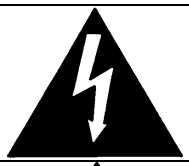
Model 5600ACO2
Automatic Changeover

Instruction Manual

EVERTZ MICROSYSTEMS LTD.
5288 John Lucas Drive,
Burlington, Ontario,
Canada L7L 5Z9
Phone: 905-335-3700
Sales: sales@evertz.com Fax: 905-335-3573
Tech Support: service@evertz.com Fax: 905-335-0909
Web Page: http://www.evertz.com

Version 1.2.1, January 2007

IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.

- Read this information
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOSITURE”

WARNING
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT”

WARNING
TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE”

WARNING
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERALBLE”

INFORMATION TO USERS IN EUROPE

NOTE

This equipment with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065 Product Safety
- EN55103-1 Electromagnetic Interference Class A (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary version	Mar 04
1.0	First release – changes to DIP switch descriptions Specifications updated	Mar 05
1.1	Updated Safety Instructions, fixed minor typographical errors	Jun 05
1.1.1	Corrected rear panel drawing	Aug 06
1.2	Block diagram incorporated into manual Corrected Figure 2 System diagram for new Rear Panel Added support for Word Clock, added VistaLINK® section	Oct 06
1.2.1	Added Ethernet Specification	Jan 07

This page left intentionally blank

TABLE OF CONTENTS

Figures

Tables

This page left intentionally blank

1. OVERVIEW

The 5600ACO2 Automatic Changeover is intended for use with two 5600MSC Master Clock / Sync Generators. The 5600ACO2 system uses latching relays to ensure maximum reliability and minimal disruption in the event of any failure. The complete system provides the highest level of security for television station video and time synchronization systems. Two power supplies are included as a standard feature, to alleviate any single point of failure concerns.

The front panel has three switches, recessed into the panel for added security. There is an AUTO / MANUAL switch, a GPI / FRONT PANEL switch and an A / B select switch for manual changeover. In automatic mode, all signals from both 5600MSCs are scrutinized to detect any abnormal signals. For example if a level, pulse width, phase, time code error or other abnormality is detected, the 5600ACO2 circuitry will trigger and the entire bank of signals will be switched to the backup 5600MSC. In manual mode the changeover can be operated from a GPI or from the front panel switch. Fifty-Six LEDs provide status information as to the health of the two 5600MSCs, together with indication as to which one is active. In addition two GPO outputs indicate which master is active and when the inputs from both masters are not the same.

The 5600ACO2 features selectable voting via VistaLINK® for autochangeover feature. Individual inputs may selectively be included or excluded in the voting process to drive autochangeover logic. (**Feature only available on 5600ACO2 model).**

The 5600ACO2 offers connections for 6 colour black, (or bi-level or tri-level sync signals), 4 HD SDI test signals, 4 SDI test signals, 1 analog video test signal, Word Clock, 10MHz, DARS, AES, analog audio, and two linear time codes (LTC) to each of the two Master 5600MSCs. Each 5600MSC Master offers two LTC outputs that may be used for different time codes. All four LTC signals are fed to the 5600ACO2 on two 'D' connectors, one for each Master. The LTC outputs from the selected master are available on two XLR connectors.

Each 5600MSC is equipped with 2 GPI inputs and 2 GPO outputs. To facilitate installation, these connections are connected through to a 2 x 6 pin terminal block on the 5600ACO2. The outputs from the 5600MSCs are passed straight through the 5600ACO2. The inputs to the 5600MSCs are internally split by a 'Y' connector, to ensure that both 5600MSCs receive the same GPI contact closures.

In the event of a changeover occurrence, it is necessary that all outputs on one 5600MSC have the same timing as those on the other. Identical timing for both 5600MSCs is assured by locking both to the same frequency and phase source (e.g. GPS or by genlocking one 5600MSC to the other). Identical phasing of the independent black outputs is assured by implementing the *Syncro* mode in the 5600MSCs. To use this mode, both 5600MSC communication ports are connected together using the link cable supplied with the 5600ACO2. With both 5600MSCs operating in *Syncro* mode, timing adjustments made to one 5600MSC will be automatically applied to both. The link cable is connected permanently, so that any system re-timing will be applied to both 5600MSC units.

Features:

- Relay switches for all the system critical outputs from two 5600MSC units
  - 6 video/sync outputs
  - 4 HD SDI test signal outputs
  - 4 SDI test signal outputs
  - 1 Analog video test signal output
  - 10MHz frequency reference or Word Clock output
  - Balanced and unbalanced DARS and AES outputs.
  - Balanced analog audio output
  - Linear time code outputs
- Automatic changeover is a voting system based on which source has the most valid signals and that the good signals on the present master are also on the backup.
- Three front panel switches select automatic, front panel or GPI activation of changeover
- Front panel switches are recessed to prevent accidental operation
- 42 Front panel status LEDs show the health of each of the inputs
- 14 Front panel status LEDs show the operational modes of the changeover
- Redundant power supply standard
- VistaLINK® capable offering remote monitoring and configuration capabilities via SNMP using the model 9000NCP Network Control Panel or Evertz VistaLINK® PRO or other third party SNMP manager software.

Signal Type	Inputs	Outputs
Sync	12 BNC	6 BNC
Word Clock / 10 MHz	2 BNC	1 BNC
DARS / AES	4 BNC	2 BNC
LTC	2 DB9	2 Male XLR
GPIO	2 DB9	Terminal Strip
Balanced DARS / AES / Analog audio	2 Terminal Strips	Terminal Strip
HD SDI	8 BNC	4 BNC
SD SDI	8 BNC	4 BNC
Analog Video TG	2 BNC	1 BNC

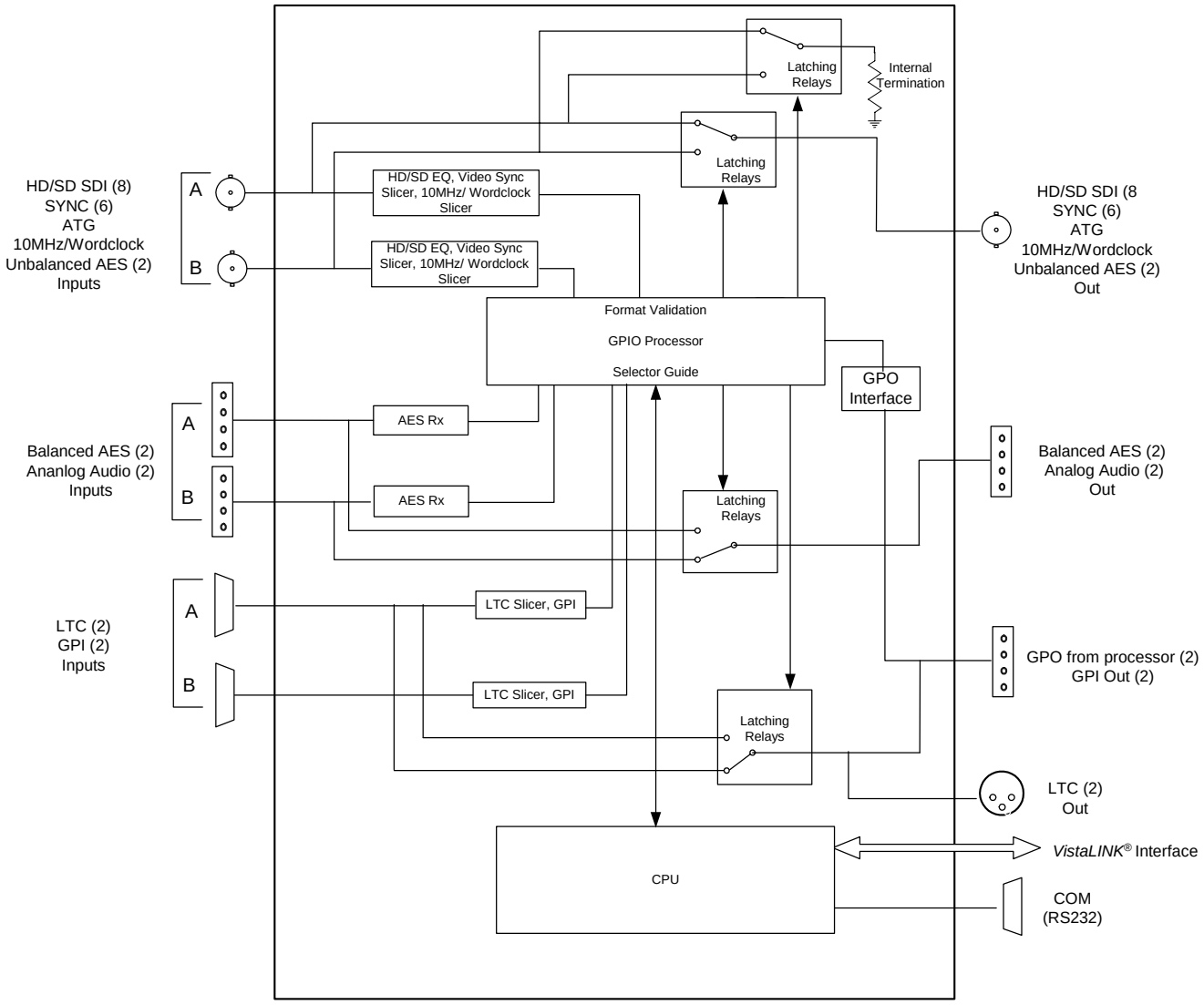


Figure 1-1: 5600ACO2 Block Diagram

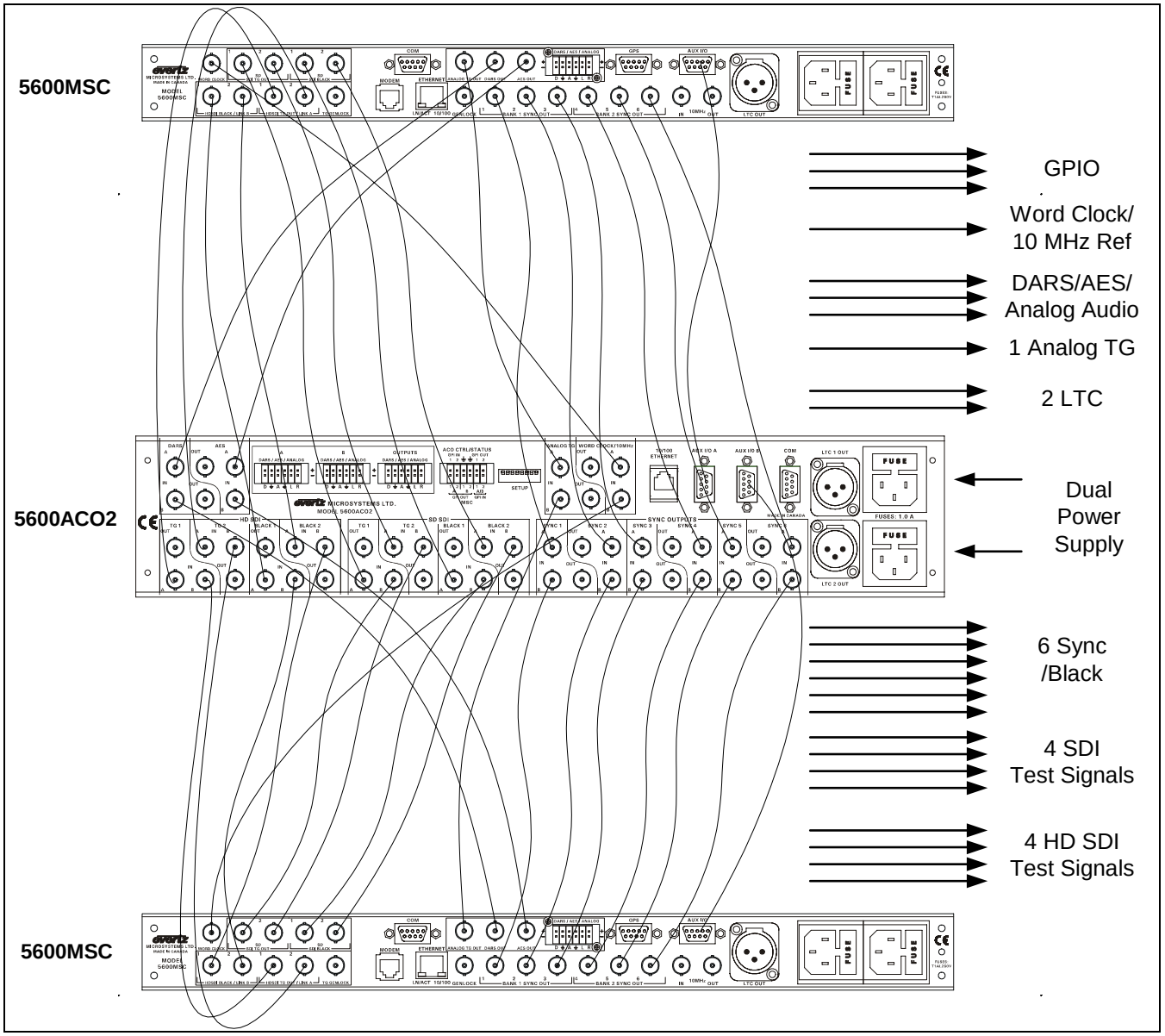


Figure 1-2: Redundant Master Clock/SPG with Auto Changeover System Diagram

1.1. HOW TO USE THIS MANUAL

This manual is organized into 4 chapters: Overview, Installation, Operation, and Technical Information. There are individual tables of contents at the beginning of each chapter as well as an overall table of contents at the beginning of the manual to aid in finding the information you want.

This symbol is intended to alert the user to important operating instructions.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important safety related operating and maintenance (Servicing) instructions in this manual.

2. INSTALLATION

2.1. REAR PANEL

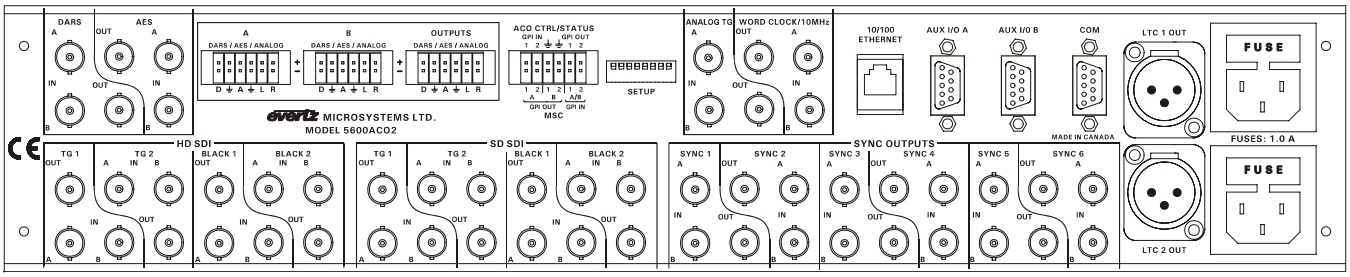


Figure 2-1: 5600ACO2 Rear Panel

The following sections describe the purpose of the rear panel connectors of the 5600ACO2. Sections 2.1.1 to 2.1.4 describe the specific signals that should be connected to the 5600ACO2. Sections 2.4 and 2.5 give more detail on connecting the system.

2.1.1. Coaxial Connections

There are 18 groups of 3 BNC connectors on the 5600ACO2 rear panel. In each group there is one labelled A, another labelled B for connection of the indicated signal from the respective 5600MSC Master Clock/SPG. The BNC labelled OUT provides the output from the auto changeover unit for further distribution throughout your plant.

DARS OUT: This group of BNC connectors is for connecting the Digital Audio Reference Signal (DARS) outputs.

AES OUT: This group of BNC connectors is for connecting the Unbalanced AES Audio outputs.

SYNC 1 to 6: These groups of BNC connectors are for connecting the sync pulse / colour black outputs.

HD SDI: These groups of BNC connectors are for connecting the HD Test signal generator outputs.

SD SDI: These groups of BNC connectors are for connecting the SD Test signal generator outputs.

ANALOG TG: This group of BNC connectors is for connecting the Analog Video Test signal generator outputs.

WORD CLOCK/10 MHz: This group of BNC connectors is for connecting the 10 MHz outputs. When the 5600ACO2 is fitted with firmware version 2.1 build 1 or later these BNC connectors can also be used for connecting the Word Clock outputs. On early versions of the 5600ACO2 this BNC group was labelled 10 MHz.

2.1.2. Balanced AES, DARS and Analog Audio Connections

DARS/AES/ANALOG: These 12 pin terminal strips are for connecting the balanced version of the AES and DARS signals as well as two balanced analog audio signals. The output cables can be secured into the removable portion of the terminal strips using a small screwdriver. The removable part of the terminal strip is then inserted into the rear panel and secured using the hold down screws. The pinout of these connectors is shown in Table 2-1.

DARS OUT +	GND	AES OUT +	GND	LEFT +	RIGHT +
DARS OUT -	GND	AES OUT -	GND	LEFT -	RIGHT -

Table 2-1: DARS/AES/ANALOG Terminal Strip Pin Definitions

2.1.3. Linear Time Code, Parallel Remote Control and Auxiliary Connections

AUX I/O: These two 9 pin male 'D' connectors contain GPI inputs and outputs and two LTC outputs from the 5600MSC units and should be connected to the AUX I/O Connectors on the respective 5600MSC units using the straight through 9 pin cables provided. The pinout of the **AUX I/O** connector is as follows:

Pin #	Name	Description
1	LTC1+	LTC 1 + output from 5600MSC.
2	GPO1	GPO 1 output from 5600MSC
3	LTC2+	LTC 2 + output from 5600MSC
4	GPI1	GPI 1 input from 5600MSC
5	GND	Signal Ground.
6	GPI2	GPI 2 input from 5600MSC
7	GPO2	GPO 2 output from 5600MSC
8	LTC2-	LTC 2 - output from 5600MSC
9	LTC1-	LTC 1 – output from 5600MSC

Table 2-2: AUX I/O Pin Definitions

LTC 1 OUT, LTC 2 OUT: These two male XLR connectors provide the balanced LTC1 and LTC2 time code outputs from the changeover.

ACO CTRL/STATUS: The top row of the 12 pin terminal strip has two GPI inputs to control the 5600ACO2 and two GPI Outputs that provide tallies to indicate the status of the 5600ACO2.

MSC: The bottom row of the 12 pin terminal strip has the two GPI Outputs from the A and B 5600MSC units and a pair of GPI inputs that will be connected to both the A and B 5600MSC units.

The cables can be secured into the removable portion of the terminal strips using a small screwdriver. The removable part of the terminal strip is then inserted into the rear panel

and secured using the hold down screws. The pinout of this connector is shown in Table 2-3.

ACO GPI1	ACO GPI2	GND	GND	ACO GPO1	ACO GPO2
MSC A GPO1	MSC A GPO2	MSC B GPO1	MSC B GPO2	MSC A & B GPI1	MSC A & B GPI2

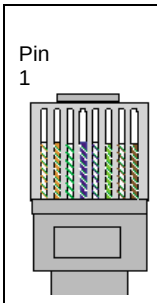
Table 2-3: ACO CTRL/STATUS and MSC GPIO Terminal Strip Pin Definitions

2.1.4. Ethernet Connections

The 5600ACO2 can be configured using the *VistaLINK*® -C Configuration tool connected by Ethernet. (See section 5.1.1 for information on configuring the IP address of the 5600ACO2 and section 5.1.2 for information about installing and using the *Vista*LINK™ software)

The 5600ACO2 is designed to be used with either 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) also known as *Fast Ethernet*, twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be "straight through" with a RJ-45 connector at each end. Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the 5600ACO2 and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-4. A colour code wiring table is provided in Table 2-4 for the current RJ 45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.



Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X
3	Receive +	White/Orange	White/Green	X
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	N/A	White/Blue	White/Blue	Not used (required)
6	Receive –	Orange/White or Orange	Green/White or Green	X
7	N/A	White/Brown	White/Brown	Not used (required)
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-4. Standard RJ45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ 45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins, a crossover cable made for one will also work with the other.
- Pairs may be solid colours and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the 5600ACO2 and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. 5600ACO2 and PC/laptop via network hub) is 675 feet (205 m). When you have connected the 54600ACO2 and set up the IP address you should 'ping' the device from your PC to make sure that it is connected correctly.

2.1.5. Power Connections

LINE: The 5600ACO2 has redundant universal power supplies operating on 100 to 240VAC, 60 or 50 Hz.

2.2. MOUNTING

The 5600ACO2 is equipped with rack mounting angles and fits into a standard 19 inch by 1 3/4 inch (483 mm x 45 mm) rack space. The mounting angles may be removed if rack mounting is not desired.

2.3. POWER REQUIREMENTS

Power requirements are 100 to 240 volts AC at 50 or 60 Hz. The 5600ACO has redundant universal power supplies that automatically sense the input voltage. Power should be applied by connecting a 3-wire grounding type power supply cord to each of the power entry modules on the rear panel. The power cord should be minimum 18 AWG wire size; type SVT marked VW-1, maximum 2.5 m in length.

The power entry modules combine a standard power inlet connector, two 5 x 20 mm fuse holders and an EMI line filter. See section 4.4.1 for information on changing the fuses

CAUTION - To reduce the risk of electric shock, grounding of the centre pin of the mains plug must be maintained

Make sure that both power cords are disconnected before opening the top cover of the unit.

2.4. 5600MSC CONNECTIONS

The 5600MSC unit connected to the A inputs of the 5600ACO2 will be called *Master A*. The 5600MSC unit connected to the B inputs of the 5600ACO2 will be called *Master B*.

2.4.1. Sync Outputs

Connect the six Sync outputs of the *Master A* 5600MSC unit to the A Sync inputs of the 5600ACO2. Connect the six Sync outputs of the *Master B* 5600MSC unit to the B Sync inputs of the 5600ACO2. Connect the Sync outputs of the 5600ACO2 to your plant distribution amplifier system.

To ensure proper signal detection and distribution, terminate each sync output with 75Ω (for example at the input of a distribution amplifier). If a sync output is double terminated or unterminated (as may be the case when the signals are directly connected to a patch panel), the 5600ACO2 will hunt for a good input signal by switching back and forth between input A and B. The flashing LEDs will indicate the Sync output at fault.

2.4.2. 10 MHz Output

Connect the 10 MHz output of the *Master A* 5600MSC unit to the A Word Clock/10 MHz input of the 5600ACO2. Connect the 10 MHz output of the *Master B* 5600MSC unit to the B Word Clock/10 MHz input of the 5600ACO2. Connect the Word Clock/10 MHz output of the 5600ACO2 to your plant 10 MHz reference system. On early versions of the 5600ACO2 this BNC group was labelled 10 MHz.

2.4.3. Word Clock Output

If your 5600MSC units are fitted with the WC option you will need to make sure that the 5600ACO2 is fitted with firmware version 1.2 build 1 in order to properly monitor the Word Clock signal. Connect the Word Clock output of the *Master A* 5600MSC unit to the A Word Clock/10 MHz input of the 5600ACO2. Connect the Word Clock output of the *Master B* 5600MSC unit to the B Word Clock/10 MHz input of the 5600ACO2. Connect the Word Clock/10 MHz output of the 5600ACO2 to your plant Word Clock distribution amplifier system.

Some versions of the 5600MSC do not have a direct Word Clock output. On these units you can derive a Word Clock signal from each master clock by connecting the DARS output to a 520DARS-W module. The outputs of each of these modules may then be connected to the appropriate Word Clock/10 MHz inputs of the 5600ACO2 as described above.

2.4.4. Unbalanced DARS and AES Outputs

If your 5600MSC units are fitted with the STG option, connect the unbalanced DARS and AES outputs of the *Master A* 5600MSC unit to the A DARS and AES inputs of the 5600ACO2. Connect the unbalanced DARS and AES outputs of the *Master B* 5600MSC unit to the B DARS and AES inputs of the 5600ACO2. Connect the DARS and AES outputs of the 5600ACO2 to your plant's unbalanced AES distribution amplifier system.

2.4.5. Balanced DARS, AES and Analog Audio Outputs

If your 5600MSC units are fitted with the STG option, connect the balanced DARS, AES and analog audio outputs of the *Master A* 5600MSC unit to the A DARS, AES and analog audio input terminal strip of the 5600ACO2. Connect the balanced DARS, AES and analog audio outputs of the *Master B* 5600MSC unit to the B DARS, AES and analog audio input terminal strip of the 5600ACO2. Connect the DARS, AES and analog audio output terminal strip of the 5600ACO2 to your plant balanced AES and analog audio distribution amplifier systems. The cables can be secured into the removable portion of the terminal strips using a small screwdriver. The removable part of the terminal strip is then inserted into the rear panel and secured using the hold down screws.

2.4.6. Video Test Signal Generator Outputs

If your 5600MSC units are fitted with the STG option, connect the Analog TG output of the *Master A* 5600MSC unit to the A Analog TG input of the 5600ACO2. Connect the Analog TG output of the *Master B* 5600MSC unit to the B Analog TG input of the 5600ACO2. Connect the Analog TG output of the 5600ACO2 to your plant analog video distribution amplifier system.

If your 5600MSC units are fitted with the STG option, connect the SD SDI TG outputs of the *Master A* 5600MSC unit to the A SD SDI TG input of the 5600ACO2. Connect the SD SDI TG output of the *Master B* 5600MSC unit to the B SD SDI TG input of the 5600ACO2. Connect the SD SDI TG output of the 5600ACO2 to your plant SDI video distribution amplifier system.

If your 5600MSC units are fitted with the HTG option, connect the HD SDI TG outputs of the *Master A* 5600MSC unit to the A HD SDI TG input of the 5600ACO2. Connect the HD SDI TG output of the *Master B* 5600MSC unit to the B HD SDI TG input of the 5600ACO2. Connect the HD SDI TG output of the 5600ACO2 to your plant HD SDI video distribution amplifier system.

2.4.7. LTC and GPIO Connections

Connect the AUX I/O output of the *Master A* 5600MSC unit to the A AUX I/O input of the 5600ACO2 using one of the straight through interconnect cables provided. Connect the AUX I/O output of the *Master B* 5600MSC unit to the B AUX I/O input of the 5600ACO2 using one of the straight through interconnect cables provided.

The LTC code outputs are available on two XLR connectors on the rear panel. Output level is from approximately 0.5 V to 4 V using the LTC LEVEL item on the *Output Setup* menu adjustable in the 5600MSC units. Pin 1 of the XLR is ground, and pins 2 and 3 provide a balanced output. The *LTC Output* sub-menus on the *Output Setup* menu in the 5600MSC units are used to configure the LTC outputs.

The LTC outputs of the 5600ACO2 do not have the capability of powering the 1200 series clocks.

The GPI1 and GPI2 inputs on **both** 5600MSC units are connected to the GPI1 and GPI2 inputs on the bottom row of the 12 pin terminal block. The GPO1 and GPO2 outputs on the *Master A* 5600MSC unit are available on the *MSC A GPO1* and *MSC A GPO2* pins on the bottom row of the 12 pin terminal block. The GPO1 and GPO2 outputs on the *Master B* 5600MSC unit are available on the *MSC B GPO1* and *MSC B GPO2* pins on the bottom row of the 12 pin terminal block.

The ACO GPI1 and GPI2 control inputs for the 5600ACO2 are available on the *ACO GPI1* and *ACO GPI2* pins on the top row of the 12 pin terminal block. See section 3.2.2 for information about the operation of the 5600ACO2 GPI inputs. The GPO1 and GPO2 outputs from the 5600ACO2 are available on the *ACO GPO1* and *ACO GPO2* pins on the top row of the 12 pin terminal block. See section 3.4 for information about the operation of the 5600ACO2 GPO outputs.

The GPI and GPO cables can be secured into the removable portion of the terminal strips using a small screwdriver. The removable part of the terminal strip is then inserted into the rear panel. See Table 2-3 for the pinout of the terminal block.

2.4.8. Synchronizing the Menu Settings Of The Two 5600MSC Units

In the event of a changeover occurrence, it is necessary that all outputs on one 5600MSC have the same timing as those on the other. Identical timing for both 5600MSCs is assured by locking both to the same frequency and phase source (e.g. GPS or by genlocking one to the other). Identical phasing of the independent black outputs is assured by implementing the *Syncro* mode in the 5600MSCs. To use this mode, connect both 5600MSC communication ports together using the WA05600Synchro cable supplied with the 5600ACO2 or make your own as shown in Table 2-5. On the 5600MSC connected to the A inputs of the 5600ACO2, set the *Serial Port Mode* to *Synchro Tx*. On the 5600MSC connected to the B inputs of the 5600ACO2, set the *Serial Port Mode* to *Synchro Rx*. The system configuration of both units can now be accomplished by setting the menu items of the *Master A* unit only. Most of the menu settings on the *Master B* unit can be viewed but cannot be changed. These menu items will be dimmed when they are viewed on the *Master B* unit. Menu items of the *Master B* unit that can be changed will be shown in the normal display brightness. See the 5600MSC manual for a full description of *Synchro* mode operation.

5600MSC SynchroRx End			**5600MSC SynchroTx End**	
9 pin D Male	**Pin**	**Belden 9501**	**9 pin D Male**	**Pin**
	1			1
TxD	2	-------1b------	RxD	3
RxD	3	-------1a------	TxD	2
	4			4
Gnd	5	---drain----	Gnd	5
	6			6
RTS	7		CTS	8
CTS	8		RTS	7
	9			9
Frame Gnd	Shield	---drain----	Frame Gnd	Shield

Table 2-5: WAO5600Synchro Cable

2.5. CONNECTING THE GENERAL PURPOSE INPUTS AND OUTPUTS

The 12 pin terminal strip connector has 2 general purpose inputs and 2 general purpose outputs for control/status of the Auto changeover, as well as the GPI inputs and outputs from the two 5600MSC units. The signals on the top row of the connector are for the 5600ACO2 only and do not connect to the 5600MSC units. (See section 3.3) The signals on the bottom row of the connector are connected directly to the 5600MSC units (see section 2.4.5). The GPI cables can be secured into the removable portion of the terminal strips using a small screwdriver. The removable part of the terminal strip is then inserted into the rear panel.

The GPI inputs are considered high if you leave an input floating (not connected) or pull it up to +5 volts. The GPI inputs are considered low when the GPI input is below 0.8 volts. The user can make the GPIs low simply by connecting the GPI input pins to ground using a button, switch, relay or an open collector transistor. Figure 2-2 shows the circuitry for each of the GPI input pins.

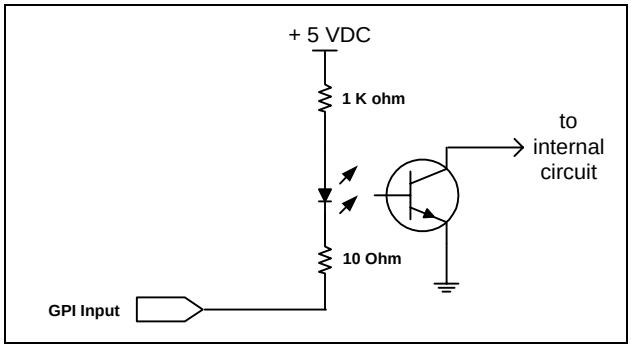


Figure 2-2: Typical GPI Circuitry.

The outputs are internally pulled up to 5 volts. Care must be taken to limit the load to 0.5W so there is no affect on the power supply source in the frame. Figure 2-3 and Figure 2-4 shows the circuitry for the GPO1 and GPO2 output pins.

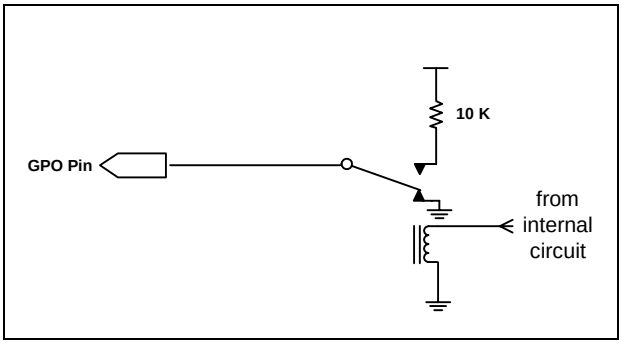


Figure 2-3: GPO1 Output Circuitry.

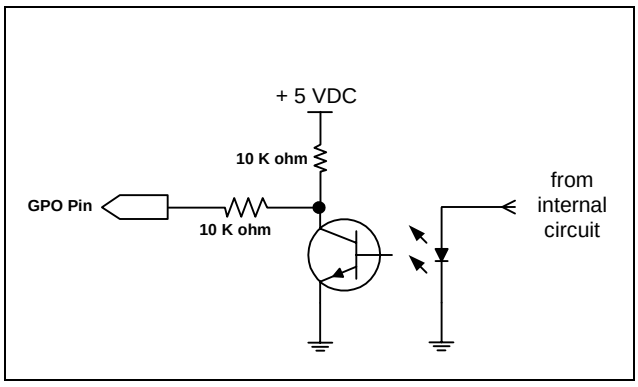


Figure 2-4: GPO2 Output Circuitry.

3. HOW TO OPERATE THE AUTOMATIC CHANGEOVER

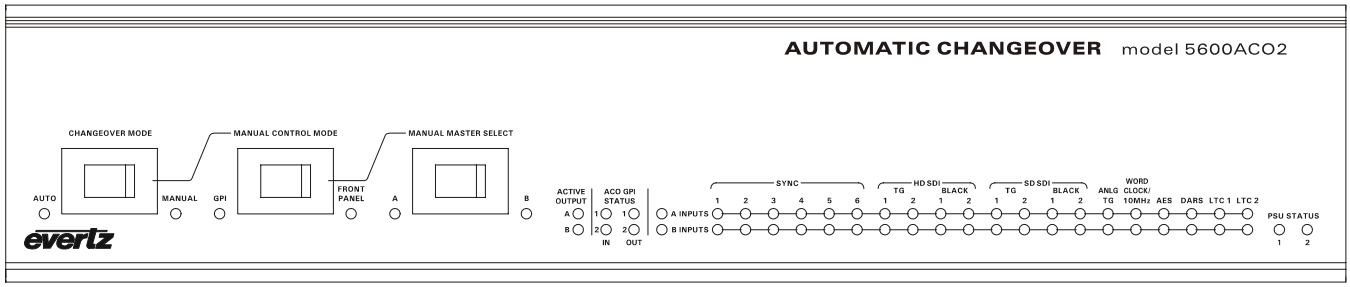


Figure 3-1: Model 5600ACO2 Front Panel Layout

The front panel controls consist of three recessed rocker switches to select the operating mode of the changeover and 56 LED status indicators.

3.1. AN OVERVIEW OF THE STATUS INDICATORS

There are 48 status indicators located on the front panel that show operational status of the 5600ACO2 at a glance.

3.1.1. Operating Mode Indicators

AUTO This green LED will be On when the unit is operating in the *Automatic* control mode.

MANUAL This green LED will be On when the unit is operating in one of the two manual control modes.

GPI This green LED will be On when the unit is operating in the *Manual GPI* control mode. The LED will be Off when the unit is in the *Manual Front Panel* or *Automatic* control mode.

FRONT PANEL This green LED will be On when the unit is operating in the *Manual Front Panel* control mode. The LED will be Off when the unit is in the *Manual GPI* or *Automatic* control mode.

A This green LED will be On when the unit is operating in the *Manual Front Panel* control mode and that Master A is selected. The LED will be Off when Master B is selected or the unit is not in the *Manual Front Panel* control mode.

B This green LED will be On when the unit is operating in the *Manual Front Panel* control mode and that Master B is selected. The LED will be Off when Master A is selected or the unit is not in the *Manual Front Panel* control mode.

ACTIVE OUTPUT These two green LEDs indicate whether Master A or Master B is currently selected.

3.1.2. Input Indicators

A INPUTS These twenty green LEDs indicate that the respective input signals from the Master A device are present and valid. The left most LED will be ON when there are more valid signals present from the Master A device than the Master B device.

B INPUTS These twenty green LEDs indicate that the respective input signals from the Master B device are present and valid. The left most LED will be ON when there are more valid signals present from the Master B device than the Master A device.

The 5600ACO2 determines that an input is present and valid according to the following criteria:

Video:	Level above 70 IRE
Sync:	H timing detect
SDI:	Valid TRS ID
10MHz:	Level above 1.0Vp-p
Word Clock:	Level above 0.5Vp-p
DARS:	Sync word valid
LTC:	Level above 0.3Vp-p Valid sync word

3.1.3. ACO GPI Indicators

IN 1, 2 These green LEDs indicate that the corresponding ACO General Purpose Input is active or not. The LED will be On when the GPI is active (low).

OUT 1, 2 These green LEDs indicate that the corresponding ACO General Purpose Output is active or not. The LED will be On when the GPO is active (low).

3.1.4. Power Supply Indicators

PSU STATUS 1, 2 These green LEDs indicate that the corresponding power supply is functioning normally.

3.2. FRONT PANEL CONTROL

The Changeover can be operated in one of three modes as selected by the three rocker switches on the front panel.

The 5600ACO2 changeover uses latching relays that retain their state when there is no power applied. When there is no power applied to the 5600ACO2, GPO2 will be connected to ground indicating a fault condition.

3.2.1. Automatic Changeover Mode

To operate the 5600ACO2 in *Automatic* mode, set the *CHANGEOVER MODE* switch to the *Auto* position. The 5600ACO2 will ignore the position of the other two switches in the *Automatic* mode. The *Auto* LED will come on. The *ACTIVE OUTPUT* LEDs will indicate the currently selected master. The 5600ACO2 will decide whether to select the A or B inputs based on which source has the most good signals and that the valid signals present on the currently selected master are also valid on the backup master.

3.2.2. Manual GPI Changeover Mode

To operate the 5600ACO2 in *Manual GPI* mode, set the *CHANGEOVER MODE* switch to the *Manual* position and the *MANUAL CONTROL MODE* switch to the *GPI* position. The *Manual* and *GPI* LEDs will come on. The 5600ACO2 will decide whether to select the A or B inputs based on the ACO GPI inputs on the top row of the terminal strip on the rear panel. There are two GPI changeover modes described in sections 3.3.1. The *ACTIVE OUTPUT* LEDs will indicate the currently selected master.

3.2.3. Manual Front Panel Changeover Mode

To operate the 5600ACO2 in *Manual Front Panel* mode, set the *CHANGEOVER MODE* switch to the *Manual* position and the *MANUAL CONTROL MODE* switch to the *Front Panel* position. The *Manual* and *FRONT PANEL* LEDs will come on. The 5600ACO2 will decide whether to select the A or B inputs based on the position of the *FRONT PANEL* switch. When the *FRONT PANEL* switch is set to *A* Master A will be selected and the *A* LED will come On. When the *FRONT PANEL* switch is set to *B* Master B will be selected and the *B* LED will come On. The *ACTIVE OUTPUT* LEDs will also indicate the currently selected master.

3.3. DIP SWITCHES

There is an 8 position DIP switch located on the main circuit card inside the 5600ACO2. This DIP switch is accessible through a cut-out in the rear panel of the unit. Table 3-1 shows the assigned DIP switch functions.

The ON position is down.

DIP Switch	Function
1	GPI Input Mode
2	Changeover Rate
3	Bank A Priority Enable
4	DARS and / or monitoring
5	AES and / or monitoring
6	GPI Monitoring
7	HDSDI/SDI Monitoring
8	Change Limiting

Table 3-1: DIP Switch Functions

3.3.1. GPI Input Mode

DIP Switch 1 is used to select one of two modes of operation for Manual GPI changeover mode. (See section 3.2.2 for more information about Manual GPI changeover mode)

DIP 1	GPI Input Mode
Off (Up)	GPI Changeover Mode – single GPI input
On (Down)	GPI Changeover Mode – dual GPI input

Table 3-2: GPI Input Mode Switch Settings

When DIP switch 1 is in the Off position, the ACO GPI inputs on the top row of the terminal strip on the rear panel are used in conjunction with the front panel switches to control whether the A or B inputs will be selected. Set the front panel *CHANGEOVER MODE* switch to the *Manual* position and the *MANUAL CONTROL MODE* switch to the *GPI* position. (See section 3.2.2)

GPI 1	GPI 2	Operation
Low	---	Master A inputs selected
High	---	Master B inputs selected

Table 3-3: Single GPI mode operation

In single GPI mode the 5600ACO2 is controlled by the ACO GPI1 input on the top row of the terminal strip on the rear panel. GPI2 is not used in this mode. When GPI1 is low Master A will be selected. When GPI1 is high Master B will be selected. The *OUTPUT* LEDs will indicate the currently selected master. Single GPI mode is the default condition.

GPI 1	GPI 2	Operation
Low	Low	Current bank selected (no change)
Low	High	Master A inputs selected
High	Low	Master B inputs selected
High	High	Current bank selected (no change)

Table 3-4: Dual GPI mode operation

In dual GPI mode the 5600ACO2 is controlled by both the ACO GPI1 and ACO GPI2 inputs on the top row of the terminal strip on the rear panel. When GPI1 is low and GPI2 is high, Master A will be selected. When GPI1 is high and GPI2 is low Master B will be selected. When both inputs are high or low, no action will be taken. The *OUTPUT* LEDs will indicate the currently selected master.

3.3.2. GPI Changeover Rate.

DIP switch 2 controls the speed of the decision process before a changeover is made.

DIP 2	Changeover Rate
Off (Up)	Changeover in 250mS
On (Down)	Changeover in 100mS

Table 3-5: Changeover Rate Switch Settings

When DIP switch 2 is in the Off position, the ACO takes approximately 250 msec. to decide whether it needs to change, thus making it very immune to false changeovers in this mode. When DIP switch 2 is in the ON position, the ACO will decide to change in approximately 100 msec, providing less protection from false changeovers but quicker response to input faults.

The 5600ACO2 firmware must be version 1.0 build 13 or higher to operate in 100mS mode.

3.3.3. Bank A Priority.

The bank priority is controlled by DIP switch 3.

DIP 3	Bank A Priority
Off (Up)	Bank A and B have equal priority
On (Down)	Bank A has higher priority

Table 3-6: Bank A Priority Switch Settings

When DIP switch 3 is in the Off position, the ACO gives equal priority to each bank. If the number of valid of inputs from each bank is equal, the ACO will not switch.

When DIP switch 3 is in the On position, priority will be given to Bank A. If the number of valid of inputs from each bank is equal, bank A will be selected.

3.3.4. DARS Valid Condition.

The DARS valid condition is controlled by DIP switch 4.

DIP 4	DARS Valid Condition
Off (Up)	DARS balanced or unbalanced
On (Down)	DARS balanced and unbalanced

Table 3-7: DARS Valid Condition Switch Settings

When DIP switch 4 is in the Off position, the DARS signal will be considered valid when there is a valid signal into **either** the DARS balanced input or the DARS unbalanced input or **both**.

When DIP switch 4 is in the On position, the DARS signal will be considered valid when there is a valid signal into **both** the DARS balanced input and the DARS unbalanced input.

3.3.5. AES Valid Condition.

The AES valid condition is controlled by DIP switch 5.

DIP 5	AES Valid Condition
Off (Up)	AES balanced or unbalanced
On (Down)	AES balanced and unbalanced

Table 3-8: AES Valid Condition Switch Settings

When DIP switch 5 is in the Off position, the AES signal will be considered valid when there is a valid signal into **either** the AES balanced input or the AES unbalanced input or **both**.

When DIP switch 5 is in the On position, the AES signal will be considered valid when there is a valid signal into **both** the AES balanced input and the AES unbalanced input.

3.3.6. GPI Monitoring.

The GPI monitoring function is controlled by DIP switch 6.

DIP 6	GPI Monitoring
Off (Up)	GPI's pass through but not monitored
On (Down)	GPI's pass through and monitored

Table 3-9: GPI Monitoring Switch Settings

When DIP switch 6 is in the Off position, the GPI's on the AUX input DB9 connectors (from the 5600MSC) are passed through, but ignored otherwise.

When DIP switch 6 is in the On position, the GPI's on the AUX input DB9 connectors (from the 5600MSC) are passed through, and added to the decision making process when in automatic mode. A floating or high input is considered valid, and a low or shorted to ground signal is considered a fail state.

This functionality is provided to use with the 5600MSC. By enabling the GPI monitoring mode, and configuring the 5600MSC GPO outputs as failure tallies, the 5600ACO2 can be instructed to change over on various failure modes in the 5600MSC. (i.e. power supply failure, or fan failure, or unlocked etc.) See the 5600MSC manual for information on configuring the 5600MSC GPO's.

3.3.7. HDSDI/SDI Monitoring.

The HDSDI and SDI monitoring is controlled by DIP switch 7.

DIP 7	HDSDI/SDI Monitoring
Off (Up)	HDSDI and SDI inputs monitored
On (Down)	HDSDI and SDI inputs ignored

Table 3-10: HDSDI/SDI Monitoring Switch Settings

When DIP switch 7 is in the Off position, the HDSDI and SDI inputs are monitored and added to the decision making process when in automatic mode. When it is in the ON position, the HDSDI and SDI inputs are not part of the decision making process. The signal presence will still be shown on the front panel LEDs regardless of this switch position.

The 5600ACO2 firmware must be version 1.1 build 15 or higher to operate in HDSDI/SDI monitoring (ignored) mode.

3.3.8. Change Limiting.

Change Limiting is controlled by DIP switch 8.

DIP 8	Change Limiting
Off (Up)	Unlimited changes
On (Down)	2 changes only

Table 3-11: Change Limiting Switch Settings

When DIP switch 8 is in the Off position, the 5600ACO2 may change an unlimited number of times depending on inputs when in automatic mode. When it is in the ON position, and in automatic mode, only 2 changes will be allowed if they occur within 0.5 seconds. After this, the LEDs beside the switches will flash. Moving any of the 3 switches or changing ACO GPI1 or ACO GPI2 will re-enable the 5600ACO2. This is provided to prevent back and forth toggling if an output is shorted out, or if one of the HD-SDI outputs is unterminated.

CAUTION. When DIP switch 8 is ON, the 5600ACO2 will not change over after a quick change has happened. User input is needed to allow automatic changes to happen again. It is important to promptly fix the offending input, and re-enable the 5600ACO2 to ensure correct automatic protection.

The 5600ACO2 firmware must be version 1.1 build 15 or higher to operate in Change Limiting mode.

3.4. GPO TALLY OUTPUTS

There are two general purpose outputs that can be used to signal alarm conditions to the user. These outputs are driven by normally closed relays inside the 5600ACO2. When the relay is energized (active), the output will be pulled to +5 volts by a 10 K ohm pull-up. When the relay is de-energized (normal) the relay contact will connect the output to ground. See Figure 2-3 for a schematic of the GPO output circuitry.

GPO1 is used to indicate whether Master A or Master B is currently selected. It will be low when Master A is selected and high when Master B is selected.

GPO2 is used to indicate whether the Master A and Master B inputs are identical and the power supplies are functioning correctly or not. It will be high when the inputs are identical and the power supplies are good, and will be low when the inputs are not identical, or one or both of the power supplies is not functioning correctly.

The default condition of the 5600ACO2 outputs when there is no power applied is that the Master that was last active will be selected, and will be indicated by the GPO1 relay. GPO2 will be grounded.

4. TECHNICAL DESCRIPTION

4.1. SPECIFICATIONS

4.1.1. LTC Outputs

Standard: SMPTE 12M frame rate set by 5600MSC
Number of outputs: 2
Connectors: 3 pin male XLR type outputs
Signal Level: Set in 5600MSC

4.1.2. Coaxial Inputs and Outputs

Type: Depends on signal connected from 5600MSC
HD SDI, SD SDI, DARS, bi-level or tri-level sync, colour black, 10 MHz, Word Clock
Number: 18 groups each consisting of two inputs and one output
Connector: BNC per IEC 60169-8 Amendment 2

4.1.3. ACO General Purpose Inputs and Outputs

Inputs:
Front Panel Single GPI Control Mode (DIP switch 1 Off)
GPI1: Master select in Manual GPI control mode
Low: Selects Master A
High: Selects Master B
GPI2: Not used
Front Panel Dual GPI Control Mode (DIP switch 1 On)
Master select in Manual GPI control mode
GPI1: Low: Selects Master A
GPI2: Low: Selects Master B
Outputs:
GPO1: Low: Master A is selected (default when the 5600ACO2 has no power)
High: Master B is selected
GPO2: Low: Master A & Master B differ or PSU failure
High: Master A and B have equivalent signals
Type:
Inputs: Opto-isolated input with internal pull-up to + 5volts.
Outputs: Normally closed relay to ground. 10K internal pull-up to + 5volts when relay is in active position.
Connector: 4 pins plus 2 ground pins on 12 pin removable terminal block
Signal Level: +5V nominal

4.1.4. MSC General Purpose Inputs and Outputs

Inputs: 2 GPI inputs connected to both Master A and Master B
Outputs: 2 GPI outputs connected from Master A through AUXI/O A
2 GPI outputs connected from Master B through AUXI/O B
Connector: 6 pins on 12 pin removable terminal block
Signal Level: As specified in 5600MSC manual

4.1.5. Changeover Conditions

Changeover is a voting system based on which source has the most valid signals and that the good signals on the current master are also present on the backup master. The input signals are considered good according to the following criteria:

Video:	Level above 70 IRE
Sync:	H timing detect
SDI/HDSDI:	Valid TRS ID
10MHz:	Level above 1.0Vp-p
Word Clock:	Level above 0.5Vp-p
DARS:	Sync word valid
LTC:	Level above 0.3Vp-p Sync word valid
GPI:	Input high

4.1.6. Ethernet

Network Type:	Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network
Connector:	RJ-45
Function:	VistaLINK® control and status monitoring

4.1.7. Electrical

Power:	Auto ranging 100 - 240 Volts AC, 50/60 Hz, 30 VA
Configuration:	Dual redundant supplies
Fuse Rating:	250 V, 1 amp, time delay
Safety:	ETL Listed, complies with EU safety directives
EMI/RFI:	Complies with FCC Part 15 Class A regulations Complies with EU EMC directive

4.1.8. Physical

Dimensions:	19“ W x 3.5” H x 18.75” D. (483mm W x 90mm H x 477mm D)
Weight:	16 lbs. (7.0Kg)

4.2. UPGRADING THE FIRMWARE

4.2.1. Overview

The firmware in the 5600ACO2 is contained on a FLASH EPROM. From time to time firmware updates will be provided to add additional features to the unit.

You will need the following equipment in order to update the Firmware

- PC with available communications port. The communication speed is 57600 baud, therefore a 486 PC or better with a 16550 UART based communications port is recommended.
- "Straight-thru" serial extension cable (DB9 female to DB9 male) or (DB25 female to DB9 male).
- Terminal program that is capable of Xmodem file transfer protocol. (such as HyperTerminal)
- New firmware supplied by Evertz.

4.2.2. Terminal Program Setup.

1. Connect the serial cable to the COM DB9 connector on the rear panel

2. Connect the 9 pin connector on the end of the serial update cable to the PCs' RS-232 communications port

3. Start the terminal program.

4. Configure the port settings of the terminal program as follows:

Baud	**57600**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

5. Power up the 5600ACO2 unit.

4.2.3. Initiating Firmware Upgrade Mode From The Terminal Program

7. Power up the 5600ACO2. After the unit powers up, a banner with the boot code version information should appear in the terminal window. The cursor to the right of the word "BOOT>" should be spinning.

   For example:

```
EVERTZ MFC5407 MONITOR 2.1.3
COPYRIGHT 1997, 1998, 1999, 2000, 2001 EVERTZ MICROSYSTEMS LTD.
COLD BOOT |
```

8. The following is a list of possible reasons for failed communications:

   - Defective Serial Upgrade cable.
   - Wrong communications port selected in the terminal program.
   - Improper port settings in the terminal program. (Refer to step 4 for settings). Note that HyperTerminal will not change port settings while connected. Click on HyperTerminal's "Disconnect" Button then click the "Reconnect" button to activate changes to the port settings.

9. While the cursor is spinning press the <CTRL> and <X> keys, this should stop the cursor from spinning. The spinning prompt will only remain for about 5 seconds. You must press <CTRL-X> during this 5 second delay. If the unit continues to boot-up, simply cycle the power and repeat this step.

10. Hit the <ENTER> key on your computer once.

11. Type the word "upgrade", without quotes, and hit the <ENTER> key once.

12. The boot code will ask for confirmation. Type "y", without quotes.

4.2.4. Uploading the New Firmware

13. You should now see a prompt asking you to upload the file.

14. Upload the "*.bin" file supplied using the X-Modem transfer protocol of your terminal program. If you do not start the upload within 10 minutes the unit's Boot code will time out. You can restart the upgrade process by power cycling the unit.

    The 5600ACO2 application firmware in the bin file will have a name something like
    5600ACO2.bin

15. The boot code will indicate whether the operation was successful upon completion of the upload.

    For Example:

```
UPLOAD OKAY
MFC5407 WARM BOOT> |
```

16. The following is a list of possible reasons for a failed upload:

- If you get the message "transfer cancelled by remote" you must restart the terminal program and load the bin file, then remove and install the module again.
- The supplied "*.bin" file is corrupt.
- Wrong file specified to be uploaded.
- Wrong file transfer protocol used – make sure you specify Xmodem, not Xmodem 1K.
- The PCs' RS-232 communications port can't handle a port speed of 57600.
- Noise induced into the Serial Upgrade cable.

4.2.5. Completing the Upgrade

17. Power cycle the unit. The unit should now reboot.

18. You can now close the terminal program and disconnect the RS-232 serial cable from the PC.

4.3. SERIAL PORT CONFIGURATION AND STATUS

The COM serial port is used to configure the 5600ACO2 and read back status.

Connect a straight through serial cable (supplied with the 5600ACO2) between the COM serial port on the rear panel and a PC's serial port. Start HyperTerminal (or an equivalent terminal program) on the PC and configure the port settings of the terminal program as follows:

Baud	**57600**
Data bits	**8**
Parity	**None**
Stop bits	**2**
Flow Control	**None**

Once the unit is powered-up, the HyperTerminal connection displays boot-up status information and once completed, ends with the "Status Message" as shown below:

```
Initialization Completed – 5600ACO2 Running
```

Press the <Enter> key to see the main Menu. In the Main Menu, the following options are present for module configuration.

Once changes completed and saved, the 5600ACO2 should be power-cycled for the changes to take effect.

```
 ---------------------------------------------
|                   Main Menu                 |
|           (5600ACO2 1.8.1 b19029)           | < 5600ACO2 Firmware Version Information
 ---------------------------------------------

(1) Network Configuration
(2) SNMP Configuration
(3) Voting Control
(4) Show status
```

4.3.1. Network Configuration

1) **Network Configuration** - set the IP parameters for this 5600ACO2

```
ip address:           192.168.1.200
netmask address:      255.255.255.0
gateway:              0.0.0.0
```

```
broadcast address:    192.168.1.255
DHCP enabled:         False
---------------------------------
(1) Set IP Address
(2) Set Netmask
(3) Set Gateway
(4) Set Broadcast Address
(5) Use DHCP

(S) Save and exit
(X) Exit without saving
```

4.3.2. SNMP Configuration

2) **SNMP Configuration** – set the TRAP destination IP address which originate at this 5600ACO2 (if enabled)

```
-------------------------------------------------
Trap Destination 1: 192.168.1.88
-------------------------------------------------
(1) Set Trap IP Address
(2) Remove Trap IP Address

(S) Save and exit
(X) Exit without saving
```

4.3.3. Voting Control

3) **Voting Control** – set which input channel pair is included in the voting pool. Note that item 25 is the global enable for items 1 through 24. If 25 is set to Yes, then voting will be determined by the settings of items 1 through 24. If it is set to NO, then all channel pairs are included except HD-SDI and SD-SDI which are determined by DIP switch 7 settings. See section 3.3.7.

```
---- 5600ACO2 Voting Control ----

(1) Sync 1
(2) Sync 2
(3) Sync 3
(4) Sync 4
(5) Sync 5
(6) Sync 6
(7) LTC 1
(8) LTC 2
(9) GPO 1
(10) GPO 2
(11) Ten MHz
(12) ATG
(13) Balanced AES
(14) Unbalanced AES
(15) Balanced DARS
(16) Unbalanced DARS
(17) SD Black 1
(18) SD Black 2
(19) SD Test Gen 1
(20) SD Test Gen 2
(21) HD Black 1
(22) HD Black 2
(23) HD Test Gen 1
(24) HD Test Gen 2
(25) Enable channel voting.

(S) Save and exit
(X) Exit without saving
```

4.3.4. Show Status

4) **Show Status** – shows a synopsis of all of the above 3 items, and also shows the status of all input channels. There are no settable controls under this menu item.

```
---------------------------------
Trap destinations
Trap Destination 1: 192.168.192.215
---------------------------------
Community Strings
Read-Only:  |public|
Read-Write: |private|
---------------------------------
ip address:        0.0.0.0
netmask address:   0.0.0.0
gateway:           0.0.0.0
broadcast address: 255.255.255.255
DHCP enabled: True
Ethernet enabled: True
---------------------------------
Individual channel voting enabled.
In voting, I = included, E = excluded.
Sync 1 = I.  Sync 2 = I.  Sync 3 = I.  Sync 4 = I.  Sync 5 = I.  Sync 6 = I.
LTC 1 = I.  LTC 2 = I.
GPO 1 = I.  GPO 2 = I.
Ten MHz = I.  ATG = E.
Balanced AES = E.  Unbalanced AES = E.
Balanced DARS = E.  Unbalanced DARS = E.
SD Black 1 = I.  SD Black 2 = I.  SD Test Gen 1 = I.  SD Test Gen 2 = I.
HD Black 1 = I.  HD Black 2 = I.  HD Test Gen 1 = I.  HD Test Gen 2 = I.
---------------------------------
Input status.  A = present on input A, a = not present on input A
               B = present on input B, b = not present on input B
Sync 1 = ab.  Sync 2 = ab.  Sync 3 = ab.
Sync 4 = ab.  Sync 5 = ab.  Sync 6 = ab.
LTC 1 = ab.  LTC 2 = ab.
GPO 1 = AB.  GPO 2 = AB.
Ten MHz = ab.  ATG = ab.
Balanced AES = ab.  Unbalanced AES = ab.
Balanced DARS = ab.  Unbalanced DARS = ab.
SD Test Gen 1 = ab.  SD Test Gen 2 = ab.  SD Black 1 = ab.  SD Black 2 = ab.
HD Test Gen 1 = ab.  HD Test Gen 2 = ab.  HD Black 1 = ab.  HD Black 2 = ab.
Power Supply 1 = Ok.  Power Supply 2 = Failed.
Current output selected is A
```

4.4. SERVICING INSTRUCTIONS

CAUTION – These servicing instructions are for use by qualified service personnel only. To reduce risk of electric shock do not perform any servicing instructions in this section of the manual unless you are qualified to do so.

Make sure that both power cords are disconnected before opening the top cover of the unit.

4.4.1. Changing the Fuses

The fuse holder is located inside the power entry module. To change the fuses, disconnect the line cord from the power entry module and pull out the fuse holder from the power entry module using a small screwdriver. The fuse holder contains two fuses, one for the line and one for the neutral side of the mains connection. Pull out the blown fuse and place a fuse of the correct value in its place. Use time delay 5 x 20 mm fuses rated for 250 Volts with a current rating of 1 amp. Carefully reinsert the fuse holder into the power entry module.

Check that the line fuse is rated for the correct value marked on the rear panel. Never replace with a fuse of greater value.

This page left intentionally blank

5. *Vista*LINK® CONFIGURATION AND CONTROL

*Vista*LINK® is Evertz's remote monitoring and control capability over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. *Vista*LINK® is used to control the 5600ACO2 and also to monitor its status.

There are 3 components of SNMP:

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

2. Managed devices (such as 5600ACO2), each with a unique address (OID), communicate with the NMS through an SNMP Agent. The 5600ACO2 communicate directly with the manager using its internal the mini-Agent.

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

5.1.1. Connecting the 5600ACO2 to *Vista*LINK®

Follow the instructions in section 2.1.4 to connect the 5600ACO2 to the Ethernet network. Once you have established a physical connection you will need to set up the IP address, subnet, and SNMP TRAP destination addresses of the 5600ACO2 using the procedure in section 4.3.1.

5.1.2. Installing *Vista*LINK®

In order to control the 1200DD series display, you will need at version 10.3.123 or later of the *Vista*LINK®-C configuration tool. If you received the *Vista*LINK® Toolkit CD-ROM with the 1200DD series display, insert it into the PC's CD-ROM drive. In a few seconds a screen will appear with a menu guiding you through the *Vista*LINK® installation. You want to press the button to install the *Vista*LINK-C Configuration tool.

If you have an older version of *Vista*LINK®, or you are upgrading firmware in an existing 1200DD series display and do not have *Vista*LINK® contact the Evertz customer support department to receive your free copy of the *Vista*LINK®-C Configuration utility.

5.1.3. Using *Vista*LINK® to Configure the 5600ACO2

The 5600ACO2 should be auto-discovered by *Vista*LINK® PRO and appear under the *Hardware* section of the *Vista*LINK® PRO Navigation Tree named with its given IP Address. If the 5600ACO2 is not auto-detected (because it is on another subnet) it can be manually added by right clicking the *Hardware* node and selecting *Add/Update frame*.

Right click the discovered 5600ACO2 to open the *Configuration View* screen. The screen is broken into eight tabs. To view the other screens, click on the appropriate tab of the configuration screen.

Figure 5-1 shows the Voting control screen that is used to configure how the 5600ACO2 makes its decision about valid signals and when to switch to the backup signals.

Once you have finished configuring the 5600ACO2 items on the configuration screen you can save the configuration in VistaLINK®. You can also send it to the 5600ACO2 by pressing the *Apply* button on the VistaLINK® toolbar.

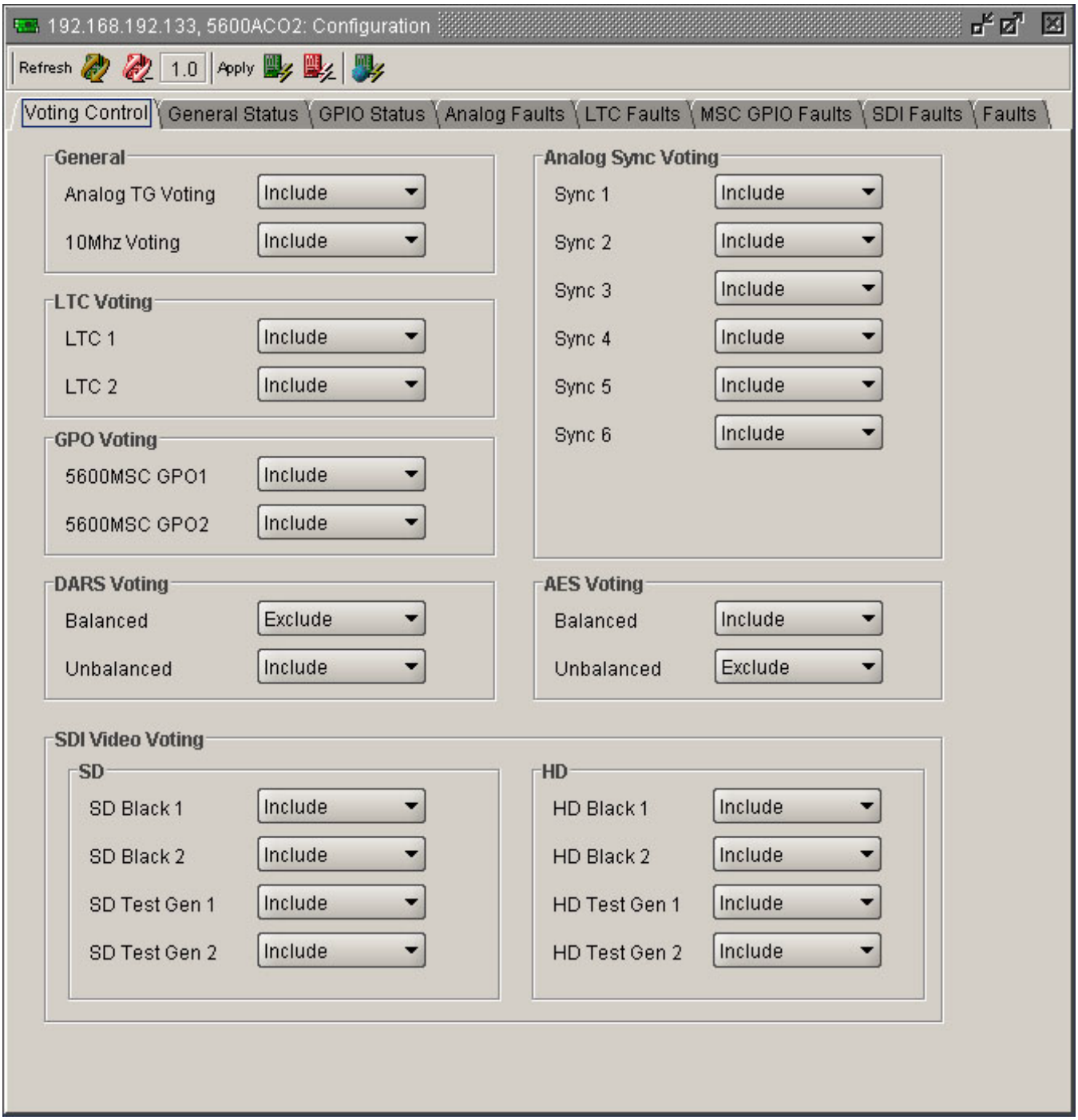


Figure 5-1: VistaLINK® Configuration - Voting Control

5.1.4. Using *Vista*LINK® to Monitor the 5600ACO2

Figure 5-2 and Figure 5-3 shows the two tabs used to monitor various status conditions from the 5600ACO2. These status conditions will not be updated live unless the auto refresh is enabled.

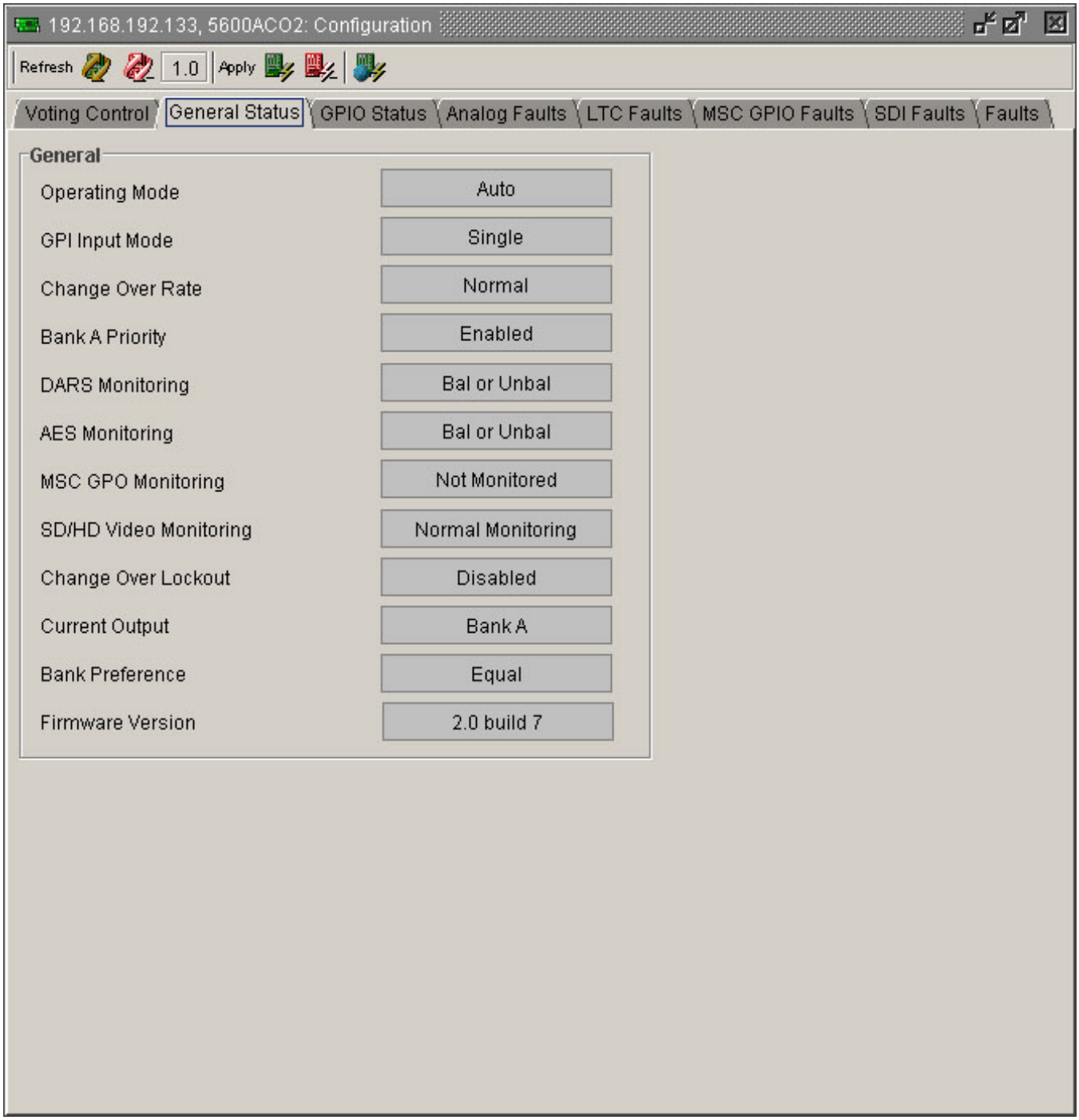


Figure 5-2: VistaLINK® Monitoring – General Status

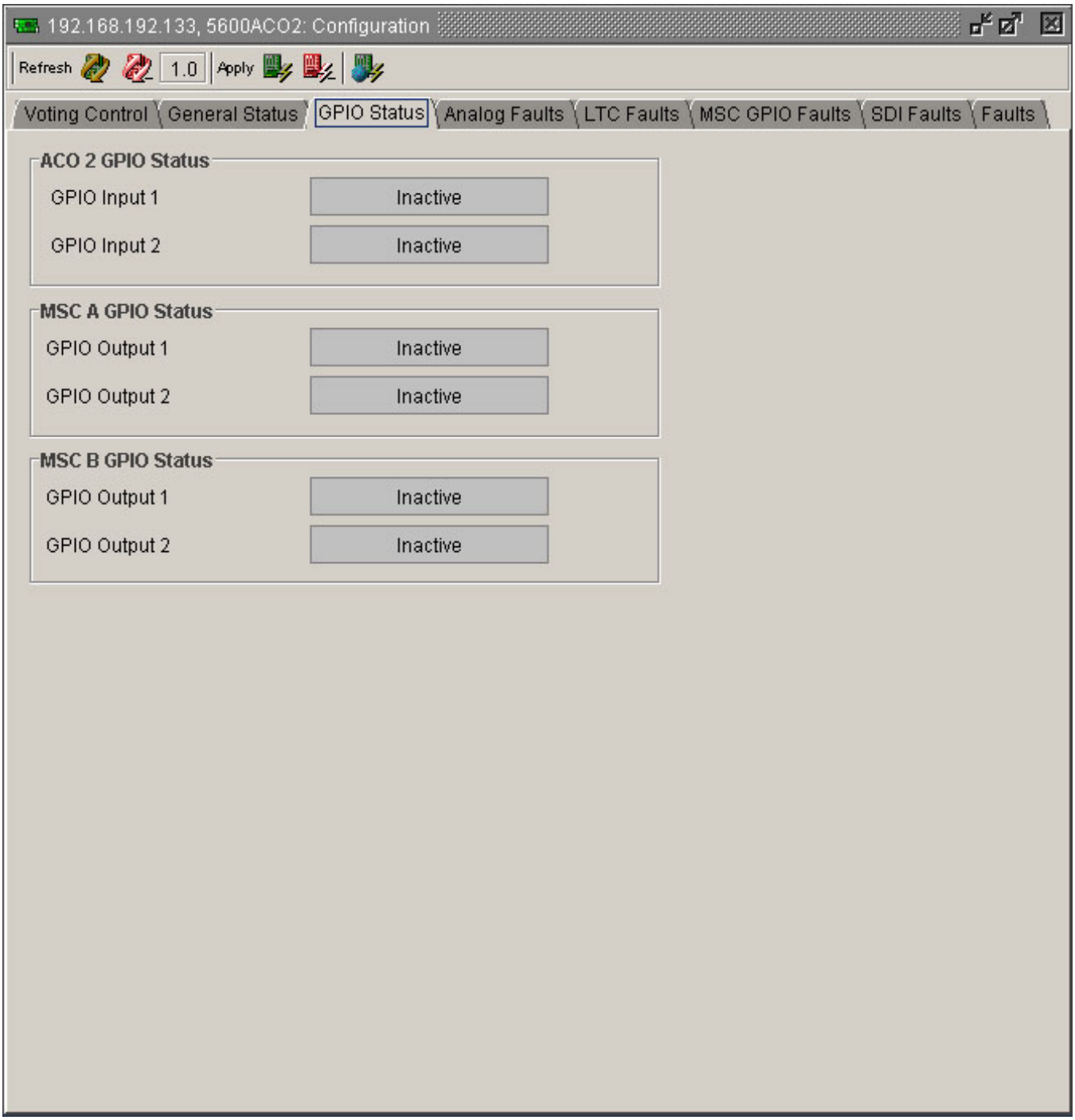


Figure 5-3: VistaLINK® Monitoring – GPIO Status

5.1.5. Using *Vista*LINK® to Enable the Fault Reporting Traps of the 5600ACO2

Figure 5-4 to Figure 5-8 show the five tabs used to determine which trap messages will be sent by the 5600ACO2.

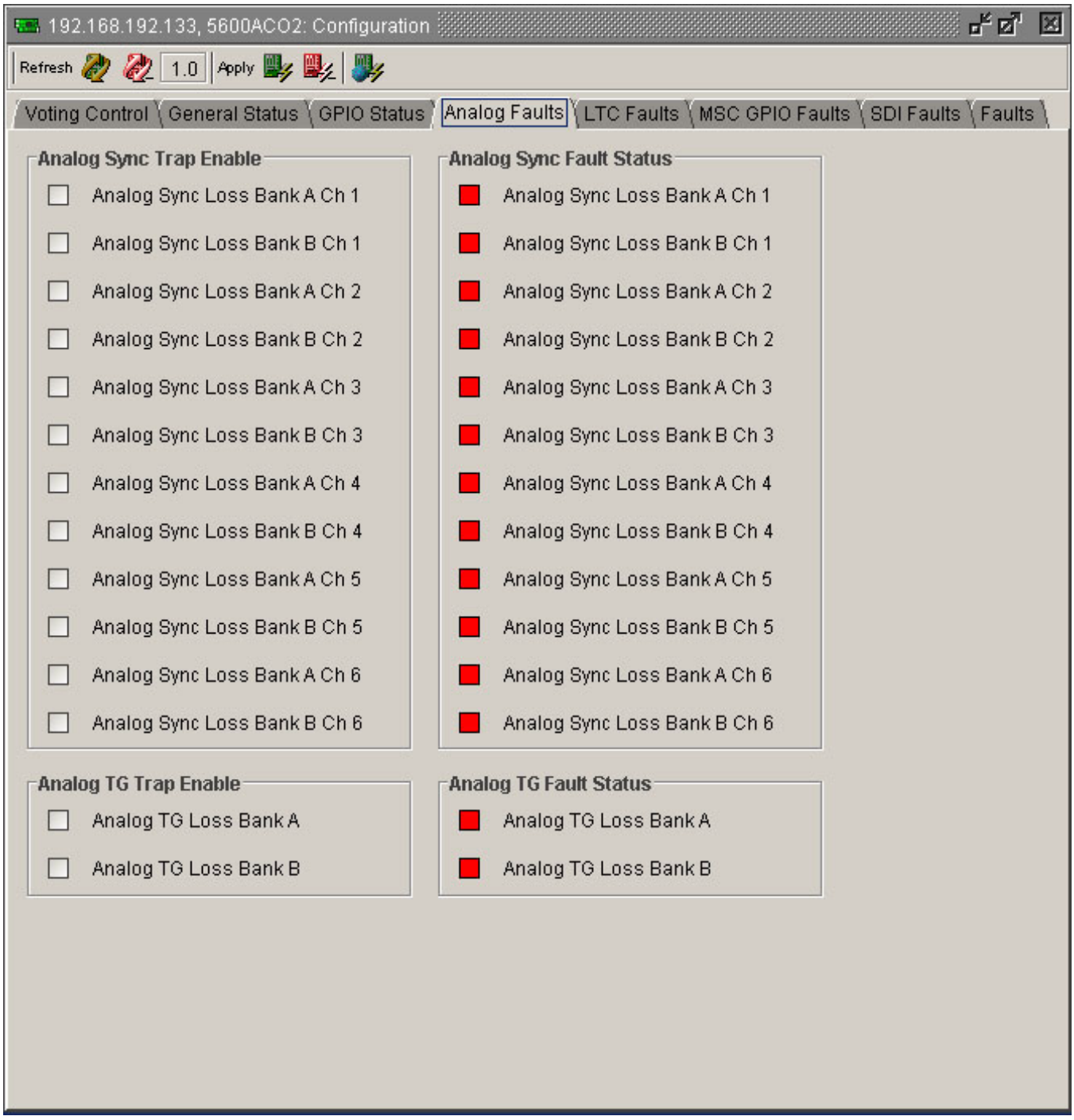


Figure 5-4: VistaLINK® Monitoring – Analog Sync and TG Faults

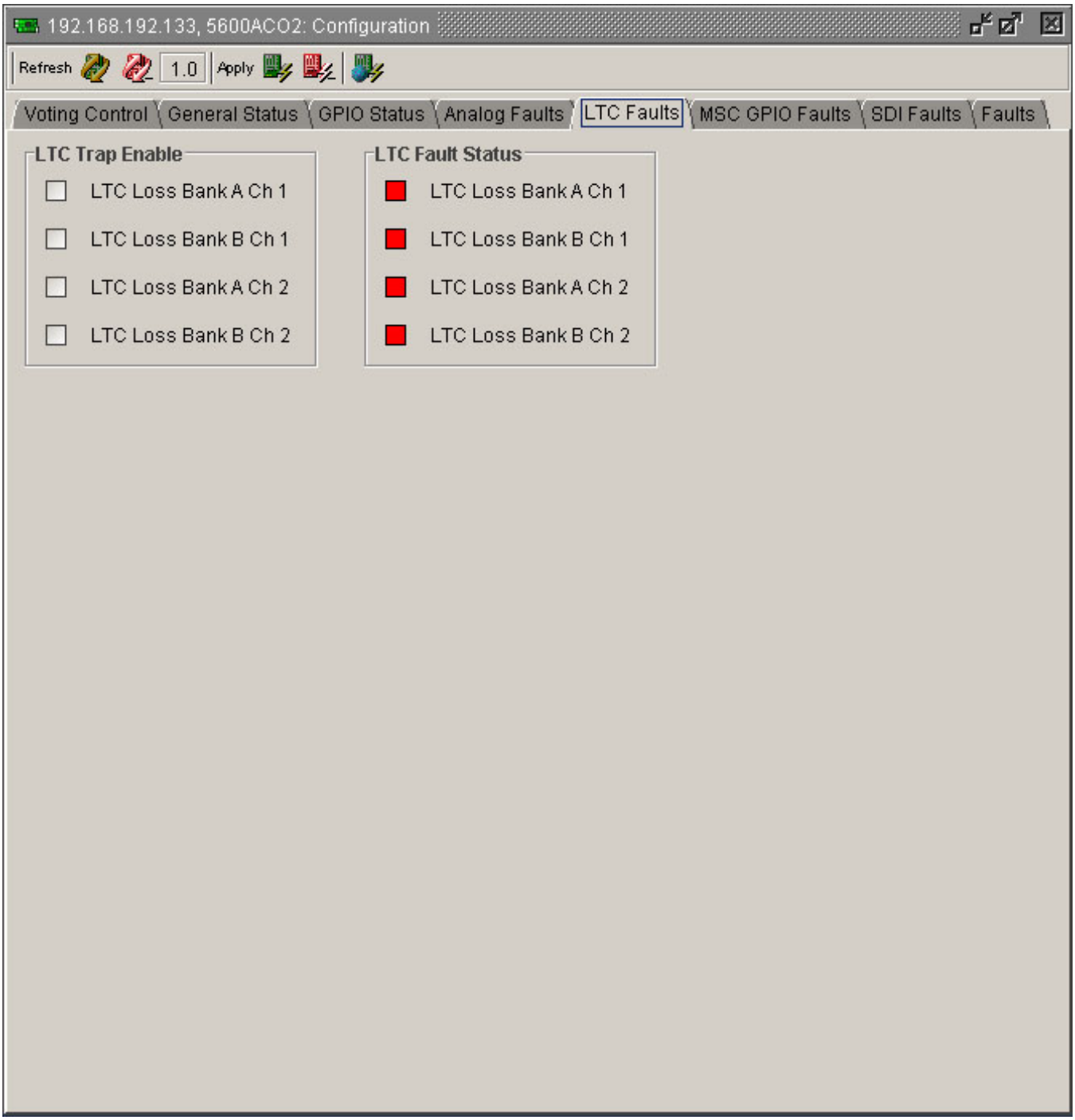


Figure 5-5: VistaLINK® Monitoring – LTC Faults

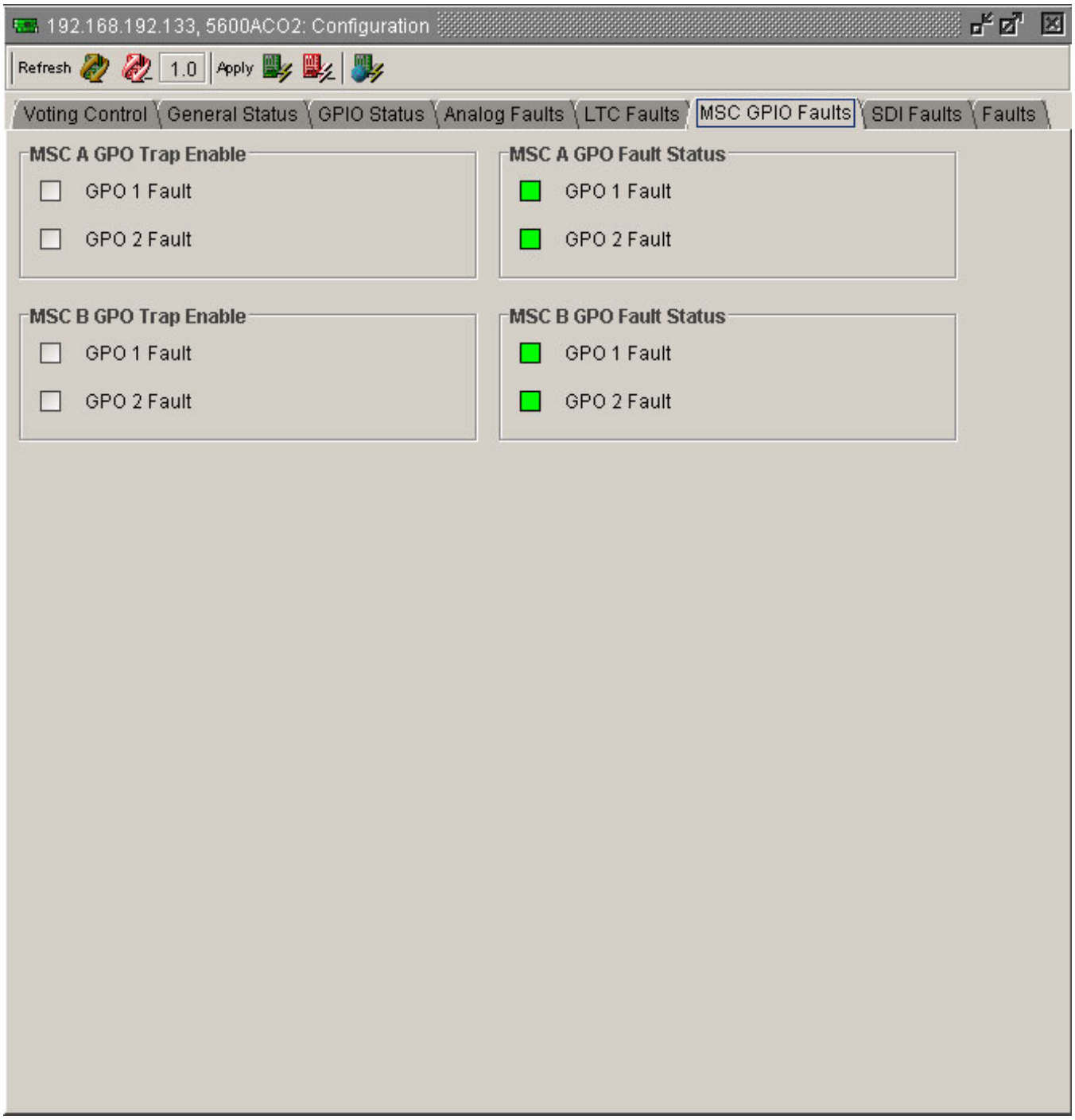


Figure 5-6: VistaLINK® Monitoring GPIO Faults

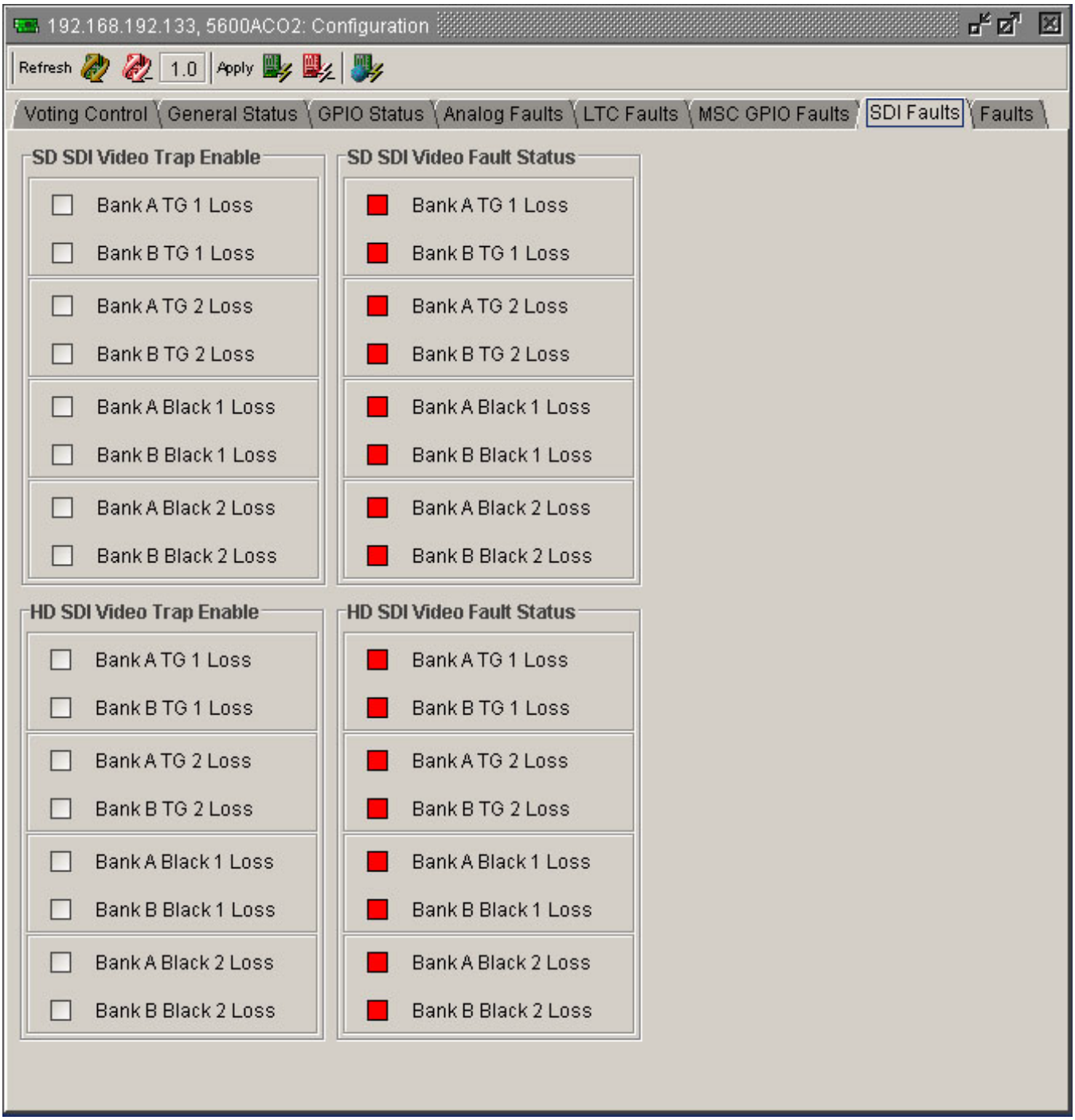


Figure 5-7: VistaLINK® Monitoring – SDI and HDSDI Test Generator Faults

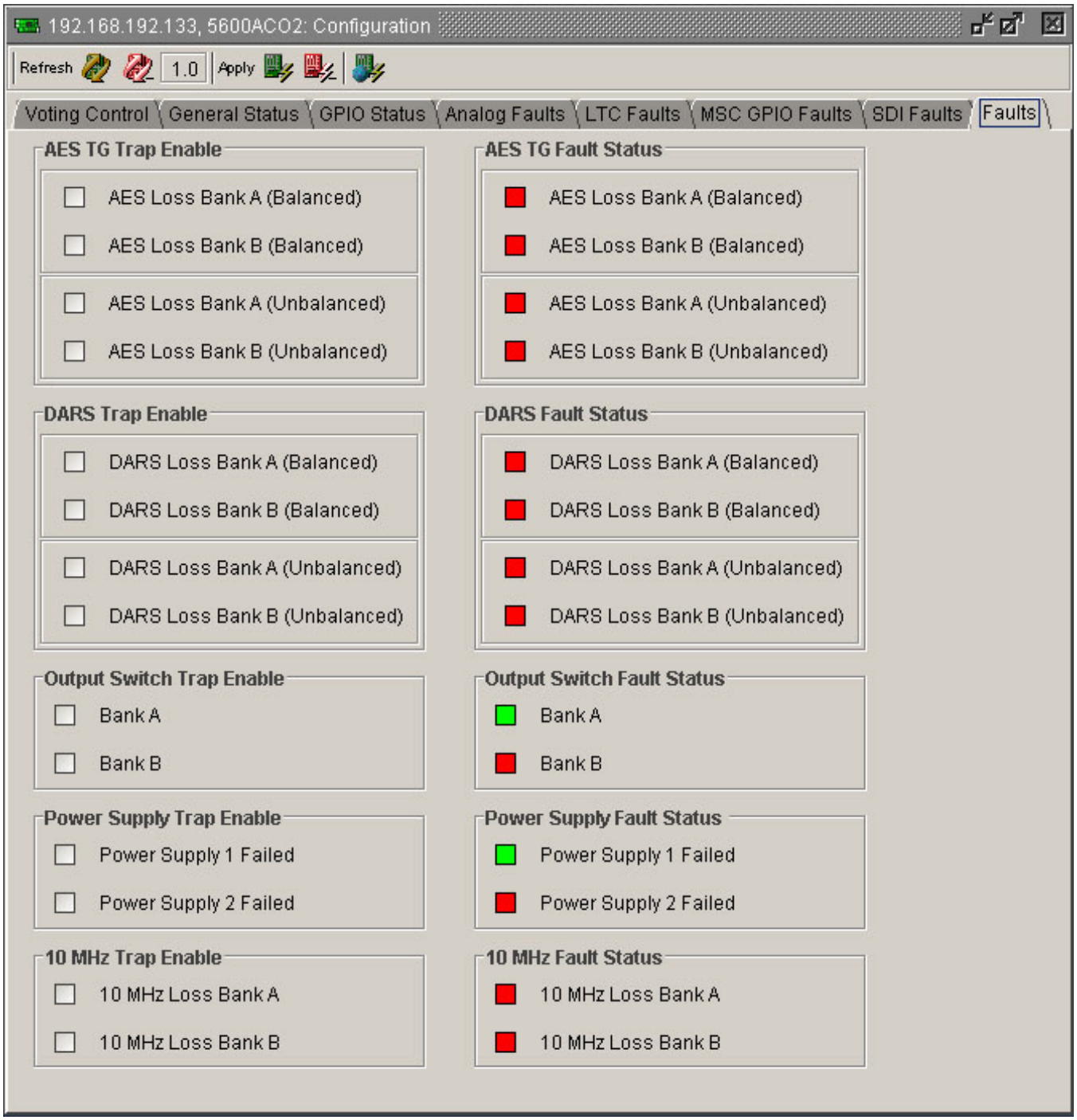


Figure 5-8: VistaLINK® Monitoring – AES, DARS and Miscellaneous Faults

This page left intentionally blank