocation PowerAlarm  FanAlarm
```

Example #2: Displays individual help description.

```
TranScend [slot-1] >help network
Network:
Set/Get network configuration.
Syntax: Network <ip netmask gateway >
```

No argument: Display network configuration.
With all 3 arguments: Configure network.

Uptime: Displays the number of seconds accumulated since chassis boot up.

Example #1:

```
TranScend[slot-1] >uptime
820 seconds (0 days 0 hours 13 min 40 sec)
```

info: Displays the system and selected plug-in factory information.

Example #1: The first part is System factory information and followed by the factory information of plug-in in slot 1.

```
TranScend [slot-1] >info
System
SwVer:
        2.0-2.0
HwVer:
        1-1
ModelName:
        TSD-CH-AC
SerialNum:
        24521210

Slot 1 (HS-QRRX)
SwVer:
        2.0-2.0
HwVer:
        1-1
ModelName:
        TSD-RRX4-HS-EP
SerialNum:
        25200111
```

logout: Logs the remote user off and close the current CLI session. This command has no effect on the CLI via front panel console port.

status: Displays the status on the system and selected plug-in.

Example #1: In this example, there is no defined system status, it displays the status of the selected plug-in, High Sensitivity Quad Return Receiver.

```
TranScend[slot-1] >status
Slot 1 (HS-QRRX)
ModuleTemp (deg C):
        +19.8
OpticalPowerDbm (dBm):
        [1] -8.0 [2] -8.0 [3] -8.0 [4] -57.9
```

alarm: Displays the alarm status on the system and selected plug-in.

Example #1: In this example, there are two defined system alarms and the alarms of the selected plug-in, High Sensitivity Quad Return Receiver.

```
TranScend[slot-1] >alarm
System
```

PowerAlarm:
Normal
FanAlarm:
Normal
Slot 1 (HS-QRRX)
OpticalPowerAlarm:
[1] MajorLoLo [2] MajorLoLo [3] MajorLoLo [4] MajorLoLo
ModuleTempAlarm:
Normal

DownloadStatus: Displays the status of current or previous download.

Example #1: This example shows the previous download was completed successfully.

TranScend[slot-1] >downloadstatus
Successful

slot: Displays the detected plug-in in each slot.

Example #1: This example shows that the chassis contains an High Sensitivity Quad Return Receiver in slot 1 and slot 2, 3 and 4 are empty.

TranScend[slot-1] >slot
Slot 1 - HS-QRRX
Slot 2 - Empty
Slot 3 - Empty
Slot 4 - Empty

ModuleSupport: Displays the list of supported modules. User shall use this command to determine the compatibility of the chassis and plug in modules. A microprocessor with older version of software may require a software upgrade to support the newer plug in module for remote monitoring and snmp support.

Example #1: This example shows the list of supported module.

TranScend [slot-1] >ModuleSupport
PON-EDFA
QRRX
DeStacker
HS-QRRX
Stacker

ModelName: Displays the model name information of the system.

SerialNum: Displays the model name information of the system.

Network: Displays or set the chassis network configuration.

Example #1: In this example, the system contains the configuration with an IP address: 192.168.1.202, network address mask: 255.255.255.0 and gateways address: 192.168.1.1.

TranScend [slot-1] >network
IpAddr: 192.168.1.202 Mask: 255.255.255.0 Gateway: 192.168.1.1
BdCast: 192.168.1.255 Mac: 00:50:c2:88:10:02

Example #2: In this example, the system is configured with an IP address: 192.168.1.202, network address mask: 255.255.255.0 and gateways address: 192.168.1.1. And the system indicates the command execution as "Successful". Only these network parameters are settable by user.

TranScend [slot-1] >network 192.168.1.202 255.255.255.0 192.168.1.1
Successful

Download: Initiate a remote system software upgrade.

Example #1: In this example, the user "inno" with password "inno" initiated the download request. The download file name is "vmlinux-initrd.img" which is hosted under /tftpboot on the download server at 192.168.1.137.

***NOTE:** the ftp server must be set up prior to a successful download. There is no response returned for this command. To see the download status, user shall use "downloadstatus" command instead.*

TranScend [slot-1] >download inno inno 192.168.1.137 /tftpboot/vmlinux-initrd.img

Reboot: Displays the current reboot state or initiates a system reboot.

Example #1: This example demonstrates a system reboot. The reboot process may a few minutes to complete.
TranScend [slot-1] >reboot now

Date: Displays the current system time.

***NOTE:** TranScend chassis is configured to factory time prior to shipment. It does not make local time adjustment (e.g. daylight saving time) automatically.*

Hostname: Displays or configure the system hostname.

Example #1: In this example, user requested to configure the hostname "InnoTrans". And the system indicates the command execution as "Successful".
TranScend[slot-1] >hostname InnoTrans
Successful

Community: Displays or configures the SNMP community string. Up to three community strings are supported. The system default community string is "public" with read only permission.

Example #1: In this example, user requested to add a community string "inno" with read-write permission. And the system indicates the command execution as "Successful".
TranScend [slot-1] >community add inno rw
Successful

Example #2: In this example, user requested to add a community string name "inno" with read-only permission. And the system indicates the command execution as "Successful".
TranScend [slot-1] >community add inno
Successful

TrapAddr: Displays or configures the SNMP trap destination IP addresses. Up to two trap addresses are supported.

Example #1: In this example, user requested to add a trap destination, 192.168.1.137. And the system indicates the command execution as "Successful".
TranScend [slot-1] >trapaddr add 192.168.1.137
Successful

sysContact: Displays or configures the SNMP system contact information.

Example #1: In this example, user configures the SNMP system contact information as "snmp@inno-trans.com". And the system indicates the command execution as "Successful".

TranScend [slot-1] >sysContact snmp@inno-trans.com
Successful

SysLocation: Displays or configures the SNMP system location information.

Example #1: In this example, user configures the SNMP system location information as "Bldg 10, San Jose, CA". And the system indicates the command execution as "Successful".

TranScend [slot-1] >sysLocation bldg 10, San Jose, CA
Successful

PowerAlarm: Displays the system power brick alarm status.

FanAlarm: Displays the chassis fan alarm status.

8.2.3 Plug-in Commands

The plug-in commands are grouped into two types, commands that are common to all types of plug-in and that are type specific.

8.2.3.1 Common Commands

The commands in this section are common to all types of module.

SwVer: Displays the software version information of the selected plug-in.

HwVer: Displays the hardware version information of the selected plug-in.

8.2.3.2 High Sensitivity Quad Return Receiver

The commands in this section are High Sensitivity Quad Return Receiver specific.

ModuleTemp: Displays the module temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its module temperature reading as 21.4 Centigrade.

TranScend [slot-1] >moduletemp
+21.4 (deg C)

OpticalPowerDbm: Displays the optical receiver power in dBm.

Example #1: In this example, the module in slot 1 reports its optical receiver power reading as -8.0 dBm on channel 1.

TranScend [slot-1] >opticalPowerdbm 1
-8.0 (dBm)

OpticalPowerAlarm: Displays the alarm status of optical receiver power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical receiver power on channel 1 as "MajorLoLo" (e.g. Major alarm with power reading below the low low threshold).

TranScend [slot-1] >opticalpoweralarm 1
MajorLoLo

ModuleTempAlarm: Displays the alarm status of module temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of module temperature as Normal.

TranScend [slot-1] >ModuleTempAlarm
Normal

8.2.3.3 PON EDFA

The commands in this section are PON EDFA specific.

ModuleTemp: Displays the module temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its module temperature reading as 21.4 Centigrade.

TranScend [slot-1] >ModuleTempAlarm
+21.4 (deg C)

LaserTemp: Displays the laser temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its laser temperature reading on channel 1.

TranScend [slot-1] >LaserTemp 1
+23.0 (deg C)

LaserBias: Displays the laser bias reading in mA.

Example #1: In this example, the module in slot 1 reports its laser bias reading on channel 1.

TranScend[slot-1] >LaserBias 1
+0.0 (mA)

OPinPower: Displays the optical input power reading in dBm.

Example #1: In this example, the module in slot 1 reports its optical input power reading.

TranScend [slot-1] >OPinPower
-99.0 (dBm)

OPoutPower: Displays the optical output power reading in dBm.

Example #1: In this example, the module in slot 1 reports its optical output power reading.

TranScend [slot-1] >OPoutPower
-99.0 (dBm)

3V3Power: Displays the on board 3.3 V power reading in Volts.

Example #1: In this example, the module in slot 1 reports its on board 3.3 V power reading.

TranScend [slot-1] >3V3Power
3.0 (V)

LaserTempAlarm: Displays the alarm status of laser temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of laser temperature on channel 1 as "MajorLoLo" (e.g. Major alarm with power reading below the low-low threshold).

TranScend [slot-1] >LaserTempAlarm 1
MajorLoLo

OPinPowerAlarm: Displays the alarm status of optical input power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical input power as "MajorLoLo" (e.g. Major alarm with power reading below the low-low threshold).

TranScend [slot-1] >OPinPowerAlarm 1
MajorLoLo

OPoutPowerAlarm: Displays the alarm status of optical output power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical output power as "MajorLoLo" (e.g. Major alarm with power reading below the low-low threshold).

TranScend [slot-1] >OPoutPowerAlarm 1
MajorLoLo

ModuleTempAlarm: Displays the alarm status of module temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of module temperature as Normal.

TranScend [slot-1] >ModuleTempAlarm
Normal

ShutoffAlarm: Displays the status of pump shutoff state. It's an alarm state when pump is shut off.

Example #1: In this example, the pump of the module in slot 1 is shut off.

TranScend [slot-1] >ShutoffAlarm
Major (Enable)

8.2.3.4 Quad Return Receiver

The commands in this section are Quad Return Receiver specific.

ModuleTemp: Displays the module temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its module temperature reading as 21.4 Centigrade.

TranScend [slot-1] >moduletemp
+21.4 (deg C)

OpticalPowerDbm: Displays the optical receiver power in dBm.

Example #1: In this example, the module in slot 1 reports its optical receiver power reading as -8.0 dBm on channel 1.

TranScend [slot-1] >opticalPowerdbm 1
-8.0 (dBm)

OpticalPowerAlarm: Displays the alarm status of optical receiver power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical receiver power on channel 1 as "MajorLoLo" (e.g. Major alarm with power reading below the low-low threshold).

TranScend [slot-1] >opticalpoweralarm 1
MajorLoLo

ModuleTempAlarm: Displays the alarm status of module temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of module temperature as Normal.

TranScend [slot-1] >ModuleTempAlarm
Normal

8.2.3.5 Destacker

The commands in this section are Destacker specific.

ModuleTemp: Displays the module temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its module temperature reading as 21.4 Centigrade.

TranScend [slot-1] >ModuleTemp
+21.4 (deg C)

GainOffset: Displays the gain offset in steps.

Example #1: In this example, the module in slot 1 reports its gain offset setting as 18 steps on channel 1.

TranScend [slot-1] >GainOffset 1
18 (steps)

OpticalPowerDbm: Displays the optical receiver power in dBm.

Example #1: In this example, the module in slot 1 reports its optical receiver power reading as -8.0 dBm.

TranScend [slot-1] >OpticalPowerdBm
-8.0 (dBm)

RfLevel: Displays the RF level in dB.

Example #1: In this example, the module in slot 1 reports its RF level reading as -0.6 dB.

TranScend[slot-1] >RfLevel
-0.6 (dB)

OpticalPowerAlarm: Displays the alarm status of optical power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical power as "MajorLoLo" (e.g. Major alarm with power reading below the low-low threshold).

TranScend [slot-1] >OpticalPowerAlarm
MajorLoLo

LockAlarm: Displays the alarm status of synthesizer lock. It's an alarm condition when synthesizer loses its lock.

Example #1: In this example, the module in slot 1 reports the alarm status of synthesizer lock as "Major" on channel 1.

TranScend [slot-1] >LockAlarm 1
Major

ModuleTempAlarm: Displays the alarm status of module temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of module temperature as Normal.

TranScend [slot-1] >ModuleTempalarm
Normal

8.2.3.6 Stacker

The commands in this section are Stacker specific.

ModuleTemp: Displays the module temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its module temperature reading as 21.4 Centigrade.

TranScend [slot-1] >ModuleTemp
+21.4 (deg C)

LaserTemp: Displays the laser temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its laser temperature reading on channel 1.

TranScend [slot-1] >LaserTemp 1
+23.0 (deg C)

OpticalPowerDbm: Displays the optical receiver power in dBm.

Example #1: In this example, the module in slot 1 reports its optical receiver power reading as -8.0 dBm.

TranScend [slot-1] >OpticalPowerdBm

-8.0 (dBm)

RfLevel: Displays the RF level in dB.

Example #1: In this example, the module in slot 1 reports its RF level reading as -0.6 dB.

TranScend [slot-1] >RfLevel

-0.6 (dB)

LaserTempAlarm: Displays the alarm status of laser temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of laser temperature as "MajorLoLo" (e.g. Major alarm with power reading below the low low threshold).

TranScend [slot-1] >LaserTempAlarm

MajorLoLo

OpticalPowerAlarm: Displays the alarm status of optical power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical power as "MajorLoLo" (e.g. Major alarm with power reading below the low-low threshold).

TranScend [slot-1] >OpticalpPowerAlarm

MajorLoLo

LockAlarm: Displays the alarm status of synthesizer lock. It's an alarm condition when synthesizer loses its lock.

Example #1: In this example, the module in slot 1 reports the alarm status of synthesizer lock as "Major" on channel 1.

TranScend [slot-1] >LockAlarm 1

Major

ModuleTempAlarm: Displays the alarm status of module temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of module temperature as Normal.

TranScend [slot-1] >ModuleTempalarm

Normal

8.2.3.7 Optical Switch

The commands in this section are Optical Switch specific.

ModuleTemp: Displays the module temperature reading in Centigrade.

Example #1: In this example, the module in slot 1 reports its module temperature reading as 21.4 Centigrade.

TranScend [slot-1] >ModuleTemp

+21.4 (deg C)

OPinPower: Displays the optical input power reading in dBm.

Example #1: In this example, the module in slot 1 reports its optical input power reading on input #1 (p.s. primary optical input).

TranScend [slot-1] >OPinPwer 1

+3.0 (dBm)

Switch: Displays the optical switch position.

Example #1: In this example, the module in slot 1 reports its optical switch position as on primary input.

TranScend [slot-1] >switch

primary

OPinPowerAlarm: Displays the alarm status of optical input power.

Example #1: In this example, the module in slot 1 reports the alarm status of optical input #1 power as "MajorLoLo" (e.g. Major alarm with power reading below the low low threshold).

TranScend [slot-1] >OPinPowerAlarm 1

MajorLoLo

SwitchAlarm: Displays the alarm status of optical switch. This alarm is raised if switch is in faulty state.

Example #1: In this example, the module in slot 1 reports the alarm status of optical switch as "Normal".

TranScend [slot-1] >switchAlarm

Normal

ModuleTempAlarm: Displays the alarm status of module temperature.

Example #1: In this example, the module in slot 1 reports the alarm status of module temperature as Normal.

TranScend [slot-1] >ModuleTempalarm

Normal

8.3 Remote Management

The system is shipped with the CLI as its primary interface via the serial console. User can manage the system without a network connection. However, it also provides the remote management ability over its CLI via telnet. To configure the system for remote CLI, user needs to configure the network information using its network command via serial console. There is a default factory network setting, however, this setting should always be ignored since it's unlikely to match user's network environment. As an example, to set the customer's network configuration:

network 192.168.1.200 255.255.255.0 192.168.1.1

The first argument required is the box static IP address, the second is the netmask, and the third is the gateway. All three parts are required for proper network connection.

Once configured, and connected with a network cable, the user may login via a telnet session. The login credential is:

username "inno"

password "inno".

NOTE: *It is also recommended to set-up the date when you first receive the unit.*

The following example sets up the system time to start on Dec 22 2007 17:38:00 (5pm 38 minutes and 00 seconds). Note the time displayed is in UTC.

date 12/22/2007 17:38:00

8.4 Alarm Contacts

The TranScend chassis provides a rear panel alarm contact through a DB-9 connector. The general philosophy of the alarm follows the following protocol explained in the next paragraph.

The following events are reported via alarm contacts:

1. Loss of optical power from any of the lasers.
2. Deviation of the operating temperatures in any of the Lasers.

3. Over or under-modulation by the RF signal on the any of the lasers.

The default state of the alarm contacts is normally open between a defined set of pins. Depending on which condition occurs, specific alarm contacts are closed. Alarms are classified as Minor, Major and Critical. Minor alarms indicate parameters falling outside the nominal range and may not indicate a serious condition, and are visually indicated by an AMBER LED. The contact between pins 9 and 7 becomes closed under this condition. Major alarms, indicate parameters significantly outside of the nominal range, and are accompanied by a RED LED, and pins 1 and 3 will then be closed. A Critical failure indicates a very severe condition that threatens the operation of the unit, and is accompanied by the closing of pins 5 and 6.

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MAINTENANCE & REPAIR

9. Maintenance & Repair

No Maintenance is required on the TranScend chassis or the plug-in modules. No repair is possible in the field. The product is designed for years of trouble free and maintenance free operation. Please contact ATX (see Service & Support section) for any questions or clarification about the performance or monitoring aspects of the product. Thank you for using ATX products, your satisfaction is our primary goal.

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SNMP ENTERPRISE ATTRIBUTES

10. SNMP Enterprise Attributes

For a list of all the TranScend chassis SNMP Enterprise MIB attributes, see the TranScend Chassis Operation Manual.

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SERVICE & SUPPORT

11. Service & Support

11.1 Contact ATX Networks

Please contact ATX Technical Support for assistance with any ATX products.

TECHNICAL SUPPORT

Tel: 289.204.7800 – press 1
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only
Email: support@atx.com

SALES ASSISTANCE

Tel: 289.204.7800 – press 2
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only
Email: insidesales@atx.com

FOR HELP WITH AN EXISTING ORDER

Tel: 289.204.7800 – press 3
Toll-Free: 866.YOUR.ATX (866.968.7289) USA & Canada only
Email: orders@atx.com
Web: www.atx.com

11.2 Warranty Information

All of ATX Networks' products have a 1-year warranty that covers manufacturer's defects or failures.

ISO
9001:15
REGISTERED

Rev. 02/120 (ANW1227)

ATX Networks
Tel: 289.204.7800 | Toll-Free: 866.YOUR.ATX (866.968.7289) | support@atx.com