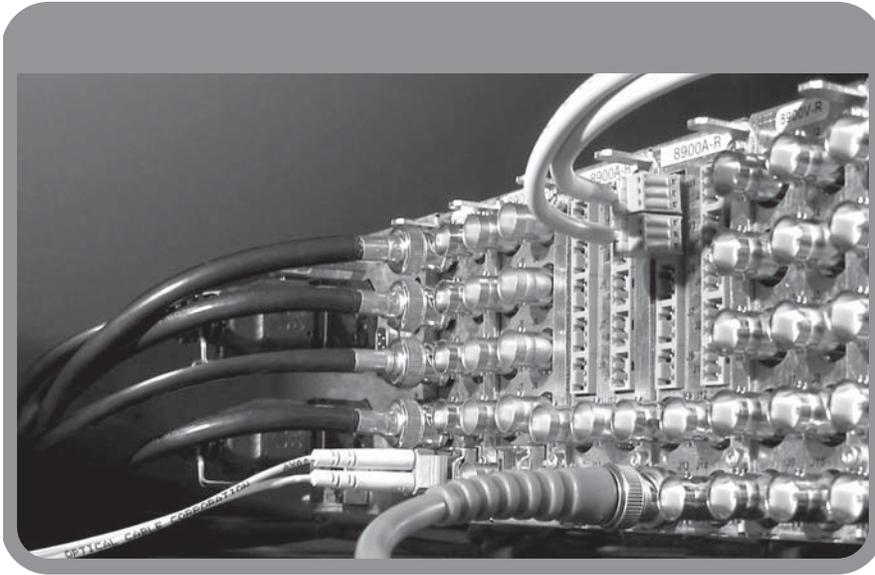


8972PX

HD/SD/ASI PROTECTION SWITCH



Instruction Manual

Software Version 1.1.1



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8972PX

HD/SD/ASI PROTECTION SWITCH

Instruction Manual

Software Version 1.1.1

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Preface

About This Manual

This manual describes the features of the 8972PX module and the corresponding rear module in the 8900 GeckoFlex frame. As part of this family of modular products, it is subject to the Safety and Regulatory Compliance information described in the *GeckoFlex Frames 8900FX/FF/FFN Signal Processing System Instruction Manual*.

All Modular product manuals can be found on-line in PDF format at this link:

www.grassvalley.com/docs/modular

8972PX HD/SD/DVB ASI Protection Switch Module

Introduction

This manual covers installation, configuration, and operation of the 8972PX HD/SD/DVB ASI Protection Switch module for the GeckoFlex frame.

The 8972PX module is a signal protection switch designed to maintain a continuous Program video output. Two relay-protected input signals, called the Primary and the Secondary, are part of a changeover switch that continuously feeds the Program Output with a good signal. In addition, an Alternate input signal (not relay-protected) can be enabled to provide another backup candidate signal if desired. The module accepts HD/SD-SDI, or DVB ASI video signals.

The switching of the input signal to maintain a continuous protected Program Output can be manually controlled by the user with various manual switching controls, including an external GPI interface. The module can also be set in user configuration to switch autonomously by the module according to the status of defined signal criteria. When switching is controlled autonomously by the module, it will automatically switch the Program Output to the next valid backup candidate depending on whether the user favors to maintain the Primary input or maintain stability of the Program Output signal.

The module can maintain the Program Output even in the event of a power failure or when the front module is completely removed from the frame. This is done by the presence of relay-controlled passive bypass circuitry on the rear module that latches the relay-protected Primary or Secondary input signal to the Relay-Protected Program Output BNC.

The 8972PX can be used in play-out and transmission applications where switching between main and redundant paths is required. Another useful application is for switching between alternate inputs (Please Stand By apology slides for example) when the primary and secondary have both failed.

The main features of this module are summarized below:

- Two module set including a hot-swappable front and dual rear module.
- Two relay-protected changeover input signals, the Primary and the Secondary, continuously feed a relay-protected Program output,
- An Alternate input is also available as a backup candidate.
- Passive Bypass Only mode to maintain signal path in the event of power failure and for maintenance purposes.
- Eight outputs, including:
 - One main relay-protected output with passive bypass feature.
 - One electronic output that follows the main input.
 - Three output pairs that can be user-configured to follow one of five choices: Program, Backup Candidate, Primary Input, Secondary Input, or Alternate Input inputs.
- Manual switching controls including a GPI interface, web pages, Newton Control Panel, front edge pushbuttons, and SNMP commands,
- An Autonomous mode that can be set in module configuration to switch the input to the Program Output based on signal health status (**Good** or **Not Good**) of the HD, SD or DVB ASI signal inputs.
- Module configuration can be done with the web pages or using the Newton Control Panel.
- Autonomous module control can be overridden by using any manual switching control.
- SNMP health monitoring is supported through the 8900NET module with applications such as NetCentral.
- Software updating using NetConfig or an microSD card.

System Requirements

8972PX module operation requires the presence of an 8900NET Network Interface module in a GeckoFlex frame running software version 4.2.0 or later for configuration. The latest version is recommended. Check the software version of your 8900NET (Net Card) Network Interface module by navigating to the Frame Status web page (see [Figure 17 on page 45](#) for an example) and noting the software version given below the frame graphic.

The latest 8900NET module software as of this printing is version 4.3.0 and can be downloaded free of charge directly from the Grass Valley ftp site at this location:

<ftp://ftp.grassvalley.com/modular/8900/8900net/>

Configuration Summary

This section of the manual gives a summary of the available switching strategies, how they are configured, and how the module can be manually controlled by the user.

The input selection to the Program Output can be switched using manual switching controls at any time by the user or set to switch automatically by the module's own autonomous switching strategy mechanism based on the signal health status of the Primary, Secondary, and (if enabled for use in autonomous mode), the Alternate input, as determined by the module.

The manual switching controls include the GPI interface, the web page controls, the Newton Control Panel, the hardware pushbutton switches on the front edge of the module circuit board, and the SNMP commands. Refer to [Manual Switching Controls on page 13](#) for a complete overview of the manual switching controls.

When the module is set to operate in an autonomous mode (under control of the module), the type of switching is selected in configuration as one of two switching strategies:

- **Maintain Stability** – using this strategy, the autonomous control favors stability on the Program Output and it keeps either the Primary or Secondary input as the Program output as long as their signals remain good.
- **Maintain Primary** – using this strategy, the autonomous control favors maintaining the Primary input as the Program Output. If the module has detected the Primary as not good, it switches to the Secondary. The module switches back to the Primary input whenever the Primary is detected as good. The amount of time before the Primary switches back after being detected as good (Switchback Delay) can be set by the user.

For an overview of the Autonomous mode of operation, refer to [Autonomous Mode on page 16](#).

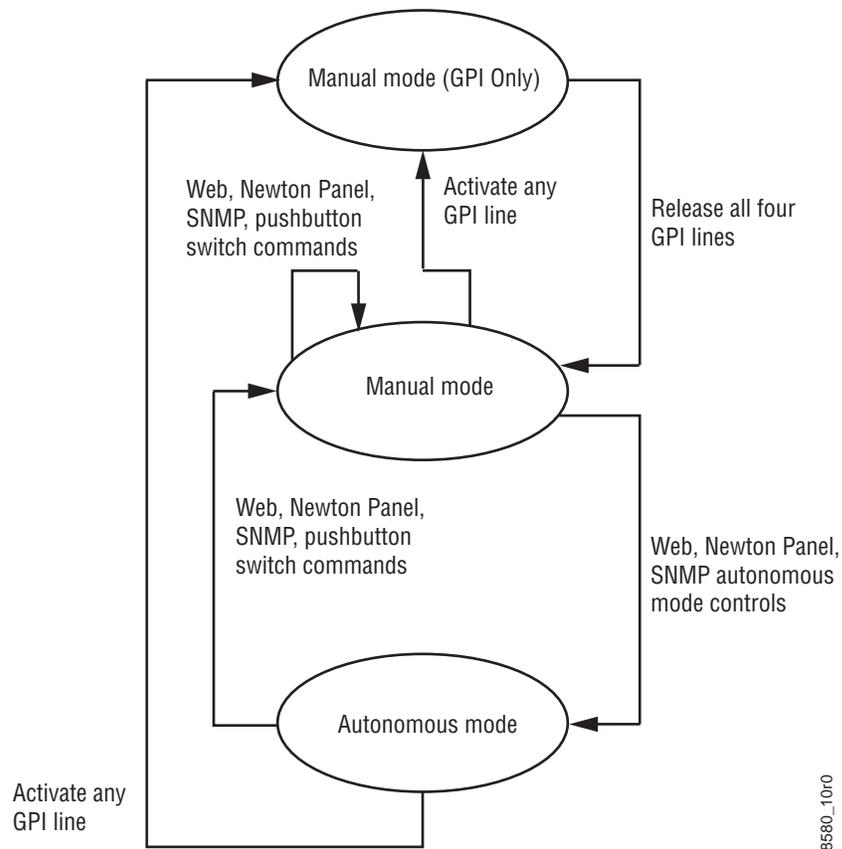
The current Program Output set by the module while in Autonomous mode can be overridden at any time by the user with a manual switching control. When this occurs, the switching mode of the module changes to **Manual**. To put the module back into the Autonomous switching mode (Maintain Primary or Maintain Stability), the user must configure this setting using the remote controls (Output Control web page, the Newton Control Panel, or the SNMP get/set commands).

An understanding of the switching override priorities can be helpful in using the 8972PX module. As shown in [Figure 1](#), the GPI interface will have highest priority over other manual switching controls and the autonomous control modes.

Activating the GPI interface by making contact closure with the Switch to Primary, Switch to Secondary, or Switch to Alternate GPI lines will force the Program Output to the selected choice. When this GPI line is de-activated, the module is left in Manual mode and the Program Output can be switched using any of the manual switching controls or the module can be set to Autonomous mode using the Output Control web page, the Newton Control Panel, or the SNMP get/set controls.

Note When the GPI Exclusive Control is activated by contact closure, only the GPI switch controls (Switch to Primary, Switch to Secondary, or Switch to Alternate) can be used to change the input choice to the Program Output, leaving the module in Manual mode. Once all GPI closures are de-activated, the module can be controlled using any manual switch controls or be configured for autonomous control.

Figure 1. Switching Control Priorities



Manual Switching Controls

The following manual switching controls are described in detail in this section:

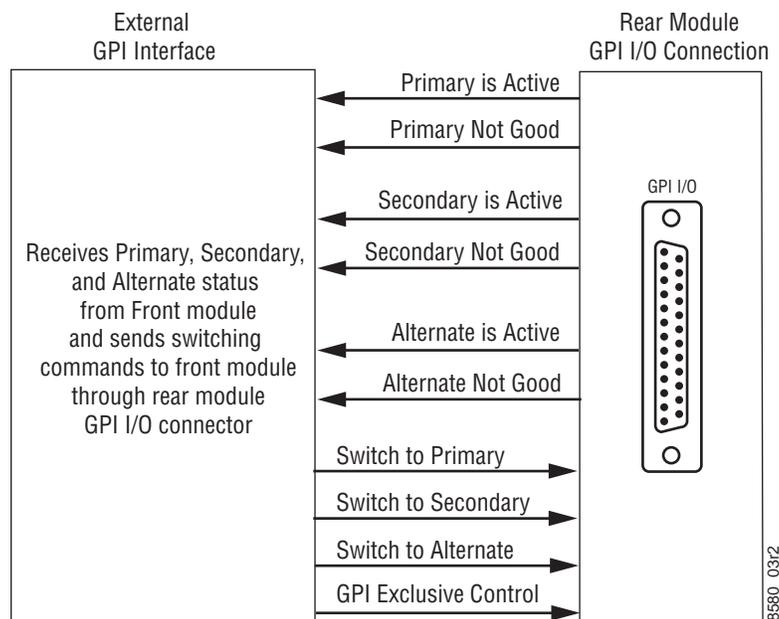
- GPI Program Output Control and Monitoring
- Web Page Control ([page 14](#))
- Newton Control Panel ([page 14](#))
- SNMP Get/Set Commands ([page 14](#))
- Front Edge Pushbutton Controls ([page 15](#))

GPI Program Output Controls and Monitoring

The Program Output selection can be controlled through the SubD-25 GPI I/O connection mounted on the rear module when wired to an external customer-supplied GPI control device. Switching is activated by contact closure. The GPI controls work directly on the front module to select the Program Output. Primary, Secondary, and Alternate input signal status can also be reported to the GPI interface through tally connections.

The four switching control lines from the customer-supplied device and the six input status reporting lines from the front module are shown in [Figure 2](#).

Figure 2. GPI Interface



When the GPI Exclusive Control line is activated by contact closure, only the Switch to Primary, Switch to Secondary, or Switch to Alternate GPI control lines can be used to change the designated input selection (by contact closure). The Program Output selection will be under control of the GPI Switch commands until the GPI Exclusive Control is de-activated leaving the module in Manual mode. At this point, the user may use another manual switching control to change the input to the Program Output or set the module to an Autonomous switching strategy.

It is not necessary to activate the GPI Exclusive Control to drive the module with a GPI control. Any one of the three GPI controls (Switch to Primary, Switch to Secondary, or Switch to Alternate) can be activated independently by contact closure forcing the Program Output to the designated input. This also switches the module to Manual mode. The selection of the Program Output will remain under GPI control only as long as one of these three GPI controls is activated (by a contact closure).

While the Program Output selection is under GPI control, the web pages will display a message stating **The GPI is controlling the Program Output Selection** (see [Figure 27 on page 64](#)). Once GPI control is removed (no contact closure on any of the four GPI controls), the module is in Manual mode. The user can then control the module with any of the manual switching controls (see [Manual Switching Controls on page 13](#)) or set the module to an Autonomous switch mode (Maintain Primary or Maintain Stability).

Web Page Control

The Program Output can be forced manually using the Output Control web page ([page 62](#)) by selecting the **Force Primary**, **Force Secondary**, or **Force Alternate** buttons in the Program Output Selection section. This will change the Switching Strategy Switch mode to the **Manual** radio button on this web page.

Newton Control Panel

The Newton Control Panel command **PrgOutput** allows manual selection of the Primary, Secondary, or Alternate output and forces the Program output to this selection. For a summary of all Newton Control Panel parameters, refer to the *Summary of 8972PX Configuration Functions* [on page 83](#).

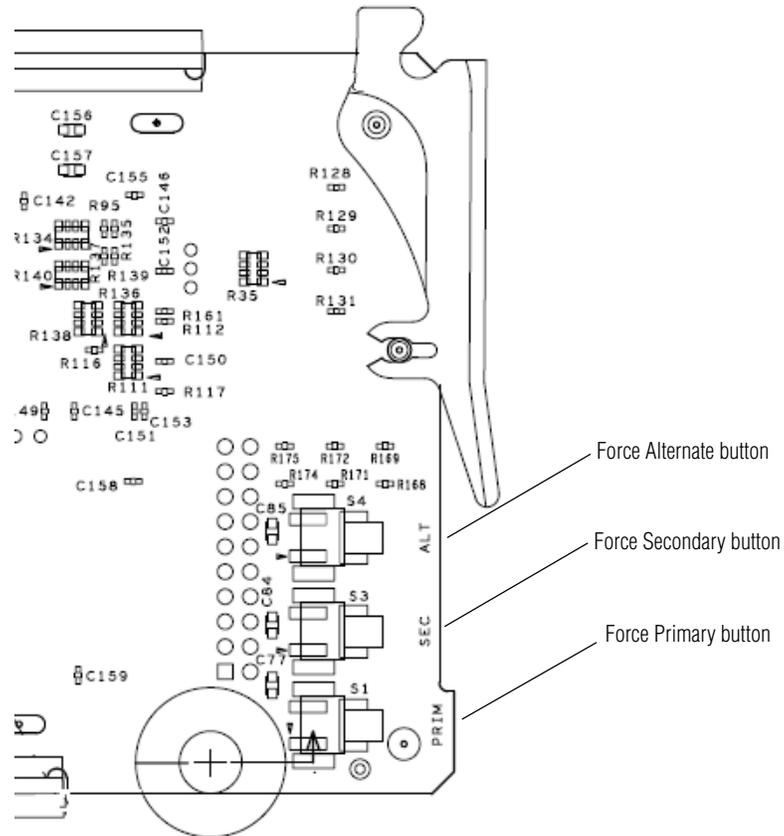
SNMP Commands

In addition to the standard 8900 module SNMP monitoring reporting, the 8972PX module allows two get/set commands to manually manage the input selection (Input Select) and module mode of operation (Switchback Strategy) through the SNMP interface. Refer to [Using Additional SNMP Commands on page 80](#) for details.

Front Edge Pushbutton Controls

On the back of the front edge of the module circuit board (Figure 3) are three pushbuttons labeled **Prim** (S1), **Sec** (3), and **Alt** (S4) that will manually force the Program output to Primary, Secondary, or Alternate when activated. Hold the button for at least 3 seconds for the change to take effect.

Figure 3. Front Edge Controls Manual Force Buttons



Autonomous Mode

When the module Switching Strategy is set for an autonomous mode, the module automatically determines signal status based on enabled signal health criteria as interpreted by the module for the three video inputs, Primary, Secondary, and Alternate (when selected for usage in Autonomous mode on the System Config web page). Refer to the block diagram in [Figure 4 on page 19](#) for an overview of the Autonomous mode.

There are two switching strategies in the Autonomous mode: Maintain Stability and Maintain Primary. One of these must be selected as the Switch Mode for use in the Autonomous mode using one of the remote controls (Output Control web page, Newton Control Panel, or SNMP get/set commands).

- **Maintain Stability Mode** – in situations where signal stability on the program Output is most important, select this mode. When the Primary has failed and has switched to the Secondary, it will stay on the selected Secondary until forced back to the Primary manually or the Secondary fails. This mode provides the least amount of signal interruption (the most signal stability).
- **Maintain Primary Mode** – in situations where it is favored to have the Primary input active as much as possible, select this mode. When the Primary has failed and has switched to the backup candidate, when the Primary has recovered, the module automatically returns the Primary to the Program Output. The switchback to the Primary can be set to a delay to allow the restored signal to establish itself after recovery. The amount of Program Switchback Delay is set by the user on the Output Control web page or using the Newton Control Panel.

Signal Health Criteria

Signal health status for the three input signals is determined by certain criteria analyzed by the module. The 8972PX handles HD/SD SDI video signals or DVB ASI signals and uses different criteria to determine signal health status. The status of the module inputs (when **Reporting** is enabled on the I/O Config web page for each input signal) is given on every web page in the header area at the top of the page and also reported on the Newton Control Panel and can be read from the GPI interface.

The input format to the module can be selected as **Auto** allowing all of the signal standards in the Input Standard Selection pulldown (on the [System Config Web Page on page 55](#)) to be considered valid by the module for any input. If only a single standard is selected as the input format, only that standard will be considered valid for any input to the module.

HD/SD Criteria

When the input signal is HD or SD SDI video, the signal health status is based on the following criteria as analyzed by the module. These criteria are always enabled and the module will determine module health by checking each item below.

The signal is considered **Good** when:

- Carrier Detect – a valid carrier is detected on the input,
- Serial Lock – the serial receiver is locked to a SMPTE compliant data stream,
- Valid Format – the input signal matches the selected input selection,
- SMPTE Presence – no instability has been detected for a valid format, and
- No SMPTE TRS Errors – no TRS (Timing Reference Signal) errors have been detected.

If any one of these criteria are incorrect for the input type selected, the signal will be reported as **Not Good**. When this happens, the following cases occur depending on the Switching Strategy Switch Mode selected in configuration:

- If the Switchback Strategy Switch Mode is set for **Maintain Primary**, the module will switch the Program Output immediately to the Backup Candidate. It will return the Primary input to the Program Output as soon as the Primary input becomes good again in the time set with the Switchback Delay control on the Output Control web page or with the Newton Control Panel.
- If the Switchback Strategy Switch Mode is set for **Maintain Stability**, when the Primary input is detected as **Not Good**, the module will switch the Program Output immediately to the next valid Backup Candidate and remain there until the user decides to manually override the selection to return the Primary input to the Program output or the Backup Candidate fails.

An optional criteria category to check for EDH/CRC errors can be enabled by checking the EDH/CRC **Enable** checkbox.

The error detection process is done independently on each input channel for both SMPTE 292M and SMPTE 259M. The error threshold (number and total of fields allowed before the signal is considered not good) can be selected with the controls provided.

DVB ASI Criteria

When the input signal is DVB ASI, the signal health status is based on the criteria described below as determined by the module. These criteria are always enabled and the module will determine module health by checking each item below.

The signal is considered **Good** when:

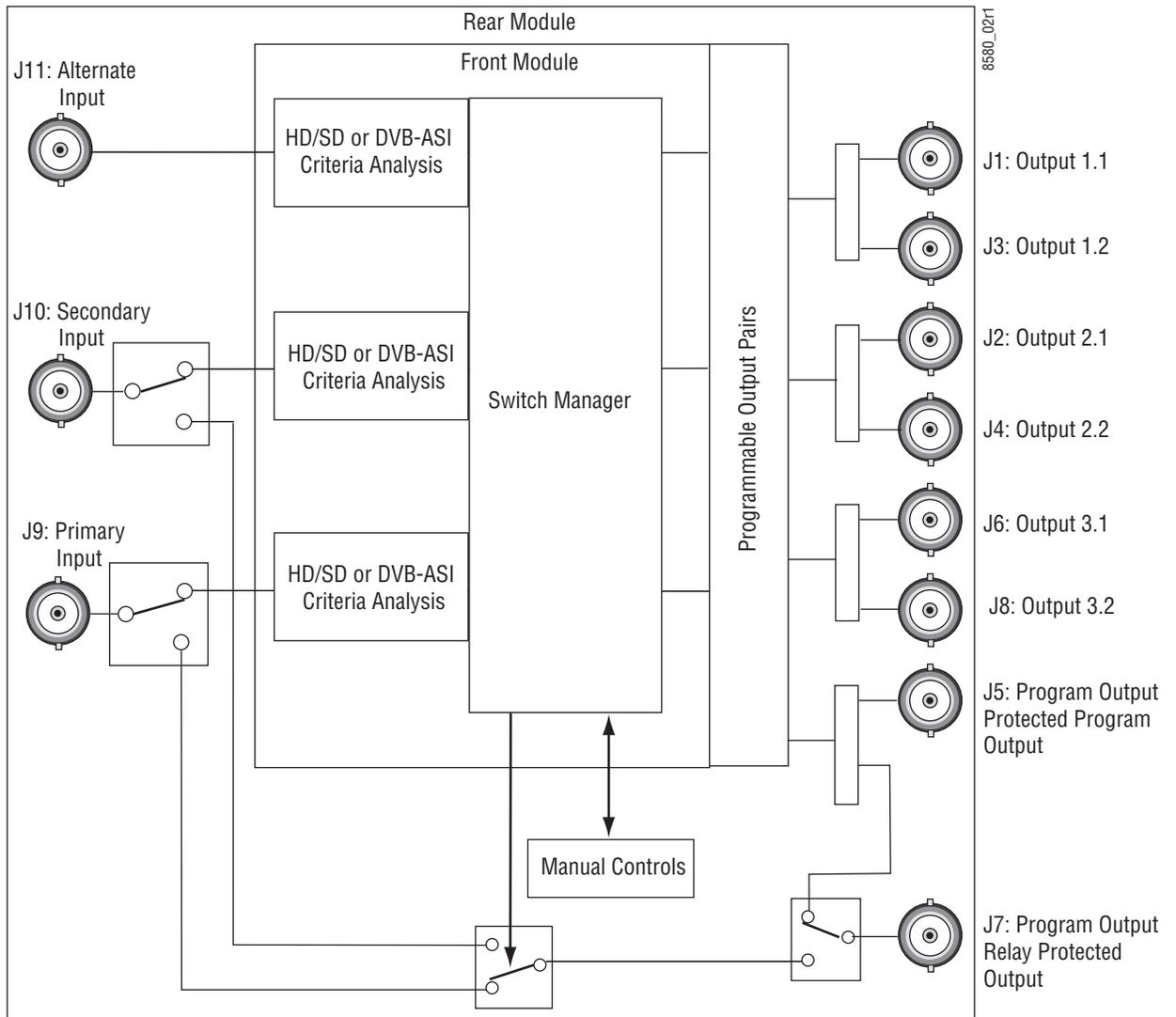
- Carrier Detect – a valid carrier is detected on the input,
- Serial Lock – the serial receiver is locked to a DVB ASI compliant data stream,
- Valid Format – the input signal matches the selected input selection, and
- MPEG2 TS Lock – the input signal is locked to the synchronization byte of the MPEG packets.

If any one of the criteria are incorrect for the input type selected, the signal will be reported as **Not Good**. Switchback Strategy Switch Mode selection is the same as the HD/SD SDI video signals explained in [HD/SD Criteria on page 17](#).

On each input link, the bit rate of packets is evaluated on up to 4 user-defined PIDs (the minimum bit rate detected is one packet per second or 1.5 kbps). A PID is seen as not present as soon as there is no packet within one second. It is recommended to choose PIDs whose bit rate is at least 4.5 kbps to avoid an unexpected switch of the input if packets are not evenly spaced on the transport stream. Primary and Secondary inputs share the same PIDs. The Alternate input can have 4 independent dedicated PIDs.

For setting the PIDs, see [DVB/ASI Criteria Web Page on page 60](#). Presence and Continuity Error reporting criteria can also be enabled as desired for each PID stream.

Figure 4. Autonomous Mode Block Diagram



Switching Summary Tables

To aid in understanding the detailed processing behavior in the various states of the module inputs, a number of switching summary tables are provided in the next section. Use these tables along with the following three basic rules for autonomous switching of inputs to the Program output to better understand processing behavior:

1. The module always selects the Primary or Secondary inputs (when valid) over the Alternate input.
2. In the Maintain Primary autonomous mode, the module always selects the Primary input when it is valid.
3. In the Maintain Stability autonomous mode, the module always selects the valid input that reduces the amount of switching. If it switches from the Primary to the Secondary, it will leave the Secondary as the Program output until the Secondary fails.

[Table 1](#) through [Table 5](#) present a detailed description of the next Program output/Backup Candidate state by giving each possible case for the current state of the Program output and the Backup Candidate using the Primary, Secondary, and Alternate inputs and other configuration factors.

[Table 1](#) through [Table 5](#) include the following:

- Program = Primary/Backup = Secondary [Table 1 on page 22](#)
- Program = Secondary/Backup = Primary [Table 2 on page 22](#)
- Program = Alternate/Backup = Primary [Table 3 on page 23](#)
- Program = Primary/Backup = Alternate [Table 4 on page 23](#)
- Program = Secondary/Backup = Alternate [Table 5 on page 24](#)

[Table 6 on page 25](#) provides a graphical summary of the various states of the Program Output. Refer to the explanation of this table in [Protect Switch Summary Table on page 24](#).

Next State Program/Backup Tables

Table 1 through Table 5 are arranged from left to right to with the items listed below. Abbreviations for the input signals are: Primary (PRI), Secondary (SEC) and Alternate (ALT).

- Current Program – lists the input currently on the Program Output.
- Current Backup – lists the Backup Candidate that will replace the current input on the Program Output if it fails.
- Alternate Enabled – indicates **Yes** when the Alternate input is enabled for use in Autonomous mode and **No** when it is not enabled.
- Maintain Primary – indicates **Yes** if Maintain Primary is enabled as the Autonomous mode, **No** if Maintain Stability is enabled, or **N/A** if the mode does not matter.
- Primary Status – the status of the Primary input is **Good**, **Fail**, or **N/A** if the mode does not matter.
- Secondary Status – the status of the Secondary input is **Good**, **Fail**, or **N/A** if the mode does not matter.
- Alternate Status – the status of the Alternate is **Good**, **Fail**, or **N/A** if the mode does not matter.
- Action of Program Output/Backup – shows the switch action of the Program output and the Backup Candidate.
- Next Program/Next Backup Candidate – summarizes what the next Program output will be and the next Backup Candidate using the input signal abbreviations.

Table 1. Program = Primary/Backup = Secondary

Current Program	Current Backup	Alternate Enabled	Maintain Primary	Primary Status	Secondary Status	Alternate Status	Action of Program Output/ Backup Candidate	Next Program/ Next Backup
PRI	SEC	No	N/A	Good	N/A	N/A	No Action	PRI_SEC
				Fail	Good	N/A	Switch_SEC, Switch_PRI	SEC_PRI
				Fail	Fail	N/A	No Action	PRI_SEC
PRI	SEC	Yes	N/A	Good	Good	N/A	No Action	PRI_SEC
				Good	Fail	Good	Stay_PRI, Switch_ALT	PRI_ALT
				Good	Fail	Fail	No Action	PRI_SEC
				Fail	Good	Good	Switch_SEC, Switch_ALT	SEC_ALT
				Fail	Good	Fail	Switch_SEC, Switch_PRI	SEC_PRI
				Fail	Fail	Good	Switch_ALT, Switch_PRI	ALT_PRI
				Fail	Fail	Fail	No Action	PRI_SEC

Table 2. Program = Secondary/Backup = Primary

Current Program	Current Backup	Alternate Enabled	Maintain Primary	Primary Status	Secondary Status	Alternate Status	Action of Program Output/ Backup Candidate	Next Program/ Next Backup
SEC	PRI	No	No	Good	Good	N/A	No Action	SEC_PRI
					Fail	N/A	Switch_PRI, Switch_SEC	PRI_SEC
			Yes	Good	N/A	N/A	Switch_PRI, Switch_SEC	PRI_SEC
				N/A	Fail	N/A	N/A	No Action
SEC	PRI	Yes	No	Good	Good	N/A	No Action	SEC_PRI
					Fail	Good	Switch_PRI, Switch_ALT	PRI_ALT
					Fail	Fail	Switch_PRI, Switch_SEC	PRI_SEC
			Yes	Good	Good	N/A	Switch_PRI, Switch_SEC	PRI_SEC
					Fail	Good	Switch_PRI, Switch_ALT	PRI_ALT
					Fail	Fail	Switch_PRI, Switch_SEC	PRI_SEC
			N/A	Fail	Good	Good	Stay_SEC, Switch_ALT	SEC_ALT
					Good	Fail	No Action	SEC_PRI
					Fail	Good	Switch_ALT, Switch_PRI	ALT_PRI
					Fail	Fail	No Action	SEC_PRI

Table 3. Program = Alternate/Backup = Primary

Current Program	Current Backup	Alternate Enabled	Maintain Primary	Primary Status	Secondary Status	Alternate Status	Action of Program Output/ Backup Candidate	Next Program/ Next Backup
ALT	PRI	No	N/A	Good	N/A	N/A	Switch_PRI, Switch_SEC	PRI_SEC
				Fail	Good	N/A	Switch_SEC, Switch_PRI	SEC_PRI
				Fail	Fail	N/A	Switch_PRI, Switch_SEC	PRI_SEC
ALT	PRI	Yes	N/A	Good	Good	N/A	Switch_PRI, Switch_SEC	PRI_SEC
				Good	Fail	Good	Switch_PRI, Switch_ALT	PRI_ALT
				Good	Fail	Fail	Switch_PRI, Switch_SEC	PRI_SEC
				Fail	Good	Good	Switch_SEC, Switch_ALT	SEC_ALT
				Fail	Good	Fail	Switch_SEC, Switch_PRI	SEC_PRI
				Fail	Fail	Good	No Action	ALT_PRI
				Fail	Fail	Fail	Switch_PRI, Switch_SEC	PRI_SEC

Table 4. Program = Primary/Backup = Alternate

Current Program	Current Backup	Alternate Enabled	Maintain Primary	Primary Status	Secondary Status	Alternate Status	Action of Program Output/ Backup Candidate	Next Program/ Next Backup
PRI	ALT	No	N/A	Good	N/A	N/A	Switch_PRI, Switch_SEC	PRI_SEC
				Fail	Good	N/A	Switch_SEC, Switch_PRI	SEC_PRI
				Fail	Fail	N/A	Switch_PRI, Switch_SEC	PRI_SEC
PRI	ALT	Yes	N/A	Good	Good	N/A	Stay_PRI, Switch_SEC	PRI_SEC
				Good	Fail	Good	No Action	PRI_ALT
				Good	Fail	Fail	Stay_PRI, Switch_SEC	PRI_SEC
				Fail	Good	Good	Switch_SEC, Stay_ALT	SEC_ALT
				Fail	Good	Fail	Switch_SEC, Switch_PRI	SEC_PRI
				Fail	Fail	Good	Switch_ALT, Switch_PRI	ALT_PRI
				Fail	Fail	Fail	Stay_PRI, Switch_SEC	PRI_SEC

Table 5. Current State SEC_ALT

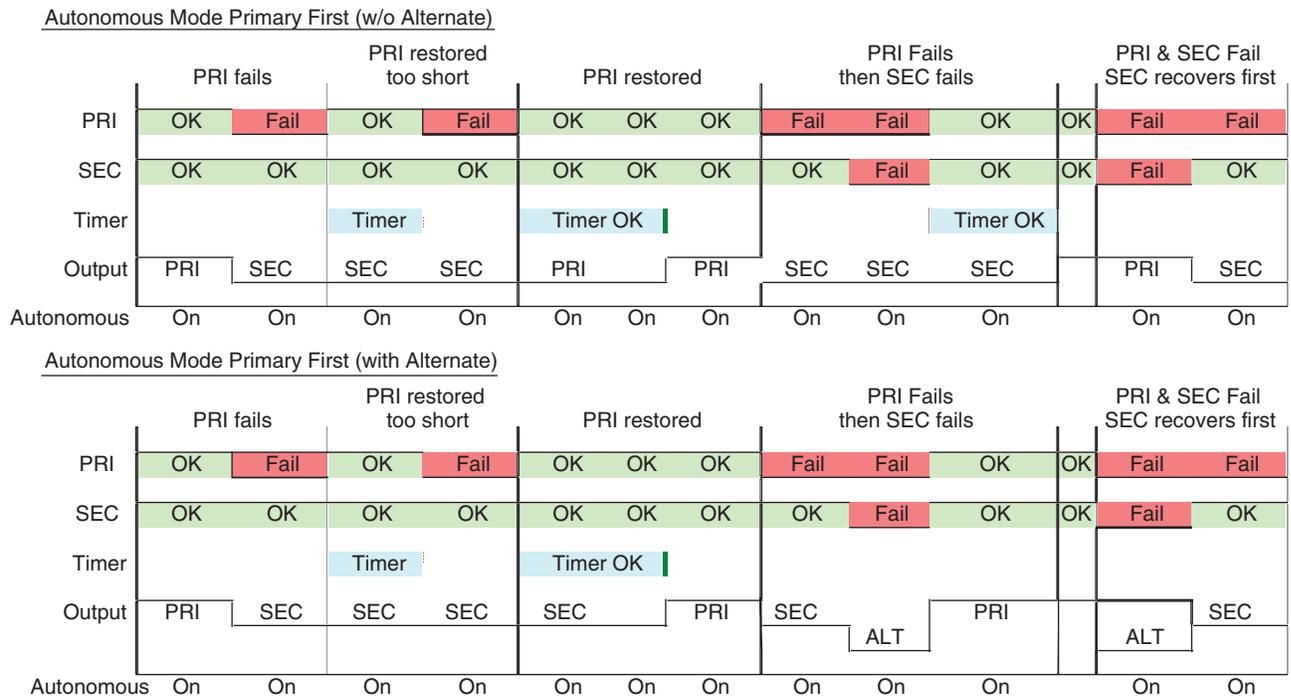
Current Program	Current Backup	Alternate Enabled	Maintain Primary	Primary Status	Secondary Status	Alternate Status	Action of Program Output/ Backup Candidate	Next Program/ Next Backup
SEC	ALT	No	No	Good	Good	N/A	Stay_SEC, Switch_PRI	SEC_PRI
					Fail	N/A	Switch_PRI, Switch_SEC	PRI_SEC
			Yes	Good	N/A	N/A	Switch_PRI, Switch_SEC	PRI_SEC
			N/A	Fail	N/A	N/A	Stay_SEC, Switch_PRI	SEC_PRI
SEC	ALT	Yes	No	Good	Good	N/A	Stay_SEC, Switch_PRI	SEC_PRI
					Fail	Good	Switch_PRI, Stay_ALT	PRI_ALT
					Fail	Fail	Switch_PRI, Switch_SEC	PRI_SEC
					Good	N/A	Switch_PRI, Switch_SEC	PRI_SEC
					Fail	Good	Switch_PRI, Stay_ALT	PRI_ALT
					Fail	Fail	Switch_PRI, Switch_SEC	PRI_SEC
			N/A	Fail	Good	Good	No Action	SEC_ALT
					Good	Fail	Stay_SEC, Switch_PRI	SEC_PRI
					Fail	Good	Switch_ALT, Switch_PRI	ALT_PRI
					Fail	Fail	Stay_SEC, Switch_PRI	SEC_PRI

Protect Switch Summary Table

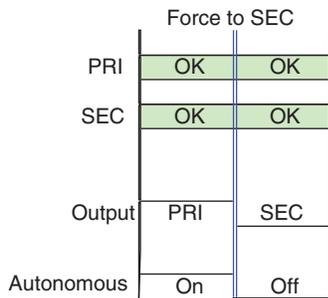
Table 6 on page 25 gives a graphical representation of the Program output in the following states:

- Autonomous Mode Primary First (w/o Alternate) – the top graphic gives the status of the Output (Out) for the most useful/common states of the Primary (PRI), and Secondary (SEC) inputs, including the Timer (Switchback Delay), with the Autonomous mode enabled. The Alternate is not used in this example.
- Autonomous Mode Primary First (with Alternate) – the second graphic gives the status of the Output (Out) for the most useful/common states of the Primary (PRI), Secondary (SEC), and Alternate (ALT) inputs, including the Timer (Switchback Delay), with the Autonomous mode enabled.
- Force Switch to Secondary – this graphic illustrates the state of the output when the Secondary is forced manually to the output. Note that the Autonomous mode switches to Manual. The Autonomous mode must be re-enabled using the Output Control web page, The Newton Control Panel or the SNMP controls.
- Switch to Maintain Primary – this graphic shows the state of the output when the mode is changed from Manual to Autonomous when the Primary is good and when the Primary is bad.

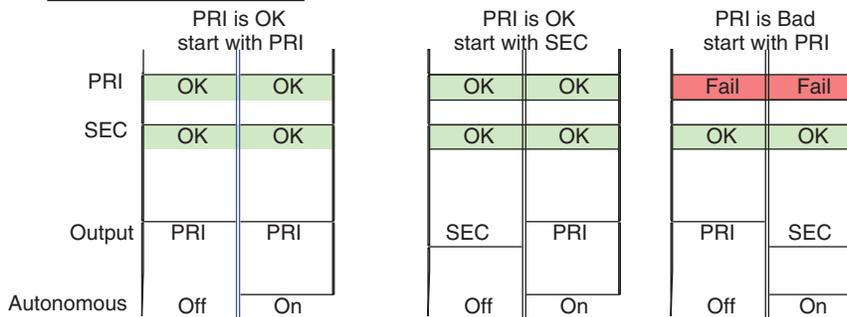
Table 6. Protect Switch Summary Table



Forced Switch to Secondary



Switch to Maintain Primary



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Passive Bypass Only Mode

The Passive Bypass Only mode has two main purposes as described below:

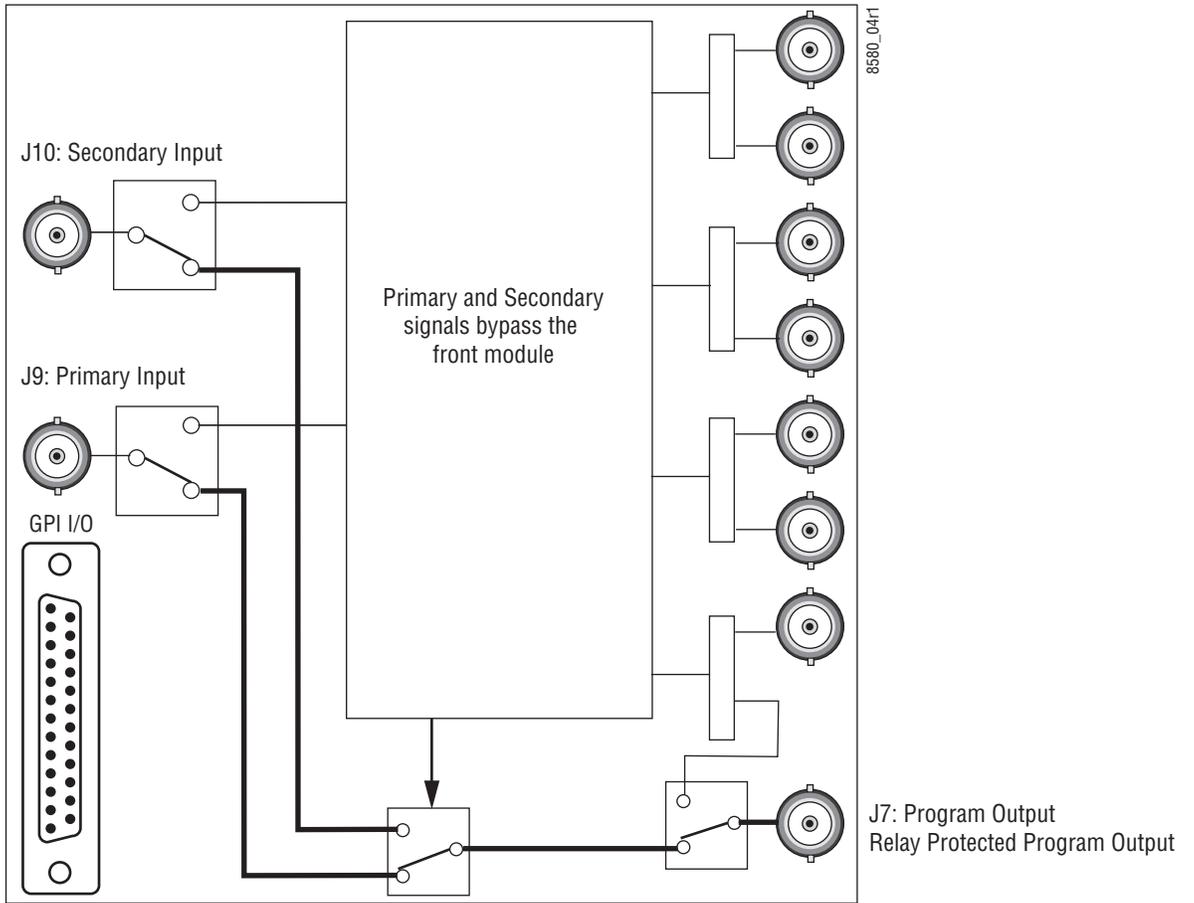
1. During normal operation, the Bypass mode for the module is set for **Active Processing Enabled** on the System Config web page. The module can be set for **Passive Bypass Only** to simulate the relay-protected bypass state that occurs when power is lost or the front module is removed. The **Passive Bypass Only** mode is normally used for maintenance purposes such as cabling or testing the rear module relay bypass path.

When set for **Passive Bypass Only**, the module simulates the bypass state where the Primary and Secondary inputs are switched by relays on the rear module to the Relay-Protected Program Output at BNC, J7 as shown in [Figure 5 on page 27](#). The Primary and Secondary input signals now bypass the front module completely and the Status of the Primary and Secondary inputs on all web page headers are reported as **Bypassed** as shown in the example in ([Figure 22 on page 56](#)). As this mode is only a simulation of removing the front module, putting the module in this mode does not affect the other controls on the front module or the Alternate input.

In this mode, output J7 (Relay-Protected Program Output), remains the input previously selected (except if it was the Alternate input it will be switched to the Primary input). When the module is switched back to **Active Processing Enabled** on the System Config web page, it returns in Manual mode with no change to the Program Output.

2. When power is lost to the frame or the front module is completely removed, the relay-protected Primary and Secondary inputs will automatically be switched to the rear module relay bypass path and the input previously selected will be latched to the output at BNC J7, the Relay-Protected Program Output. The passive bypass path ensures the continuous transmission of the Primary/Secondary input signal to the Relay-Protected Program Output. When power is returned to the frame or the module is reinserted, the module will be in Manual mode with no change to the Program Output.

Figure 5. Module in Passive Bypass Mode



Installation

The 8972PX model consists of a front and dual rear module set that can only be installed in a GeckoFlex frame.

Installation of the 8972PX module set is a process of:

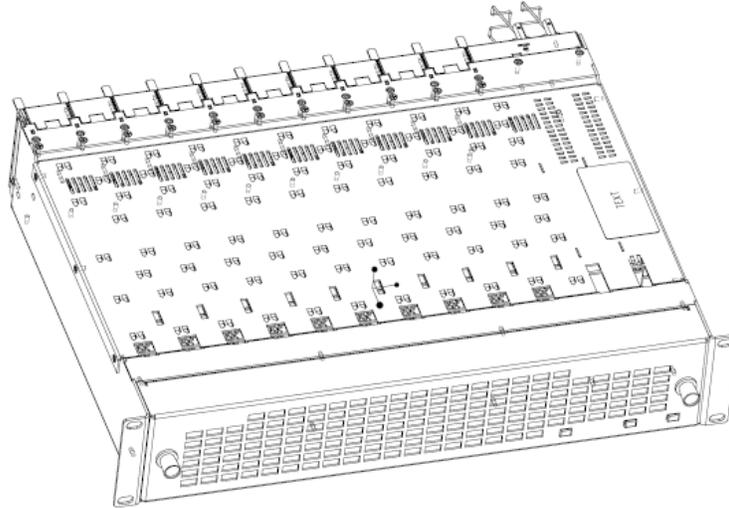
1. Placing the 8900PX-DR dual rear module in a rear frame slot (this rear module requires two adjacent rear slot spaces and cannot be installed in Slot 10),
2. Placing the front module in the corresponding front slot (corresponding to the module connector on the rear module), and
3. Cabling the signal ports.

All GeckoFlex front and rear modules can be inserted and removed from a GeckoFlex frame with power on.

Module Placement in the GeckoFlex Frame

There are ten front and rear cell locations in the 2 RU GeckoFlex frame (Figure 6) to accommodate either audio, analog and digital video modules. The 8972PX module set uses the 8900PX-DR rear module that requires two adjacent slots, allowing up to five 8972PX modules per frame.

Figure 6. GeckoFlex Frame



Module Installation Precautions

Please read and follow the precautions listed below before installing the front and rear modules:

- Use standard anti-static procedures during installation. As modules can be installed or removed when the GeckoFlex frame is powered up, before removing the cover, please use an anti-static bracelet or heel strap tied to a metal part of the frame.
- Install the rear module first, then the front module.
- When installing or removing a rear module, loosen or tighten the screws holding the retainer clips to the frame manually with the retainer clip tool provided inside the front cover of the frame or use a 2 mm (5/64") hex screwdriver. Please do not use an electric screwdriver.

Note On newer 751- version GeckoFlex frames, a Rear Retainer Clip removal tool and 2 extra retainer clips and screws for installing them are provided on the inside of the frame cover.

- Make every effort to leave the screws holding the retainer clips in place (do not remove them completely). They are very small and can easily drop into other equipment causing a shorting hazard. (Two turns of the screw should be enough to loosen the screws, 3 turns or more will remove it.)
- When installing a rear module, tighten the screws on the retainer clips just until snug. Do not apply more force than is necessary to seat the rear module. The recommended torque specification is 4-5 inch-lbs/0.45-0.6Nm.

Rear Module Installation

Each 8900PX-DR rear module requires two adjacent rear frame slots, so the front module cannot be installed in slot 10 of the frame. Each rear module or blank rear adapter cover is held in place by two retainer clips as shown in [Figure 7](#). To install a rear module into the frame, follow these steps:

1. Loosen (but do not remove completely) the two screws holding each retainer clip to the frame with a 2 mm (5/64") hex screwdriver. Pull up on the retainer clip to remove it, leaving the screws in place.

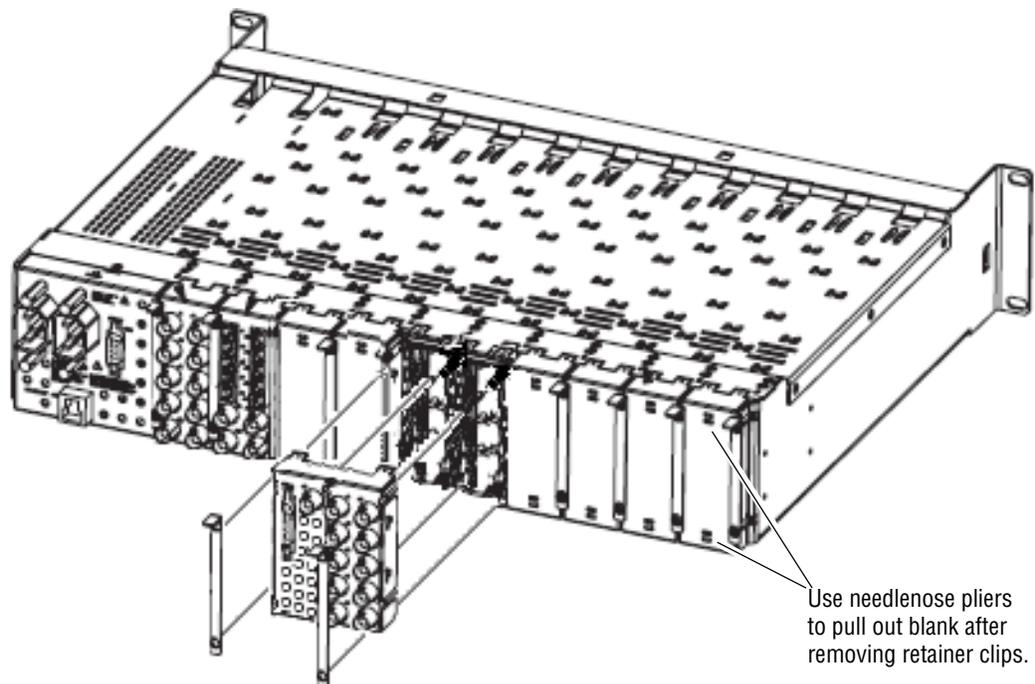
CAUTION Be careful to leave the screws in place as they can be easily lost or fall into equipment below the frame creating a shorting hazard.

2. Remove the blank rear adapter covers on two adjacent slots by inserting needlenose pliers into the slots in the top and bottom of the blank and pulling it off.

Note To remove a rear module already installed, follow the same steps. It is helpful to first remove the front module so the rear can be pulled out more easily.

3. Insert the rear module into the empty slots.
4. Replace each retainer clip over the two screws on both sides of the module and push down to seat the retainer.
5. Tighten the screws for each retainer clip just until they are snug. Do not force or torque the screws too tightly.

Figure 7. Installing Rear Module

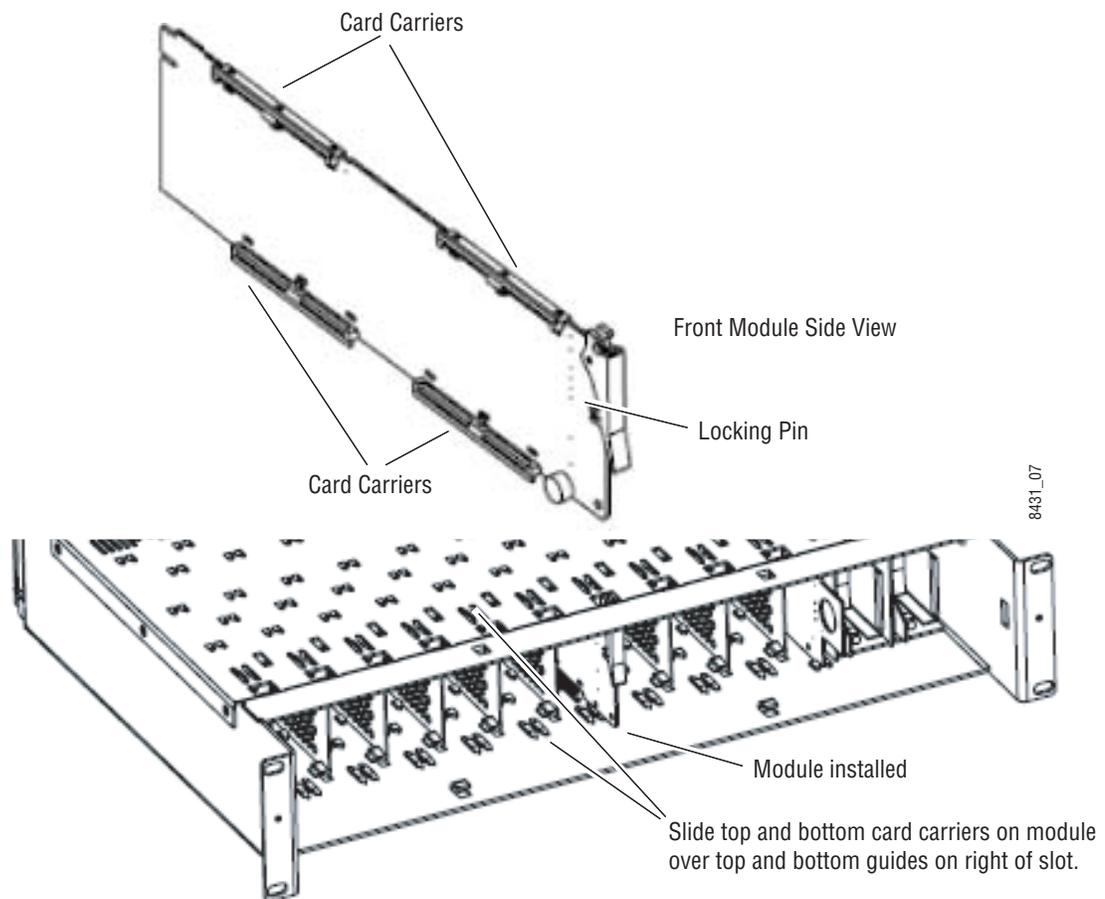


Front Module Installation

After installing the dual rear module, install the front module in the corresponding front slot as follows:

1. Remove the front cover of the frame.
2. Locate the two front slots that correspond to the two rear slots where the rear module has been installed.
3. Slide the module into the slot on the left so that the plastic card guides on the module top and bottom edges go over the upper and lower raised rail guides of the slot and the module connector mates with the rear module connector ([Figure 8](#)).
4. Carefully slide the module into the rear connector.
5. Lock the front module ejector tab into the locking pin.
6. Install the front cover of the frame during normal operation.

Figure 8. Front Module Installation



Cabling

Cabling is done on the rear of the 8900PX-DR rear module illustrated in [Figure 10 on page 33](#). Inputs and outputs are also illustrated on the I/O Config web page ([I/O Config Web Page on page 52](#)). Pinouts for the SubD-25 GPI I/O connector are given in [Table 7 on page 35](#).

Output pairs Output 1.1 and 1.2, Output 2.1 and 2.1, and Output 3.1 and 3.2 are user-configurable to output different signals as desired. For configuration information, refer to [Configuration Summary on page 11](#).

Before cabling the module, read the following section on determining cable length.

Determining Maximum Cable Length

To maintain the quality of the Program Output signal when the front module is bypassed in the case of loss of power or front module removal, the total cable length must be determined in Passive Bypass mode. The total cable length is defined as the addition of the cable length from the signal source to the 8972PX Primary (J9) or Secondary input (J10) plus the cable length from the 8972PX output BNC J7 to the destination equipment as shown in [Figure 9](#). This cable length is specified as no more than 300m in SD and 100m in HD. Refer to [Table 9 on page 71](#) for a list of specifications.

When cabling the module, you can test cable length and the quality of the bypassed Program Output signal by setting the Bypass Mode on the System Config web page to Passive Bypass Only (see [page 55](#)) or removing the module and monitoring the Program Output signal on J7 (Relay-Protected Program Output).

Figure 9. Total Cable Length Illustration

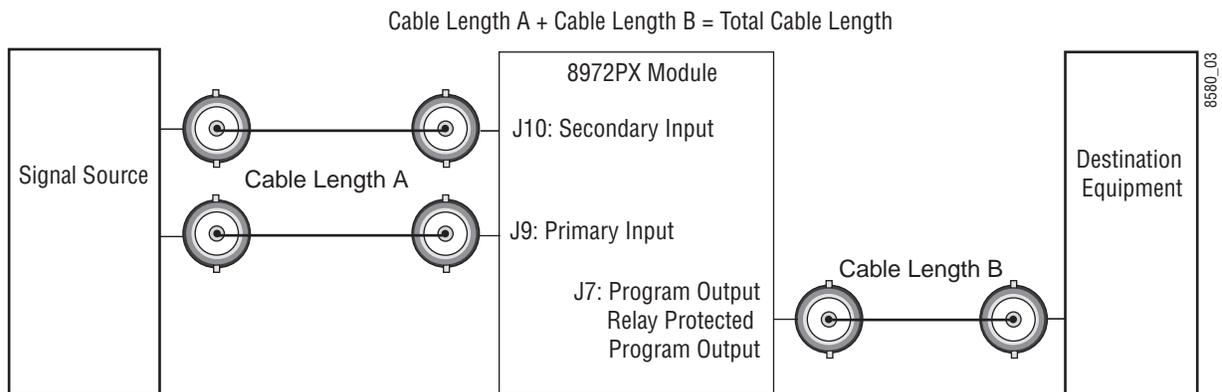
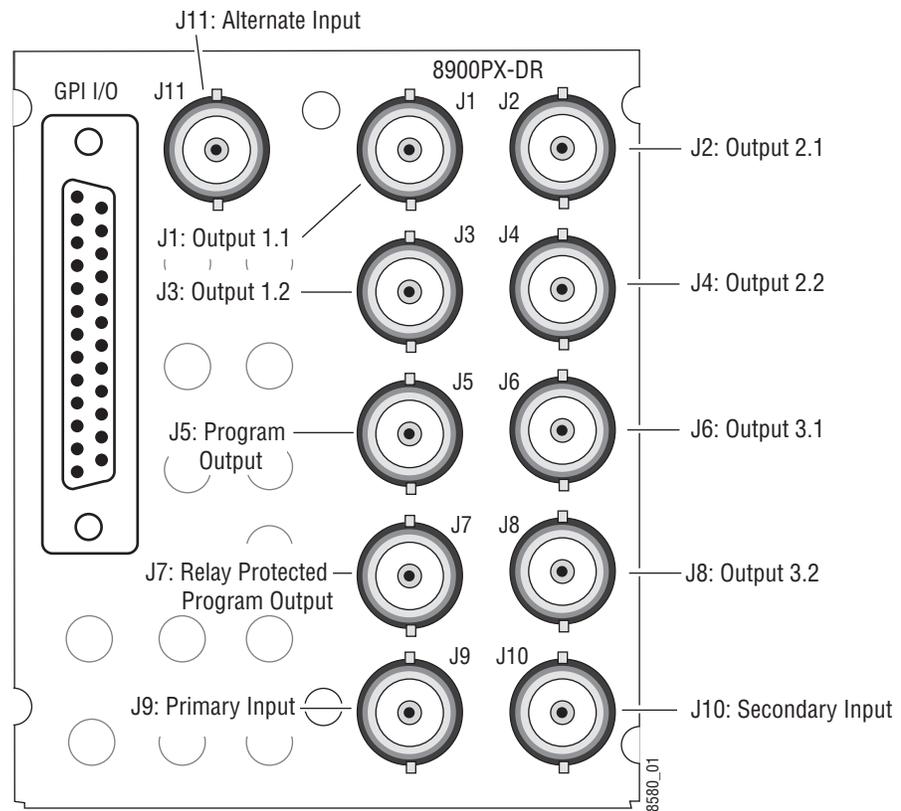


Figure 10. 8900PX-DR Rear Module



Primary Input

Connect the Primary input signal to BNC J9.

Secondary Input

Connect the Secondary input signal to BNC J10.

Alternate Input

If using an Alternate input signal, connect it to BNC J11.

To include this Alternate input as a backup candidate for use in the autonomous switching mode, it must be enabled on the System Config web page in the **Alternate Input Usage in Autonomous Switch Mode** control (see [System Config Web Page on page 55](#)).

To monitor the status of this input, Alternate **Reporting** must be enabled on the I/O Config web page ([page 52](#)).

Relay-Protected Program Output

The Relay-Protected Program Output at BNC J7 is the main Program Output for the module. It is wired to the relay-protected passive bypass circuitry on the rear module which includes the Primary and Secondary inputs as part of the relay path, assuring a continuous output source. Refer to [Passive Bypass Only Mode on page 26](#) for an explanation of the bypass mode.

Note To assure the bypassed Program Output signal meets the correct specifications, read the section on determining cable length in [Determining Maximum Cable Length on page 32](#).

Program Output

The Program Output at BNC J5 outputs the current Program Output signal from BNC J7, the Relay-Protected Program output, when the module is not in bypass mode. In bypass mode, the output at J5 is not active.

Outputs 1.1 and 1.2, Outputs 2.1 and 2.2, Outputs 3.1 and 3.2

Three sets of programmable output pairs (Outputs 1.1 and 1.2, Outputs 2.1 and 2.2 and Outputs 3.1 and 3.2) can be configured to output the Program, Backup Candidate, Primary Input, Secondary Input, or Alternate Input signal as desired. Programming of these output pairs is done on the Output Control web page ([Output Control Web Page on page 62](#)) or using the Newton Control Panel (see [Table 12 on page 83](#)).

GPI I/O Connector

The Program Output from the front module can be controlled and monitored through the SubD-25 GPI I/O connector on the rear module using an external customer-supplied GPI interface. Due to the densely populated rear module, a custom designed optional SubD-25 connector (8900PX-DBS) is available from the factory in order to allow space for using a trumpet tool for connecting signals to adjacent BNCs (see [8900PX-DBS Connector Option on page 35](#)).

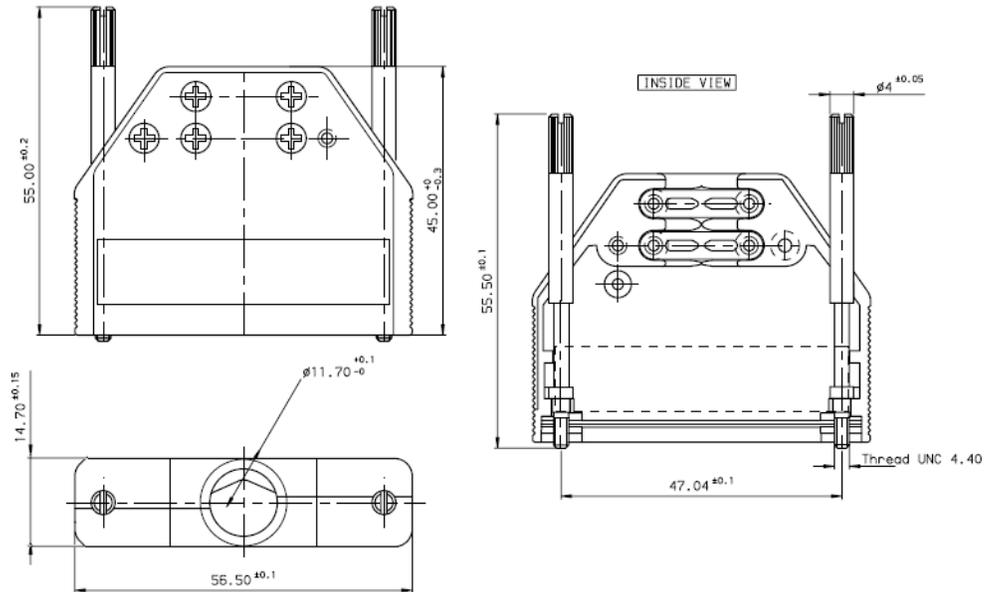
For using a standard SubD-25 connector, the following maximum dimensions are recommended:

- Maximum width of 15 mm
- Maximum length of 57 mm

8900PX-DBS Connector Option

A SubD-25 connector option (8900PX-DBS) may be purchased from the factory that is ideal for use on the densely populated rear module. This connector and its dimensions are shown in [Figure 11](#).

Figure 11. 8900PX-DBS SubD-25 Connector Option Dimensions



Connector Pinouts

Pinouts for the SubD-25 pin connector, GPI I/O, are given in [Table 7](#). These inputs and output assignments are hard-wired and may not be changed. Typical wiring diagrams and more wiring details are given in [GPI I/O Control Interface on page 36](#) and [GPI Relay Status Monitoring on page 39](#).

Table 7. GPI I/O Connector Pinouts

GPI I/O	Pin	Function	Pin	Function
<p>D-25 Female</p> <p>Pin 1</p> <p>Pin 13</p> <p>Pin 14</p> <p>Pin 25</p>	1	GPI OUT Secondary Fail	14	GPI IN Switch to Primary
	2	GPI OUT Primary is the Active Link	15	GPI IN Switch to Secondary
	3	GPI OUT Secondary is the Active Link	16	GPI Exclusive Control Enable
	4	GPI OUT Common Fail	17	Do not use (Reserved for future use)
	5	GPI OUT Common Active	18	GPI OUT Primary Fail
	6	Do not use (Reserved for future use)	19	GPI IN Switch to Alternate
	7	Do not use (Reserved for future use)	20	GPI OUT Alternate Fail
	8	Do not use (Reserved for future use)	21	GPI OUT Alternate Fail Common
	9	Do not use (Reserved for future use)	22	GPI OUT Alternate is Active Link
	10	Do not use (Reserved for future use)	23	GPI OUT Alternate Active Link Common
	11	Do not use (Reserved for future use)	24	Do not use (Reserved for future use)
	12	Do not use (Reserved for future use)	25	Do not use (Reserved for future use)
	13	GPI In Common Ground		

GPI I/O Control Interface

The GPI I/O connector inputs provide a means to enable (Force) the Primary, Secondary, or Alternate input signal to become the Program Output. The inputs are suitable for a connection to a relay contact (switch button) or to an open collector output in a typical circuit.

When the GPI Exclusive Control is activated, the Program Output can only be changed using one of the Switch to Primary, Switch to Secondary, or Switch to Alternate GPI controls until all GPI controls are de-activated.

To activate a GPI In function, a switch closure must be provided between the GPI In common ground (pin 13) and the GPI In function for a minimum of 80ms. To change states (deactivate the selected input) the contact closure must be open for at least an 80ms duration.

Refer to [Table 7 on page 35](#) for a complete list of the GPI I/O function pin numbers. An example of a GPI interface using relay contacts is shown in [Figure 12](#). A typical Open Collector example is shown in [Figure 13 on page 38](#).

Note Use either Open Collector or relay (switch button) controls but not both methods in the same GPI interface configuration.

Figure 12. GPI Input I/O Typical Circuit Using Relays

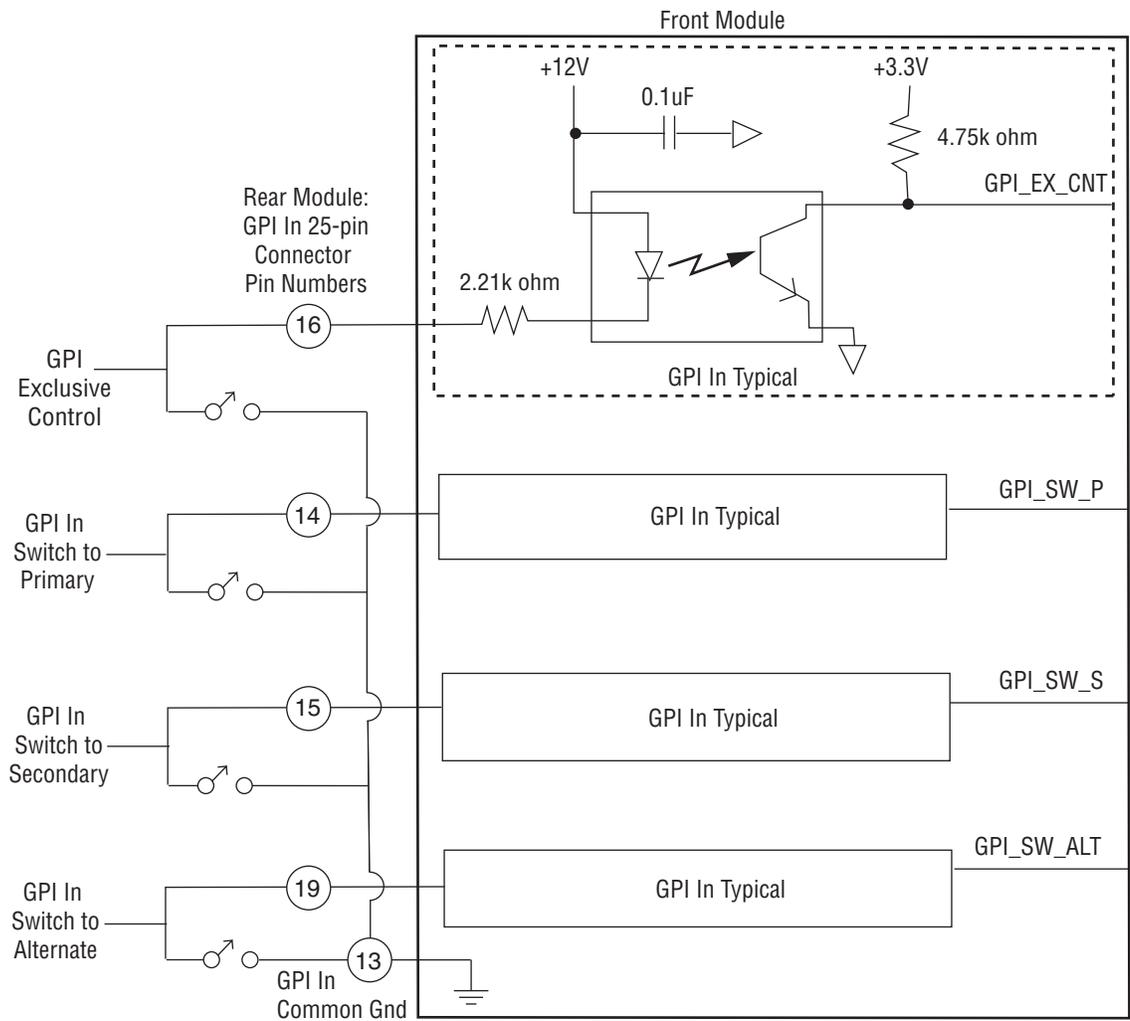
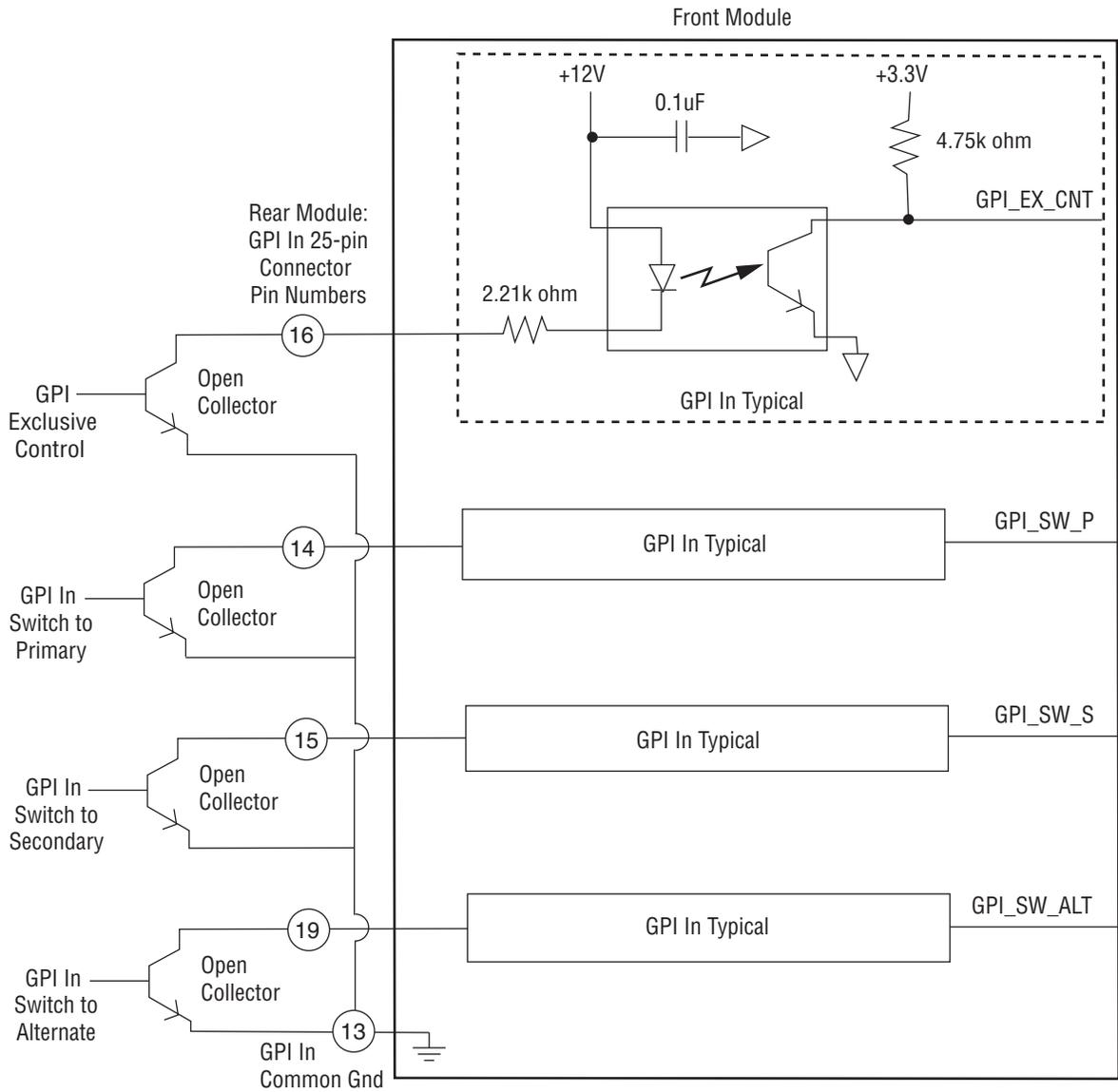


Figure 13. GPI Input I/O Typical Circuit Using Open Collector



GPI Relay Status Monitoring

The rear module GPI I/O connector also provides tally connections to report to the external GPI device the input signal status of what input signal is currently on the Program output and if any of the input signals have failed. The Program output active and failure reporting status of the Primary, Secondary, and Alternate inputs can be monitored by the GPI device.

The solid state relays are bi-directional; either polarity voltage can be applied. It can be used to drive downstream DC relays. Each tally output is active on a steady closure state.

Examples are given in [Figure 14 on page 40](#) for both logic connections and 12V lamps to an external system. Refer to [Table 7 on page 35](#) for a complete list of GPI function pin numbers.

Relay outputs specifications are maximum current of 0.5A (continuous) or 1.5A peak (100 ms), 60V peak load voltage.

Figure 14. GPI Output I/O Typical Circuit

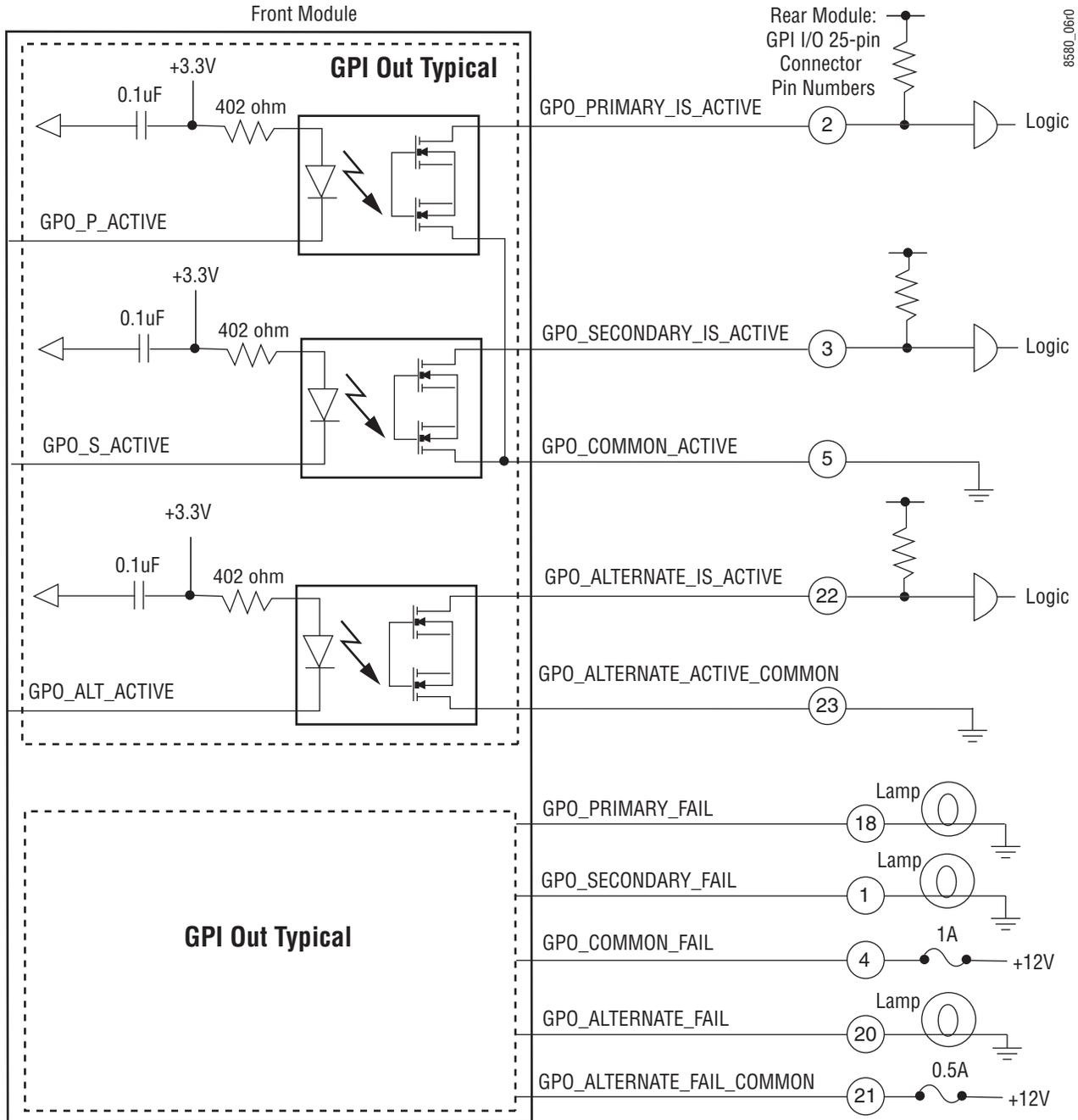


Table 8. Front Board Edge LED Names and Meaning

LED		Indication	Condition
FAULT (red)		Off	Normal operation.
		On continuously	Module has detected an internal fault.
		Flashing	Indicates a warning condition. All possible warnings are listed in Table 10 on page 76 .
COMM (yellow)		Off	No activity on frame communication bus.
		3 Quick Pulses	Locate Module command received by the module from a remote control system.
		Short flash	Activity present on the frame communication bus.
CONF (yellow)		Off	Module is in normal operating mode.
		3 Quick Pulses	Locate Module command received by the module from a remote control system.
		On continuously	Module is initializing, changing operating modes or programming hardware.
PWR (green)		Off	No power to module or module's DC/DC converter failed.
		On continuously	Normal operation, module is powered.
ALT	SEL (green)	Off	Alternate input is not selected as the Program output.
		On	Alternate input is selected as the Program output.
	PRES (green)	Off	No valid signal is detected on the Alternate input BNC.
		On	Valid signal is detected on the Alternate input BNC.
	FAIL (yellow)	Off	Alternate input signal is detected as good.
		On	Alternate input signal is detected as not good.
PRI	SEL (green)	Off	Primary input is not selected as the Program output.
		On	Primary input is selected as the Program output.
	PRES (green)	Off	No valid signal is detected on the Primary input BNC.
		On	Valid signal is detected on the Primary input BNC.
	FAIL (yellow)	Off	Primary input signal is detected as good.
		On	Primary input signal is detected as not good.
SEC	SEL (green)	Off	Secondary input is not selected as the Program output.
		On	Secondary input is selected as the Program output.
	PRES (green)	Off	No valid signal is detected on the Secondary input BNC.
		On	Valid signal is detected on the Secondary input BNC.
	FAIL (yellow)	Off	Secondary input signal is detected as good.
		On	Secondary input signal is detected as not good.
GPI (yellow)		Off	GPI input is not active.
		On	GPI input is active.

Configuration

The 8972PX module configuration operating parameters are set using the web pages and the Newton Control Panel which require the presence of the 8900NET (Net Card) Network Interface module.

Refer to the following sections for configuration instructions:

- Module Configuration and Monitoring (below)
- Configuration Summary Table ([page 83](#))

Module Configuration and Monitoring

8972PX module configuration and monitoring is performed using a web browser GUI interface or a networked Newton Control Panel when the 8900NET Network Interface module is present in the GeckoFlex frame. Each of these interfaces is described below. In addition, monitoring of signal status can be done with the GPI interface and an SNMP application.

8900NET Module Information

Refer to the *8900NET Network Interface Module Instruction Manual* for information on the 8900NET Network Interface module and setting up and operating the GeckoFlex frame network.

Note The 8900NET module in the GeckoFlex frame must be running software version 4.2.0 or higher for proper remote and control panel operation. Upgrade software and instructions for the 8900NET can be downloaded from the Grass Valley web site. See [System Requirements on page 10](#).

Newton Control Panel Configuration

A Newton Control Panel (hard and/or soft version) can be interfaced to the GeckoFlex frame over the local network. Refer to the documentation that accompanies the Newton Modular Control System for installation, configuration, and operation information.

Control panel access offers the following considerations for module configuration and monitoring:

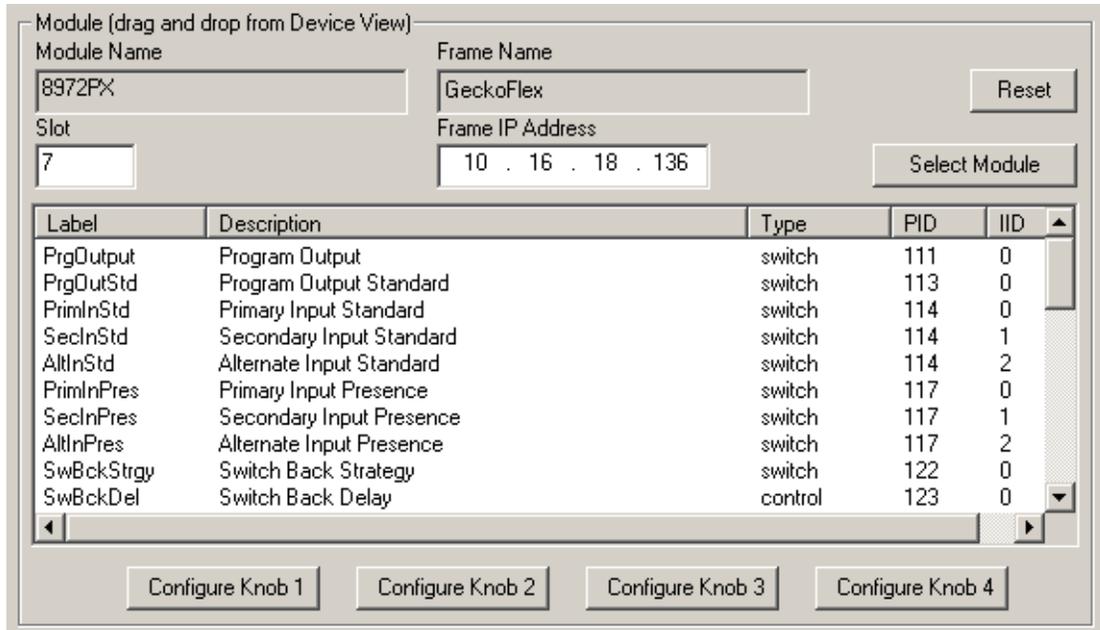
- Ability to separate system level tasks from operation ones, minimizing the potential for on-air mistakes.
- Ability to group modular products—regardless of their physical locations—into logical groups (channels) that you can easily manipulate with user-configured knobs.
- Update software for applicable modules and assign frame and panel IP addresses with the NetConfig Networking application.

- Recommended for real-time control of module configuration parameters, providing the fastest response time.

Note Not all module functions are available with the control panel, such as E-MEM and factory default recalls. The available control panel controls for the 8972PX module are listed in [Table 12 on page 83](#).

An example of the Newton Configurator is shown in [Figure 16](#).

Figure 16. Newton Configurator Example



Web Browser Interface

The web browser interface provides a graphical representation of module configuration and monitoring.

Use of the web interface offers the following considerations:

- Provides complete access to all module status and configuration functions, including naming of inputs and outputs, factory parameter and name default recalls, E-MEM functions, slot configuration, and SNMP monitoring controls.
- Web access will require some normal network time delays for processing of information.
- Configuration parameter changes may require pressing **Apply** button or **Enter**, upload processing time, and a manual screen refresh to become effective.
- Web interface recommended for setting up module signal and slot names, E-MEMS, and reporting status for SNMP and monitoring.

Refer to the Frame Status page shown in [Figure 17](#). The modules can be addressed by clicking either on a specific module icon in the frame status display or on a module name or slot number in the link list on the left.

Note The physical appearance of the menu displays on the web pages shown in this manual represent the use of a particular platform, browser and version of 8900NET (Net Card) module software. They are provided for reference only. Displays will differ depending on the type of platform and browser you are using and the version of the 8900NET software installed in your system. This manual reflects 8900NET software version 4.3.0, the latest release, using Internet Explorer, the recommended web browser, with Windows XP operating system.

For information on status and fault monitoring and reporting shown on the Status page, refer to [Status Monitoring Summary on page 73](#).

Figure 17. GeckoFlex Frame Status Page

The Links section lists the frame and its current modules. The selected link's Status page is first displayed and the sub-list of links for the selection is opened. The sub-list allows you to select a particular information page for the selected device.

Content display section displays the information page for the selected frame or module (frame slot icons are also active links).

Refresh button for manual update of page

Status

Model: 8900FFN Description: [Module Frame](#)

Frame Location: [not assigned](#)

Frame Health Alarm [WARN](#) Temperature Status [PASS](#)

Power Status [PASS](#)

Module	Empty	Module	Module	Module	Module	Module	Module	Empty	Module	Module	Net Card	Power Supply	Empty
--------	-------	--------	--------	--------	--------	--------	--------	-------	--------	--------	----------	--------------	-------

Front Cover [Cover Installed](#)

Fan Status [On](#)

Properties

Vendor	Thomson, Grass Valley	Software Version	4.3.0
Media Slots	10	Network Config	Network configuration stored on frame

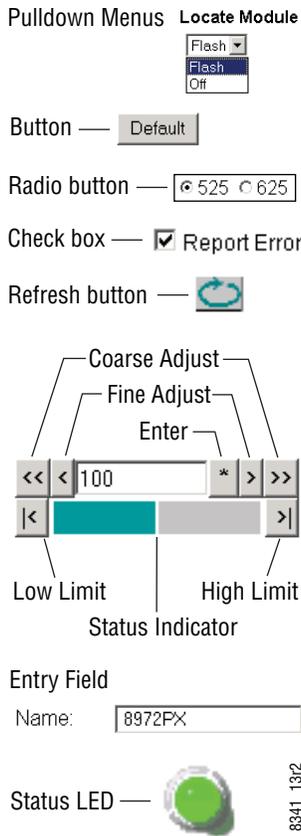
[GeckoFlex Frame](#)

- [Status](#)
- [Configuration](#)
- [Connections](#)
- [Frame Alarm Reporting](#)
- [LED Reporting](#)
- [SNMP Reporting](#)
- [Power Supply/Demand](#)
- [1 8972PX](#)
- [2 Media Slot 2](#)
- [3 8985FSP+GEN](#)
- [4 8925EMB-U](#)
- [5 8925DMB-U](#)
- [6 8925EMB-B](#)
- [7 8925DMB-B](#)
- [8 Media Slot 8](#)
- [9 8949MDA-SFR](#)
- [10 8949MDA-CFR](#)
- [11 8900NET](#)
- [12 Power Supply 1](#)
- [13 Power Supply 2](#)

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Web Page Operations and Functional Elements

The following conventions and functional elements (shown at left) are used in GeckoFlex web page operations. (The examples shown throughout this manual represent 8900NET software version 4.2.0 or later):



- Pull-down menus allow you to choose selections from a list.
- Clicking on a button performs an immediate action such as recall of defaults, clearing of states, learning configurations, and selecting all or none of a selection.
- Radio buttons are used to make a choice of one parameter in a group.
- Check boxes are used when a selection can be enabled or included in a group. Multiple check box selections or enables can be made for some parameters.
- A **Refresh** button (circular arrow) is provided at the top of each web page for manual refresh to view recently changed parameters.
- Each numerical adjustment control has a **Coarse** adjust button (left and right top double arrows) which increases or decreases the step value by a factor of 10. The **Fine** adjust button (left and right inside single arrows) increases or decreases the step value by 1.

To change a value, use the arrow button controls or enter a value into the number field and select the **Enter** button (*) or use the **Enter** key on your keyboard. The Status Indicator bar will follow the value selected.

Use the **Low** and **High Limit** buttons to go directly to the lowest and highest limits for the parameter.

After a parameter has been changed, it will take approximately 10 seconds for the change to be entered into the module backup memory. Allow the module enough time to update the change before removing the module from its slot.

- An entry field allows naming of various module functions such as input or output signals, asset tag, and slot identification.
- The **Status** LED icon indicates module status and is a link to the module Status web page where status is reported.

LED colors indicate:

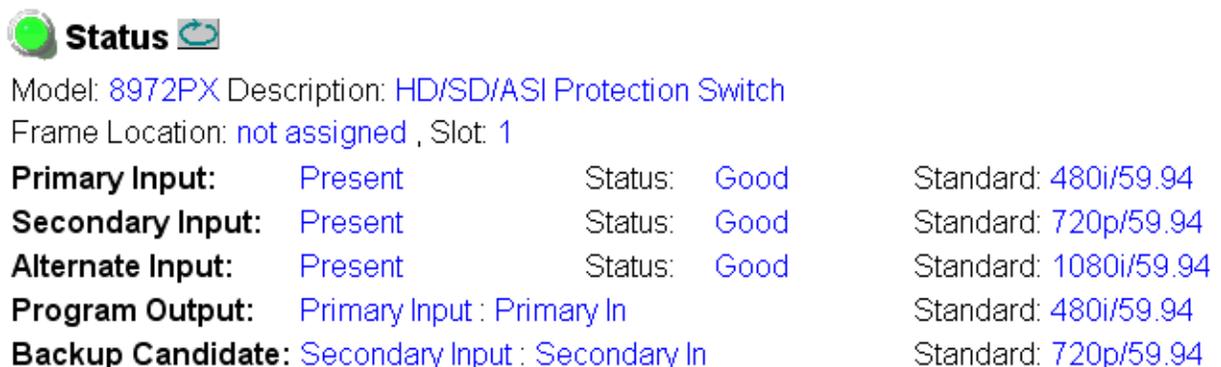
- Green = Pass – no problems detected
- Yellow = Configuration error warning
- Red = Fault condition detected (presence of at least one alarm)

Web Page Headers

Each configuration web page has a Status and Identification Header as shown in [Figure 18](#). The information provided tells the current status of the following:

- **Model** and **Description** are read-only generated by the module.
- **Frame Location** is defined on the 8900 Series GeckoFlex Frame Configuration web page.
- **Slot** number reports the module's location in the frame.
- **Primary Input** reports the presence of a signal on the Primary Input BNC J9, the status of the input (**Good**, **Not Good**, or **Not Monitored**), and the line standard.
- **Secondary Input** reports the presence of a signal on the Secondary Input BNC J10, the status of the input (**Good**, **Not Good**, or **Not Monitored**), and the line standard.
- **Alternate Input** reports the presence of a signal on the Alternate Input BNC J11, the status of the input (**Good**, **Not Good**, or **Not Monitored**), and the line standard.
- **Program Output** reports the current input present at the Program Output BNCs J5 and J7 (**Primary**, **Secondary**, or **Alternate**).
- **Backup Candidate** reports the next input that will become active upon Program failure. The Backup Candidate is always different than the Program.

Figure 18. Web Page Header Information



Status 

Model: [8972PX](#) Description: [HD/SD/ASI Protection Switch](#)
 Frame Location: [not assigned](#) , Slot: [1](#)

Primary Input:	Present	Status: Good	Standard: 480i/59.94
Secondary Input:	Present	Status: Good	Standard: 720p/59.94
Alternate Input:	Present	Status: Good	Standard: 1080i/59.94
Program Output:	Primary Input : Primary In		Standard: 480i/59.94
Backup Candidate:	Secondary Input : Secondary In		Standard: 720p/59.94

Defaults

Web pages with configuration parameters each have a **Defaults** button at the bottom of the page to allow resetting of default parameters for only that page. Default values are summarized for all module parameters in [Table 12 on page 83](#).

Web Page Links

The web interface GUI provides the following links (see illustration at left) and web pages for the 8972PX modules:

- Status – reports Primary, Secondary, and Alternate (if enabled) input signal status, frame bus status, module hardware and software version information, and warning messages ([page 49](#)),
- I/O Config – shows a graphic representation of inputs and outputs to the module and allows naming of each input and enabling and disabling of module level signal reporting ([page 52](#)),
- System Config – set the input standard selection, bypass mode, enable Alternate Input usage in Autonomous mode, and set the DVB/ASI packet length ([page 55](#)),
- HD/SD Criteria – displays what criteria the module is using to determine HD and SD SDI video signal status, reports status of the signal, and allows enabling of EDH/CRC error detection ([page 58](#)),
- DVB/ASI Criteria – displays what criteria the module is using to determine DVB ASI signal status, reports signal status, allows selection of what PIDs to monitor in the Primary/Secondary and Alternate streams, and provides controls for enabling the Presence and Continuity Error reporting for PIDs selected for monitoring ([page 60](#)),
- Output Control – allows manual Program output selection, choice of the module switching strategy switch mode (**Manual**, **Maintain Primary**, or **Maintain Stability**), and programming the output BNC pairs ([page 62](#)),
- User Settings – allows recalling of factory defaults for all module parameters or factory signal names, and provides a save/load configuration file function ([page 65](#)), and
- Slot Config – provides Locate Module, Slot Identification, and Slot Memory functions along with links to the SNMP, LED Reporting, and Frame Alarm configuration web pages ([page 68](#)).

Status Web Page

Use
this
link

- [7 8972PX](#)
- [Status](#)
- [I/O Config](#)
- [System Config](#)
- [HD/SD Criteria](#)
- [DVB/ASI Criteria](#)
- [Output Control](#)
- [User Settings](#)
- [Slot Config](#)

The Status web page ([Figure 19 on page 51](#)) reports the status of, and information about, the front media and rear modules in both graphical (using color to indicate status) and textual formats. It also reports the status of the input video signals to the module, and the Frame Bus status. Video and reference signal reporting can be enabled and disabled to the module level on the I/O Config web page.

In general, graphics and text colors used for status indication are the following:

- Green = Pass – signal or reference present, no problems detected.
- Red = Fault – fault condition.
- Yellow = Warning – signal is absent, has errors, or is mis-configured.
- Gray = Not monitored.



Note Always refresh the page first with the **Refresh** button at the top of the page (shown at left) to update the current status of the web page.

Web Page Header

The web page header for the 8972PX module is described in detail in [Web Page Headers on page 47](#).

Module Physical Structure

Status is reported for the front and rear modules in the Module Physical Structure graphic as follows:

- Rear Module – the presence, name, and status of the rear module is reported in the graphic on the left. If the rear module is the wrong type or missing, the graphic will indicate the status by color and text within the graphic.
- Front Processing Module – the presence, name, and status of the front processing module is reported in the graphic on the right. The graphic will indicate the status of the front module by color and text within the graphic.

Status is reported for each of the following video signals:

- Primary In – indicates the status of the signal input to the module at the Primary BNC J9.
- Secondary In – indicates the status of the signal input to the module at the Secondary BNC J10.
- Alternate In – reports the status of the Alternate signal input connected to BNC J11. (The Alternate input **Reporting** default is **Disable** and must be enabled on the I/O Config web page).
- Frame Bus – reports the status of the serial frame bus communication between the 8972PX and the 8900NET modules.
- Outputs – signal status is not reported for any video signal outputs for this module. Outputs will be colored gray to indicate this.

Error Reporting

When the module detects an error, warning messages, such as Signal not Present or Signal not valid, will appear between the lines below the graphic as illustrated in [Figure 19 on page 51](#). Informational messages will also appear in this area.

Module Status

Module status for the front and rear modules are reported in a read-only section on the right at the bottom of the display.

Front Module Information

Information about the module, such as part number, serial number, hardware revision and software, firmware, and boot versions, and asset tag number (assigned on the [Slot Config Web Page on page 68](#)) are given in a read-only section on the left at the bottom of the display.

Figure 19. 8972PX Status Web Page

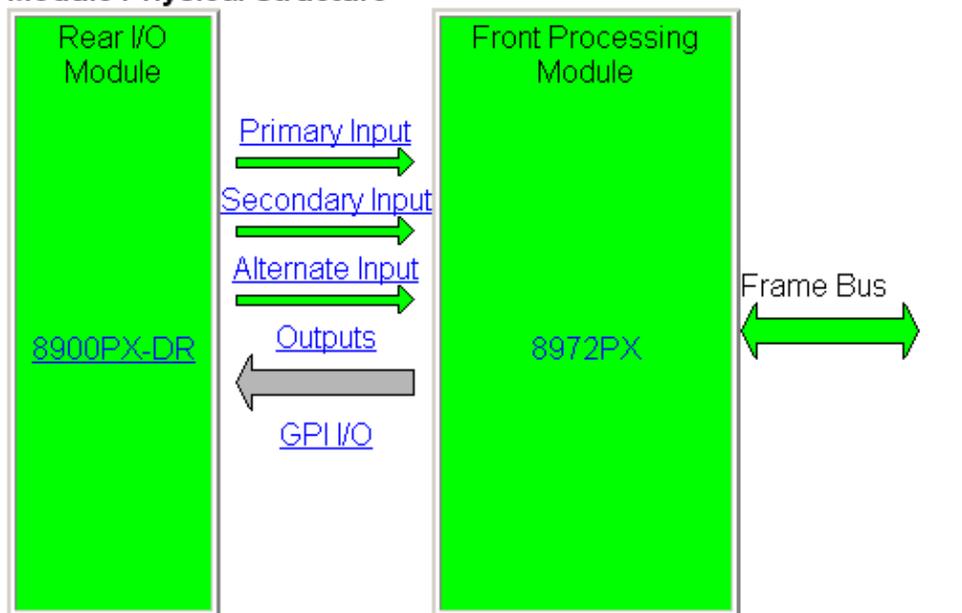
 **Status** 

Model: [8972PX](#) Description: [HD/SD/ASI Protection Switch](#)

Frame Location: [not assigned](#) , Slot: 1

Primary Input:	Present	Status:	Good	Standard:	480i/59.94
Secondary Input:	Present	Status:	Good	Standard:	720p/59.94
Alternate Input:	Present	Status:	Good	Standard:	1080i/59.94
Program Output:	Primary Input : Primary In			Standard:	480i/59.94
Backup Candidate:	Secondary Input : Secondary In			Standard:	720p/59.94

Module Physical Structure



Status:

Front Module: [PASS](#)

Rear Module: [PASS](#)

Front Module:

Part Number: [771-0324-00](#)

Serial Number: [RN0710295748AA](#)

Hardware Revision: [00](#)

Firmware Version: [1.0.1](#)

Software Version: [1.1.1](#)

Boot Version: [1.2.0](#)

Asset Tag:

 Warning messages

I/O Config Web Page

Use this link

- [7 8972PX](#)
- [Status](#)
- [I/O Config](#)
- [System Config](#)
- [HD/SD Criteria](#)
- [DVB/ASI Criteria](#)
- [Output Control](#)
- [User Settings](#)
- [Slot Config](#)

Use the I/O Config web page ([Figure 20 on page 53](#)) for the functions outlined below. The illustrated I/O Config web page shows the default settings for signal names and reporting.

Rear Connectors

All of the input and output connectors on the corresponding 8972PX rear module are illustrated on the I/O Config web page. The inputs can be configured with the following controls:

- **Signal Naming** – type the desired input name (up to 12 characters) into the corresponding boxes for each input. The status of each input is indicated by the color of the display.
- **Reporting Enabling** – status reporting of each input type to the module level can be enabled or disabled by selecting or deselecting the corresponding checkbox in the **Reporting Enabled** column for each input type. You may disable reporting for inputs not being used if desired to avoid error messages. Disabled signals will be reported as **Not Monitored**.

The **Reporting Enabled** column is also used when an SNMP monitoring application such as NetCentral is installed.

Note The Primary and Secondary input signals Reporting status defaults to **Enabled**. However, the Alternate input defaults to **Disabled** and must be enabled by the user to be able to monitor it as shown in [Figure 20 on page 53](#). Use the **Refresh** button after enabling to update the web page.

Refer to [Status Monitoring Summary on page 73](#) for an explanation of the color coding and using an SNMP monitoring application.

Note Outputs are not monitored in this application.

Figure 20. I/O Config Web Page – Alternate Input Not Monitored

 I/O Config 

Model: 8972PX Description: HD/SD/ASI Protection Switch

Frame Location: not assigned , Slot: 1

Primary Input: Present Status: Good Standard: 480i/59.94
Secondary Input: Present Status: Good Standard: 1080i/59.94
Alternate Input: Not Monitored Status: Not Monitored Standard: DVB/ASI
Program Output: Primary Input : Primary In Standard: 480i/59.94
Backup Candidate: Secondary Input : Secondary In Standard: 1080i/59.94

8900PX-DR Rear Module Connection

Signal Names	Reporting	Right I/O Connectors				Reporting	Signal Names		
.	.	Output 1.1	J1			J2	Output 2.1	.	.
.	.	Output 1.2	J3			J4	Output 2.2	.	.
.	.	Program Output	J5			J6	Output 3.1	.	.
.	.	Relay Protected Program Output	J7			J8	Output 3.2	.	.
Primary In	<input checked="" type="checkbox"/> Enabled	Primary Input	J9			J10	Secondary Input	<input type="checkbox"/> Enabled	Secondary In
Signal Names	Reporting	Left I/O Connectors				Reporting	Signal Names		
.	.	GPI Bus	GPI I/O		J11	Alternate Input	<input type="checkbox"/> Enabled	Alternate In	
.
.
.

Legend:

Present
Not Present
Not Monitored

Figure 21. I/O Config Web Page – Alternate Input Monitored

I/O Config

Model: 8972PX Description: HD/SD/ASI Protection Switch

Frame Location: not assigned , Slot: 1

Primary Input: Present Status: Good Standard: 480i/59.94
Secondary Input: Present Status: Good Standard: 1080i/59.94
Alternate Input: Invalid Format Status: **Not Good** Standard: DVB/ASI
Program Output: Primary Input : Primary In Standard: 480i/59.94
Backup Candidate: Secondary Input : Secondary In Standard: 1080i/59.94

8900PX-DR Rear Module Connection

Signal Names	Reporting	Right I/O Connectors				Reporting	Signal Names	
.	.	Output 1.1	J1		J2	Output 2.1	.	
.	.	Output 1.2	J3		J4	Output 2.2	.	
.	.	Program Output	J5		J6	Output 3.1	.	
.	.	Relay Protected Program Output	J7		J8	Output 3.2	.	
Primary In	<input checked="" type="checkbox"/> Enabled	Primary Input	J9		J10	Secondary Input	<input checked="" type="checkbox"/> Enabled	
Secondary In	<input checked="" type="checkbox"/> Enabled	Secondary Input	J9		J10	Secondary Input	<input checked="" type="checkbox"/> Enabled	
Signal Names	Reporting	Left I/O Connectors				Reporting	Signal Names	
.	.	GPI Bus	GPI I/O		J11	Alternate Input	<input checked="" type="checkbox"/> Enabled	Alternate In
.
.
.

Legend:

Present
Not Present
Not Monitored

System Config Web Page

Use
this —
link

[7 8972PX](#)
[Status](#)
[I/O Config](#)
[System Config](#)
[HD/SD Criteria](#)
[DVB/ASI Criteria](#)
[Output Control](#)
[User Settings](#)
[Slot Config](#)

Use the System Config web page ([Figure 23 on page 57](#)) to set the following system configuration parameters for the module:

Input Standard Selection

Select the input standard for all inputs to the module with the Input Standard pull-down. In **Auto** mode, the 8972PX module automatically detects the standard of the incoming video on the Primary, Secondary, and Alternate inputs. If only one of the standards below is selected as the input standard, only that standard will be recognized and considered valid for all inputs to the module.

The 8972PX allows the standards listed below to be detected by the module:

- Auto
- DVB/ASI
- HD 1080i/59.94
- HD 720p/59.94
- HD 1080i/50
- HD 720p/50
- SD 480i/59.94
- SD 576i/50

Bypass Mode

Use the Bypass Mode control to select from one of the following modes:

- **Passive Bypass Only** – used primarily for a maintenance mode as described in *Passive Bypass Only Mode on page 26*.
- **Active Processing Enabled** – using this mode, one of two autonomous switching strategies on the module determine when the Program Output has become invalid and the module should switch to the backup candidate. Refer to *Autonomous Mode on page 16* for a detailed explanation of this mode. Primary, Secondary, and Alternate signals are monitored for presence, status, and line standard. The Alternate Input must be enabled for usage in autonomous switch mode as described next.

Figure 22. Module in Passive Bypass Mode



System Config			
Model: 8972PX Description: HD/SD/ASI Protection Switch			
Frame Location: not assigned , Slot: 1			
Primary Input:	Present	Status: Bypassed	Standard: ---
Secondary Input:	Not Monitored	Status: Bypassed	Standard: Unknown
Alternate Input:	Present	Status: Good	Standard: 1080i/59.94
Program Output:	Primary Input : Primary In		Standard: ---
Backup Candidate:	Secondary Input : Secondary In		Standard: Unknown

Alternate Input Usage in Autonomous Switch Mode

To include the Alternate Input on BNC J11 as a possible backup candidate in the Autonomous mode, select the **Enable** radio button. The default is **Disable**.

DVB/ASI Packet Length

Set the DVB/ASI packet length to the correct number of bytes for the DVB/ASI signal you are using by selecting the **188** or **204** radio button.

Figure 23. System Config Web Page

System Config 

Model: 8972PX Description: HD/SD/ASI Protection Switch
 Frame Location: not assigned , Slot: 1

Primary Input:	Present	Status:	Good	Standard:	480i/59.94
Secondary Input:	Present	Status:	Good	Standard:	720p/59.94
Alternate Input:	Present	Status:	Good	Standard:	1080i/59.94
Program Output:	Primary Input : Primary In			Standard:	480i/59.94
Backup Candidate:	Secondary Input : Secondary In			Standard:	720p/59.94

Input Standard Selection

Input Standard

Auto

- Auto
- DVB/ASI
- HD 1080i/59.94
- HD 720p/59.94
- HD 1080i/50
- HD 720p/50
- SD 480i/59.94
- SD 576i/50

Bypass Mode

Bypass Mode Control

Passive Bypass Only Active Processing Enabled

Alternate Input Usage in Autonomous Switch Mode

Use Alternate Input Disable Enable

DVB/ASI Packet Length

Packet Length (in Bytes) 188 204

Defaults

HD/SD Criteria Web Page

[7 8972PX](#)

[Status](#)

[I/O Config](#)

[System Config](#)

Use this link — [HD/SD Criteria](#)

[DVB/ASI Criteria](#)

[Output Control](#)

[User Settings](#)

[Slot Config](#)

Use the HD/SD Criteria web page ([Figure 24 on page 59](#)) to set up the criteria for determining whether a signal is good or not good. This example illustrates an EDH error where EDH/CRC Errors are not part of the criteria.

Valid Signal Criteria

This section lists the criteria always enabled for determining signal health. These criteria cannot be disabled. For an overview of these criteria, refer to [HD/SD Criteria on page 17](#).

To use EDH/CRC Errors as part of signal health criteria, select the EDH/CRC Errors **Enable** checkbox.

EDH/CRC Threshold

If EDH/CRC Errors checkbox has been selected, use this section to set the amount of erroneous fields and erroneous total fields that the module will allow an EDH/CRC error to occur before reporting an error. This setting applies at all input signals, Primary, Secondary, and Alternate.

Error Reporting

If an error has been detected, it will be reported next to the signal name (**Errors**). Use the corresponding **Reset** button to reset the error log and see if the signal has recovered. If there are no errors the status will report **None**.

Reset All Button

Use the **Reset All** button to reset all three error counters.

Figure 24. HD/SD Criteria Web Page

HD/SD Criteria

Model: 8972PX Description: HD/SD/ASI Protection Switch

Frame Location: not assigned , Slot: 1

Primary Input: Present Status: Good Standard: 480i/59.94
Secondary Input: Present Status: Good Standard: 720p/59.94
Alternate Input: Present Status: Good Standard: 1080i/59.94
Program Output: Primary Input : Primary In Standard: 480i/59.94
Backup Candidate: Secondary Input : Secondary In Standard: 720p/59.94

Warning: Primary SD Input Has No EDH Inserted

Valid Signal Criteria

Carrier Detect	Always Enabled
Serial Lock	Always Enabled
Invalid Format	Always Enabled
SMPTE Presence	Always Enabled
SMPTE TRS Errors	Always Enabled
EDH/CRC Errors	<input type="checkbox"/> Enable

EDH/CRC Threshold

Input Signal	Signal Name	CRC/EDH Error Threshold
Primary Input	Primary In	<input type="text" value="4"/> Erroneous Fields / <input type="text" value="16"/> Total Fields
Secondary Input	Secondary In	
Alternate Input	Alternate In	

Errors Reporting

Input Signal	Signal Name	Detected Errors	
Primary Input	Primary In	None	<input type="button" value="Reset"/>
Secondary Input	Secondary In	None	<input type="button" value="Reset"/>
Alternate Input	Alternate In	None	<input type="button" value="Reset"/>

DVB/ASI Criteria Web Page

Use
this
link —

- [7_8972PX](#)
- [Status](#)
- [I/O Config](#)
- [System Config](#)
- [HD/SD Criteria](#)
- [DVB/ASI Criteria](#)
- [Output Control](#)
- [User Settings](#)
- [Slot Config](#)

Use the DVB/ASI Criteria web page ([Figure 25 on page 61](#)) to monitor the health of a DVB ASI input signal on the Primary/Secondary and Alternate inputs and enable additional criteria for the signal presence and continuity error detection for input streams. Use the **Reset All** button at the bottom of the web page to reset all errors. A DVB/ASI packet length of 188 or 204 can be selected on the System Config web page (see [page 55](#)).

Valid Signal Criteria

This section lists the criteria always enabled for determining DVB ASI signal health. These criteria cannot be disabled. For an overview of this DVB ASI criteria, refer to [DVB ASI Criteria on page 18](#).

Transport Stream Errors Reporting

This section summarizes if any of the DVB ASI Valid Signal Criteria errors have been detected on the Primary, Secondary, or Alternate inputs by reporting an error. Use the corresponding **Reset** button to reset the error log to see if the signal has recovered. When there are no errors since the last reset, this will report **None** as shown in [Figure 25 on page 61](#).

Stream Criteria, Primary Input

This section allows you to choose up to four PID bit rates to monitor on the Primary Stream (from 0 to 8191). The default values are 0-3 as shown in [Figure 25 on page 61](#). The accuracy of the bit rate is +/- 1.5 kbps.

Note Monitoring a PID with a bit rate equal to or less than 1.5 kbps is not recommended because a wrong error report may occur due packets not evenly spaced in the transport stream. Refer to [DVB ASI Criteria on page 18](#) for an overview of these criteria.

Presence (defined as one packet per second) and Continuity Error criteria can also be enabled as desired for each PID stream. The sensitivity of the continuity errors is two errors occurring over the last 100 MPEG packets will be considered an error condition that will switch the input to the Backup Candidate. The Continuity Errors Detected log can be reset with the corresponding **Reset** button.

Stream Criteria, Secondary Stream

The Secondary stream inputs follow the Primary and will be reported as read-only values. Use the **Reset** button to reset each stream if errors occur.

Alternate Stream

For the Alternate input stream, the PIDs to be monitored and the Presence and Continuity Error Criteria can be user-defined in the same manner as explained for the Primary stream above. The Alternate stream is independent of the Primary/Secondary DVB ASI streams.

Figure 25. DVB/ASI Criteria Web Page

DVB/ASI Criteria

Model: 8972PX Description: HD/SD/ASI Protection Switch
 Frame Location: not assigned , Slot: 1

Primary Input: Present Status: Good Standard: DVB/ASI
Secondary Input: Present Status: Good Standard: DVB/ASI
Alternate Input: Present Status: Good Standard: DVB/ASI
Program Output: Primary Input : Primary In Standard: DVB/ASI
Backup Candidate: Secondary Input : Secondary In Standard: DVB/ASI

Valid Signal Criteria		Transport Stream Errors Reporting		
Carrier Detect	Always Enabled	Input Signal	Detected Errors	
Serial Lock	Always Enabled	Primary Input	None	<input type="button" value="Reset"/>
Invalid Format	Always Enabled	Secondary Input	None	<input type="button" value="Reset"/>
MPEG2 TS Lock	Always Enabled	Alternate Input	None	<input type="button" value="Reset"/>

Stream Criteria, Primary Input

Stream	PID Value	Criteria		Bit Rate	Continuity Errors Detected	
		Presence	Continuity Errors			
Stream1	<input type="text" value="0"/>	<input type="checkbox"/> Enable	<input type="checkbox"/> Enable	17.0 kbps	None	<input type="button" value="Reset"/>
Stream2	<input type="text" value="1"/>	<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable	17.0 kbps	None	<input type="button" value="Reset"/>
Stream3	<input type="text" value="101"/>	<input type="checkbox"/> Enable	<input checked="" type="checkbox"/> Enable	8.2 Mbps	Errors	<input type="button" value="Reset"/>
Stream4	<input type="text" value="17"/>	<input type="checkbox"/> Enable	<input type="checkbox"/> Enable	1.5 kbps	None	<input type="button" value="Reset"/>

Stream Criteria, Secondary Input

Stream	PID Value	Criteria		Bit Rate	Continuity Errors Detected	
		Presence	Continuity Errors			
Stream1	0	Disable	Disable	17.0 kbps	None	<input type="button" value="Reset"/>
Stream2	1	Enable	Disable	17.0 kbps	None	<input type="button" value="Reset"/>
Stream3	101	Disable	Enable	8.2 Mbps	Errors	<input type="button" value="Reset"/>
Stream4	17	Disable	Disable	1.5 kbps	None	<input type="button" value="Reset"/>

Stream Criteria, Alternate Input

Stream	PID Value	Criteria		Bit Rate	Continuity Errors Detected	
		Presence	Continuity Errors			
Stream1	<input type="text" value="0"/>	<input type="checkbox"/> Enable	<input type="checkbox"/> Enable	15.5 kbps	None	<input type="button" value="Reset"/>
Stream2	<input type="text" value="1"/>	<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable	15.5 kbps	None	<input type="button" value="Reset"/>
Stream3	<input type="text" value="17"/>	<input type="checkbox"/> Enable	<input type="checkbox"/> Enable	1.5 kbps	None	<input type="button" value="Reset"/>
Stream4	<input type="text" value="101"/>	<input type="checkbox"/> Enable	<input checked="" type="checkbox"/> Enable	8.2 Mbps	None	<input type="button" value="Reset"/>

Output Control Web Page

[7 8972PX](#)

[Status](#)

[I/O Config](#)

[System Config](#)

[HD/SD Criteria](#)

[DVB/ASI Criteria](#)

Use this link — [Output Control](#)

[User Settings](#)

[Slot Config](#)

Use the Output Control web page ([Figure 26 on page 63](#)) for the following:

Program Output Selection

Any input signal can be forced to the output manually by selecting the **Force Primary**, **Force Secondary**, or **Force Alternate** buttons. When one of the **Force** buttons is selected, the button is highlighted and the **Manual** mode becomes the Switch mode selection in the Switching Strategy section.

Switching Strategy

This section of the web page allows you to select the Switching Strategy Switch Mode for the module from one of the two autonomous modes, Maintain Primary or Maintain Stability, or the Manual mode. Refer to [Autonomous Mode on page 16](#) for an overview of how the autonomous modes work. The Manual control modes are summarized in [Manual Switching Controls on page 13](#).

Select one of the Switch Mode radio buttons to set the Switching Strategy:

- **Maintain Primary** – switches the Primary input back to the Program output when it becomes good again in the amount of time set by the Switchback Delay control. The Switchback Delay control (for Maintain Primary only) allows the user to set the amount of time (0 to 254 seconds) between switching from the Backup Candidate (Secondary or Alternate) back to the restored Primary.
- **Maintain Stability** – maintains the Primary or Secondary input as long as their signals remain good to provide the most stable signal state.
- **Manual** – when the Switch Mode selection is set for Manual, the currently active Program output signal **Force** button will be highlighted on the Output Control web page (unless the GPI interface is controlling the Program Output as shown in [Figure 27 on page 64](#)). Any of the manual switching controls can be then be used to change the input.

Programmable Outputs Selection

The three output BNC pairs, Output 1.1 and 1.2 (BNC J1 and J3), Output 2.1 and 2.2 (BNC J2 and J4), and Output 3.1 and 3.2 (BNC J6 and J8), can each be programmed to output any of five signal choices in the input pulldown for each pair. These outputs are independent of manual control.

The five choices are the following:

- Program
- Backup Candidate
- Primary Input
- Secondary Input
- Alternate Input

Figure 26. Output Control Web Page

Output Control

Model: 8972PX Description: HD/SD/ASI Protection Switch

Frame Location: not assigned , Slot: 1

Primary Input: Present Status: Good Standard: 1080i/59.94
Secondary Input: Present Status: Good Standard: 1080i/59.94
Alternate Input: Present Status: Good Standard: 1080i/59.94
Program Output: Primary Input : Primary In Standard: 1080i/59.94
Backup Candidate: Secondary Input : Secondary In Standard: 1080i/59.94

Program Output Selection

Input	Signal Name	Output	Connector
Force Primary			
Force Secondary		Relay Protected Program Output	J7
Force Alternate		Program Output	J5

Switching Strategy

Switch Mode : **Autonomous** Maintain Primary Maintain Stability Manual

Program Switchback Delay (For Maintain Primary Mode Only) Switchback Delay (sec)

Programmable Outputs Selection

Input	Signal Name	Output	Connector
Program	Primary In	Output 1.1	J1
		Output 1.2	J3
Program	Primary In	Output 2.1	J2
		Output 2.2	J4
Program	Primary In	Output 3.1	J6
		Output 3.2	J8

Defaults

GPI Control

When the external GPI interface is controlling the Program Output selection (any of the four GPI control lines are activated by contact closure), the module web pages will indicate this with a message in red stating: **GPI is controlling the Program Output Selection** as shown in the example of the Output Control web page in [Figure 27](#).

Under the Switching Strategy section of this web page, the Switch Mode of the module will be changed to **Manual**. A warning will also appear in this section stating: **Remote and Local Program Output Selection Disabled**. In this state, no other manual switching or remote controls will be able to change the Program Output until all contact closures are disabled on all four GPI control lines.

When GPI control is disabled, the module will be in Manual mode and can be controlled using any of the manual switching controls or the user can switch the module back to an autonomous mode by selecting either Maintain Primary or Maintain Stability as the Switch Mode using the Output Control web page, the Newton Control Panel, or SNMP controls.

Figure 27. Web Page Indication of GPI Control

 **Output Control** 

Model: [8972PX](#) Description: [HD/SD/ASI Protection Switch](#)
 Frame Location: [not assigned](#) , Slot: 1

Primary Input: [Present](#) Status: [Good](#) Standard: [1080i/59.94](#)
Secondary Input: [Present](#) Status: [Good](#) Standard: [1080i/59.94](#)
Alternate Input: [Present](#) Status: [Good](#) Standard: [1080i/59.94](#)
Program Output: [Primary Input : Primary In](#) Standard: [1080i/59.94](#)
Backup Candidate: [Secondary Input : Secondary In](#) Standard: [1080i/59.94](#)

GPI is Controlling the Program Output Selection

Input	Signal Name	Output	Connector
Primary Input	Primary In	Relay Protected Program Output	J7
		Program Output	J5

 Remote and Local Program Output Selection Disabled

Switching Strategy

Switch Mode : Manual	<input type="radio"/> Maintain Primary <input type="radio"/> Maintain Stability <input checked="" type="radio"/> Manual
Program Switchback Delay (For Maintain Primary Mode Only)	Delay (sec) 

User Settings Web Page

7 8972PX
[Status](#)
[I/O Config](#)
[System Config](#)
[HD/SD Criteria](#)
[DVB/ASI Criteria](#)
[Output Control](#)
 Use this link — [User Settings](#)
[Slot Config](#)

The User Settings web page (Figure 28) provides buttons for recalling factory defaults and File Operations for saving and recalling user settings.

Use the two buttons at the bottom of the web page to do the following:

- Set Factory Defaults – select the **Set Factory Defaults** button to recall factory settings to the module. Defaults for all module parameters are listed in [Table 12 on page 83](#).
- Set Factory Names – select the **Set Factory Names** button to recall the input signal factory names on the I/O Config web page ([page 52](#)).

The File Operations **Save to...** and **Load from...** functions explained below are provided for saving the current module configuration to a file or loading a previously saved file.

Figure 28. User Settings Web Page

User Settings

Model: [8972PX](#) Description: [HD/SD/ASI Protection Switch](#)
 Frame Location: [not assigned](#) , Slot: [1](#)

Primary Input:	Present	Status: Good	Standard: 1080i/59.94
Secondary Input:	Present	Status: Good	Standard: 1080i/59.94
Alternate Input:	Present	Status: Good	Standard: 1080i/59.94
Program Output:	Primary Input : Primary In		Standard: 1080i/59.94
Backup Candidate:	Secondary Input : Secondary In		Standard: 1080i/59.94

File Operations

Recall factory settings
 Recall factory names

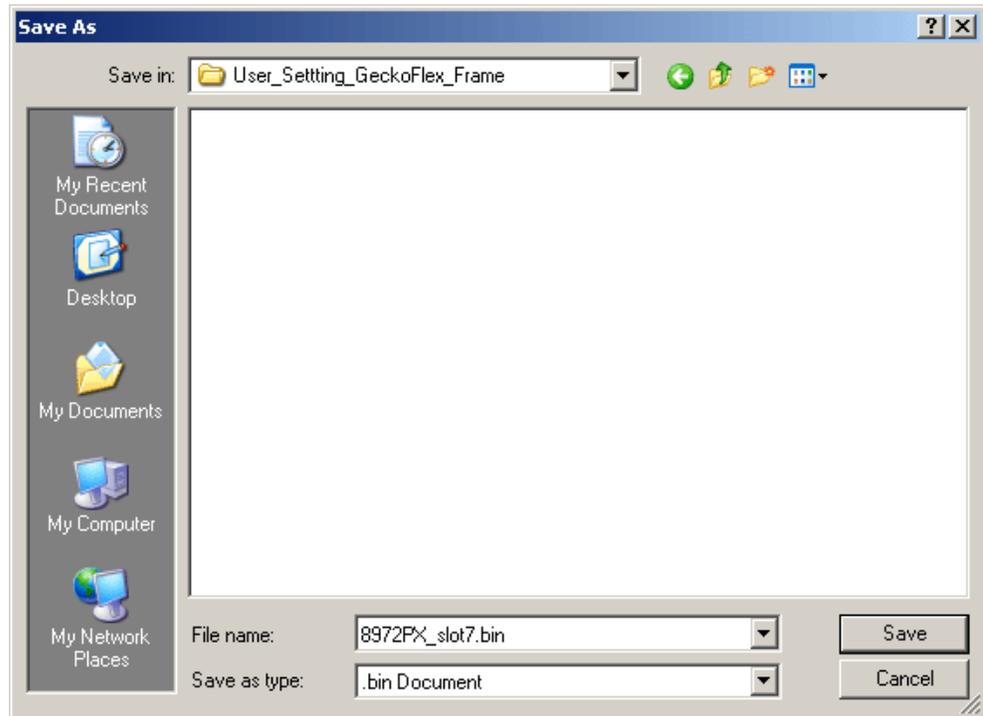
File Operations

Configuration files from the 8972PX module may be saved to a file and stored offline for later recall. To save a file, do the following:

1. Save the current configuration on the module to a file by selecting the **Save to...** button which will bring up the File Download screen (not shown).
2. In the File Download screen select **Save**.
3. This will bring up the Save As screen shown in [Figure 29 on page 66](#).

4. Enter a name in the File name field. This file is saved as a .bin type.

Figure 29. Save As Screen



To load and recall a file, do the following:

1. Selecting the **Load From...** button on the User Settings web page (Figure 28 on page 65) which will bring up the Load Settings web page shown in Figure 30.
2. Enter a path and file name or select **Browse...** to locate the directory where the files have been saved.

Figure 30. Load Settings Web Page

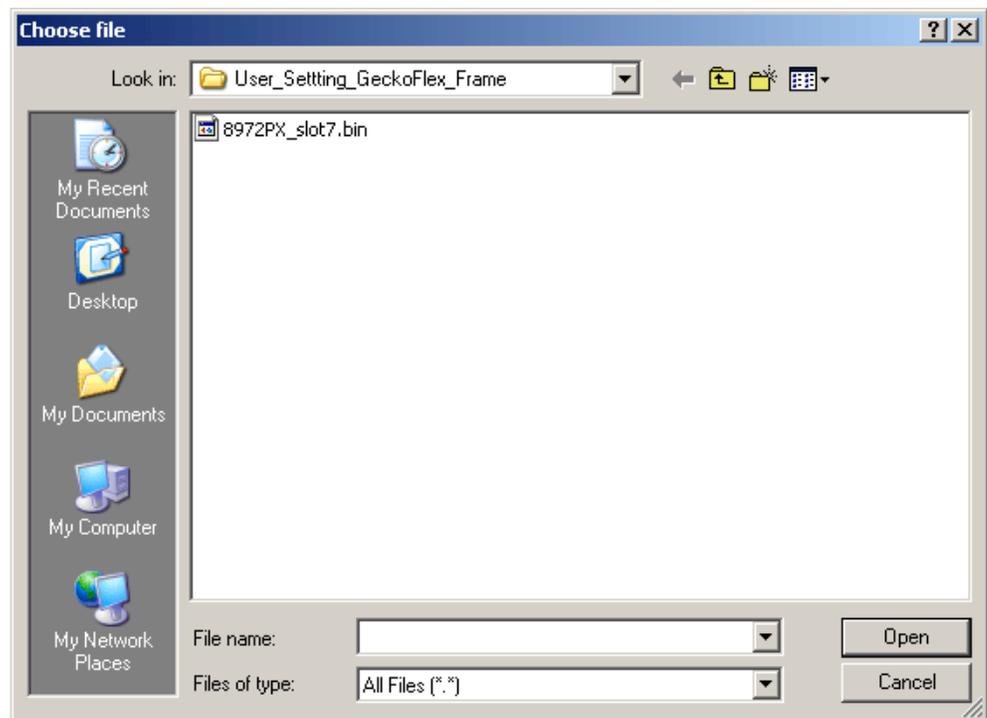


Load settings from file...

Enter filename:

3. This will bring up the Choose File screen shown in Figure 31.

Figure 31. Choose File Screen



4. Select a file to load and then press **Open** to bring the file into the filename field.
5. Press the **Load** button in the Load From... web page ([Figure 30 on page 66](#)) to load the file to the module.

Slot Config Web Page

- [7 8972PX](#)
- [Status](#)
- [I/O Config](#)
- [System Config](#)
- [HD/SD Criteria](#)
- [DVB/ASI Criteria](#)
- [Output Control](#)
- [User Settings](#)
- [Slot Config](#)

Use
this
link

Use the Slot Config web page shown in [Figure 32 on page 69](#) to perform the following functions on the module:

Locate Module

Selecting **Flash** from the **Locate Module** pulldown flashes the yellow COMM and CONF LEDs on the front of the module so it can be located in the frame.

Slot Identification

You may identify the module by typing a specific name in the **Name** field. The assigned name is stored on the 8900NET module and travels with the 8900NET module if it is moved to another frame. Select **Default** to enter the factory default module name.

An asset identification may be entered in the **Asset Tag** field. This will appear on the module Status web page and in the NetConfig inventory report.

Slot Memory

The slot configuration for each media module is automatically polled and refreshed periodically (about every 50 minutes) by the 8900NET module when the **Always Slot Refresh** checkbox on the 8900NET Configuration web page (with 4.3.0 software) and/or the **Restore upon Install** checkbox on any media module Slot Config web page is selected.

When the **Restore upon Install** checkbox on any media module Slot Config web page has been selected, the current configuration from that module is saved in slot memory on the 8900NET module. This allows the current module to be removed and when another module of the same part number, and software version is installed, the configuration saved to the 8900NET module will be downloaded to the installed module. The **Restore upon Install** checkbox must be selected before the current module with the saved configuration is removed.

Note Make sure all modules of the same model type are running the same software version and have the same part number silk-screened on the printed circuit board. Downloading a configuration to a module with a different software version or part number can produce unexpected results.

If a different type of module is installed in this slot, a warning message will state that the original module type has been replaced with another module type. In this case, a **Clear** button will appear allowing you to clear the stored configuration from the previous module.

You may also select the **Learn Module Config** button at any time to save the current configuration for this slot. The configuration is saved on the 8900NET module. If the 8900NET module is removed or powered down, the stored configurations are not saved.

Figure 32. Slot Config Web Page



Slot Config 

Model: [8972PX](#) Description: [HD/SD/ASI Protection Switch](#)
 Frame Location: [not assigned](#) , Slot: [1](#)

Locate Module

Slot IdentificationName: Asset Tag: **Slot Memory** Restore upon Install[Frame Health Reports](#)[LED Reports](#)[SNMP Trap Reports](#)

When no **Restore upon Install** checkboxes on any of the media module Slot Config web pages are selected and the **Always Slot Refresh** checkbox on the 8900NET Configuration web page is unchecked, the slot refresh polling function on the 8900NET module will be disabled. See the **Always Slot Refresh** checkbox description in the *8900NET (Net Card) Network Interface Module Instruction Manual* for more details.

Note Uncheck the **Restore Upon Install** button before downloading new software.

Frame Health Reporting

This web page allows configuration of the alarms and warnings that are reported to the external Frame Health Alarm connector on the rear of the GeckoFlex frame. Refer to *8900NET Instruction Manual* for more details.

LED Reports Link

Select the LED Reports link to open the 8900NET LED Reporting web page. Normally, every module in the frame will report to the 8900NET module any Fault, Signal Loss, Reference Loss, or Config Error conditions. These conditions will be reflected by the status LEDs on the 8900NET module. Using this web page, any of these conditions can be disabled from being reported to the 8900NET module for each individual module and other components (power supplies, fans) in the frame

SNMP Trap Reports Link

Select the SNMP Trap Reports link to open the 8900NET SNMP Reporting web page. This link will only be present when SNMP Agent software has been installed on the 8900NET module. This web page allows configuration of which alarms and warnings that are reported to the SNMP management software.

Refer to the *8900NET Instruction Manual* for complete details on using the 8900NET web pages.

Software Updating

Software updating of the 8972PX modules is done using either an microSD card or the NetConfig Networking Application PC option. The microSD card method is recommended for speed of upload but parts required for this method must be purchased by the customer.

The NetConfig application is available free of charge from the Grass Valley web site. Updating new software with NetConfig is a slightly longer process.

Instructions for using both procedures are given in the 8972PX Release Notes when updated software updates become available. Check the Grass Valley web site for update information.

All modular product documentation can be found in PDF format on the Grass Valley web site at this link:

www.grassvalley.com/docs/modular

Specifications

Table 9. 8972PX Specifications

Parameter	Value
Serial Digital Inputs (Relay-Protected): J9 and J10	
Serial digital input types	HD: SMPTE 292M: <ul style="list-style-type: none"> • HD 1080i/59.94 • HD 720p/59.94 • HD 1080i/50 • HD 720p/50 SD: SMPTE 259M-C: <ul style="list-style-type: none"> • SD 480i/59.94 • SD 576i/50 DVB-ASI compliant
Number of links	2 x 1 (J9/J10: HD/SD/ASI In A, B to Protected Program Output through relays)
Input return loss	>12 dB (5 MHz -1.485 MHz)
Line impedance	75 ohm
Maximum insertion loss	1 dB
Recommended maximum cable length (in/out) ¹	HD: 100 meters Belden 1694A SD: 300 meters Belden 1694A
Serial Digital Input (Unprotected): J11	
Number of inputs	1 (J11: HD/SD/ASI Alternate In)
Jitter tolerance	RP184-1996 compliant
Connector type	BNC
Input impedance	75 ohm
Input return loss	>15 dB (5 MHz to 1.485 MHz)
Maximum cable equalization	HD: 140 meters Belden 1694A SD: 350 meters Belden 1694A
Serial Digital Output (Relay-Protected): J7	
Serial digital output types	See Serial Digital Inputs (Relay-Protected)
Program outputs	1 (J7: Relay-Protected Program)
Connector type	BNC
Output impedance	75 ohm
Equalization	Yes
Reclocking	Yes
Timing jitter (HPF 10 Hz)	HD/SD: < 1 UI / < 0.2 UI
Alignment jitter	HD/SD: < 0.2 UI (HPF 100kHz) / < 0.2 UI (HPF 1 kHz)
Output return loss	> 15 dB (5 MHz-1.485 MHz)
Recommended maximum cable length (in/out) ¹	HD: (100 meters - input length) Belden 1694A SD: (300 meters - input length) Belden 1694A
Serial Digital Outputs: J1/J3, J2/J4, J6/J8, J5	
Serial digital output types	See Serial Digital Input (Relay-Protected)
Number of programmable outputs	6 (3 x 2): output user-configurable as Program, Backup, Primary Input, Secondary Input, or Alternate Input J1/J3: Outputs 1.1 and 1.2 J2/J4: Outputs 2.1 and 2.2 J6/J8: Outputs 3.1 and 3.2

Table 9. 8972PX Specifications - (continued)

Parameter	Value
Program outputs	1 (J5: Program)
Connector type	BNC
Output impedance	75 ohm
Equalization	Yes
Reclocking	Yes
Signal level	800mV +/- 10%
Timing jitter (HPF 10 Hz)	HD/SD: < 1UI/ < 0.2 UI
Alignment jitter	HD/SD: < 0.2 UI (HPF 100kHz)/<0.2 UI (HPF 1 kHz)
Output return loss	> 15 dB (5 MHz-1.485 MHz)
Output signal level	SDI 800 mV p-p, +/- 10%
Note: The unselected input is not loaded and acts as a stub generating undesirable reflections on the unused link.	
Power	
Power consumption	9W /1A@ +12V
MTBF at 40°C	
8972PX-Front Module	425,000 hours
8900PX-DR Rear Module	3,082,000 hours
GPI I/O Connector Relays	
Maximum current (continuous)	0.5 A
Peak current (100 ms)	1.5 A
Peak load voltage	60 V
Minimum hold time for contact closure activation and deactivation	80ms
GPI I/O SubD-25 Connector ²	
Maximum width	15 mm
Maximum length	57 mm
Mechanical	
Frame Type	GeckoFlex
Number of frame slots	2 slots for dual rear
Rear module type	8900PX-DR
Rear module retainer maximum screw torque	4-5 inch-lb./0.45-0.6Nm
Miscellaneous	
Frame temperature range	See specifications in GeckoFlex Frames 8900FX/FF/FFN Instruction Manual available in PDF format at this link: www.grassvalley.com/docs/modular
Operating humidity range	
Non-operating temperature	
Safety cULus certification	File number: E300838
Safety	IEC/EN 60950-1, ANSI/UL60950-1, 73/23/ECC, 89/336/EEC
EMC	FCC class A (1985), EN55103-1, EN55103-2 (1997)
EU Marking	93/68/EEC (22/07/93)
Transport specifications	ETS 300 019-1-2 class 2.2 and 2.3

¹ Cable length is measured as the sum of cable length from the source equipment to the 8972PX input plus the cable length from output J7 to the destination equipment. Refer to [Figure on page 34](#). Source and receiver are compliant with normative document and have cable equalization.

² An optional SubD-25 connector (8900PX-DBS) designed for use on the rear module is available from the factory.

Status Monitoring Summary

There are a number of ways to monitor frame and module status. These methods are summarized here. For more detailed information, refer to the *8900NET (Net Card) Network Interface Module Instruction Manual* and the *8900 Gecko* or *8900 GeckoFlex Frame Instruction Manuals*.

All modular product documentation is available on-line in PDF format at this link:

www.grassvalley.com/docs/modular

The main status monitoring methods include the following:

- External frame alarm output on the rear of the 8900 frame with reporting from the Module Health Bus and other frame status alarm reports,
- LEDs on the Frame Cover, 8900NET module, and individual frame media modules,
- Web browser status reporting for each frame component, and
- SNMP traps, captured by Grass Valley's NetCentral or another SNMP Manager Application.

Note SNMP trap information is only available when an SNMP Agent has been installed and configured.

External Frame Alarm

An external Frame Alarm output is available on pins 8 and 9 of the RS-232 connector on the rear of the frame. The Frame Alarm activates a contact closure when there is an alarm condition on the Module Health Bus or one of the other frame components as reported to the Frame Monitor module in a Gecko 8900TF or GeckoFlex 8900FF frame or the 8900NET module in an 8900TFN and GeckoFlex 8900FFN frame.

- The Module Health bus is a separate line on the frame motherboard that provides a means for older or less capable modules (such as DAs with no microprocessor) that cannot communicate over the Frame (serial) bus to report warning and alarm conditions to the external Frame Alarm. All media modules in the frame report a voltage level to this line when a warning condition occurs on the module. The specific warning or module location is not reported, only an indication that an warning condition has occurred.
- Frame alarm reporting from other frame components can be enabled and disabled using DIP switches on the Frame Monitor and 8900NET module. For frames with an 8900NET module, the Frame Alarm Reporting web page allows configuration of the alarms and warnings that are reported to this external Frame Health Alarm.

LED Reporting

LEDs on the front of media modules, the Frame Monitor or 8900NET modules, and the front covers of the 8900TF/TFN and GeckoFlex FF/FFN frames indicate status of the frame and the installed power supplies, fans in the front covers, and module status. (The 8900TX-V/A and GeckoFlex 8900FX frames have no LED indicators on the front cover.)

LED reporting from the modules in the frame to the 8900NET module is configurable using the 8900NET LED Reporting web page. LEDs for the 8900NET module are described in the *8900NET (Net Card) Network Interface Instruction Manual*

The Status LEDs for this module are described in [Operation Indicator LEDs on page 41](#).

Web Browser Interface

The 8900NET module required in the frame for the 8972PX module controls a web browser GUI that indicates frame and module status on the following web pages:

- Frame Status web page – reports overall frame and module status in colored graphical and text formats. Refer to [Figure 17 on page 45](#) for an example.
- Module Status web page ([Figure 19 on page 51](#)) – shows specific input and reference signal configuration error status to the module along with module status and information (part number, serial number, hardware version, software/firmware/boot versions, and Asset number (as assigned on the Slot Config web page).
- A Status LED icon on each web page reflects the module status on the module Status web page where warnings and faults are displayed and is a link to the module Status web page.

GPI Interface Status Reporting

On the 8972PX module, the GPI interface can also report the status of the Primary, Secondary, and Alternate inputs. Refer to [GPI Relay Status Monitoring on page 39](#) for using this interface.

SNMP Reporting

The Gecko 8900 Series system uses the Simple Network Monitoring Protocol (SNMP) internet standard for reporting status information to remote monitoring stations. When SNMP Agent software is installed on the 8900NET module, enabled status reports are sent to an SNMP Manager such as the Grass Valley's NetCentral application.

Status reporting for the frame is enabled or disabled with the configuration DIP switches on the 8900NET module. Most module status reporting items can be enabled or disabled on individual configuration web pages.

Service

The 8972PX modules make extensive use of surface-mount technology and programmed parts to achieve compact size and adherence to demanding technical specifications. Circuit boards should not be serviced in the field unless directed otherwise by Customer Service.

Power-up Diagnostics Failure

If the module has not passed self-diagnostics, do not attempt to troubleshoot. Return the unit to Grass Valley (see [Module Repair](#) below).

Troubleshooting

Electronic Circuit Breaker

The electronic circuit breaker works during a fault condition or an overcurrent which stops the module.

Remove the module and replace it in the frame. If the problem persists, please refer to Grass Valley Customer Service.

Module Repair

If the module is still not operating correctly, replace it with a known good spare and return the faulty module to a designated Grass Valley repair depot. Call your Grass Valley representative for depot location.

Contacting Grass Valley

If you need to contact Grass Valley for any module issues, refer to [Contacting Grass Valley on page 4](#) at the front of this document for the Grass Valley Customer Service Information number.

Warnings and Alarm Summary Tables

Table 10 describes the different type of warnings and alarms that may occur on the 8972PX module. The SNMP Trap Index column shows the trap index number used in conjunction with Table 11 on page 77.

Table 11 on page 77 gives detailed information on the SNMP Trap Index for use with an SNMP application such as NetCentral.

Table 10. List of Warnings and Alarms

Alarm Type	Web Page Description	FAULT LED State	Comments	SNMP Trap Index
Fault	Firmware failure	On	Firmware configuration failure	1
Fault	Firmware DCM not locked	On	Firmware Internal Clock manager failure	2
Fault	Bad Firmware image	On	A Wrong Firmware Image has been downloaded	3
Fault	Power Supply failure	On		4
Warning	For future use			5
Warning	Wrong Rear Module (incompatible with 8972PX)	Flash		6
Warning	Primary Input Signal Not Detected	Flash		7
Warning	Primary Input is Invalid or the Wrong Format	Flash		8
Warning	Primary SD Input Has No EDH Inserted	Flash		9
Warning	Secondary Input Signal Not Detected	Flash		10
Warning	Secondary Input is Invalid or the Wrong Format	Flash		11
Warning	Secondary SD Input Has No EDH Inserted	Flash		12
Warning	Alternate Input Signal Not Detected	Flash		13
Warning	Alternate Input is Invalid or the Wrong Format	Flash		14
Warning	Alternate Input Has No EDH Inserted	Flash		15
Informational	GPI is controlling the Input Signal Switch	N/A	This prevents all switch actions from web page/Newton C/P/local control	16

Table 11. SNMP Trap Types and Index Using NetCentral

Trap Index	Trap Type	NetCentral Message	NetCentral Description
1	Generic	Module Slot Fault	Replace the faulty or removed module
2	Generic	Module Slot Fault	Replace the faulty or removed module
3	Generic	Module Slot Fault	Replace the faulty or removed module
4	Generic	Module Slot Fault	Replace the faulty or removed module
5	Generic	Generic Message	Configuration Error Detected
6	Generic	Generic Message	Configuration Error Detected
7	Specific	Generic Message	Primary Input Signal Lost
8	Specific	Generic Message	Primary Input is Invalid or the Wrong Format
9	Specific	Generic Message	Primary SD Input Has No EDH Inserted
10	Specific	Generic Message	Secondary Input Signal Lost
11	Specific	Generic Message	Secondary Input is Invalid or the Wrong Format
12	Specific	Generic Message	Secondary SD Input Has No EDH Inserted
13	Specific	Generic Message	Alternate Input Signal Lost
14	Specific	Generic Message	Alternate Input is Invalid or the Wrong Format
15	Specific	Generic Message	Alternate SD Input Has No EDH Inserted
16	Specific	Generic Message	Module is Controlled by GPI
17	Specific	Generic Message	Module is not Controlled by GPI anymore
18	Specific	Generic Message	Primary Input Signal Regained
19	Specific	Generic Message	Secondary Input Signal Regained
20	Specific	Generic Message	Alternate Input Signal Regained
21	Specific	Generic Message	Primary SD Input EDH Regained
22	Specific	Generic Message	Secondary SD Input EDH Regained
23	Specific	Generic Message	Alternate SD Input EDH Regained
24	Specific	Generic Message	Primary Input has no error anymore
25	Specific	Generic Message	Secondary Input has no error anymore
26	Specific	Generic Message	Alternate Input has no error anymore
27	Specific	Generic Message	Primary Input becomes Bad
28	Specific	Generic Message	Secondary Input becomes Bad
29	Specific	Generic Message	Alternate Input becomes Bad
30	Specific	Generic Message	Primary Input becomes Good
31	Specific	Generic Message	Secondary Input becomes Good
32	Specific	Generic Message	Alternate Input becomes Good
33	Specific	Generic Message	Program Output has Switched to Primary Input
34	Specific	Generic Message	Program Output has Switched to Secondary Input
35	Specific	Generic Message	Program Output has Switched to Alternate Input

SNMP Features

Overview

In addition to the standard 8900 module SNMP monitoring reporting, the 8972PX module allows two read/write parameters to manage the input selection (Input Select) and module mode of operation (Switchback Strategy) through the SNMP interface. Refer to [Using Additional SNMP Commands on page 80](#) for details.

The 8972PX module must be in a GeckoFlex frame with an 8900NET module running software version 4.2.0 or later, and the MIB (Management Information Base) version 2.0.0 must be used.

The SNMP interface and its settings for the 8900NET module are described in the *8900NET Instruction Manual* available online at this URL:

www.grassvalley.com/docs/modular

The version 2.0.0 MIB is available from the Grass Valley ftp site at this location:

<ftp://ftp.grassvalley.com/modular/MIB/v2.0.0>

Using Additional SNMP Commands

To select the program input, use this parameter

(mcmFssInputSelect, OID 1.3.6.1.4.1.4947.2.3.2.1.2.4.1.8.slot#)

- input-primary (1)
- input-secondary (2)
- input-alternate (3)

To select the mode of operation, use this parameter:

(mcmFssSwitchbackStrategy, OID 1.3.6.1.4.1.4947.2.3.2.1.2.4.1.73.slot#)

- maintain-stability (1)
- maintain-primary (2)
- manual (3)

Note the following about using these commands:

- Setting the Program Input via SNMP (set mcmFssInputSelect) is equivalent to forcing the input with NetConfig.
- Reading the Program Input via SNMP (get mcmFssInputSelect) is just receiving information about the current input.
- Setting the Switch Mode via SNMP (set mcmFssSwitchBack-Strategy) is equivalent to forcing the Switch Mode with NetConfig.
- Reading the Switch Mode via SNMP (get mcmFssSwitchBack-Strategy) is just receiving information about the current Switch Mode.

Note These two parameters behave the same with SNMP as for NetConfig or using the Newton Control Panel. In particular, if a specific input is forced, the module mode of operation becomes Manual.

For help in locating these MIB commands, the Input Select command is highlighted in the tree in [Figure 33 on page 81](#) and the Switchback Strategy is highlighted the tree in [Figure 34 on page 82](#).

Figure 33. Input Select MIB Location

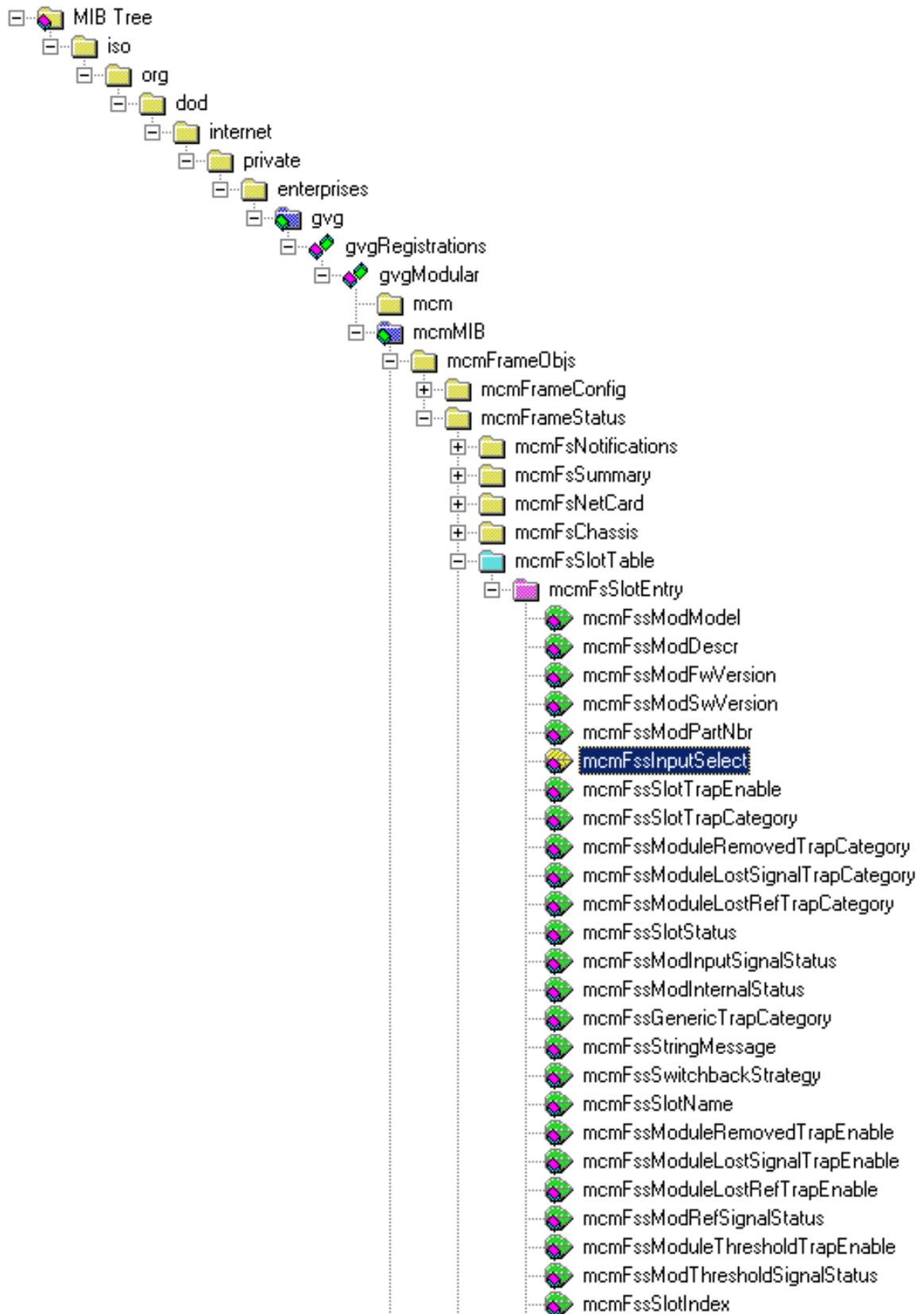
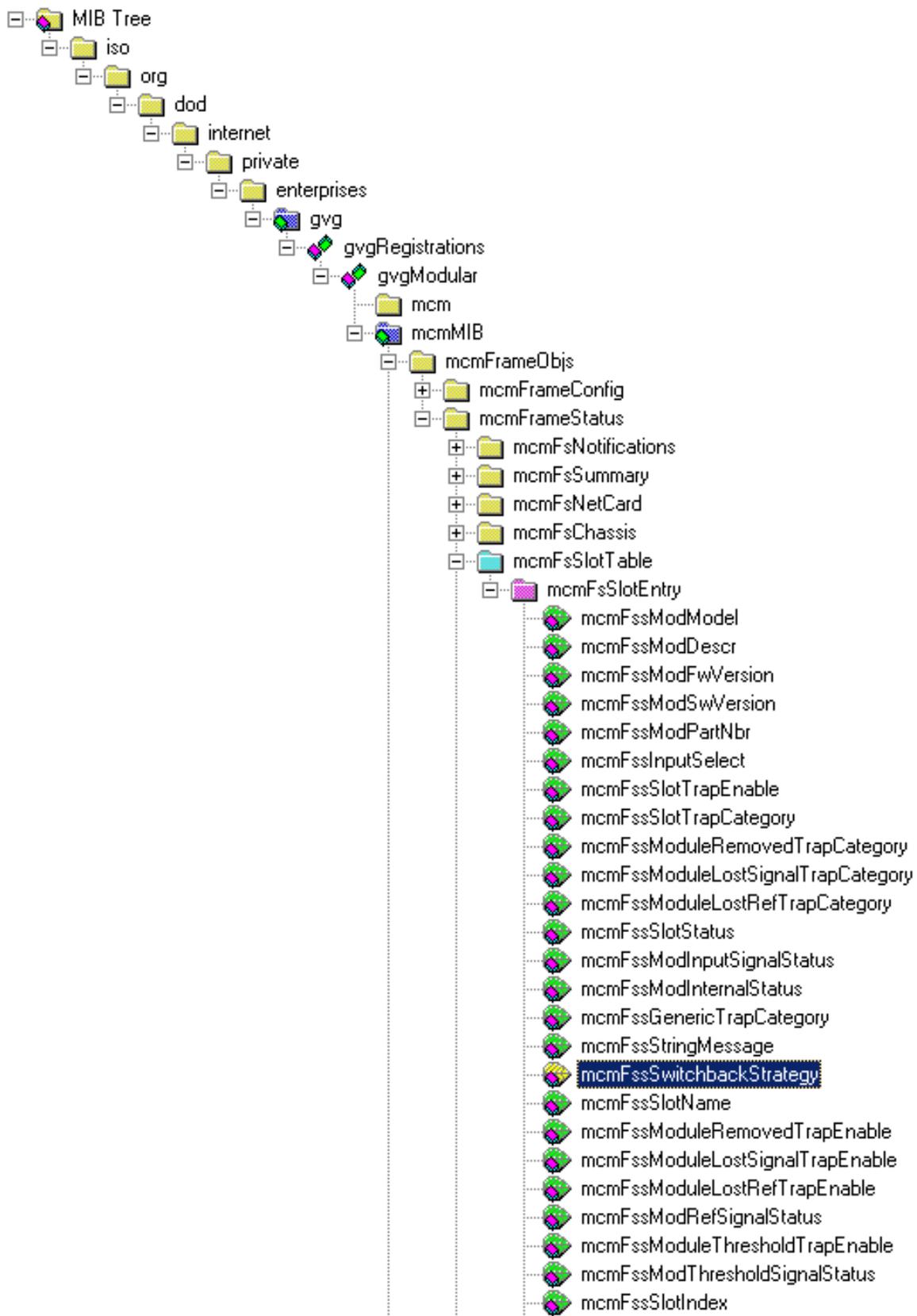


Figure 34. Switchback Strategy MIB Location



Configuration Summary Table

Table 12 provides a complete summary of the 8972PX module functions and a comparison of the functionality available with each control type along with the ranges and default values for each parameter and notes on each control.

Table 12. Summary of 8972PX Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Control Panel
Enable Primary input status reporting	Enable	Enable or Disable	I/O Config Primary Input Reporting checkbox	N/A
Enable Secondary input status reporting	Enable	Enable or Disable	I/O Config Secondary Input Reporting checkbox	N/A
Enable Alternate input reporting	Enable	Enable or Disable	I/O Config Alternate Input Reporting checkbox	N/A
Input standard selection	Auto	Auto, DVB/ASI, HD 1080i 59.94, HD 720p 59.94, HD 1080i 50, HD 720p 50, SD 480i 59.94, or SD 576i 50.	System Config/ Input Standard Selection Input Standard pulldown	PrgOutStd
Set Bypass Mode	Active Processing Enabled	Passive Bypass Only or Active Processing Enabled	System Config/ Bypass Mode Bypass Mode Control Passive Bypass Only or Active Processing Enabled radio button	N/A
Use Alternate input in Autonomous mode	Disable	Enable or Disable	System Config/ Alternate Input Usage In Autonomous Switch Mode Use Alternate Input Enable or Disable radio buttons	UseAltIn
Set DVB/ASI packet length	188	188 or 204	System Config/ DVB/ASI Packet Length Packet Length (in bytes) 188 or 204 radio button	N/A
Enable EDH/CRC error detection for HD/SD criteria	Disable	Enable or Disable	HD/SD Criteria Valid Signal Criteria EDH/CRC Errors Enable checkbox	EDHCRCEn
Set EDH/CRC threshold value for error fields before switching	4	1, 2, 4, 6, 8, 16, 24, 32, 64, 96, 128, 192, 256, 512, 768, 1024	HD/SD Criteria EDH/CRC Errors EDH/CRC Error Threshold Error Fields pulldown	FldErrThrd
Set EDH/CRC threshold value for error fields before switching	4 Error Fields 16 Total Fields	1, 2, 4, 6, 8, 16, 24, 32, 64, 96, 128, 192, 256, 512, 768, 1024	HD/SD Criteria EDH/CRC Errors EDH/CRC Error Threshold Total Fields pulldown	NumFldThrd

Configuration Summary Table

Table 12. Summary of 8972PX Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Control Panel
Reset EDH/CRC errors on Primary, Secondary, and Alternate signals	-	Reset	HD/SD Criteria EDH/CRC Errors EDH/CRC Detected Errors RESET buttons	N/A
Set PID for Stream Criteria, Primary Stream, Streams 1-4	Stream 1 - PID 0 Stream 2 - PID 1 Stream 3 - PID 2 Stream 4 - PID 3	0 to 8191	DVB/ASI Criteria Stream Criteria, Primary Stream Stream 1-4 Enter value into PID boxes 1-4	N/A
Stream Criteria, Secondary Stream, for streams 1-4	Follows Primary Stream		DVB/ASI Criteria Stream Criteria, Secondary Stream Stream 1-4 Follows Primary Stream	
Set Stream Criteria, Alternate Stream, for streams 1-4	Stream 1 - PID 0 Stream 2 - PID 1 Stream 3 - PID 2 Stream 4 - PID 3	0 to 8191	DVB/ASI Criteria Stream Criteria, Alternate Stream Stream 1-4 Enter value into PID boxes 1-4	PSSt1PreEn PSSt2PreEn PSSt3PreEn PSSt4PreEn
Enable Presence reporting for Primary Streams 1-4	Disabled	Enable or Disable	DVB/ASI Criteria Stream Criteria, Primary Stream Stream 1-4 Criteria/Presence Presence Enable checkboxes 1-4	
Enable Presence reporting for Secondary Streams 1-4	Follows Primary Stream		DVB/ASI Criteria Stream Criteria, Secondary Stream Stream 1-4 Criteria/Presence Follows Primary Stream	
Enable Presence reporting for Alternate Streams 1-4	Disabled	Enable or Disable	DVB/ASI Criteria Stream Criteria, Alternate Stream Stream 1-4 Criteria/Presence Presence Enable checkboxes 1-4	AIS1PreEn AIS2PreEn AIS3PreEn AIS4PreEn
Enable Continuity Error reporting for Primary Streams 1-4	Disabled	Enable or Disable	DVB/ASI Criteria Stream Criteria, Primary Stream Stream 1-4 Criteria/Continuity Errors Continuity Errors Enable checkboxes 1-4	PSS1CCErEn PSS2CCErEn PSS3CCErEn PSS4CCErEn
Enable Continuity Error reporting for Secondary Streams 1-4	Follows Primary Stream		DVB/ASI Criteria Stream Criteria, Secondary Stream Stream 1-4 Criteria/Continuity Errors Follows Primary Stream	
Enable Continuity Error reporting for Alternate Streams 1-4	Disabled	Enable or Disable	DVB/ASI Criteria Stream Criteria, Alternate Stream Stream 1-4 Criteria/Continuity Errors Continuity Errors Enable checkboxes 1-4	AS1CCErEn AS2CCErEn AS3CCErEn AS4CCErEn
Force Primary, Secondary, or Alternate with web page manual control. (Selecting Force Primary, Force Secondary or Force Alternate sets Switchback Strategy mode to Manual). If Switchback Strategy is set to Maintain Primary or Maintain Stability, this control will be set to Autonomous.	Autonomous	Force Primary, Force Secondary, Force Alternate, or Autonomous	Output Control/ Program Output Selection Input Force Primary button	PgrOutSel
			Output Control/ Program Output Selection Input Force Secondary button	
			Output Control/ Program Output Selection Input Force Alternate button	

Table 12. Summary of 8972PX Configuration Functions

Function Type	Default	Range/Choices Resolution	Web Page/ Function Name	Newton Control Panel
Switchback choices	Maintain Stability	Maintain Primary, Maintain Stability, or Manual.	Output Control/ Switching Strategy Switchback Maintain Primary, Maintain Stability or Manual radio button	SwBckStrgy
Switchback delay (applies to Maintain Primary only)	4 sec	0 to 254 sec	Output Control/ Switching Strategy Maintain Primary Delay (Sec)	SwBckDel
Select inputs for output pair 1.1 (J1) and 1.2 (J3)	Program	Program, Backup, Primary, Input, Secondary Input, or Alternate Input.	Output Control/ Programmable Outputs Selection Input for Output Pairs 1.1 and 1.2 Input pulldown	OutSel1
Select inputs for output pair 2.1 (J2) and 2.2 (J4)	Program	Program, Backup, Primary, Input, Secondary Input, or Alternate Input.	Output Control/ Programmable Outputs Selection Input for Output Pairs 2.1 and 2.2 Input pulldown	OutSel2
Select inputs for output pair 3.1 (J6) and 3.2 (J8)	Program	Program, Backup, Primary, Input, Secondary Input, or Alternate Input.	Output Control/ Programmable Outputs Selection Input for Output Pairs 3.1 and 3.2 Input pulldown	Outsel3
Recall factory default parameters	N/A	See Defaults column	User Settings/ Recall Factory Defaults Set Factory Defaults button	N/A
Recall factory names	N/A	See I/O Config web page	User Settings/ Recall Factory Defaults Set Factory Names button	N/A

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