Imagine COMMUNICATIONS™

Installation and Operation Manual

Selenio 6800+™

ACO6800+

Modular Switchover Devices

Edition I

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Delivering the Moment

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Publication Information

Trademarks

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Contents

Preface

Chapter 1: Introduction

Chapter 2: Installation, Configuration, and Operation

Chapter 6: ACO6800+4X2+ICQST Parameters, LEDs, and Alarms

Chapter 7: ACO6800+IDSD Parameters, LEDs, and Alarms

Chapter 8: ACO6800+ISCST Parameters, LEDs, and Alarms

Chapter 9: ACO6800+ISD Parameters, LEDs, and Alarms

Chapter 10: Specifications

Appendix A: Communication and Control Troubleshooting Tips

Appendix B: Glossary

Index

Preface

Manual Information

Purpose

This manual details the features, installation, operation, maintenance, and specifications for the following modules:

- ACO6800✚4X2✚ICQST Intelligent 4X2 Clean/Quiet Switchover for SD/HD Sources and Basic Switchover for ASI Sources
- ACO6800✚ISD Intelligent Single Switchover for SD/HD sources and Basic Single Switchover for ASI Sources
- ACO6800✚4X2D Intelligent Single Switchover for SD/HD Sources with Backup Inputs and Basic Single Switchover for ASI Sources
- ACO6800✚DSD Basic Dual Switchover for SD/HD Sources and Basic Dual Switchover for ASI Sources
- ACO6800✚IDSD Intelligent Dual Switchover for SD/HD Sources and Basic Dual Switchover for ASI Sources
- ACO6800✚ASID Intelligent Single Switchover for ASI Sources
- ACO6800✚ISCST Intelligent Single, Clean/Quiet Switchover for SD/HD Sources and Basic Single Switchover for ASI Sources

Audience

This manual is written for engineers, technicians, and operators responsible for installation, setup, maintenance, and/or operation of the ACO6800✚ISD, ACO6800✚4X2D, ACO6800✚4X2✚ICQST, ACO6800✚DSD, ACO6800✚IDSD, ACO6800✚ASID, and ACO6800✚ISCST modules.

Revision History

Table P-1. Revision History of Manual

Edition	Date	Comments
A	April 2009	Initial release
B	June 2009	Addition of ACO6800✚ASID
C	September 2010	Addition of ACO6800✚4X2D

Table P-1. Revision History of Manual *(Continued)*

Edition	Date	Comments
D	June 2011	Addition of line sync feature for ACO6800✚ISCST and alarm switch mode for ACO6800✚ISCST, ACO6800✚ISD, ACO6800✚DSD, and ACO6800✚IDSD
E	November 2011	Update supported SD cards
F	February 2012	Add parameter option to ACO6800✚ASID
G	June 2013	Addition of ACO6800✚4X2✚ICQST module; parameter changes to the ACO6800✚ISCST
H	September 2013	Additional information for logo generation
I	September 2014	Addition of new alarms and GPI capabilities

Writing Conventions

To enhance your understanding, the authors of this manual have adhered to the following text conventions:

Table P-2. Writing Conventions

Term or Convention	Description
Bold	Indicates dialog boxes, property sheets, fields, buttons, check boxes, list boxes, combo boxes, menus, submenus, windows, lists, and selection names
Italics	Indicates E-mail addresses, the names of books or publications, and the first instances of new terms and specialized words that need emphasis
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, or DELETE
Code	Indicates variables or command-line entries, such as a DOS entry or something you type into a field
>	Indicates the direction of navigation through a hierarchy of menus and windows
hyperlink	Indicates a jump to another location within the electronic document or elsewhere
Internet address	Indicates a jump to a website or URL
Note	Indicates important information that helps to avoid and troubleshoot problems

Unpacking/Shipping Information

Unpacking a Product

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service.

1. Check equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Contact your dealer if any item on the packing list is missing.
4. Contact the carrier if any item is damaged.
5. Remove all packaging material from the product and its associated components before you install the unit.

Keep at least one set of original packaging, in the event that you need to return a product for servicing.

Product Servicing

Except for firmware upgrades, the modules are not designed for field servicing. All hardware upgrades, modifications, or repairs require you to return the modules to the Customer Service center.

For service and support, telephone the Customer Service Department at **888-534-8246**.

Returning a Product

In the unlikely event that your product fails to operate properly, contact Customer Service to obtain a Return Authorization (RA) number, and then send the unit back for servicing.

If the original package is not available, you can supply your own packaging as long as it meets the following criteria:

- The packaging must be able to withstand the product's weight.
- The product must be held rigid within the packaging.
- There must be at least 2 in. (5 cm) of space between the product and the container.
- The corners of the product must be protected.

Ship products back to us for servicing prepaid and, if possible, in the original packaging material. If the product is still within the warranty period, we will return the product prepaid after servicing.

Restriction on Hazardous Substances (RoHS) Compliance

The European Union (EU) Directive 2002/95/EC—commonly known as the Restriction on Hazardous Substances (RoHS)—sets limits on the use of certain substances found in electrical and electronic equipment. The intent of this legislation is to reduce the amount of hazardous chemicals that may leach out of landfill sites or otherwise contaminate the environment during end-of-life recycling. The Directive, which took effect on July 1, 2006, refers to the following hazardous substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent Chromium (Cr-VI)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)

According to this EU Directive, all products sold in the European Union will be fully RoHS-compliant and "lead-free." (See our website for more information.) Spare parts supplied for the repair and upgrade of equipment sold before July 1, 2006 are exempt from the legislation. Equipment that complies with the EU directive will be marked with a RoHS-compliant emblem, as shown in Figure P-1.

Figure P-1. RoHS Compliance Emblem

Waste from Electrical and Electronic Equipment (WEEE) Compliance

The European Union (EU) Directive 2002/96/EC—commonly known as the Waste from Electrical and Electronic Equipment (WEEE)—deals with the collection, treatment, recovery, and recycling of electrical and electronic waste products. The objective of the WEEE Directive is to assign the responsibility for the disposal of associated hazardous waste to either the producers or users of these products. As of August 13, 2005, producers or users will be required to recycle electrical and electronic equipment at end of its useful life, and may not dispose of the equipment in landfills or by using other unapproved methods. (Some EU member states may have different deadlines.)

In accordance with this EU Directive, companies selling electric or electronic devices in the EU will affix labels indicating that such products must be properly recycled. (See our website for more information.) Contact your local Sales Representative for information on returning these products for recycling. Equipment that complies with the EU directive will be marked with a WEEE-compliant emblem, as shown in Figure P-2.

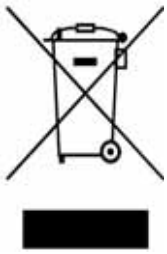


Figure P-2. WEEE Compliance Emblem

Safety

Carefully review all safety precautions to avoid injury and prevent damage to this product or any products connected to it. If this product is rack-mountable, it should be mounted in an appropriate rack using the rack-mounting positions and rear support guides provided. To protect a frame from circuit overloading, connect each frame to a separate electrical circuit. If this product relies on forced air cooling, all obstructions to the air flow should be removed prior to mounting the frame in the rack.

If this product has a provision for external earth grounding, ground the frame to the earth using the protective earth ground on the rear panel.

IMPORTANT! Only qualified personnel should perform service procedures.

Safety Terms and Symbols in this Manual

WARNING

Statements identifying conditions or practices that may result in personal injury or loss of life. High voltage is present.

CAUTION

Statements identifying conditions or practices that can result in damage to the equipment or other property.

Chapter 1

Introduction

Product Descriptions

The ACO6800**+** series includes the following modular products:

- **ACO6800+4X2D Intelligent Single Switchover with Backup Inputs**
  - Provides QSEE-driven 2×1 signal protection
  - Provides two backup inputs by manually switching
  - Switches signals between redundant signals at the point of ingest into a satellite DTH, mobile TV, or IPTV facility
  - Switches signals just prior to arriving at the broadcast transmitter
- **ACO6800+4X2+ICQST Intelligent 4X2 Clean/Quiet Switchover for SD/HD Sources**
  - Provides Q-SEE-driven 4×1 signal protection with clean video switch and quiet audio fade between sources
  - Provides frame sync/audio sync capability
  - Switches between redundant signals at the point of ingest, and ingest timing into a satellite DTH, mobile TV, or IPTV facility
- **ACO6800+ASID Intelligent Single Switch Automatic Switchover**
  - Switches the signal between redundant signals at the point of ingest into a satellite DTH, mobile TV, or IPTV facility
  - Switches the signal on redundant paths within a facility
- **ACO6800+DSD Intelligent Dual Switch Automatic Switchover**
  - Provides loss of signal 2×1 protection
  - Switches the signal between redundant signals at the point of ingest into a satellite DTH, mobile TV, or IPTV facility
  - Switches the signal on redundant paths within a facility
- **ACO6800+IDSD Intelligent Dual Switch Automatic Switchover**
  - Provides QSEE-driven 2×1 signal protection
  - Switches signals between redundant signals at the point of ingest into a satellite DTH, mobile TV, or IPTV facility
  - Switches signals just prior to arriving at the broadcast transmitter

- **ACO6800+ISCST Intelligent Single Clean Switch Automatic Switchover**
  - Provides Q-SEE-driven 2×1 signal protection with clean video switch and quiet audio fade between sources
  - Provides frame sync/audio sync capability
  - Switches signals between redundant signals at the point of ingest and ingest timing into a satellite DTH, mobile TV, or IPTV facility
- **ACO6800+ISD Single Switch Automatic Switchover**
  - Provides QSEE-driven 2×1 signal protection
  - Switches signals between redundant signals at the point of ingest into a satellite DTH, mobile TV, or IPTV facility
  - Switches signals just prior to arriving at the broadcast transmitter

ACO6800+ Features

All ACO6800**+** modules have the following features:

- Input bypass relay to ensure signal path in the event of power failure or missing front module
- Three GPI inputs and three GPI outputs for each ACO
- Support for SD-SDI at 270 Mb/s, HD-SDI at 1.5 Gb/s, or ASI at 270 Mb/s.
- Switch-over when user-defined alarm criteria are triggered
- Switch-back to primary signal input when the signal has been restored as per the user-defined time span

Each module in the series has its own additional features as described below:

ACO6800+4X2D

- Single ACO
- Eight BNC ports (four inputs and four outputs)
- Independent Q-SEE alarm sets for all four inputs
- Automatically switch between A1 and A2 driving by Q-SEE alarms
- Manually switch to backup inputs B1 and B2
- Support for Q-SEE compliant thumbnails when installed in an FR6802+QXF or FR6822+QXFE frame

ACO6800+4X2+ICQST

- Intelligent 4X2 Clean/Quiet Automatic Changeover for HD- and SD-SDI, and ASI Sources
- Single ACO, with nine BNC ports (one genlock in, four inputs and four outputs)
- One clean/quiet switch between selected sources
- Relay bypass for Primary and Secondary inputs

- Additional independent line sync feature before frame synchronizer per channel
- Three configurable switch priorities: GPI, Manual, and Alarm Switching (ACO)
- Automatic switching between four inputs driving by Q-SEE alarms
- Single or combination trigger modes for alarm switching
- Selectable switch to test signal generator (TSG) or trouble slide when all four inputs are bad
- Video and audio processing (includes video proc amp, audio gain control, routing)
- Frame/audio synchronizer
- Frame or external reference input to drive frame synchronization
- Support for Dolby audio pass-through
- PST (AUX) output configurable as Follow PGM, or directly routed from all four inputs
- Independent Q-SEE alarm settings for four inputs
- Supports for Q-SEE compliant thumbnails

ACO6800+ASID

- Single ACO
- Six BNC ports (two inputs and four outputs)
- Monitor input 1 (primary) for loss of signal or selected ETR-290 alarms and switch-over to Input 2 (secondary) with independent alarm setting from input 1
- Switch-back to primary signal input when the signal has been restored as per the user-defined time span
- Independent Q-SEE alarm sets for both inputs

ACO6800+DSD

- Dual ACOs
- Four BNC ports for each ACO (two inputs and two outputs)
- Support for Q-SEE compliant thumbnails when installed in an FR6802**+**QXF or FR6822**+**QXFE frame

ACO6800+IDSD

- Dual ACOs
- Four BNC ports for each ACO (two inputs and two outputs)
- Independent Q-SEE alarm sets for both inputs
- Support for Q-SEE compliant thumbnails when installed in an FR6802**+**QXF or FR6822**+**QXFE frame

ACO6800+ISCST

- Single ACO
- Seven BNC ports (one genlock in, two inputs and four outputs)
- Clean/quiet switch between selected sources
- Selectable switch to TSG or trouble slide when both inputs are loss
- Provide video and audio processing
- Frame/audio synchronizer
- Frame or external reference input to drive frame synchronization
- Independent Q-SEE alarm sets for both inputs
- Support for Q-SEE compliant thumbnails when installed in an FR6802+QXF or FR6822+QXFE frame

ACO6800+ISD

- Single ACO
- Six BNC ports (two inputs and four outputs)
- Independent Q-SEE alarm sets for both inputs
- Support for Q-SEE compliant thumbnails when installed in an FR6802+QXF or FR6822+QXFE frame

Table 1-1 provides a quick view of the main features for each module.

Table 1-1. ACO6800+ Features

Feature	ACO6800+4X2D	ACO6800+4X2+ICQST	ACO6800+ASID	ACO6800+DSD	ACO6800+IDSD	ACO6800+ISCST	ACO6800+ISD
Two-slot module	Yes	No	Yes	Yes	Yes	No	Yes
Three-slot module	No	Yes	No	No	No	Yes	No
Sub-module needed	No	Yes	No	No	No	Yes	No
CCS Navigator support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Card-edge control	Yes	Yes	No	Yes	Yes	Yes	Yes
Bypass relay	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GPIs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Basic ASI support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intelligent ASI support	No	No	Yes	No	No	No	No
270 Mps	Yes	Yes	No	Yes	Yes	Yes	Yes
1.5 Gbps	Yes	Yes	No	Yes	Yes	Yes	Yes
Q-SEE switching	Yes	Yes	Yes	No	Yes	Yes	Yes

Table 1-1. ACO6800**+** Features *(Continued)*

Feature	**ACO6800+4X2D**	**ACO6800+4X2+ICQST**	**ACO6800+ASID**	**ACO6800+DSD**	**ACO6800+IDSD**	**ACO6800+ISCST**	**ACO6800+ISD**
Thumbnail support	Yes	Yes	No	Yes	Yes	Yes	Yes
Frame/Audio synchronizer	No	Yes	No	No	No	Yes	No
Clean/Quiet switch	No	Yes	No	No	No	Yes	No
Reference input	No	Yes	No	No	No	Yes	No
Supports TSG or Trouble Slide	No	Yes	No	No	No	Yes	No
Video and audio processing	No	Yes	No	No	No	Yes	No
Dual channel	No	No	No	Yes	Yes	No	No
Single channel	Yes	Yes	Yes	No	No	Yes	Yes

Front Module

Figure 1-1 shows the position of the LEDs and module controls at the card edge of a typical ACO6800+ module.

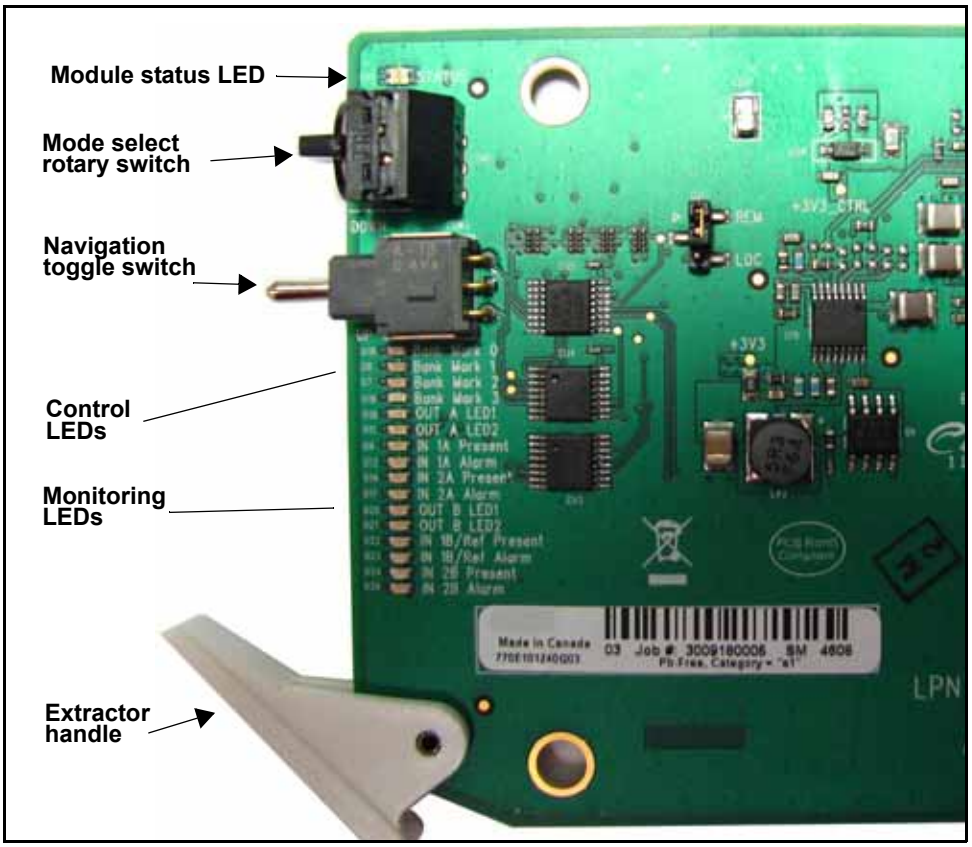


Figure 1-1. Typical Module

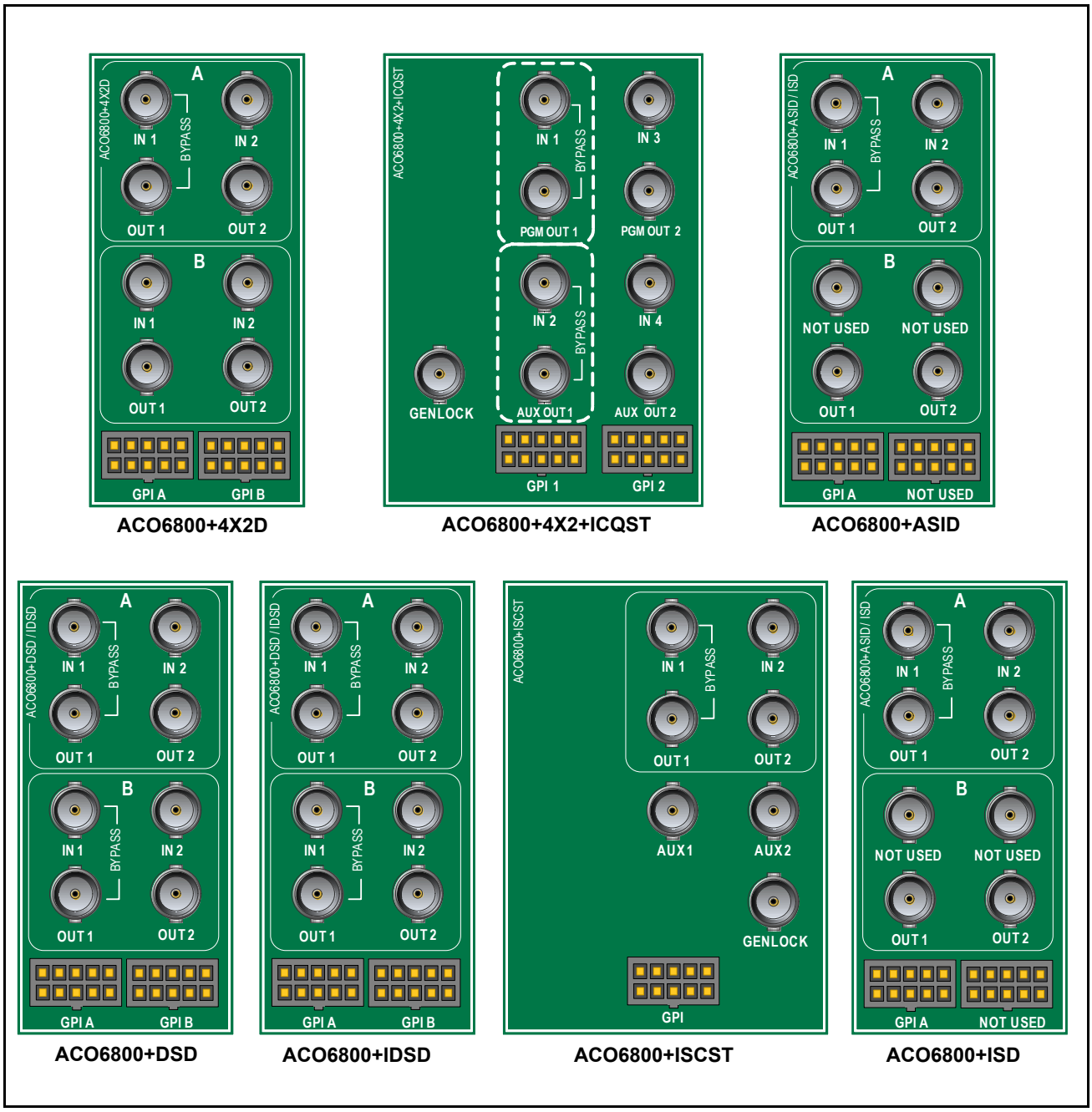
Table 1-2 on page 7 briefly describes the LEDs, switches, and jumpers.

Table 1-2. Generic 6800**+** Module Features

Feature	Description
Module status LEDs	Various color and lighting combinations of these LEDs indicate the module state. See the individual product chapters for more information.
Mode select rotary switch	This switch selects between various control and feedback parameters.
Navigation toggle switch	This switch navigates up and down through the available control parameters: • **Down**: Moves down through the parameters • **Up**: Moves up through the parameters
Control LEDs	Various lighting combinations of these Control LEDs (sometimes referred to as "Bank Select LEDs") indicate the currently selected bank. See the individual product chapters for more information.
Monitoring LEDs	Each 6800**+** module has a number of LEDs assigned to indicate varying states/functions. See the individual product chapters for descriptions of these LEDs.
Jumpers	This module has Remote/Local jumper, for selecting either local or remote control of the module (default is Remote). The BSCAN/Normal jumper must be left in the Normal position.

Back Modules

The back and front modules cannot be installed in frames without fans, or in FR6802**+**DM and 6800/7000 series frames.



ACO6800+4X2D **ACO6800+4X2+ICQST** **ACO6800+ASID**

ACO6800+DSD **ACO6800+IDSD** **ACO6800+ISCST** **ACO6800+ISD**

Figure 1-2. ACO6800**+** Back Modules

GPI Mating Connectors

The following GPI pinouts are labeled as they appear on the back module connector.

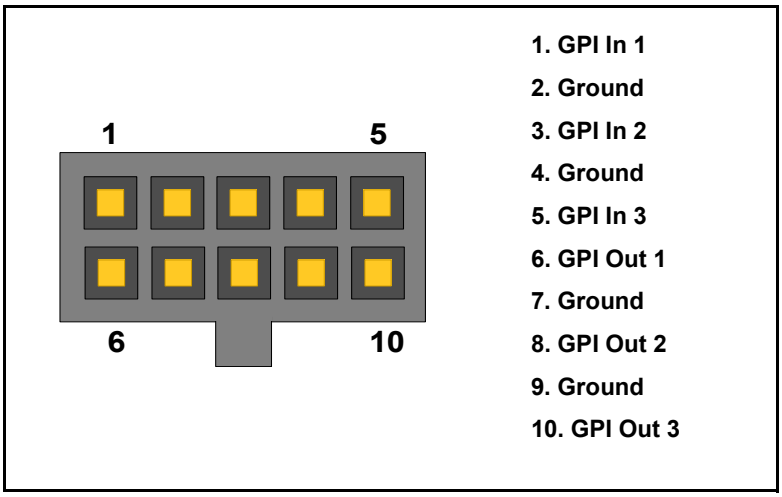


Figure 1-3. GPI Connector Pinouts

Table 1-3. GPI Functions

GPI	Function
GPI In 1	Switch to In 1
GPI In 2	Switch to In 2
GPI In 3	Force relay to bypass signal In 1
GPI Out 1	Indicate In 1 is selected as output source
GPI Out 2	Indicate In 2 is selected as output source
GPI Out 3	Indicate signal In 1 is bypassed

Note

The ACO6800+4X2D module has special GPI features. See “GPI Re-definition” on page 49. The ACO6800+4X2+ICQST module also has special GPI features. See “GPI Switching” on page 80.

Signal Flow Diagrams

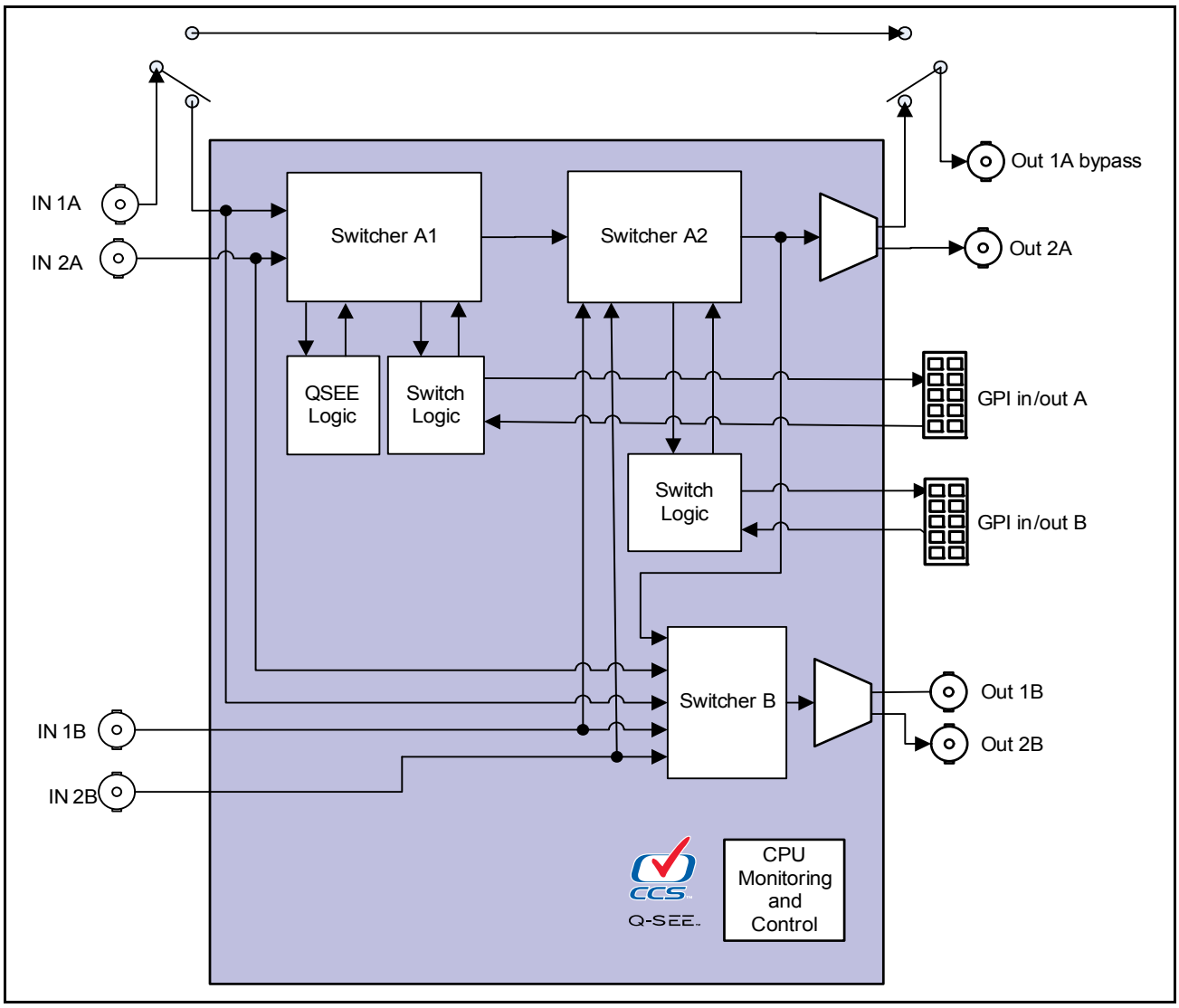
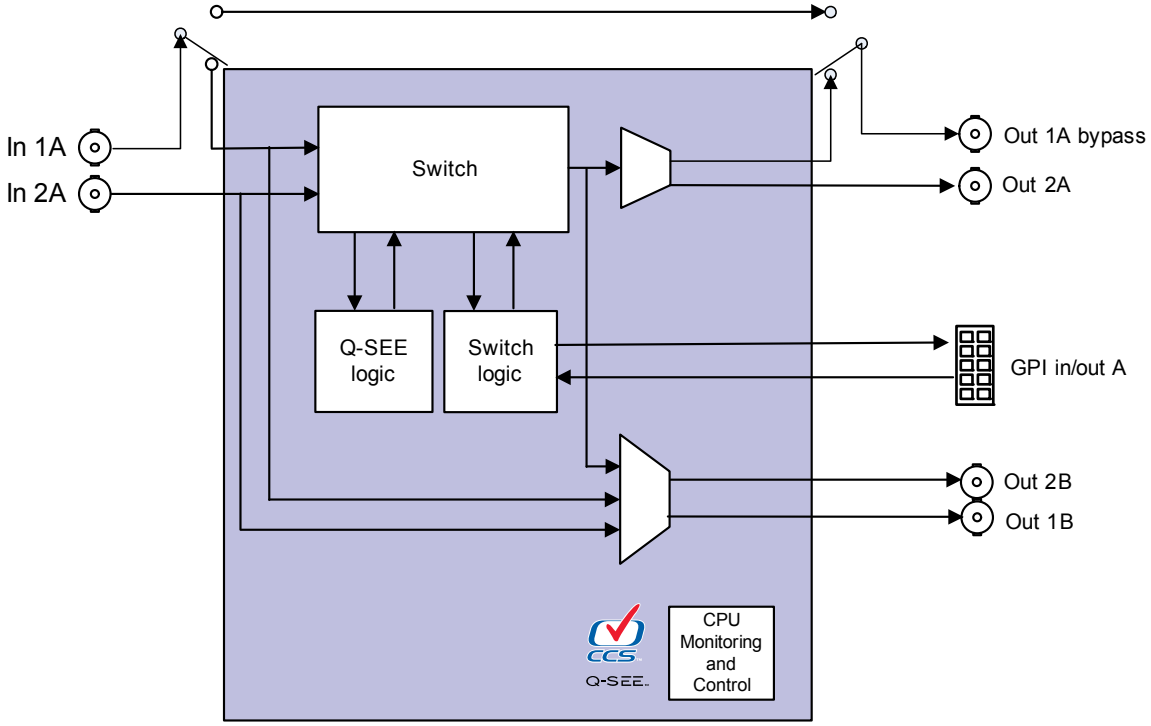


Figure 1-4. Signal Flow Diagram for ACO6800**+**4X2D



Note

ACO6800+ASID does not support thumbnails in the Q-SEE logic.

Figure 1-5. Signal Flow Diagram for ACO6800+ASID and ACO6800+ISD

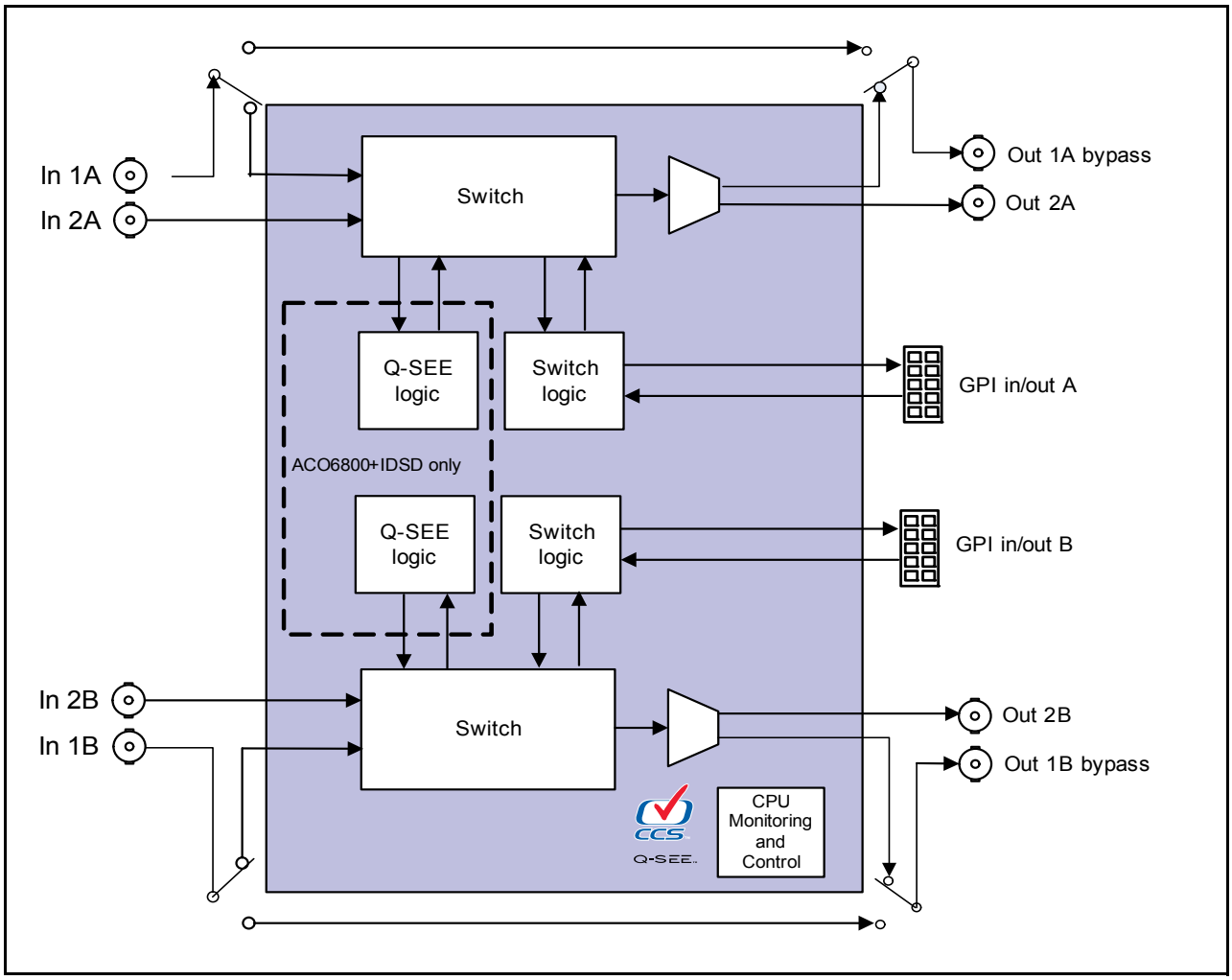


Figure 1-6. Signal Flow Diagram for ACO6800**+**DSD and ACO6800**+**IDSD

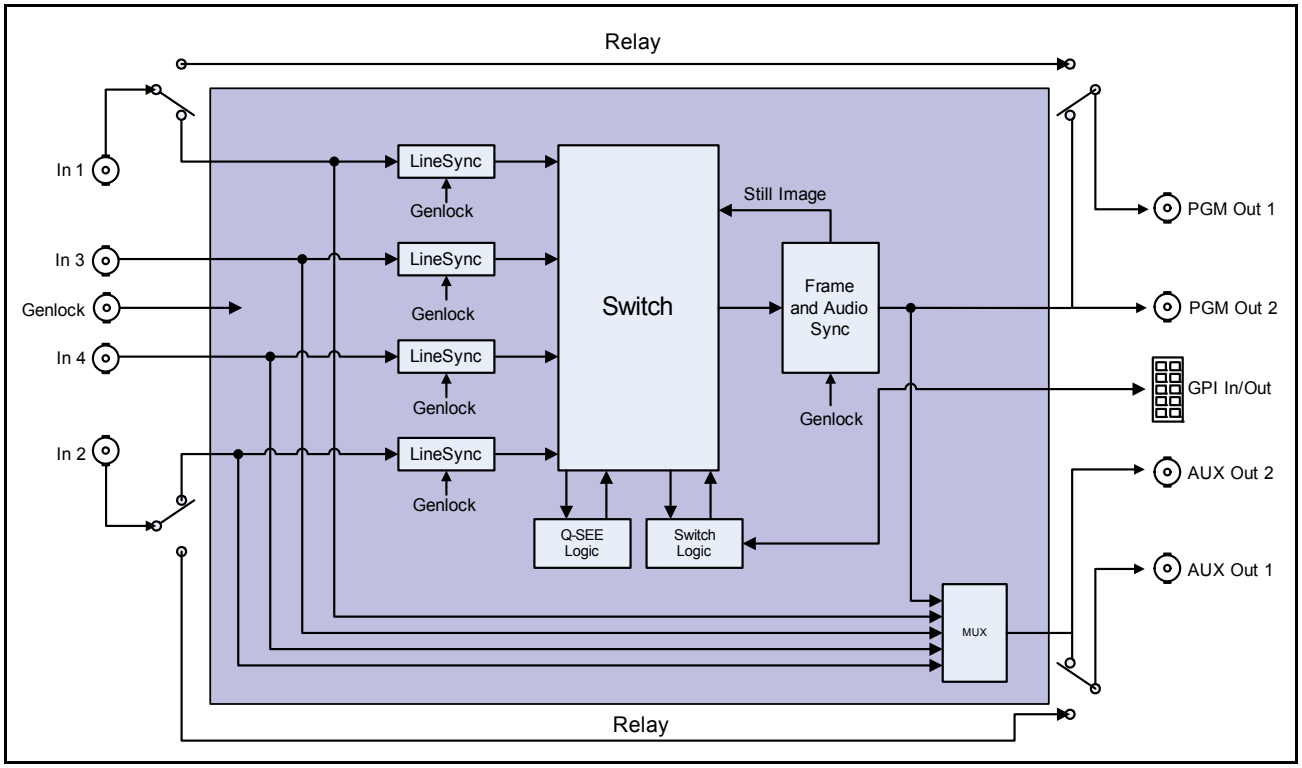


Figure 1-7. Signal Flow for ACO6800**+**4X2**+**ICQST

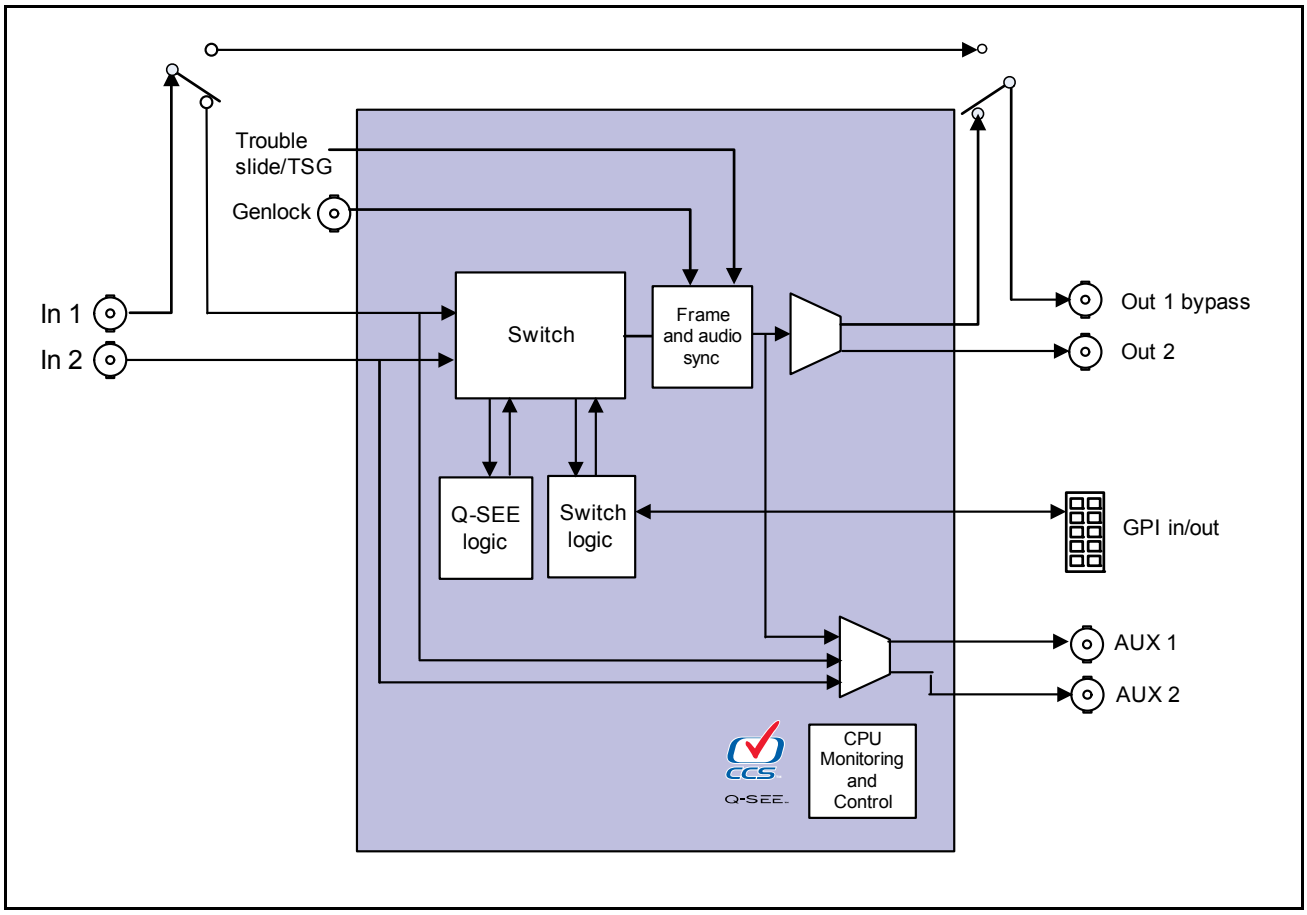


Figure 1-8. Signal Flow Diagram for ACO6800**+**ISCST

Chapter 2

Installation, Configuration, and Operation

Unpacking the Module

Before you install the module, do the following:

- Check the equipment for any visible damage that may have occurred during transit.
- Confirm receipt of all items on the packing list. See "Checking the Packing List" on page 16 below for more information.

Note

Contact your Customer Service representative if parts are missing or damaged.

- Remove the anti-static shipping pouch, if present, and all other packaging material.
- Retain the original packaging materials for possible re-use.

See "Unpacking/Shipping Information" on page ix for information about returning a product for servicing.

Checking the Packing List

Table 2-1. Available Product Packages

Ordered Product	Content Description
ACO6800✚4X2	• One ACO6800✚ front module • One two-slot back module • One ACO6800✚4X2D back module overlay • Two GPO cables • One *I & N Documentation and Product Resources DVD*
ACO6800✚4X2✚ICQST	• One ACO6800✚ front module • One three-slot back module • One submodule • One ACO6800✚4X2✚ICQST back module overlay • Two GPI cables and one Micro SD card • One software license key • One *I & N Documentation and Product Resources DVD*
ACO6800✚ASID	• One ACO6800✚ front module • One two-slot back module • One ACO6800✚ASID back module overlay • One GPI cable • One *I & N Documentation and Product Resources DVD*
ACO6800✚DSD	• One ACO6800✚ front module • One two-slot back module • One ACO6800✚DS/ACO6800✚IDS back module overlay • Two GPI cables • One license key • One *I & N Documentation and Product Resources DVD*
ACO6800✚IDSD	• One ACO6800✚ front module • One two-slot back module • One ACO6800✚DS/ACO6800✚IDS back module overlay • Two GPI cables • One license key • One *I & N Documentation and Product Resources DVD*
ACO6800✚ISCST	• One ACO6800✚ front module • One three-slot back module • One submodule • One GPI cable and one Micro SD card • One license key • One *I & N Documentation and Product Resources DVD* (includes LogoCreator software)
ACO6800✚ISD	• One ACO6800✚ front module • One two-slot back module • One ACO6800✚ISD back module overlay • One license key • One GPI cable • One *I & N Documentation and Product Resources DVD*

Maximum 6800+ Frame Power Ratings

The power consumption for the ACO6800+ISD, ACO6800+4X2D, ACO6800+DSD, ACO6800+ASID, and ACO6800+IDSD 2-slot modules is less than 12 W.

The power consumption for the three-slot ACO6800+ISCST module is less than 13 W. The ACO6800+4X2+ICQST consumes <14 W of power.

Table 2-2 shows the maximum allowable power ratings for 6800+ frames. Note the given maximums before installing any 6800+ modules in your frame.

Due to high levels of heat dissipation, the modules can not be installed in frames without fans. The modules cannot be installed in FR6802+DM and 6800/7000 series frames.

Note

To maintain proper temperatures, ensure that the front panel is closed at all times, and that the fan module is fully operational.

Table 2-2. Maximum Power Ratings for 6800+ Frames

6800+ Frame Type	Max. Frame Power Dissipation	Max. Power Dissipation for Two Slots	Max. Power Dissipation for Three Slots	Max. Number of ACO6800+ISD/ ACO6800+DSD/ ACO6800+ASID/ ACO6800+IDSD Modules	Max. Number of ACO6800+ISCST and ACO6800+4X2+ICQST Modules
FR6802+QXF (frame with AC or DC power supply)	120 W	12 W	18 W	10	6
FR6802+XF (frame with AC power supply)	120 W	12 W	18 W	10	6
FR6802+XF-48 (frame with DC power supply)	105 W	10.5 W	15.25 W	9	6
FR6822+ (frame with AC or DC power supply)	120 W	12 W	18 W	10	6

Installing the Modules

Due to high levels of heat dissipation, the modules must not be installed in frames without fans. The modules cannot be installed in FR6802+DM or 6800/7000 series frames.

These modules require no specialized installation or removal procedures. However, if you are installing both front module and back connector, ensure that the back connector is installed first before plugging in the front module. Likewise, ensure that the front module is unplugged from the frame before removing the back connector. See the installation and operation manual for your frame for information about installing and operating the frame and its components.

Note

Heat sinks on ACO6800+ modules require extra clearance. To prevent damage to components, ensure that you do not insert the front module in slots 6, 14, 19, or 20.

Use the FR6802+RM (Rear Support Extension Rails for 6800+ series frames) for the modules. See the installation and operation manual for your frame for installation instructions.

Caution

Before installing this product, read the *6800+ Series Safety Instructions and Standards Manual* shipped with every frame installation and operation manual. This information is also available on our website. The safety manual contains important information about the safe installation and operation of 6800+ series products.

Upgrading Module Firmware

Firmware upgrading is a routine procedure that you must perform to install newer versions of software on 6800+ modules. Navigator software version 4.9 or later is required to perform this procedure on ACO6800+ modules. The frame must contain or be connected to another frame that contains a 6800+ETH module, version 4.8 or higher.

You can upgrade your 6800+ module's firmware using the Software Upgrade tool in CCS Navigator 4.9 or higher. See your frame manual for more information.

Caution

The **File Transfer** tab is not meant to be used for firmware upgrades. Use the Software Upgrade tool to upgrade module firmware.

If you do not use the correct firmware version, your module may display incorrect menu structures, thumbnail failures, and software upgrade failures.

Note

The module uses high-speed upgrading in ASI mode, and normal field upgrading in SDI mode.

Network Control

For detailed information on how to operate this product remotely, see the Navigator, NUCLEUS Network Control Panel, or LCP-3901-1U/RCP-CCS-1U manual for Ethernet interface.

ACO6800✚ modules do not support ✚ Pilot Lite software; however, you can use HTTP or SNMP monitoring and control. For detailed information, see the installation and operation manual for your frame.

Operating Notes

When you set the control parameters on the ACO6800✚, observe the following:

- If you make changes to certain parameters, other related parameters may also be affected.
- When you change a parameter, the effect is immediate. However, the module requires up to 20 seconds to save the latest change. After 20 seconds, the new settings are saved and will be restored if the module loses power and must be restarted.
- For best results, terminate any unused coaxial output connectors with a 75Ω connector.

Adding a License Key

ACO6800✚ISD, ACO6800✚DSD, and ACO6800✚IDSD modules can be converted to one another through use of a license key. (It is not possible to upgrade to an ACO6800✚4X2D, ACO6800✚4X2✚ICQST, ACO6800✚ISCST or ACO6800✚ASID module. Please download the dedicated firmware package for these options.)

Note

For assistance with a license key, or to purchase a license key, contact your Sales representative. See "Checking the Packing List" on page 16.

To enter a license key, your CCS software must be in Control mode. Follow these steps:

1. Select the ACO6800✚ module in the **Navigation** pane.
2. Right-click, and then select **Control** to open the module's **Control** window.
3. If it is not already selected, click on the **Parameters** tab.

4. Select **General** in the tree view, and then type your license key in the **License Key** field.

If your license key is valid, the **Installed Options** field displays the features that are activated on the module.

Changing Parameter Settings

You can control the ACO6800**+** modules at the card edge, or by using CCS-enabled hardware and software applications.

Note

The ACO6800**+**ASID does not use card-edge controls.

CCS Navigator

Before using CCS Navigator to change your module's parameter settings, you must discover the module. Discovery is the process by which your software finds, and then connects to your module.

Discovering a Module

To discover your module, your CCS Navigator software must be in Build mode. Follow these steps:

1. If the Discovery pane is not open, select **Tools** > **Discovery** in the main menu.

   A **Discovery** pane opens, most likely in the bottom left corner of the screen.
2. Click **Options**, and then click **Add**.
3. Enter the IP address of the frame that contains your module, the frame that contains your ICE6800**+** module, or the frame that contains a 6800**+**ETH module that provides access to your module.
4. Click **OK**, and then **OK** again to close the **Discovery Options** dialog box.
5. Click **Start**.

   This causes Navigator to run a discovery.
6. When your discovery is complete, **Discovery Completed** is displayed in the **Discovery** pane. To continue, click **Save**, to save the contents of your discovery to the **Discovery** folder of the **Navigation** pane.

You can now switch to Control mode by selecting **Operational Mode** > **Control** from the main menu. Double-click ACO6800**+** in the Navigation pane. The **Control** dialog box opens displaying the module's controls.

Note

Confirm that the four sub-devices (for ACO6800**+**4X2D**,** ACO6800**+**DSD, and ACO6800**+**IDSD) or two sub-devices (for ACO6800**+**ISD, ACO6800**+**ASID, and ACO6800**+**ISCST) are also discovered, as in Figure 2-1. If the sub-devices are not discovered, re-discover the module.

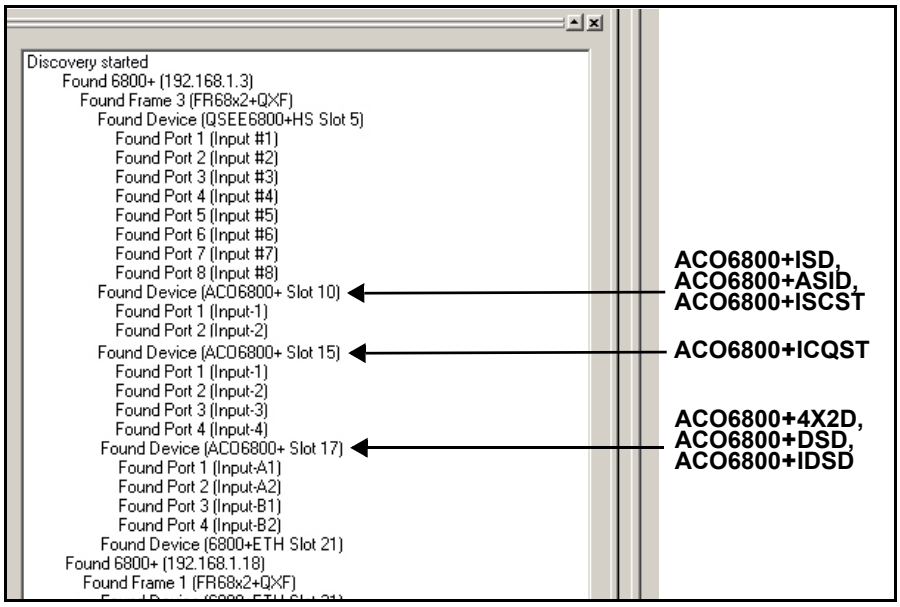


Figure 2-1. Discovery of ACO6800**+** Modules in CCS Navigator

Card-Edge Controls

Using the module's rotary and navigation switches, you can change ACO6800**+** parameter settings at the card edge. You can view and confirm your changes using the On-screen display feature (see "Activating On-Screen Display" on page 23).

Note

Card-edge controls are not available for ACO6800**+**ASID modules.

1. Rotate the mode select rotary switch (hex switch) to "0."
2. Once the hex switch is set to "0," toggle the navigation switch up or down to select a bank.

   View the four control LEDs next to the navigation toggle switch to see which bank is currently selected.

Table 2-3. Bank Select LEDs

Bank Number	Bank 0 LED (first top LED)	Bank 1 LED (second top LED)	Bank 2 LED (third top LED)	Bank 3 LED (fourth top LED)
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off
8	Off	Off	Off	On

3. Rotate the hex switch to the parameter number (1 to 9) or letter (A to F) of the option you want to set.
4. Toggle the navigation switch to select and set the value of the chosen parameter.
5. Do either of the following:
   - Rotate the hex switch to another parameter number/letter in the current bank, and then repeat step 4.
   - Rotate the hex switch to "0" again to select a different bank, and then repeat steps 3 and 4.

Throughout this chapter, in the Parameter Navigation sections, the bank and hex switch positions for each configuration setting are listed in square brackets (for example, [**0**, **2**]) beside or below the parameter name.

Note

The manufacturer recommends that you use the available 6800**+** software control options (serial/local or Ethernet/remote) to aid in viewing, setting, and confirming parameter values.

Activating On-Screen Display

You can use the On-Screen Display (OSD) Monitoring feature to view the current parameter selections on your output display. This feature makes configuring the ACO6800✚ using the card-edge controls much easier.

Note

In ACO6800✚ISD, ACO6800✚DSD, and ACO6800✚IDSD modules, OSD is only displayed on Out A.
In the ACO6800✚4X2D, and ACO6800✚ISCST, OSD can be displayed on any one of the four outputs.
OSD is not available on the ACO6800✚ASID and ACO6800✚4X2✚ICQST modules, or in ASI mode.

OSD will only appear when the option is enabled, and only in SDI mode. On ACO6800✚DSD and ACO6800✚IDSD modules, the Output Source must be from Group A.

Table 2-4 lists the parameters to set to activate OSD.

Table 2-4. Activating OSD

Parameter Name	Bank, Switch	Function	Options
ACO6800+ISD, ACO6800+DSD, and ACO6800+IDSD			
ACO Group A > MISC Settings			
OutA OSD Enable	1, 4	Activates the on-screen display on Out A outputs	• Enable • **Disable**
ACO6800+4X2D			
Video > Out A Settings			
Out AOSD Enable	4, 1	Activates the on-screen display on Out A outputs	• Enable • **Disable**
Video > Out B Settings			
Out B OSD Enable	4, 5	Activates the on-screen display on Out B outputs	• Enable • **Disable**
ACO6800+ISCST			
Video > Out 1_2 Settings			
OSD Enable	5, C	Activates the on-screen display on PGM outputs	• Enable • **Disable**
Video > AUX Settings			
AUX OSD Enable	5, E	Activates the on-screen display on AUX outputs	• Enable • **Disable**

Recalling Default Parameter Settings

You can use the module's **Factory Recall** parameter under **System Config** to return all of the module's parameters to factory default settings. In each ACO6800**+** control parameter list, the factory default setting appears in bold. See the relevant product chapter for the parameter list of your product.

To return this module to its default settings, set the **Factory Recall** parameter (0, F) to **Enable**.

Note

There are two independent sets of default values, one for SDI mode and the other for ASI mode. **Factory Recall** in **SDI** mode will not affect the parameters in **ASI** mode; nor will Factory Recall in ASI mode affect the parameters in SDI mode. This does not apply to ACO6800**+**ASID.

Q-SEE-Compliant Thumbnails

Note

The ACO6800**+**ASID does not support Q-SEE compliant thumbnails.

ACO6800**+** modules support Q-SEE compliant thumbnails. To use Q-SEE compliant features, the following conditions must be met:

- The modules must be installed in an FR6802**+**QXF frame that also contains a 6800**+**ETH module (firmware version 4.8 or higher) or an FR6822**+**QXFE frame.
- You must use CCS Navigator version 4.9 or later.

When you open a **Control** window in CCS Navigator for the 6800**+**ETH module, all Q-SEE compliant modules provide thumbnails on a **Video Streaming** tab. In addition, the ACO6800**+** module **Control** dialog box has a **Streaming** tab where a thumbnail is displayed and updated at up to three frames per second.

Q-SEE-compliant thumbnails are available for all inputs and outputs, but only one can be viewed at a time.

If thumbnails do not appear correctly, refresh the tab. To ensure that thumbnails are operating correctly on your system, view the thumbnail in the 6800**+**ETH module's **Control** dialog box.

For more information on Q-SEE compliant thumbnails, see the installation and operation manual for your frame.

Relay Bypass

When **Group A** or **Group B Relay Bypass** is activated, Out 2 goes blank, and the thumbnail and OSD are not available.

Group A or **Group B Relay Bypass** can be triggered in the following situations:

- Power failure
- The **Group A** or **Group B GPI In Trigger Level** parameter is set to **Active High** while nothing is connected to the connector (the Relay Bypass is triggered because of the internal pull-up on this port)
- The **Group A** or **Group B GPI In Trigger Level** parameter is set to Active Low while the external GPI Input 3 is low
- The **Group A** or **Group B Relay Bypass** parameter is set to **On**.

As soon as the command is accepted (by GPI Input or by **Group A** or **Group B Relay Bypass** parameter), the signal **In 1** is bypassed regardless of switching mechanism.

Note

If the **Group A** or **Group B Relay Status** parameter is shown to be **Off** while the relay is actually working, the relay on the card may be damaged.

Passing Dolby Audio (ACO6800+ISCST and ACO6800+4X2+ICQST)

To properly process Dolby audio embedded in the video signal, the following requirements must be met:

- The **Sync Mode Set** parameter must be set to **Genlock**.
- Genlock must be available, with a frame rate that matches the operation standard.
- Input video must be synced to Genlock.
- The **SRC (1-8) Bypass** parameter must be set to **Yes**.

Note

If the **SRC Bypass Mode** parameter is set to **Auto**, ACO6800**+** will enable SRC bypass automatically when Dolby data is detected. Dolby E alignment is not supported.

Configuring the Switching Mechanism

Three factors control the output channels on the ACO6800**+**:

- GPI control
- Alarm severity levels for each input channel
- Parameters that can be manually switched in CCS Navigator or at the card edge

Use the following parameters in the **Switch Settings** group of parameters to define the switch priority levels:

- Group A or Group B Switch High Priority (the default setting is **GPI Input**)

- Group A or Group B Switch Medium Priority (the default setting is **Manual**)
- Group A or Group B Switch Low Priority (the default setting is **Alarms**)

A high priority event overrides a medium priority event, which overrides a low priority event. The three options are mutually exclusive.

As an example, the current settings might start out in these default values:

- Group A Switch High Priority: **GPI Input**
- Group A Switch Medium Priority: **Manual**
- Group A Switch Low Priority: **Alarms**

By changing the Group A Switch Low Priority setting to **GPI Input**, the module automatically changes the Group A Switch High Priority setting to **Alarms**. This new setting is exclusive, and will not conflict with the Medium and Low settings.

GPI Input Control

Table 2-5 indicates what happens when a GPI Input is activated—for example, pressing a button on a panel—when the switching is not triggered by other higher priority events than **GPI Input**.

Table 2-5. GPI Input Control

GPI	Action/Result
GPI 1	Switches output source to In 1
GPI 2	Switches output source to In 2

Note

GPI Input 3 is dedicated to the relay bypass, and it is not involved in the switching mechanism.When GPI Input 3 is triggered, the output is switched to input 1 directly. Additional GPI details apply to individual ACO6800+ modules. See the relevant module chapter for information about your product.

Manual Control

When the switching is not triggered by other higher priority events, you can use the parameters described in Table 2-6 to manually switch the source using either CCS Navigator or the card-edge controls.

Table 2-6. Manual Switch Parameters

Parameter Name	Bank, Switch	Function	Options
ACO6800+ISD			
Group A Manual Switch	1, E	Sets the output source when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
ACO6800+DSD and ACO6800+IDSD			
Group A Manual Switch	1, E	Sets the output source when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
Group B Manual Switch	4, E	Sets the output source when a channel is switched manually	• **Disable** • Switch to B1 • Switch to B2
ACO6800+ASID			
Manual Switch	n/a	Sets the output source when a channel is switched manually	• **Disable** • Switch to 1 • Switch to 2
ACO6800+4X2D and ACO6800+ISCST			
Manual Switch	1, E	Sets the output source when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2

Alarm Control

The combination of the switch priority parameter settings, adjustable alarm switch levels, and SQM smart alarms on the subdevice of the ACO6800**+** module provides flexible automatic and manual switch control. In the case of the SQM smart alarms, you can individually adjust the severity and trigger/clear duration for each alarm type. See the relevant chapter for the alarms list of your product. The following tables offer two sample scenarios.

Note

By default, all alarms are set to a disabled state. To configure a device to switch using alarms as a trigger, first enable alarms in the sub-device.

Failure of Auto/Manual switchover

If your auto/manual switchover does not work as expected, confirm that the following parameters have been configured correctly:

- **Group (A/B) GPI Input_(1-3)** should confirm the GPI Input condition.
- **Group A** or **Group B Manual Switch** should confirm the expected setting.
- **Group A** or **Group B Switch (High/Medium/Low) Priority** should display the sort of logic seen in Table 2-8 and Table 2-10.
- **Group A** or **Group B Alarm Switch Level** should confirm the triggered level.

Confirm that the configurable portions of sub-device alarms match your expectations. (This includes Enable/Disable, Alarm Priority, Trigger Time, and Clear Time.)

For ACO6800**+**4X2**+**ICQST and ACO6800**+**ISCST modules, ensure that the **Video Standard** and **Operation Standard** parameters have the same setting.

When using the ACO6800**+**ISCST, ensure the **Still Image Mode** parameter is set to **Auto**, and the **Force Freeze** and **Force Black** parameters are set to **Off**.

Sample Scenario One

The initial settings for sample scenario one are outlined in Table 2-7.

Table 2-7. Sample Scenario One: Parameter Settings

Parameter	Setting
Group A Switch High Priority	GPI Input
Group A Switch Medium Priority	Manual
Group A Switch Low Priority	Alarms
Group A Alarm Switch Level	6
Group A Manual Switch	Disable
A1 SDI Loss of Video: Priority	6
A1 SDI Loss of Video: Trigger	2 s
A1 SDI Loss of Video: Clear	10 s

Table 2-8. Sample Scenario One: Chain of Events

Event	Result
1. At the start, A1 and A2 are both present.	Output A is A1 (A1 is the primary channel).
2. A1 is lost.	Output A is A1 (alarm is not yet triggered; waiting for two second trigger condition).
3. Two seconds pass.	Output A is A2 (alarm is triggered).
4. The user sets the Manual Switch to A1.	Output A is A1 (Manual has higher priority than Alarm).

Table 2-8. Sample Scenario One: Chain of Events *(Continued)*

Event	Result
5. The user activates GPI Input 2.	Output A is A2 (GPI Input has higher priority than Manual).
6. The user sets the Manual switch to Disable.	Output A is A2.
7. A1 is present.	Output A is A2 (GPI Input command is still active).
8. Five seconds after A1 is present, GPI Input 2 is deactivated.	Output A is A2 (alarm for A1 is not cleared yet; waiting for 10 seconds clear condition).
9. Five seconds pass.	Output A is A1 (alarm is cleared).

Sample Scenario Two

The initial settings for sample scenario two are outlined in Table 2-9. For this scenario, the trigger time and clear time of all alarms is presumed to be 0 seconds.

Table 2-9. Sample Scenario Two: Parameter Settings

Parameter	Setting
Group A Switch High Priority	GPI Input
Group A Switch Medium Priority	Alarms
Group A Switch Low Priority	Manual
Group A Alarm Switch Level	6
Group A Manual Switch	Disable
A1 SDI Loss of Video: Priority	6
A1 SDI Video Standard Mismatch: Priority	1
A1 SDI Expected Standard	525
A2 SDI Video Standard Mismatch: Priority	6
A2 SDI Expected Standard	525

Table 2-10. Sample Scenario Two: Chain of Events

Event	Result
1. At the start, A1 and A2 are both present and 625 format.	Output A is A1 (A1 Standard Mismatch alarm is on, but has not met switching condition, level 6).
2. A1 is lost.	Output A is A1 (A1 and A2 inputs are bad, but A2 Standard Mismatch alarm level is 6, so the ACO6800✚ selects primary input as output).
3. The user sets the Manual Switch to A2.	Output A is A1 (A2 is still bad, and Alarm has higher priority than Manual).

Table 2-10. Sample Scenario Two: Chain of Events *(Continued)*

Event	Result
4. The user activates GPI Input 2.	Output A is A2 (GPI Input has higher priority than Alarm).
5. The user deactivates GPI Input 2.	Output A is A1.
6. A1 is present, 625 format.	Output A is A1 (Alarm is still on, but it has not met switching condition).

Switching to a Still Image (ACO6800+ISCST Modules Only)

In ACO6800**+**ISCST modules, the **Still Image Source** parameter determines whether the output is to TSG or trouble slide.

When the **Still Image Mode** parameter is set to **Force**, the output is to a predefined still image, except when relay bypass is enabled.

When the **Still Image Mode** parameter is set to **Auto**, the still image is treated as the module's third input, which is always in good quality. The switching mechanism includes the still image in its priority list. The order of priority, from highest to lowest, is **In 1, In 2**, and **Still Image**.

Table 2-11 shows the relationship between switch mechanism and still image output when the **Still Image Mode** parameter is set to **Auto**.

Table 2-11. Still Image Priority and Image Output When Still Image Mode is set to Auto

Switch High Priority	Switch Medium Priority	Switch Low Priority	Output Source	Note
GPI Input Select InIn1	N/A	N/A	Input 1	GPI forces In 1 as output source even when In1 is lost.
GPI Input = Inactive	Manual Switch = In 2	N/A	Input 2	Manual switch forces In 2 as output source, even when In 2 is lost.
GPI Input = Inactive	Manual Switch = Disable	Alarm = Enable and Alarm switch condition met for both inputs	Still Image	Switch Mechanism selects Still Image as output source.
GPI Input = Inactive	Manual Switch = Disable	Alarm = Disable	Input 1	Switch Mechanism is disabled.

Table 2-12 shows what happens when both inputs are lost and the **SDI Loss of Video** alarm of both In 1 and In 2 are considered as fatal alarms and triggered (supposing GPI Input and Manual Switch are both not active).

Table 2-12. Still Image Output on ACO6800**+**ISCST Modules

Still Image Mode	Still Image Source	LOV Mode	Result
Auto *	TSG/Trouble Slide	Pass	The output temporarily passes some video noise, and then switches over to the still image.
Auto	TSG/Trouble Slide	Black	The output turns black, and then switches over to the still image.
Auto	TSG/Trouble Slide	Freeze	The output freezes the last good frame or field, and then switches over to the still image.
Auto	None	Pass	The output passes some noise. †
Auto	None	Black	The output switches to black signal.
Auto	None	Freeze	The output freezes the last good frame or field.

***** If the **Still Image Mode** parameter is set to **Force**, TSG/Trouble Slide is always on-line regardless of signal quality of inputs.

† ACO6800**+** cannot pass video with a different standard than the operation standard.

Creating Trouble Slides

Integrated Graphics Storage and Playout

The ACO6800+4X2+ICQST and ACO6800+ISCST modules provide on-demand insertion of pre-defined static SD-SDI and HD-SDI logo images.

The logos used must be created or saved in the .mg2 file format, and initially stored on a micro-SD card that is inserted into the slot located at the card edge of the module. The files must be loaded onto the card directly at your PC workstation. (LogoCreator software is provided as a utility to convert existing files to .mg2).

The following FAT/FAT16-formatted microSD cards are supported:

- SanDisk SD SDQ-1024-K (1G)
- SanDisk SDQ-2048-K (2G)
- SanDisk SDQ-4096-K (4G)

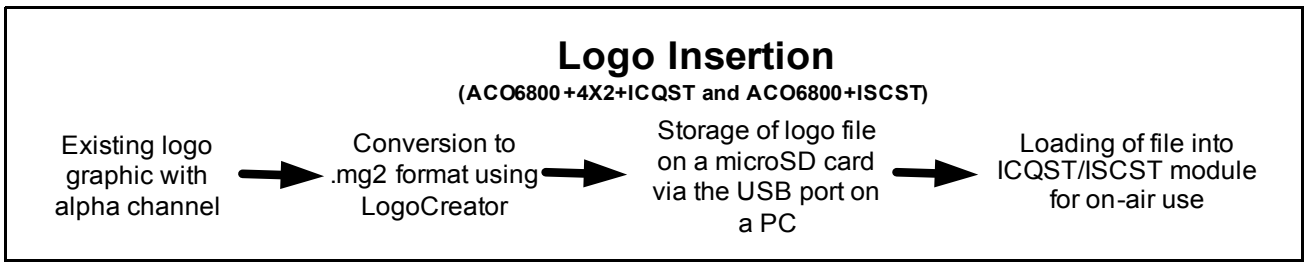


Figure 2-2. Progression of Logo to On-Air Signal

The files that you use as logos must be selected according to the video output standard set on the ICQST/ISCST (**System > Operation Standard**). When the output standard changes on the module, the ACO6800+4X2+ICQST and ACO6800+ISCST automatically load files that use the selected output standard.

Basic Steps to Installing Logo Files

If you are starting with existing graphics files, these basic steps are as follows:

1. Install the LogoCreator conversion software from the *IconSoft Tools* CD-ROM.
2. Convert the logos to an .mg2 format.
3. Transfer the files to the microSD card directly from the PC.

Step 1: Install LogoCreator Software

The logos must be generated as .mg2 files or converted to that format. A version of LogoCreator (located on the *IconSoft Tools* CD-ROM) is provided with the manual for this purpose.

For best results, LogoCreator requires a PC with the following system specifications:

- Intel Pentium III processor at 500 MHz or faster
- 512 MB or more of physical memory (RAM)
- Microsoft® Windows® XP or Windows 2000

If a version of LogoCreator already exists on the PC, ensure that you first uninstall the program and restart the computer. Then, proceed with the steps below:

1. Close all other software applications running on the PC and then insert the IconTools CD-ROM into the computer's CD-ROM tray.
2. Using Windows Explorer, browse to the CD-ROM contents, and then double-click the **LogoCreator** folder.
3. Double-click **Setup.exe**.
4. When the **IconTools 3 Setup** box appears, click **Next**, and then follow the on-screen installation instructions.

Step 2: Convert Files to the .mg2 Format

When using LogoCreator, you need a source image file for the fill portion of your logo, and a source image file for the key portion. The fill is the picture or image you want to overlay onto the program output. The key is the cutout or shape of the desired logo, which may or may not be the same shape as the fill. Use LogoCreator to set the fill and key images to the same size (resolution) as the standard of the ACO6800**+**4X2**+**ICQST or ACO6800**+**ISCST output. LogoCreator infers the key from the alpha channel in a targa (.tga) file.

After you save the logo, the logo displays in your LogoCreator workspace. To save your logo files using LogoCreator, follow the steps listed below.

Note

When 720p or 1080p is required, use the **1080i** option in **Video Standard** to provide the best loading time. Ensure that you create 720p and 1080p graphics in full screen, with the logo already positioned correctly beforehand. Although the logo may not appear in the safe area in LogoCreator, it will be correctly placed in the final video output.

1. In LogoCreator, open the **Logo Set-Up** dialog box (Figure 2-3 below).

   When you first open LogoCreator, the **Logo Set-Up** dialog box opens automatically. If the **Logo Set-Up** dialog box is closed, select **File > New** to open the dialog box.

Figure 2-3. LogoCreator Setup Dialog Box

Note

If you click the **Open** button directly in the **Logo Set-Up** box, the program will only launch files with an .mg2 prefix. If you attempt to open a file with any other prefix, the program will generate error messages.

2. Click the **Logo** button to open the Static Logo dialog box.
3. Use the **Logo ID** box to assign the logo to a specific slot on your IconLogo system.
4. Enter a name for the logo in the **Name** box.
5. Click the **Open** button below the **Logo Image Preview** window.

   The **Open** dialog box displays.
6. Select your existing logo file and click the **Open** button to open the logo in the **Static Logo** dialog box.

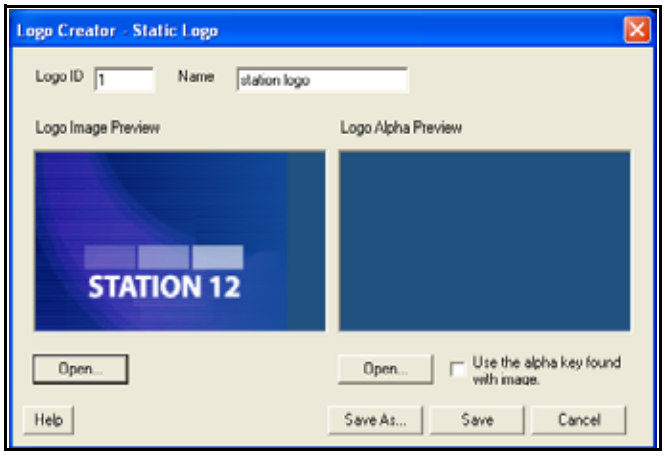


Figure 2-4. Static Logo Dialog Box

- A preview of the composited logo displays in the **Logo Image Preview** area.

- A preview of the image alpha displays in the **Logo Alpha Preview** area if the file contains alpha.

7. Select a file to use as the alpha channel for your logo.

   You must select a file before you can save the logo.

   - To use the original image's alpha channel, select the **Use the alpha key found with image** checkbox.
   - To use a different image for the alpha channel, clear the **Use the alpha key found with image** checkbox, and then click the **Open** button to select a new file for your alpha channel.

Note

An alpha channel is an 8-bit layer in a graphics file format that expresses transparency. Typically, you define the alpha channel on a per-object basis. Different parts of an object will have different levels of transparency depending on how much background you want to show through.

8. Click the **Save** button in the **Static Logo** dialog box.

   The **Save Logo File** dialog box opens. In this dialog box, you can save your logo as an .mg2 file. Once you save the logo as an .mg2 file, the logo displays in the LogoCreator workspace.

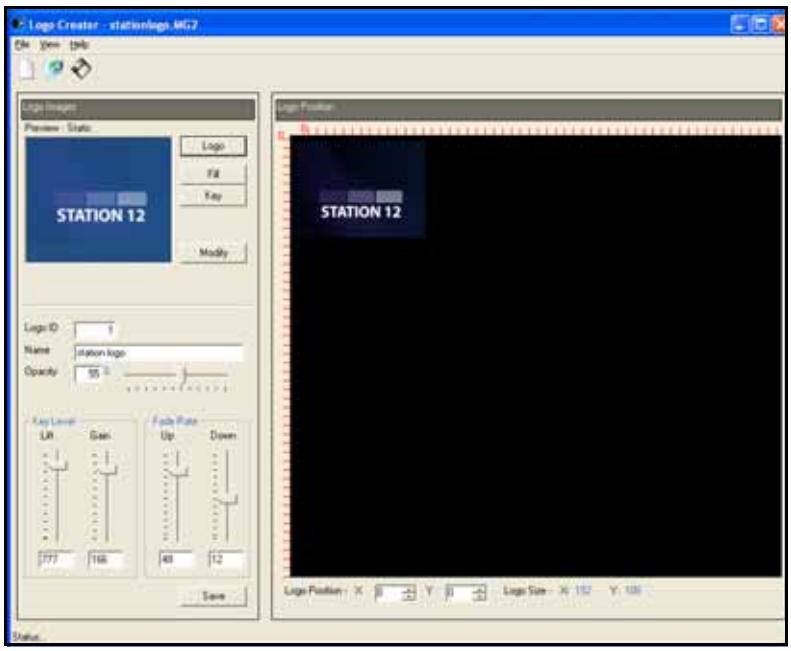


Figure 2-5. LogoCreator Work Space

Once you create an .mg2 logo, you can

- Open the file in LogoCreator
- Set the logo position

- Modify specific logo attributes

LogoCreator also makes it possible to adjust the noise and strength of the key signal and apply fade on/off transitions to the logo.

Step 3: Transfer the Logos to the MicroSD Card

When your logos have been created or converted to the .mg2 format, they can be saved on the microSD card. The ICQST or ISCST module references files on the microSD card using the DOS 8.3 short filename convention. Longer filenames may be accessed by entering the alternate 8.3 filename. To avoid any confusion, it is preferable to limit all filenames to the 8.3 format, with a maximum of 8 characters before the .mg2 extension.

In addition, all files must be located within the **logos** folder on the microSD card. Figure 2-6 shows the location of the microSD socket.

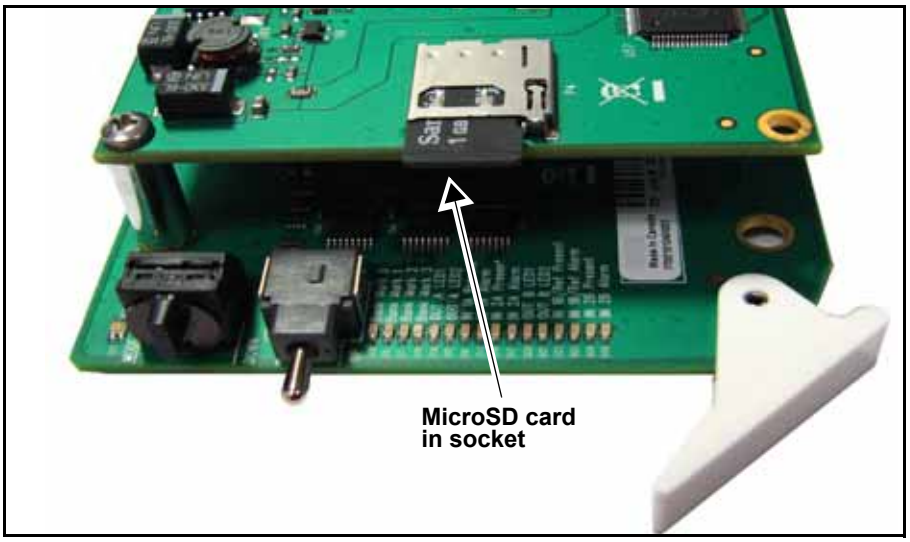


Figure 2-6. Inserting the MicroSD Card

Using Trouble Slides

The **Trouble Slide Source** parameter has four options. The **Trouble Slide (1/2/3)** options are only available when there are compatible trouble slides (MG2 format) stored in the microSD card.

The trouble slide can have two sources:

- Default trouble slides are stored within the firmware of the ACO6800**+**. You can only change the background portion of default trouble slides (using parameter **Trouble Slide Background**)
- Up to three user trouble slides can be stored in a microSD card (located at the sub-module)

Trouble slides must meet the following criteria:

- The SD card must be of the *microSD variety*, formatted as FAT/FAT16 (FAT32 is not supported; see"Formatting the SD Card" on page 37). SanDisk SD SDQ-1024-K (1G), SDQ-2048-K (2G), SDQ-4096-K (4G) Micro SD cards have been verified. Figure 2-7 shows a valid SD card in a PC browser window.

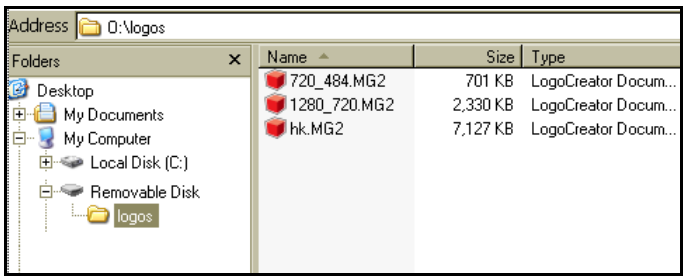


Figure 2-7. Valid SD Card in Browser Window

- The image file must be put in folder named "logos" in the root directory (regardless of uppercase or lowercase).
- The image file must be MG2 format with extended name "mg2" or "MG2".
- The width and height of mg2 file must be smaller than the supported size of current operation standard (for example, if the current operation standard is 720p, and the video size is 1280*720, if the image size is 720*576, it is acceptable. If it is 1920*1280, it would be refused).
- For best results, the length of file name should be less or equal to 8 letters. (If the length of mg2 file name is larger than 8 characters, a shortened name will display on Navigator.)
- Only the first three valid MG2 files sorted by access time are displayed on Navigator.
- For best results, the original image (before converting to MG2 format) should consist of an even number of pixels and an even number of lines.
- Every time the operation standard or trouble slide background changes, the system reloads the trouble slide.

Generally, larger or more complicated images take longer for the system to load. A complicated image with size of 1920*1280 (the maximum supported size) takes about 7 minutes to finish loading. The trouble slide will not be displayed until loading is finished (it is masked as black during that time).

Formatting the SD Card

To format a 4G microSD Card to FAT/FAT16 with Microsoft Windows XP or Windows 7, follow these steps.

Windows XP

1. Insert the Micro-SD card into the PC card reader.
2. Right-click **My Computer**, and then select **Manage**.

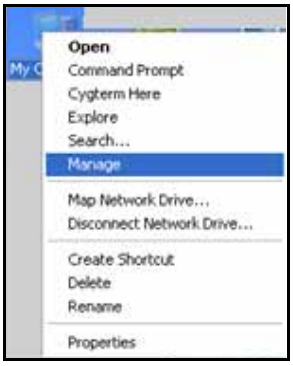


Figure 2-8. Manage Selected

3. Select **Disk Management**.

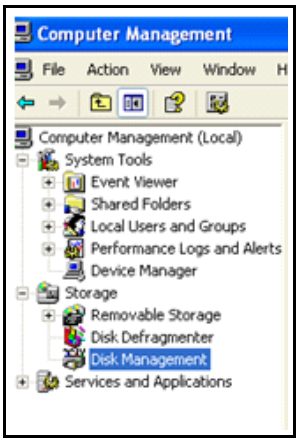


Figure 2-9. Disk Management Selected

4. Find the 4G SD card, right click the card, and then select **Format**.

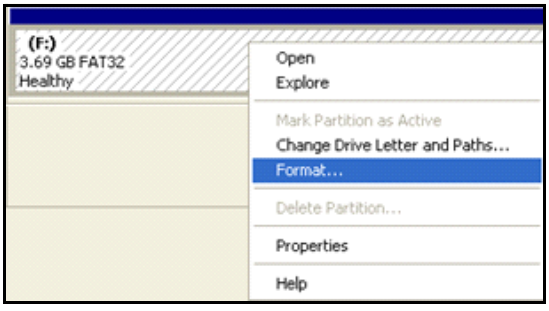


Figure 2-10. Format Selected

5. Select **FAT** as the file system, select **Perform a quick format**, and then click **OK**.

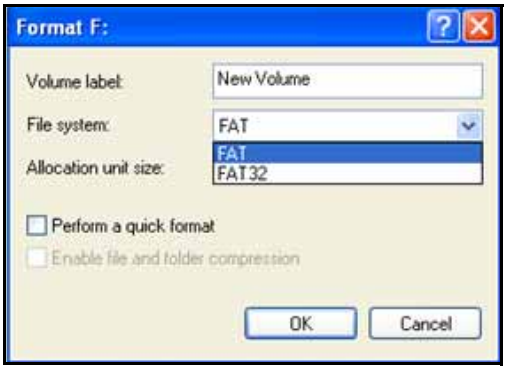


Figure 2-11. File System Selected

After formatting is completed, the FAT formatting appears as shown.

Figure 2-12. Formatting

Windows 7

1. Open **My Computer**, and then right-click the SD card.
2. Select **Format**.
3. Select **FAT** as the file system, and then click **Start**.

Figure 2-13. Formatting New Volume

Chapter 3

ACO6800+4x2D Parameters, LEDs, and Alarms

Switch to Backup Inputs

The output switching mechanism of ACO6800**+**4X2D switches between A1 and A2 automatically according to alarm settings. In an urgent situation, you can force the output to either of the backup inputs by GPI or Network (Card Edge Control).

Using manually switch by GPI or Network, the priority for the inputs is defined as **In 1B > In 2B > In 1A > In 2A**.

On-Screen Display Monitoring

If you are using card-edge controls to configure your ACO6800**+**4X2D module, you can use the on-screen display (OSD) monitoring feature to view the current parameter selections. When the OSD monitoring is activated, the current parameter selections are displayed on module's monitoring outputs. For information on enabling OSD monitoring, see "Activating On-Screen Display" on page 23.

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.
- The parameters are listed in the order that they appear in CCS Navigator.

ACO6800+4x2D Parameters

Table 3-1. ACO6800+4X2D Parameters

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key		Provides a location for entering license key numbers (not necessary for ACO6800+4X2D option)	<string>
	Factory Recall	0, F	Sets the module back to factory default settings **Note** There are two independent sets of default values for SDI mode and ASI mode. Factory Recall in SDI mode does not affect the parameters in ASI mode, and vice versa.	• On • **Off**
	Soft Reboot	0, E	Activates a soft reboot of the module	• On • **Off**
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI **Note** Factory recall does not change this parameter. It has no default value.	• SDI • ASI
	Thumbnail Source	0, 2	Selects the thumbnail source **Note** This parameter is not available in ASI mode.	• **Input A1** • Input A2 • Output Grp • Input B1 • Input B2 • Output Grp B
	Submodule Type [RO]		Displays whether or not there is a submodule included on the module	• None • For ISCS
	Backmodule Type [RO}		Displays which back module is connected to the front module	• For 4X2D/DSD/IDSD/ISD • For ISCS
Switch Settings				
	Output Source [RO]		Displays the current output source of Out A	• Input A1 • Input A2 • Input B1 • Input B2

Table 3-1. ACO6800+4X2D Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Switch High Priority	1, A	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Switch Medium Priority	1, B	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Switch Low Priority	1, C	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Alarms Switch Level	1, D	Sets the level for alarm auto switch	1 to 10 (**6**)
	Manual Switch	1, E	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
	Relay Bypass	1, 1	Activates the relay bypass	• On • **Off**
	Relay Status [RO]		Displays whether or not the relay is active	• On • Off
General Purpose Interface				
	GPI Mode	1, 4	Selects GPI mode for 4X2D option	• **Standard Mode** • 4X2D Mode
	GPI In Trigger Level	1, 2	Sets the level at which an alarm is triggered for the all the GPI Inputs **Note** When the **GPI Mode** parameter is set to **Standard mode**, the parameter options are **Active Low** and **Active High**. When **GPI Mode** is set to **4X2D mode**, the only option available is **Positive Edge**, so the menu is grayed out.	• **Active Low** (Standard Mode, see note) • Active High • **Positive Edge** (4X2D Mode, see note)
	GPI Out Trigger Level	1, 3	Sets the level at which an alarm is triggered for the all the GPI Outputs	• Active Low • **Active High**
	GPI Input A1 [RO]		Displays whether or not GPI Input_1 has been switched to A1	• N/A • Switch to A1
	GPI Input A2 [RO]		Displays whether or not GPI Input_2 has been switched to A2	• N/A • Switch to A2
	GPI Input A3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass

Table 3-1. ACO6800+4X2D Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	GPI Input B1 [RO]		Displays whether or not GPI Input B1 has been switched to B1 **Note** When the **Extra Input Source Control** parameter is set to **Manual**, this parameter reports the state of the input, but the field turns grey to indicate that commands from the GPI input will not be accepted.	• N/A • Switch to B1
	GPI Input B2 [RO]		Displays whether or not GPI Input B2 has been switched to B2 **Note** When the **Extra Input Source Control** parameter is set to **Manual**, this parameter reports the state of the input, but the field turns grey to indicate that commands from the GPI input will not be accepted.	• N/A • Switch to B2
	GPI Input B3 [RO]		Clears all GPI input status except GPI Input A3 **Note** This parameter is only available when the **GPI Mode** parameter is set to **4X2D mode**.	• N/A • Auto Switch
	GPI Output A1 [RO]		Displays whether or not A1 is selected as the current output source	• N/A • Input A1 online
	GPI Output A2 [RO]		Displays whether or not A2 is selected as the current output source	• N/A • Input A2 online
	GPI Output A3 [RO]		Displays whether or not the Relay Bypass has been activated	• N/A • Signal Bypass
	GPI Output B1 [RO]		Displays whether or not B1 is selected as the current output source	• N/A • Input B1 online
	GPI Output B2 [RO]		Displays whether or not B2 is selected as the current output source	• N/A • Input B2 online
	GPI Output B3 [RO]		Displays whether or not auto switch is enabled **Note** This parameter is only available when the **GPI Mode** parameter is set to **4X2D mode**.	• N/A • Auto Active
Out A Settings				
	Out A OSD Enable	4, 1	Enables the on-screen display **Note** This parameter is not present in ASI mode.	• **Off** • On

Table 3-1. ACO6800+4X2D Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Out A EDH Control	4, 2	Inserts or clears the EDH when the input online is SD-SDI **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear
Out A Settings > Extra Control				
	Extra Input Source Control	4, 3	Selects the trigger source for selecting Input B source	• **GPI B1B2** • Manual
	Extra Manual Switch	4, 4	Manually switch to Input B Source **Note** This parameter is only available when the **Extra Input Source Control** parameter is set to **Manual**.	• **Disable** • Force to B1 • Force to B2
Out B Settings				
	Out B Source	4, 5	Select output source for Out B	• **Follow Out A** • Input A1 • Input A2 • Input B1 • Input B2
	Out B OSD Enable	4, 6	Enables the on-screen display on Out B **Note** This parameter is not present in ASI mode.	• **Off** • On
	Out B EDH Control	4, 7	Inserts or clears the EDH when the input online is SD-SDI on Out B **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear
Frozen Detection Sensitivity				
	Level Sensitivity	4, 8	Adjusts level threshold sensitivity for freeze detection (a higher level indicates increased sensitivity)	0 to 10 (**5**)
	Pixel Sensitivity	4, 9	Adjusts pixel number threshold sensitivity for freeze detection (a higher level indicates increased sensitivity)	0 to 10 (**5**)

Table 3-1. ACO6800+4X2D Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Alarm Query **Note** This set of parameters are only used to capture the selected alarms through SNMP. They do not affect the function of the alarms in the main device or sub-device.				
	Alarm Query Mode		Activates or deactivates alarm query mode.	• Enable • **Disable**
	Set Alarm Channel		Selects whose alarms to be sent out.	• **Input-A1** • Input-A2 • Input-B1 • Input-B2
	Set Alarm ID		Select which alarm to be sent out.	• **SDI Loss of Video** • SDI Video Standard Mismatch • SDI EDH Error • SDI CRC Error • SDI Video Black • SDI Video Frozen • SDI Embedded Ch01 Loss Of Sound • SDI Embedded Ch01 Vbit Set • SDI Embedded Ch01 Missing • SDI Embedded Audio Group 1 Missing
	Alarm Status [RO]		Displays whether or not the selected alarm is activated	• Inactive • Active
	Alarm Reporting [RO]		Displays the selected alarm is enabled or not by user setting.	• Disabled • Enabled
	Alarm Priority [RO]		Displays the priority of selected alarm by user setting.	0 to 10
	Alarm Trigger Time (s) [RO]		Displays the trigger time of selected alarm by user setting.	0 to 7200
	Alarm Clear Time (s) [RO]		Displays the clear time of selected alarm by user setting.	0 to 7200

ACO6800+4X2D Subdevice Parameters

The parameters in SDI mode and in ASI mode cannot be shown at the same time.

Table 3-2. ACO6800+4X2D Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
Parameters available in SDI Mode				
Status				
	Video Present [RO]		Indicates that video is present	• On • Off
	Video Standard [RO]		Lists the incoming video standard	
	Audio Grp (1-4) Present		Displays the presence of the specified audio group package	• On • Off
SQM Settings				
	Set Expected Video Standard		Selects the expected format **Note** When the format deviates from this format, one of the SDI Video Standard Mismatch alarms triggers.	• **525** • 625 • 1080i • 1080p • 720p • 1080psf
	A1	2, 1		
	A2	3, 1		
	B1	5, 1		
	B2	6, 1		
	Luma Low Threshold		Sets the threshold below which the SDI Luma Low alarm is triggered	-6.8% to 15% (**7.5%**)
	A1	2, 2		
	A2	3, 2		
	B1	5, 2		
	B2	6, 2		
	Luma Peak Threshold		Sets the threshold at which excessive luminance triggers the SDI Luma Peak alarm	90% to 108% (**102%**)
	A1	2, 3		
	A2	3, 3		
	B1	5, 3		
	B2	6, 3		
	Chroma Low Threshold		Sets the threshold below which the SDI Chroma Low alarm is triggered	**0%** to 15% (**0%**)
	A1	2, 4		
	A2	3, 4		
	B1	5, 4		
	B2	6, 4		
	Chroma Peak Threshold		Sets the threshold at or above which an excessive chrominance level triggers the SDI Chroma Peak alarm	90% to 108% (**102%**)
	A1	2, 5		
	A2	3, 5		
	B1	5, 5		
	B2	6, 5		

Table 3-2. ACO6800+4X2D Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
	Video Black Threshold A1 A2 B1 B2	 2, 6 3, 6 5, 6 6, 6	Sets the threshold below which the SDI Video Black alarm is triggered	0% to 10% (**5.5%**)
	Peak Audio Threshold (dBFS) A1 A2 B1 B2	 2, 7 3, 7 5, 7 6, 7	Sets the threshold above which SDI Embedded Ch01 peak to SDI Embedded Ch02 peak alarms are triggered	-20 dBFS to 0 dBFS (**-2 dBFS**)
	Low Audio Threshold (dBFS) A1 A2 B1 B2	 2, 8 3, 8 5, 8 6, 8	Sets the threshold below which SDI Embedded Ch01 Low Audio to SDI Embedded Ch16 Low Audio alarms are triggered	-80 dBFS to -30 dBFS (**-60 dBFS**)
	Loss of Sound Threshold (dBFS) A1 A2 B1 B2	 2, 9 3, 9 5, 9 6, 9	Sets the threshold below which SDI Embedded Ch01 Loss of Sound to SDI Embedded Ch16 Loss of Sound alarms are triggered	-100 dBFS to -60 dBFS (**-90 dBFS**)
	Audio Average Level Reporting A1 A2 B1 B2	 2, A 3, A 4, A 5, A	Displays the SDI Embedded Channel Average Level value	• Enable • **Disable**
	Audio Average Level Restart A1 A2 B1 B2	 2, B 3, B 5, B 6, B	Restarts the calculation of the average audio level	• On • **Off**
SQM				
	SDI Emb.Ch1–16 Average Level (dBFS) [RO]		Displays the embedded audio average level for the channel	-99 dBFS to 0 dBFS
Parameters available in ASI Mode				
Status				
	ASI Error [RO]		Displays whether or not there is an ASI error (including ASI loss)	• On • Off

GPI Re-definition

In Standard mode, GPI inputs are defined as “Level” triggered.

In 4X2D mode, GPI inputs are defined as “Edge” triggered. A low-to-high pulse (holding low and high longer than 15 ms) is considered as an active GPI command.

GPI outputs are always defined as “Level” active. Table 3-3 lists the functions of the GPIs in standard mode and in 4X2D mode.

Table 3-3. GPI Functions in Standard Mode and 4X2D Mode

GPI	Standard Mode	4X2D Mode
GPI Input A1	Switch to A1	Switch to A1
GPI Input A2	Switch to A2	Switch to A2
GPI Input A3	Force relay bypass	Force relay bypass; If it is triggered, **GPI Input A1** is automatically triggered once
GPI Input B1	Switch to B1	Switch to B1
GPI Input B2	Switch to B2	Switch to B2
GPI Input B3	No use	Clear all GPI input commands except **GPI Input A3**
GPI Output A1	In A1 is output	In A1 is output
GPI Output A2	In A2 is output	In A2 is output
GPI Output A3	Relay is active	Relay is active
GPI Output B1	In B1 is output	In B1 is output
GPI Output B2	In B2 is output	In B2 is output
GPI Output B3	No use	Auto switch is enabled (No switching command by GPI control)

LEDs and Alarms

The ACO6800+4X2D modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 3-1 shows the location of the LEDs on a typical ACO6800+ module. Table 3-4 and Table 3-5 describe each LED in more detail.

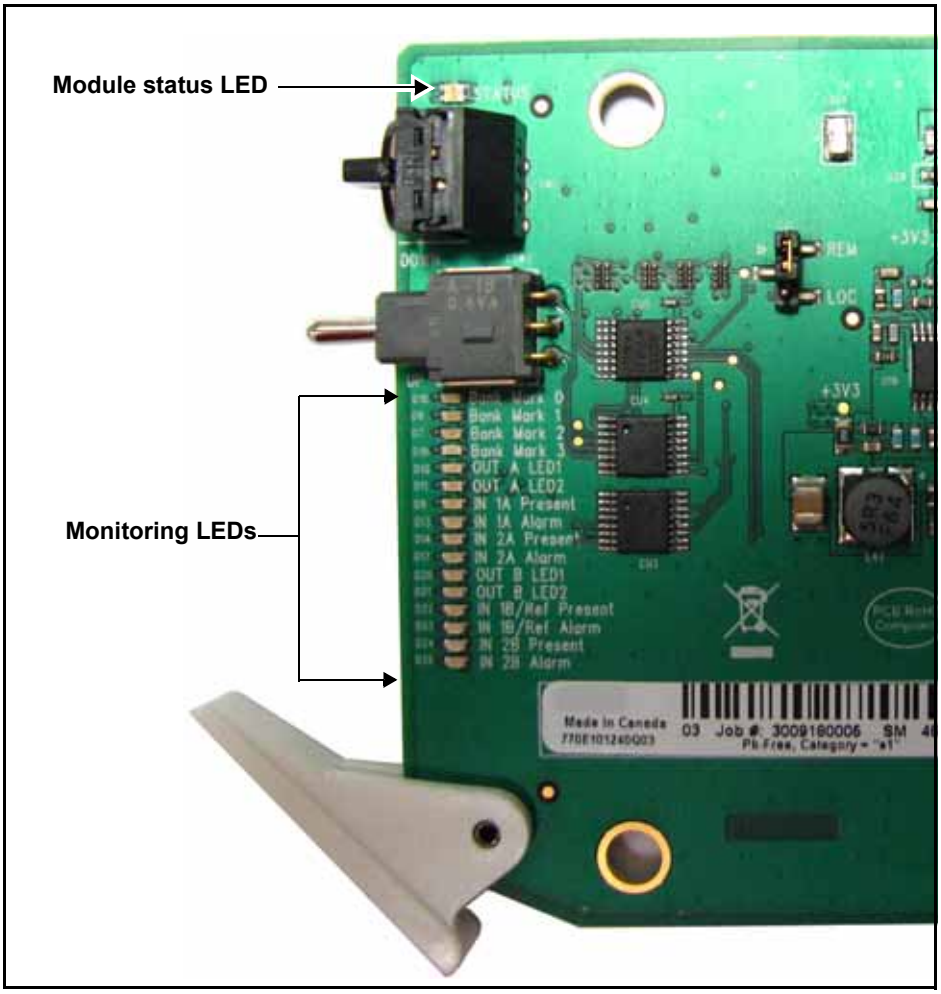


Figure 3-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 3-4. ACO6800+4X2D Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	LED2 /LED1 Off/off: The current selected input is A1 for Out A. Off/on: The current selected input is A2 for Out A. On/off: The current selected input is B1 for Out A. On/On: The current selected input is B2 for Out A.	Green
2	Out A LED 2		Green
3	In 1A Present	Input 1A signal is present.	Green
4	In 1A Alarm	Input 1A is in an alarm state.	Amber
5	In 2A Present	Input 2A signal is present.	Green
6	In 2A Alarm	Input 2A is in an alarm state.	Amber
7	Out B LED 1	LED2 /LED1 Off/off: The current selected input is A1 for Out B. Off/on: The current selected input is A2 for Out B. On/off: The current selected input is B1 for Out B. On/On: The current selected input is B2 for Out B.	Green
8	Out B LED 2		Green
9	In 1B Present	Input 1B signal is present.	Green
10	In 1B Alarm	Input 1B is in an alarm state.	Amber
11	In 2B Present	Input 2B signal is present.	Green
12	In 2B Alarm	Input 2B is in an alarm state.	Amber

Module Status LEDs

The ACO6800+4X2D modules do not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 3-1 on page 50 for the location of the LED, and Table 3-5 for a description of the LED colors.

Table 3-5. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 3-6. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm.

Table 3-6. Alarm Options *(Continued)*

Alarm Option	Effect
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

This alarm is available in both ASI and SDI modes.

Table 3-7. Device Alarms For ACO6800+4x2D Modules

Alarm Name	Priority	Trigger (s)	Clear (s)
Grp A Relay Bypass On	1	1.0 s	2.0 s
Switch Away From Input A1	1	1.0 s	2.0 s
Switch Away From Input A2	1	1.0 s	2.0 s
Switch Away From Input B1	1	1.0 s	2.0 s
Switch Away From Input B2	1	1.0 s	2.0 s

Subdevice Alarms

Table 3-8 describes the alarms for each of the subdevices on the ACO6800+4X2D module. You can only identify specific alarms using a software control application. Depending on the module you are using, some of the subdevice alarms may not be available.

Table 3-8. ACO6800+4X2D Subdevice Alarms

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI Mode				
SDI Video Standard Mismatch	The standard video input does not match the expected standard	1	2.0	2.0
SDI EDH Error	Reports recurring EDH errors in the standard definition video signal	1	2.0	2.0
SDI CRC Error	Reports recurring CRC errors in the high definition video signal	1	2.0	2.0
SDI Loss of Video	Reports that active HD or SD video has not been present	6	2.0	2.0
SDI CC EIA/CEA-608-B Missing (525 only)	Reports that the standard definition CC data on line 21 field 1 is not detected	1	240.0	2.0
SDI CC EIA/CEA-708-B Missing	Reports that the high definition CC data on line 21 (284) is not detected	1	240.0	2.0
SDI WSS Missing (625 only)	Reports that the presence of Wide Screen Signaling for Wide Screen Format is not detected	1	240.0	2.0
SDI Luma Peak	Reports that the HD or SD luma component has exceeded the threshold defined by the Luma Peak Threshold parameter	1	240.0	2.0
SDI Luma Low	Reports that the HD or SD luma component remains below the threshold defined by the Luma Low Threshold parameter	1	240.0	2.0
SDI Chroma Peak	Reports that the HD or SD chroma component has exceeded the threshold defined by Chroma Peak Threshold parameter	1	240.0	2.0
SDI Chroma Low	Reports that the HD or SD chroma component remains below the threshold defined by the Chroma Low Threshold parameter	1	30.0	2.0
SDI Video Black	Reports that the HD or SD video level does not exceed the level defined by the Video Black Threshold parameter	6	240.0	2.0
SDI CC/XDS Data Missing (525 only)	Reports that the standard definition CC/Extended Data Services on line 21 field 2 is not detected	1	240.0	2.0
SDI VChip Data Missing	Reports that VChip data is not present on Line 21 Field 2	1	240.0	2.0
SDI Video Frozen	Reports that the HD or SD content in the video frame is not changing	1	30.0	2.0

Table 3-8. ACO6800+4X2D Subdevice Alarms *(Continued)*

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI AFD Missing	Reports that AFD is not present	1	30.0	2
SDI Embedded Ch(01–16) Peak	Detects that the peak audio level meets or exceeds the limit set in the Peak Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Loss of Sound	Detects that the audio amplitude has fallen below the limit set in the Loss of Sound Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Vbit Set	Detects a set V-Bit in the embedded audio source	1	1.0	2.0
SDI Embedded Ch(01–16) Low Audio	Detects that the peak audio sample has stayed below the level set in the Low Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Missing	Reports if the SDI embedded audio channel is missing	1	1.0	2.0
SDI Embedded Audio Group (1–4) Missing	Reports that the audio in the specified group is not present	1	1.0	2.0
ASI Mode				
ASI Error	Reports an ASI error (including ASI loss) in streaming	1	1.0	2.0

Chapter 4

ACO6800+ASID Parameters, LEDs, and Alarms

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The parameters are listed in the order that they appear in CCS Navigator.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.

Note

For a clarification of terms and acronyms in the following lists, refer to Appendix B: “Glossary” on page 169.

ACO6800+ASID Parameters

Table 4-1. ACO6800+ASID Parameters

Group	Parameter Name	Function	Options
General			
	Serial Number [RO]	Displays the serial number of the module	<string>
	Factory Recall	Sets your module back to factory default settings	• On • **Off**
	Soft Reboot	Activates a soft reboot of the module	• On • **Off**
ACO Service Switch Settings			
	Output Source [RO]	Displays the current output source	• Input 1 • Input 2
	Switch High Priority	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Switch Medium Priority	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Switch Low Priority	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Alarm Switch Level	Sets the level for alarm auto switch	1 to 10 (**6**)
	Manual Switch	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
	Alarm Switch Mode	Sets the module for Automatic, non-resetting, or non-resetting protection mode. Automatic returns to primary input after alarm clears and non-resetting must be switched back to the primary input manually. Non-resetting protection stays on the secondary input until either the user switches back to the primary input manually or the secondary input alarms.	• **Automatic** • Non-resetting • Non-resetting protection
	Relay Bypass	Activates the relay bypass	• On • **Off**
	Relay Status [RO]	Displays whether or not the relay is active	• On • Off
ACO Service GPIO Status			
	GPI In Trigger Level	Sets the level at which an alarm is triggered for the GPI Input	• **Active Low** • Active High

Table 4-1. ACO6800+ASID Parameters *(Continued)*

Group	Parameter Name	Function	Options
	GPI Out Trigger Level	Sets the level at which an alarm is triggered for the GPI Output	• Active Low • **Active High**
	GPI Input_1 [RO]	Displays whether or not GPI Input_1 has been switched to 1	• N/A • Switch to 1
	GPI Input_2 [RO]	Displays whether or not GPI Input_2 has been switched to 2	• N/A • Switch to 2
	GPI Input_3 [RO]	Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	GPI Output_1 [RO]	Displays whether or not 1 is selected as the current output source	• N/A • Input 1 online
	GPI Output_2 [RO]	Displays whether or not 2 is selected as the current output source	• N/A • Input 2 online
	GPI Output_3 [RO]	Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass
ACOService Out B Settings			
	OutB Source	Select the output source for Out B	• **Follow Out A** • Input 1 • Input 2

ACO6800+ASID Subdevice Parameters

ACO6800+ASID has two subdevices. The following parameters appear for both Input 1 and Input 2.

Group	Parameter Name	Function	Options
Parameters > Status > CRC Change			
	PAT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	PMT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	CAT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-NIT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-BAT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-SDT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-EIT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off

Group	Parameter Name	Function	Options
	ATSC-MGT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-TVCT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-CVCT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-RRT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-EIT CRC_change [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-ETT CRC_change [RO]	Displays the current CRC status	• Indicator On • Indicator Off
Parameters > Status > CRC Error			
	PAT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	PMT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	CAT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-NIT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-BAT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-SDT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-EIT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	DVB-TOT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-MGT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-TVCT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-CVCT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-RRT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-EIT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off

Group	Parameter Name	Function	Options
	ATSC-ETT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
	ATSC-STT CRC_error [RO]	Displays the current alarm status	• Indicator On • Indicator Off
Parameters > PSI > PAT			
	PAT Program Number (1-16) [RO]	Displays the received program PAT Program number in Decimal	Program number is displayed
	PMT PID (1-16) [RO]	Displays the received program associated PMT PID as Hex and [Decimal]	• N > A • 0X#### [XXX]
Parameters > PSI > PMT			
	PMT Program Number (1-16) [RO]	Displays the received program PAT Program number in Decimal	Program number is displayed
	PMT Program PCR PID (1-16) [RO]	Displays the received program associated PMT program PCR PID as Hex and [Decimal]	• N > A • 0X#### [XXX]
	PMT Program Video PID (1-16) [RO]	Displays the received program associated PMT program Video PID as Hex and [Decimal]	• N > A • 0X#### [XXX]
	PMT Program Audio PID (1-16) [RO]	Displays the received program associated PMT program Audio (Main) PID as Hex and [Decimal]	• N > A • 0X#### [XXX]
	PMT Program Audio PID (1s-16s) [RO]	Displays the received program associated PMT program Audio (Secondary) PID as Hex and [Decimal]	• N > A • 0X#### [XXX]
Parameters > Parameter Settings > ETR-290 > Priority 1 Alarms			
	PAT Repetition	Allows selection of the PAT repetition rate for alarm detection	0.1 to 5 seconds
	PMT Repetition	Allows selection of the discontinuity threshold for alarm detection	0.1 to 5 seconds
	PID Repetition	Allows selection of the PID repetition threshold for alarm detection	0 to 60 seconds
Parameters > Parameter Settings > ETR-290 > Priority 2 Alarms			
	PCR Repetition	Allows selection of the PCR repetition rate for alarm detection **Note** A Program Clock Reference (PCR) is used to re-generate the local 27 MHz system clock. If the PCR does not have sufficient regularity, the clock can jitter or drift and the receiver > decoder can become unlocked. When irregularities occur outside the PCR Error ranges, the PCR Error alarm activates. In Digital Video Broadcasting (DVB), a repetition period of not more than 40 ms is recommended.	10 to 1000 ms
	PCR Discontinuity	Allows selection of the PCR discontinuity for alarm detection	10 to 1000 ms

Group	Parameter Name	Function	Options
	PCR Accuracy Threshold	Allows selection of the PCR accuracy threshold for alarm detection	100 -2000 ns
	PTS Repetition	Allows selection of the PTS repetition rate for alarm detection	100 -2000 ms
Parameters > Parameter Settings > ETR-290 > Priority 2 Alarms > CRC Error			
	CRC Error	Allows selection of individual or all CRC errors	• **All Off** • All On •Table Settings
Parameters > Parameter Settings > ETR-290 > Priority 2 Alarms > CRC Error > Table Settings			
	PAT CRC_error	Activates the CRC Error PAT alarm	• On • **Off**
	PMT CRC_error	Activates the CRC Error PMT alarm	• On • **Off**
	CAT CRC_error	Activates the CRC Error CAT alarm	• On • **Off**
	DVB-NIT CRC_error	Activates the CRC Error DVB-NIT alarm	• On • **Off**
	DVB-BAT CRC_error	Activates the CRC Error DVB-BAT alarm	• On • **Off**
	DVB-SDT CRC_error	Activates the CRC Error DVB-SDT alarm	• On • **Off**
	DVB-EIT CRC_error	Activates the CRC Error DVB-EIT alarm	• On • **Off**
	DVB-TOT CRC-error	Activates the CRC Error DVB-TOT alarm	• On • **Off**
	ATSC-MGT CRC_error	Activates the CRC Error ATSC-MGT alarm	• On • **Off**
	ATSC-TVCT CRC_error	Activates the CRC Error ATSC-TVCT alarm	• On • **Off**
	ATSC-CVCT CRC_error	Activates the CRC Error ATSC-CVCT alarm	• On • **Off**
	ATSC-RRT CRC_error	Activates the CRC Error ATSC-RRT alarm	• On • **Off**
	ATSC-EIT CRC_error	Activates the CRC Error ATSC-EIT alarm	• On • **Off**
	ATSC-ETT CRC_error	Activates the CRC Error ATSC-ETT alarm	• On • **Off**
	ATSC-STT CRC_error	Activates the CRC Error ATSC-STT alarm	• On • **Off**

Group	Parameter Name	Function	Options
Parameters > Parameter Settings > General Alarms > CRC_change > Table Settings			
	PAT CRC_change	Activates the CRC Change PAT alarm	• On • **Off**
	PMT CRC_change	Activates the CRC Change PMT alarm	• On • **Off**
	CAT CRC_change	Activates the CRC Change CAT alarm	• On • **Off**
	DVB-NIT CRC_change	Activates the CRC Change DVB-NIT alarm	• On • **Off**
	DVB-BAT CRC_change	Activates the CRC Change DVB-BAT alarm	• On • **Off**
	DVB-SDT CRC_change	Activates the CRC Change DVB-SDT alarm	• On • **Off**
	DVB-EIT CRC_change	Activates the CRC Change DVB-EIT alarm	• On • **Off**
	ATSC-MGT CRC_change	Activates the CRC Change ATSC-MGT alarm	• On • **Off**
	ATSC-TVCT CRC_change	Activates the CRC Change ATSC-TVCT alarm	• On • **Off**
	ATSC-CVCT CRC_change	Activates the CRC Change ATSC-CVCT alarm	• On • **Off**
	ATSC-RRT CRC_change	Activates the CRC Change ATSC-RRT alarm	• On • **Off**
	ATSC-EIT CRC_change	Activates the CRC Change ATSC-EIT alarm	• On • **Off**
	ATSC-ETT CRC_change	Activates the CRC Change ATSC-ETT alarm	• On • **Off**

LEDs and Alarms

The ACO6800+ASID modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 4-1 shows the location of the LEDs on a typical ACO6800+ module. Table 4-2 and Table 4-3 describe each LED in more detail.

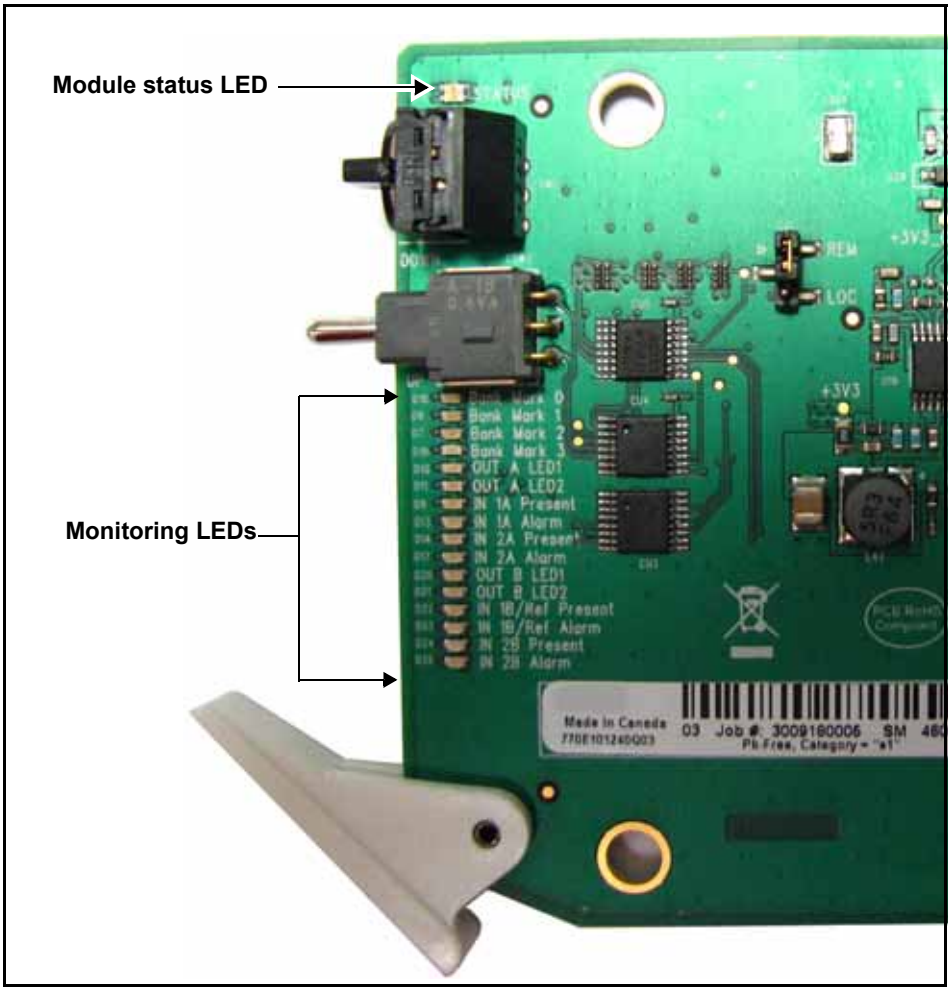


Figure 4-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 4-2. ACO6800+ASID Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	The current selected input is 1A for group A.	Green
2	Out A LED 2	The current selected input is 2A for group A.	Green
3	In 1A Present	Input 1A signal is present.	Green
4	In 1A Alarm	Input 1A is in an alarm state.	Amber
5	In 2A Present	Input 2A signal is present.	Green
6	In 2A Alarm	Input 2A is in an alarm state.	Amber
7	Out B LED 1	Not Used	
8	Out B LED 2		
9	In 1B Present		
10	In 1B Alarm		
11	In 2B Present		
12	In 2B Alarm		

Module Status LEDs

The ACO6800+ASID module does not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 4-1 on page 64 for the location of the LED, and Table 4-3 for a description of the LED colors.

Table 4-3. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 4-4. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

Table 4-5. Device Alarms For ACO6800+ASID Modules

Alarm Name	Priority	Trigger (s)	Clear (s)
Grp A Relay Bypass On	1	1.0 s	2.0 s

Subdevice Alarms

Table 4-6 describes the alarms for each of the subdevices on the ACO6800+ASID module. You can only identify specific alarms using a software control application. Depending on which module you are using, some of the subdevice alarms may not be available.

Table 4-6. ACO6800+ASID Subdevice Alarms

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
Loss of signal	Reports that the module can not lock to the stream data.	7	2	5
(CRC) Change	Reports that one or more of the enabled CRC change alarms has changed. The list of CRC change alarm(s) must be individually enabled on the parameters page. The alarm selections include: PAT, PMT, CAT, NIT (DVB), BAT (DVB), SDT (DVB), EIT (DVB), MGT (ATSC), TVCT (ATSC), CVCT (ATSC), RRT (ATSC), EIT (ATSC) and ETT (ATSC). This error must be cleared manually on the parameter page once the alarm is activated.	2	0	5
TS Sync loss	Reports that the module input has lost synchronization with the input source.	6	2	5
Sync Byte error	Reports that the Sync byte is not present in a transport stream packet. (188 or 204 bytes)	4	2	5
PAT error	Reports one or more of the following: • The PID 0x0000 does not occur for the selected repetition rate. (spec 0.5 s) • When a PID 0x0000 occurs it does not contain a table id of 0x00 (PAT) • The scrambling control field is not 00 for PID 0x0000 *	4	5	5
Continuity Count error	Reports one or more of the following: • Incorrect packet order • A packet occurs more than twice • Lost packet *	4	2	5
PMT error	Reports one or more of the following: • Sections with table id 0x02, (PMT), does not occur for the selected repetition rate (spec. 0.5 s) for the PID which is referred to in the PAT • Scrambling control field is not 00 for all PIDs containing sections with table id 0x02 (PMT) *	4	0.5	5
PID error	Referred PID does not occur for the selected repetition rate	4	2	5

Table 4-6. ACO6800+ASID Subdevice Alarms

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
Transport error	Transport error indicator in the Transport Stream Header is set to 1 *	2	2	5
CRC error	A CRC error has occurred in the selected table. The individual table CRC alarm(s) must be enabled on the parameters page. The CRC error alarms include: PAT, PMT, CAT, NIT (DVB), BAT (DVB), SDT (DVB), EIT (DVB), TOT (DVB), MGT (ATSC), TVCT (ATSC), CVCT (ATSC), RRT (ATSC), EIT (ATSC), ETT (ATSC), STT (ATSC).	2	2	5
PCR error	Reports one or both of the following: • A PCR discontinuity of more than the selected period • Time interval between two consecutive PCR values more than the selected repetition period. (spec 40 ms) * The PCR Accuracy Repetition rate and Discontinuity rate adjustments are on the ETR-290/Priority 2 Alarms page on the Parameters tab. The PCR PID alarm(s) must also be must be enabled on the ETR-290/ Priority 2 Alarms page.	2	2	5
PCR accuracy error	Reports that the PCR accuracy of selected program is more than the selected period for the PID(s) selected. The PCR Accuracy threshold adjustment is on the ETR-290/Priority 2 Alarms page on the Parameters tab. The PCR PID alarm(s) must also be must be enabled on the ETR-290/ Priority 2 Alarms page.	2	2	5
PTS error	Reports that the PTS repetition more than the selected period. (Spec 700 ms) * The PTS repetition rate adjustment is on the ETR-290/Priority 2 Alarms page on the Parameters tab.	2	2	5
CAT error	Reports one or more of the following, 1) Packets with transport scrambling control not 00 present and no section with table id = 0x01present 2) Section with table id other than 0x01 not a CAT found on PID 0x0001 *	2	2	5

*information taken from ETR290 May 1997

Chapter 5

ACO6800+DSD Parameters, LEDs, and Alarms

On-Screen Display Monitoring

If you are using card-edge controls to configure your ACO6800**+**DSD module, you can use the on-screen display (OSD) monitoring feature to view the current parameter selections. When the OSD monitoring is activated, the current parameter selections are displayed on module's monitoring outputs. For information on enabling OSD monitoring, see"Activating On-Screen Display" on page 23.

Using Alarm Switch Mode

Three parameters help handle situations when the module's current source is on the secondary channel and the primary channel becomes good, or the secondary channel becomes bad.

- When the **Alarm Switch Mode** parameter is set to **Automatic**, the **Non-Resetting Protection** parameter is unavailable. The module returns to its primary input after the primary input channel's alarm clears.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Switch to A1**, the module switches to its primary channel when the secondary input channel becomes bad.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Stay with to A2**, the module stays with the secondary channel even when the secondary input channel is bad.
- Set the **Alarm Reset** parameter to **On** to switch back to primary input when applicable. This parameter is unavailable when the **Alarm Switch Mode** parameter is set to **Automatic**.

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.
- The parameters are listed in the order that they appear in CCS Navigator.

ACO6800+DSD Parameters

Table 5-1. ACO6800+DSD Parameters

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key		Provides a location for entering license key numbers	<string>
	Enabled Options [RO]		Displays the current license option	<string>
	Factory Recall	0, F	Sets the module back to factory default settings **Note** There are two independent sets of default values for SDI mode and ASI mode. Factory Recall in SDI mode does not affect the parameters in ASI mode, and vice versa.	• On • **Off**
	Soft Reboot	0, E	Activates a soft reboot of the module	• On • **Off**
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI **Note** Factory recall does not change this parameter. It has no default value.	• SDI • ASI
	Thumbnail Source	0, 2	Selects the thumbnail source **Note** This parameter is not available in ASI mode.	• **Input A1** • Input A2 • Input B1 • Input B2 • Output GrpA • Output GrpB
	Submodule Type [RO]		Displays whether or not there is a submodule included on the module	• None • For ISCS

Table 5-1. ACO6800+DSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Backmodule Type [RO}		Displays which back module is connected to the front module	• For DS/IDS • For ISCS
ACO Group A > Switch Settings				
	Group A Output Source [RO]		Displays the current output source	• Input A1 • Input A2
	Group A Switch High Priority	1, A	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Group A Switch Medium Priority	1, B	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Group A Switch Low Priority	1, C	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Group A Alarm Switch Level	1, D	Sets the level for alarm auto switch	1 to 10 (**6**)
	Group A Manual Switch	1, E	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
	Group A Alarm Switch Mode	1, 8	When **Automatic** is selected, the module returns to the primary input (A1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Group A Reset	1, 9	Sets the output source to the primary input	• On • **Off**
	Group A Non-Resetting Protection	1, F	Sets what the output source will be when current source is A2, and A1 is good and A2 becomes bad	• Switch to A1 • **Stay with A2**
	Group A Relay Bypass	1, 1	Activates the relay bypass	• On • **Off**
	Group A Relay Status [RO]		Displays whether or not the relay is active	• On • Off
ACO Group A > General Purpose Interface				
	Group A GPI In Trigger Level	1, 2	Sets the level at which an alarm is triggered for the Group A GPI Input	• **Active Low** • Active High

Table 5-1. ACO6800+DSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Group A GPI Out Trigger Level	1, 3	Sets the level at which an alarm is triggered for the Group A GPI Output	• Active Low • **Active High**
	Group A GPI Input_1 [RO]		Displays whether or not GPI Input_1 has been switched to A1	• N/A • Switch to A1
	Group A GPI Input_2 [RO]		Displays whether or not GPI Input_2 has been switched to A2	• N/A • Switch to A2
	Group A GPI Input_3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	Group A GPI Output_1 [RO]		Displays whether or not A1 is selected as current output source	• N/A • Input A1 online
	Group A GPI Output_2 [RO]		Displays whether or not A2 is selected as current output source	• N/A • Input A2 online
	Group A GPI Output_3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass
ACO Group A > MISC Settings				
	OutA OSD Enable	1, 4	Enables the on-screen display **Note** This parameter is not available in ASI mode.	• **Off** • On
	OutA EDH Control	1, 5	Inserts or clears the EDH when the input online is SD-SDI **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear
ACO Group B > Switch Settings				
	Group B Output Source [RO]		Displays the current output source	• Input B1 • Input B2
	Group B Switch High Priority	4, A	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Group B Switch Medium Priority	4, B	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Group B Switch Low Priority	4, C	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Group B Alarm Switch Level	4, D	Sets the level of the alarm at which the channel will be switched automatically	1 to 10 (**6**)

Table 5-1. ACO6800+DSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Group B Manual Switch	4, E	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to B1 • Switch to B2
	Group B Alarm Switch Mode	4, 8	When **Automatic** is selected, the module returns to the primary input (A1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Group B Reset	4, 9	Sets the output source to the primary input	• On • **Off**
	Group B Non-Resetting Protection	4, F	Sets what the output source will be when current source is A2, and A1 is good and A2 becomes bad	• Switch to A1 • **Stay with A2**
	Group B Relay Bypass	4, 1	Activates the relay bypass	• On • **Off**
	Group B Relay Status [RO]		Displays whether the relay is active or not	• On • Off
ACO Group B > General Purpose Interface				
	Group B GPI In Trigger Level	4, 2	Sets the level at which an alarm is triggered for the Group B GPI Input	• **Active Low** • Active High
	Group B GPI Out Trigger Level	4, 3	Sets the level at which an alarm is triggered for the Group B GPI Output	• Active Low • **Active Level**
	Group B GPI Input_1 [RO]		Displays whether or not GPI Input_1 has been switched to B1	• N/A • Switch to B1
	Group B GPI Input_2 [RO]		Displays whether or not GPI Input_2 has been switched to B2	• N/A • Switch to B2
	Group B GPI Input_3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	Group B GPI Output_1 [RO]		Displays whether or not B1 is selected as current output source	• N/A • Input B1 on line
	Group B GPI Output_2 [RO]		Displays whether or not B2 is selected as current output source	• N/A • Input B2 on line

Table 5-1. ACO6800+DSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Group B GPI Output_3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass
ACO Group B > MISC Settings				
	Out B EDH Control	4, 5	Inserts or clears the EDH when the input online is SD **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear

ACO6800+DSD Subdevice Parameters

The parameters in SDI mode and in ASI mode cannot be shown at the same time.

Table 5-2. ACO6800+DSD Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
Parameters available in SDI Mode				
Status				
	Video Present [RO]		Indicates that video is present	• On • Off
	Video Standard [RO]		Lists the incoming video standard	<string>
SQM Settings				
	Set Expected Video Standard A1 A2 B1 B2	 2, 1 3, 1 5, 1 6, 1	Selects the expected format **Note** When the format deviates from this format, one of the SDI Video Standard Mismatch alarms triggers.	• **525** • 625 • 1080i • 1080p • 720p • 1080psf
Parameters available in ASI Mode				
Status				
	ASI Error [RO]		Displays where or not there is an ASI error (including ASI loss)	• On • Off

LEDs and Alarms

The ACO6800+DSD modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 5-1 shows the location of the LEDs on a typical ACO6800+ module. Table 5-3 and Table 5-4 describe each LED in more detail.

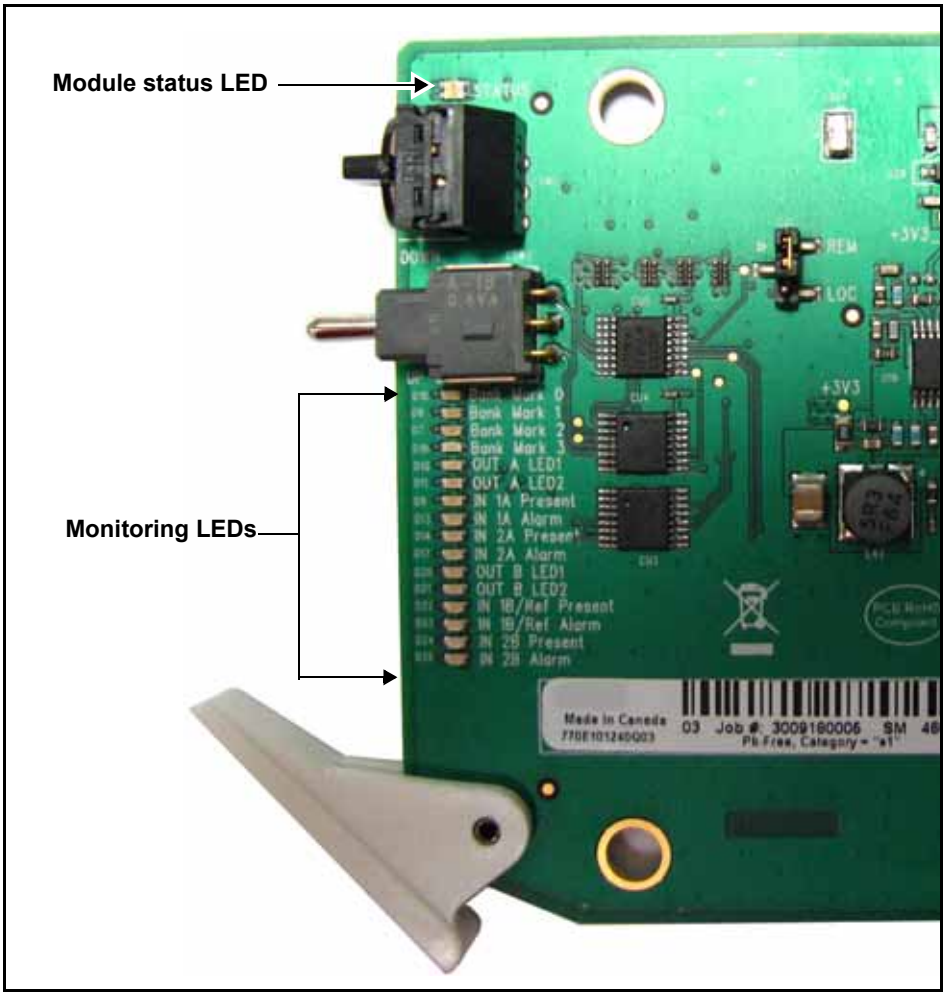


Figure 5-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 5-3. ACO6800+DSD Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	The current selected input is 1A for group A.	Green
2	Out A LED 2	The current selected input is 2A for group A.	Green
3	In 1A Present	Input 1A signal is present.	Green
4	In 1A Alarm	Input 1A is in an alarm state.	Amber
5	In 2A Present	Input 2A signal is present.	Green
6	In 2A Alarm	Input 2A is in an alarm state.	Amber
7	Out B LED 1	The current selected input is 1B for group B.	Green
8	Out B LED 2	The current selected input is 2B for group B.	Green
9	In 1B Present	Input 1B signal is present.	Green
10	In 1B Alarm	Input 1B is in an alarm state.	Amber
11	In 2B Present	Input 2B signal is present.	Green
12	In 2B Alarm	Input 2B is in an alarm state.	Amber

Module Status LEDs

The ACO6800+DSD modules do not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 5-1 on page 75 for the location of the LED, and Table 5-4 for a description of the LED colors.

Table 5-4. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 5-5. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

These alarms are available in ASI and SDI modes.

Table 5-6. Device Alarms For ACO6800+DSD Modules

Alarm Name	Priority	Trigger (s)	Clear (s)
Grp A Relay Bypass On	1	1.0 s	2.0 s
Grp B Relay Bypass On	1	1.0 s	2.0 s

Subdevice Alarms

Table 5-7 describes the alarms for each of the subdevices on the ACO6800+DSD. You can only identify specific alarms using a software control application. Depending on which module you are using, some of the subdevice alarms may not be available.

Table 5-7. ACO6800+DSD Subdevice Alarm

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI Mode				
SDI Video Standard Mismatch	The standard video input does not match the expected standard	1	2.0	2.0
SDI Loss of Video	Reports that active HD or SD video has not been present	6	2.0	2.0
ASI Mode				
ASI Error	Reports an ASI error (including ASI loss) in streaming	1	1.0	2.0

Chapter 6

ACO6800+4X2+ICQST Parameters, LEDs, and Alarms

Overview

The ACO6800+4X2+ICQST module is an intelligent 4X2 clean/quiet switchover for SD/HD sources. It provides Q-SEE-driven 4×1 signal protection with clean video switch and quiet audio fade between sources, frame sync/audio sync capability, and switches between redundant signals at the point of ingest and ingest timing into a satellite DTH, mobile TV, or IPTV facility.

The ACO6800+4X2+ICQST works in both ASI and HD/SD-SDI.

Note

The ACO6800+4X2+ICQST does not pass SMPTE 352M video payload for all supported video formats in a 1.5G bit rate.

Line Sync Feature

The line sync feature supports non-frozen switching between any two video streams. The line sync blocks for each channel are independent, and the output phase after line sync is aligned to the internal reference point.

To activate the line sync feature, follow these steps:

1. Ensure that the following conditions are met:
   - Genlock is available
   - The input video stream is present and has the same standard as the **Operation Standard**.
   - The input video stream is locked with genlock.
   - The input video stream is within 3 lines ahead of the internal reference point (±1.5 lines tolerance between each input video stream).
2. Set the **Sync Mode Set** parameter to **Genlock**.
3. Set the **Line Sync Bypass** parameter to **Disabled**.

Note

Audio V-fade effect is disabled during switching between two timed sources. It is recommended that you preserve some safeguard for the line sync buffer. After adjusting **Genlock Window**, the recommended distance (Line + Pixel) should be in the range of 60 pixels to (3 lines - 60 pixels).

Switching Control

Control Priority

There are three levels of priorities available for switching control: **High**, **Medium**, and **Low**. The default settings are as follows:

- GPI: High
- Manual Switch: Medium
- Alarm: Low

GPI

Two trigger modes are available in ICQST option, **Standard Mode** and **4X2D Mode**.

In **Standard Mode**, the **GPI Input Trigger Level** can be configured either as **Active High** or **Active Low**.

In **4X2D Mode**, the **GPI Input Trigger Level** can be configured either as **Rising Edge** or **Falling Edge**.

Note

If all GPI Outputs 1,2,4, and 5 are set to Inactive, all inputs are not on-line and the output is **Still Image**.

Table 6-1. GPI Switching

GPIs Index on Back Module	GPIs Index on User Interface	Standard Mode	4X2D Mode
GPI 1-1	GPI Input 1	Switch to In 1	Switch to In 1
GPI 1-3	GPI Input 2	Switch to In 2	Switch to In 2
GPI 1-5	GPI Input 3	Force In 1 relay bypass	Force In 1 Relay Bypass
GPI 2-1	GPI Input 4	Switch to In 3	Switch to In 3
GPI 2-3	GPI Input 5	Switch to In 4	Switch to In 4

Table 6-1. GPI Switching *(Continued)*

GPIs Index on Back Module	GPIs Index on User Interface	Standard Mode	4X2D Mode
GPI 2-5	GPI Input 6	Force In 2 relay bypass	Two functions: • **GPI Clear** will clear all GPI input commands except GPI Input 3 • **Auto Trigger** clears all switch commands, re-scan all input sources and set the output source (see "GPI Input 6 and GPI Output 6" on page 81)
GPI 1-6	GPI Output 1	In 1 is on-line	In 1 is on-line
GPI 1-8	GPI Output 2	In 2 is on-line	In 2 is on-line
GPI 1-10	GPI Output 3	In 1 Relay is active.	In 1 Relay is active.
GPI 2-6	GPI Output 4	In 3 is on-line	In 3 is on-line
GPI 2-8	GPI Output 5	In 4 is on-line	In 4 is on-line
GPI 2-10	GPI Output 6	In 2 Relay is active.	Two functions: • Indicates whether there is a switching command triggered by GPI Inputs • Indicates whether the alarm switching is still active (see "GPI Input 6 and GPI Output 6" on page 81)

GPI Input 6 and GPI Output 6

GPI Input 6 has two functions when in the **4X2D** mode, depending on the configuration of the GPI I/O 6 Functionality:

- If the **GPI I/O 6 Functionality** = **GPI Clear**, the module configures the module so that it can clear all GPI input commands except GPI Input 3
- If **GPI I/O 6 Functionality** = **Auto Trigger**, the module re-scans all the input sources before selecting the output source. ***The module will perform the following steps automatically if there is an active command on GPI Input 6:***

1. Clear all the GPI inputs commands.
2. Turn off the Manual Switch and set it to Disabled automatically.
3. Trigger the **Alarm Reset** once if the **Alarm Switch Mode** is **Non-Resetting**.
4. Select the output from the good input source with highest priority.

GPI Output 6 has two functions in **4X2D** mode, depending on the configuration of **GPI I/O 6 Functionality**:

- If **GPI I/O 6 Functionality** = **GPI Clear**, the activity of GPI Output 6 indicates there is no switching command triggered by GPI Inputs.
- If **GPI I/O 6 Functionality** = **Auto Trigger**, the activity of GPI Output 6 indicates the alarm switching is still active.

Manual Switch

The **Manual Switch** parameter is used to switch the source via web control. Options are **Disabled**, **In 1** to **In 4**, and **Still Image**.

Alarm Switching

All four inputs sources are involved in alarm switching (alarm switching for **In 3**, **In 4**, and **Still Image** can be disabled). The priority for alarm switching in descending order is: **In 1 > In 2 > In 3 > In 4 > Still Image** (**TSG/Trouble**).

Alarm Switch Triggering

Alarm switching is available in **Single** or **Combination** trigger modes.

In **Single Trigger** mode, the alarm switching is exactly as it is in other ACO modules. If any alarm with a priority higher than **Alarm Single Switch Level** is triggered, the input source is considered "bad" and alarm switching logic is triggered accordingly.

Example
The **Alarm Single Switch Level** is set at **6.** One input video alarm whose priority is equal to—or higher than—**6** (severe alarm) is alerted, and then that input video is treated as "bad". If the current output source is this input, the alarm switching is triggered and the output video source is routed to another good input video source that doesn't have the severe alarm.

In **Combination** trigger mode, you can group alarms together for a "severe alarm." When you select **Combination** instead of **Single**, the **Alarm Single Switch Level** is ignored.

With Alarm Groups, whenever ANY of the Alarm Groups 1 to 3 are alerted, alarm switching logic is triggered. (Alarm Group 4 is used for monitoring only.) Alarm Group 1 2 and 3 have the same priority.

- Each Alarm Group contains two Alarm Sub-Groups, defined as **A** and **B**.
- Each alarm within Sub-Group A is represented by **A1**, **A2,** ... and **An**.
- Sub-Group B Alarms are represented by **B1**, **B2**, and … **Bn**.
- If ANY alarm in Sub-Group A is alerted, and ALL the alarms in Sub-Group B are alerted, the video source is considered as "bad".
- Equation of each Alarm Group -- (**A1** or **A2** or … or **An**) and (**B1** and **B2** and … **Bn**) <=> A and B

If the result is **True** in Boolean logic, then the video is judged as "bad".

If no alarm is configured for both **A** and **B**, then assume both **A** and **B** are **False** (This alarm group is ignored).

If no alarm is configured for **A**, then assume **A** is **True** in Boolean logic (Sub-group A is ignored).

If no alarm is configured for **B**, then assume **B** is **True** in Boolean logic (Sub-group B is ignored).

Equation of all - group1(A and B) or group2 (A and B) or group3 (A and B)

Alarm Group 1 / Sub-Group A - Alarms with priority 10
Sub-Group B - Alarms with priority 9
Alarm Group 2 / Sub-Group A - Alarms with priority 8
Sub-Group B - Alarms with priority 7
Alarm Group 3 / Sub-Group A - Alarms with priority 6
Sub-Group B - Alarms with priority 5
Alarm Group 4 - Alarms with priority 4 - 1.

Examples of Combination Trigger

Example 1

The alarm switching is expected to happen if the following condition happens,

- Condition: Video is black, additionally AFD is missing.

Therefore, the configurations of the alarms' priority should be,

- SDI Video Black = 9
- SDI AFD Missing = 9
- Any of other alarms must be configured with priority 1 to 4 even though it is disabled.

Example 2

The alarm switching is expected to happen if any of the following two conditions happens,

- Condition 1: Video is lost.
- Condition 2: Video is black, additionally AFD is missing.

Therefore, the configurations of the alarms' priority should be,

- SDI Loss of Video = 10
- SDI Video Black = 7
- SDI AFD Missing = 7
- Any of other alarms must be configured with priority 1 to 4 even though it is disabled.

Example 3

The alarm switching is expected to happen if any of the following three conditions happens,

- Condition 1: Video is lost
- Condition 2: Audio group 1 is absent
- Condition 3: Video is frozen, additionally both audio channel 1 and 2 are silent

Therefore, the configurations of the alarms' priority should be,

- SDI Loss of Video = 10
- SDI Embedded Audio Group 1 Missing = 10
- SDI Video Frozen = 8
- SDI Embedded Ch01 Loss of Sound =7
- SDI Embedded Ch02 Loss of Sound =7
- Any of other alarms must be configured with priority 1 to 4 even though it is disabled.

Example 4

The alarm switching is expected to happen if any of the following four conditions happens,

- Condition 1: Video is lost
- Condition 2: Audio group 1 is absent
- Condition 3: Video is frozen, additionally audio channel 1 is silent
- Condition 4: Both audio channel 1 and channel 2 are silent

Therefore, the configurations of the alarms' priority should be,

- SDI Loss of Video = 10
- SDI Embedded Audio Group 1 Missing = 10
- SDI Video Frozen = 8
- SDI Embedded Ch01 Loss of Sound =7
- SDI Embedded Ch02 Loss of Sound =8
- Any of other alarms must be configured with priority 1 to 4 even though it is disabled.

Alarm Switch Parameters

Alarm Switch Mode

The **Alarm Switch Mode** can be set to **Automatic** or **Non-Resetting**.

In the **Automatic** setting, the output is always switched to the good input source with the highest priority by alarm switching. If all inputs are "bad" and **Still Image** is not a candidate for alarm switching, the output is connected to **In 1**.

The **Non-Resetting** mode is only allowable for the output to be switched to the "good" input source with lower priority by alarm switching, unless it is cleared by **Alarm Reset**, or another switching command—such as **GPI** and **Manual Switching**.

Example of Non-Resetting
If the current output is from **In 2**, but the signal fails, the output is then switched to **In 3** if the module detects **In 3** is a good source. In this case, the condition of **In 1** is ignored, even if the original **In 1** signal has returned.

Alarm Reset

Alarm Reset clears the non-resetting status of **Alarm Switch Mode**, and triggers a one-time command to rescan the input source. (This parameter is active only when the **Alarm Switch Mode** parameter is set to **Non-Resetting** and **In 1** is *not* the source for the PGM output. The output is then switched to the good input source with the highest priority.

Non-Resetting Protection

Non-Resetting Protection is only available when the **Alarm Switch Mode** parameter is set to **Non-Resetting.** Also, the **Still Image Alarm Switch** parameter must be disabled. There are two options available.

Switch to the Highest provides protection when the current source is bad and there is no acceptable lower priority source available to switch to. The module rescans the sources with higher priority to verify whether there is a good source available at that time. If a good signal is available, the output is switched to that source. If not, the output is switched to In 1.

The **Stay at the Current** option keeps the current source if no lower priority source is good to switch to, even if the current source is bad.

FS Fill Source

The **FS Fill Source** selects a candidate input source for frame synchronizer when the **In 1** relay bypass is activated. This parameter provides a "workaround" during power up and manual relay bypass (assuming **In 1** is the output source).

After initial power up, relay is bypassed for several seconds and **In 1** is absent for the receiver on the front module. Therefore, there is no signal to feed into the FS buffer. Immediately after the relay is released, the output is physically switched from the **In 1** port to frame sync output. Prior to this time, the FS buffer is empty, so a "green" screen may temporarily appear before the normal images.

During normal operation, the signal may need to be directed to the relay bypass. After releasing the relay bypass, the screen may momentarily display an instant image that is showing the scene before the relay bypass was activated. This occurs because there is no signal detected by the FS block at the instant the relay is bypassed. The FS freezes its output to the last good frame (assuming the **LOV Mode** parameter is set to **Frozen**). After the relay bypass is released, the frozen image is first displayed on the screen before the normal signal begins.

The **FS Fill Source** parameter resolves these issues. During the time that the **In 1** relay is bypassed, it is available to select a fill source (with the same content as **In 1**) for the frame synchronizer, to obtain a content continuous output after releasing the relay.

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Parameters with an asterisk (*) are only visible when the **Advanced Controls parameter i**s enabled.
- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.
- The parameters are listed in the order that they appear in CCS Navigator.
- The ACO6800+4X2+ICQST uses different parameters in ASI and SDI modes.

ACO6800+4X2+ICQST Parameters for SDI

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key		Provides a location for entering license key numbers	<string>
	Enabled Options [RO]		Displays the current license option	<string>
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI (**Factory Recall** does not change this parameter. It has no default value.	• SDI Mode • ASI Mode
	Submodule Type [RO]		Displays whether or not there is a submodule included on the module	• None • ISCST/ICQST
	Backmodule Type [RO]		Displays which back module is connected to the front module	• 4X2D/DSD/IDSD/ISD • ISCST • ICQST
	Advanced Controls	0, D	Enables or disables advanced parameters	• **Disabled** • Enabled
	Factory Recall	0, F	Sets the module back to SDI or ASI factory default settings	• -- (default) • Recall
	Soft Reboot	0, E	Activates a soft reboot of the module	• **Off** • On

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
System				
	Genlock Source	0, 2	Selects the genlock source	• Frame • **External**
	Sync Mode Set	0, 3	Sets the sync mode for the system	• Freerun • **Genlock**
	Sync Mode Feedback [RO]		Displays the current sync mode (defaults to Freerun if Genlock is not available)	• Freerun • Genlock
	Operation Frame Rate	0, 4	Sets the operation frame rate for the system	• 25Hz or 50Hz • 29.97Hz or 59.94Hz • **Auto** (available when Genlock is set to Sync Mode Set)
	Operation Standard	29/59: 0,6; 25/50: 0,7	Sets the operation standard for the system (available options depend on the system's operation frame rate)	<operation frame rate> (default: **525/625**)
	Genlock Present [RO]		Reports whether the genlock is present or not	• On • Off
	Genlock Lock Status [RO]		Reports whether the genlock is locked or not	• On • Off
	Genlock Standard Feedback [RO]		Reports the genlock standard	<string>
	Thumbnail Source	0, 8	Selects the thumbnail source	• **PGM** • In 1 • In 2 • In 3 • In 4
	AUX Output Source	0, 9	Sets the Aux output source. (When **PGM** is selected, the **AUX** output is the same as **PGM** output.)	• **PGM** • In 1 • In 2 • In 3 • In 4
	Switch Event [RO]		Displays the event that triggered the last switching operation	• GPI • Manual • Alarm • Relay

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
System > Switch Settings				
	PGM Output Source [RO]		Displays which input source is routed to the PGM output	• In 1 • In 2 • In 3 • In 4 • Still Image
	Switch High Priority	1, 1	Sets the high priority for switching	• **GPI** • Manual • Alarms
	Switch Medium Priority	1, 2	Sets the medium priority for switching	• GPI • **Manual** • Alarms
	Switch Low Priority	1, 3	Sets the low priority for switching	• GPI • Manual • **Alarms**
	Manual Switch	1, 4	Sets what the output source will be when a channel is switched manually	• **Disabled** • In 1 • In 2 • In 3 • In 4 • Still Image
System > Switch Settings > Alarm Switch				
	In 3 Alarm Switch	1, 5	Sets whether **In 3** is a candidate for alarm switching (an unreliable or "bad" input should not be enabled)	• Disabled • **Enabled**
	In 4 Alarm Switch	1, 6	Sets whether **In 4** is a candidate for alarm switching (an unreliable or "bad" input should not be enabled)	• Disabled • **Enabled**
	Still Image Alarm Switch	1, 7	Enables a still image as a possible source for alarm switching (see "Alarm Switch Triggering" on page 82)	• **Disabled** • Enabled
	Alarm Switch Trigger Mode	1, 8	Selects either Single or Combination alarm triggers for switching (see "Alarm Switch Triggering" on page 82)	• **Single** • Combination
	Alarm Single Switch Level	1, 9	Sets the level for alarm auto switch in **Single** mode (Not functional when **Alarm Switch Trigger** is set to **Combination**.)	1 to 10 (**6**)

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Alarm Switch Mode	1, A	Sets the switch mode to Automatic or Non-Resetting See "Alarm Switch Parameters" on page 85.	• **Automatic** • Non-Resetting
	Alarm Reset	1, B	Clears the non-resetting status and triggers a one-time command to rescan the input source (see "Alarm Switch Parameters" on page 85)	• **Off** • On
	Non-Resetting Protection	1, C	Sets what the output source will be when no lower priority input source is suitable to switch to (see "Alarm Switch Parameters" on page 85)	• Switch to Highest • **Stay at the Current**
System > Relay Control				
	In (1-2) Relay Bypass	2, 1 2, 3	Manually activates the relay bypass	• **Off** • On
	In (1-2) Relay Status [RO]	--	Reports whether or not the relay is active	• On • Off
	In (1-2) Relay Auto Hold	2, 2 2, 4	Sets whether to automatically activate the relay bypass after the module reboots. (If enabled, the relay is automatically activated and the signal is bypassed directly. To release the relay, set **In 1-2 Relay Bypass** to **Off**.)	• **Disabled** • Enabled
	FS Fill Source	2, 5	Selects a candidate input source for the frame synchronizer when the **In 1** relay bypass is activated (see page 85)	• In 1 • In 2 • In 3 • In 4
System > General Purpose Interface > GPI Setting				
	GPI Trigger Mode	2, 8	Selects the GPI working mode (see page 80)	• **Standard** • 4X2D
	GPI Input Trigger Level	Stnd. Mode: 2, 9 4X2D Mode: 2, A	Selects the GPI Inputs trigger level for an activated command	Standard mode: • **Active Low** • Active High 4X2D mode: • **Rising Edge** • Falling Edge
	GPI Input Filter Window	3,1	Selects the time duration to filter out a GPI "glitch". Any pulse smaller than the window is ignored.	0 to 100 (10) (unit = ms)

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	GPI Output Trigger Level	2, B	Selects GPI Outputs trigger level for an activated command	• Active Low • **Active High**
	GPI I/O 6 Functionality	3,2	Selects the functionality for **GPI Input 6** and **GPI Output 6**. (**GPI Trigger Mode** must be set to **4X2D**; See Table 6-1 on page 80 for details.)	• **GPI Clear** • Auto Trigger
	Auto Trigger Mode	3,3	Selects the condition for executing the **Auto Trigger** command. • **Conditional**: If any current input source is good and allowable for **Alarm Switch**, the **Auto** command is accepted. • **Absolut**e: The **Auto** command is accepted in any case. **(Auto Trigger Mode** is only available when **Auto Trigger** is the **GPI I/O 6 Functionality** setting.)	• **Conditional** • Absolute
	Virtual Auto Trigger	3,4	Performs the same functionality as triggering **GPI Input 6** (it would be reset to "--" automatically afterwards; **Virtual Auto Trigger** is only available when **Auto Trigger** is the **GPI I/O 6 Functionality** setting).	Enabled - -
System > General Purpose Interface > GPI Status				
	GPI Input 1 [RO]	--	Reports whether the command on GPI Input 1 (switched to **In 1**) is activated.	• N/A • Switch to In 1
	GPI Input 2 [RO]	--	Reports whether the command on GPI Input 2 (switched to **In 2**) is activated	• N/A • Switch to In 2
	GPI Input 3 [RO]	--	Reports whether the command on GPI Input 3 (activate **In 1** relay bypass) is activated	• N/A • Relay Bypass
	GPI Input 4 [RO]	--	Reports whether the command on GPI Input 4 (switched to **In 3**) is activated	• N/A • Switch to In 3
	GPI Input 5 [RO]	--	Reports whether the command on GPI Input 5 (switched to **In 4**) is activated	• N/A • Switch to In 4
	GPI Input 6 [RO]	--	Reports whether the command on GPI Input 6 is activated	• N/A • Enable In 2 Relay • Clear All GPI Inputs • Auto Trigger

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	GPI Output 1 [RO]	--	Reports whether **In 1** is on-line	• N/A • In 1 online
	GPI Output 2 [RO]	--	Reports whether **In 2** is on-line	• N/A • In 2 online
	GPI Output 3 [RO]	--	Reports whether the **In 1** relay bypass has been activated	• N/A • Signal Bypass
	GPI Output 4 [RO]	--	Reports whether **In 3** is on-line	• N/A • In 3 online
	GPI Output 5 [RO]	--	Reports whether **In 4** is on-line	• N/A • In 4 online
	GPI Output 6 [RO]	--	• In **Standard** mode: Reports whether the **In 2** relay bypass has been activated • In **4X2D** mode: Reports whether any GPI switching command is active	• N/A • In 2 Relay is Active • No GPI Input Triggered • Auto Switch
System > Frozen Detection Sensitivity				
	Level Sensitivity*	2, C	Adjusts level threshold sensitivity for freeze detection (a higher level indicates increased sensitivity)	0 to 10 (**5**)
	Pixel Sensitivity*	2, D	Adjusts pixel number threshold sensitivity for freeze detection (a higher level indicates increased sensitivity)	0 to 10 (**5**)
Video > Line Sync				
	Line Sync Bypass	2, E	Enables the Bypass Line Sync function block	• **Disabled** • Enabled
	Genlock Window	2, F	Adjusts the internal reference point relating to genlock; the line duration follows the system operation standard	• 0 - 524 (525i) • 0 - 624 (625i) • 0 - 1124 (1080i/p) • 0 - 749 (720p)
	In (1 - 4) Locked With Genlock [RO]	--	Reports if the specified input is locked to a genlock signal	• On • Off
	In (1 - 4) In Delay Window [RO]	--	Reports if the specified input is in delay window for line (the maximum delay window is 3 lines)	• On • Off
	In (1 - 4) Line Distance [RO]	--	Reports the line distance ahead of the internal reference point	<values> (unit = lines)
	In (1 - 4) Horizontal Distance [RO]	--	Reports the extra horizontal distance ahead of the internal reference point	<values> (unit = µs)

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Video > FS Settings				
	Horizontal Phase*	4, 8	Sets the Frame Sync horizontal phase (available options depend on the system's operation standard)	<values> (**0**) (unit = µs)
	Vertical Phase*	4, 9	Sets the Frame Sync vertical phase (available options depend on the system's operation standard)	<values> (**0**) (unit = lines)
	Frame Delay*	4, A	Sets the Frame Sync delay range	0 to 6 frames (**0**)
	LOV Mode	4, B	Determines the processing mode when there is a loss of video on the selected input	• Pass • Black • **Freeze**
	Force Freeze Type*	4, C	Determines which mode is activated when the video freezes. (for progressive standards, only the Frame option is available)	• **Field 1** • Field 2 • Frame
	Force Freeze*	4, D	Activates the force freeze mode	• **Off** • On
	Force Black*	4, E	Activates the force black mode	• **Off** • On
	FS Frozen [RO]*	--	Indicates if output is frozen by frame sync	• On • Off
Video > Still Image				
	Still Image Source	4, 1	Selects the source for the still image	• Trouble Slide • **TSG**
	TSG Pattern	4, 2	Selects the TSG pattern	• Black • **75% Color Bar** • 100% Color Bar • H Sweep • Multiburst • Ramp
	Trouble Slide Source	4, 3	Selects the trouble slide pattern	• **Default** • Trouble Slide 1 • Trouble Slide 2 • Trouble Slide 3

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Trouble Slide Background	4, 4	Select the background for default trouble slide	• **Black** • 75% Color Bar • 100% Color Bar • H Sweep • Multiburst • Ramp
	MicroSD Card Status [RO]	--	Indicates whether the SD card is available	• Absent • Locating File • Not Compatible • Please Select File • Loading File • File Loaded
	MicroSD Card Loading Process [RO]	--	Reports the image loading process (percentage)	<values> (unit =%)
	Trouble Slide (1-3) (MG2) [RO]	--	Displays the trouble slide name stored on SD card	<string>
Video > ProcAmp				
	Luma Gain*	5, 1	Sets the video luminance gain	-6 to 6 dB (**0**)
	Luma Offset*	5, 2	Sets the video luminance offset **Note** Units depend on the operation frame rate: IRE @ 59.94 or mV @ 50.	• 0 to 15 IRE (**0**) • -100 to 100 mV (**0**)
	Cb Gain*	5, 3	Sets the video Cb gain	-6 to 6 dB (**0**)
	Cr Gain*	5, 4	Sets the video Cr gain	-6 to 6 dB (**0**)
	Cb Offset*	5, 5	Sets the video Cb offset	0 to 100% (**50%**)
	Cr Offset*	5, 6	Sets the video Cr offset	**0** to 100% (**50%**)
	Hue*	5, 7	Sets the hue for color **Note** Range depends on the set operation standard: -90 to 90 only @ SD-625.	• -180 to 180 degrees (**0**) • -90 to 90 degrees (**0**)
	White Clip Enable*	5, 8	Activates the white clip	• **Disabled** • Enabled
	White Clip Level*	5, 9	Sets the white clip level **Note** Units depend on the set operation frame rate: IRE @ 59.94 or mV @ 50.	• 90.1 to 109.0 IRE (**100**) • 636.8 to 763.2 mV (**700**)
	Black Clip Enable*	5, A	Activates the black clip	• **Disabled** • Enabled
	Black Clip Level*	5, B	Sets the black clip level **Note** Units depend on the set operation frame rate: IRE @ 59.94 ore mV @ 50.	• -6.8 to 6.8 IRE (**0**) • -47.9 to 47.9 mV (**0**)

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Audio				
	LOV Mute En*	6, 9	Mutes the audio as soon as the video is lost. (To insert audio tones on the output when input video is lost, ensure **LOV Mute En** is set to **Disabled.**)	• Disabled • **Enabled**
	Fade Time	6, A	Adjusts the global fade rate for audio gain	0.01 s to 10s (**2**)
	Master Mute*	6, B	Mutes audio on all output channels	• **Disabled** • Enabled
	V-bit Mute Enable*	6,C	Mutes audio when V bit is set	• **Disabled** • Enabled
Audio > Input > Demux Status				
	Ch1-L/R Audio Type to Ch 8 L/R Audio Type*		Reports the audio presence and type for the designated channel	• N/A • PCM-Audio • Data
Audio > Input > Demux Status > Error Status				
	Group 1 to Group 4 Checksum Error* [RO]		Reports if a checksum error has occurred in the de-embedder of the designated group	• On • Off
	Group 1 to Group 4 DBN Error* [RO]	--	Reports if a data block number error has occurred in the designated group 1 de-embedder.	• On • Off
	Group 1 to Group 4 Parity Error* [RO]	--	Reports if a parity error has occurred in the designated group de-embedder.	• On • Off
	Group 1 to Group 4 ECC Error* [RO]	--	Reports if an Error Correction Code error has occurred in the designated group de-embedder.	• On • Off
Audio > Input > Demux Setting				
	SDI Group Err Ctrl*		Sets the audio output behavior when the audio has an error	• **Mute** • Repeat
	SDI DBN Error Control*		Sets whether to mute audio output	• Ignore • **Alert**
Audio Input > SRC Bypass*				
	SRC Bypass Mode	6, D	Sets the SRC control mode **Note** When this parameter is set to Auto, the module automatically bypasses SRCs when a Dolby package is detected. When it is set to Manual, you can manually change the SRC (1-8) Bypass parameters.	• **Auto** • Manual

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	SRC (1-8) Bypass		Enables bypass for the specified SRC when SRC Bypass Mode is set to Manual	• **No** • Yes
Audio > Processing > Delay*				
	Delay Lock	8, 1	Sets whether you can adjust the audio delay separately or for all channels **Note** When this parameter is set to Yes, Delay All is available, and you can adjust the Delay All parameter to change the delay for all 16 audio channels at the same time. When it is set to No, the Delay (1-8) parameters are available, and you can adjust the delay of each audio channel separately.	• **No** • Yes
	Delay All	8, 2	Sets the audio delay for all channels when Delay Lock is enabled	0 to 2500 ms (**0**)
	Delay 1 (Ch1-L) and Delay 2 (Ch1-R) to Delay 15 (Ch.8-L and Delay 16 (Ch8-R)		Adjusts the audio delay for each channel when Delay Lock is disabled	0 to 2500 ms (**0**)
Audio > Processing > Gain*				
	Gain Lock	8, 3	Sets the audio gain separately or for all channels	• **No** • Yes
	Gain All	8, 4	Adjusts the audio gain for all channels when Gain Lock is enabled	-18 dB to 18 dB (**0**)
	Gain 1 (Ch1-L) and Gain 2 (Ch1-R) to Gain 15 (Ch.8-L) and Gain 16 (Ch8-R)		Adjusts the audio gain for each channel when Gain Lock is disabled **Note** The gain control is disabled when the SRC is set to Bypass.	-18 dB to 18 dB (**0**)
Audio > Processing > Phase Invert*				
	Invert All	6, E	Inverts the audio phase for all channels	• **Off** • On
	Invert 1 (Ch1-L) and Invert 2 (Ch1-R) to Invert 15 (Ch.8-L) and Invert 16 (Ch8-R)		Inverts the audio phase for each channel when Gain Lock is disabled **Note** The inverter is disabled when the SRC is bypassed.	• **Off** • On
Audio > Processing > Audio Processing Bit Width*				
	Ch (1-8) L/R Audio Bit Width		Specifies the internal processing bit width of the audio	• 16 bit • **20 bit** (SD default when operational standard is SD) • **24 bit** (HD default)

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Audio > Output > Mux Setting*				
	SD-SDI Mux 24-bit	7, A	Selects the audio mux bit width when the signal is SD	• **No** • Yes
	Group Format Follow Input	7, B	Enables SDI embedding group format follow input setting	• **No** • Yes
	SDI Group (1-4) Group Mux Enable	7, C 7, F	Enables SDI embedding for audio groups 1, 2, 3, and 4 when **Group Format Follow Input** is disabled	• Off • **On**
Audio > Output > Routing*				
	Out Ch (1-L/R to 8-L/R)	6, 1 6, 2 6, 3 6, 4 6, 5 6, 6	Sets an audio source for the SD/HD embedder	• **In Ch1-L** (Out Ch1-L) • **In Ch1-R** (Out Ch1-R) • **In Ch2-L** (Out Ch2-L) • **In Ch2-R** (Out Ch2-R) • **In Ch3-L** (Out Ch3-L) • **In Ch3-R** (Out Ch3-R)
	Out Ch (1-L/R to 8-L/R) (Continued)	6, 7 6, 8 7, 1 7, 2 7, 3 7, 4 7, 5 7, 6 7, 7 7, 8	Sets an audio source for the SD/HD embedder	• **In Ch4-L** (Out Ch4-L) • **In Ch4-R** (Out Ch4-R) • **In Ch5-L** (Out Ch5-L) • **In Ch5-R** (Out Ch5-R) • **In Ch6-L** (Out Ch6-L) • **In Ch6-R** (Out Ch6-R) • **In Ch7-L** (Out Ch7-L) • **In Ch7-R** (Out Ch7-R) • **In Ch8-L** (Out Ch8-L) • **In Ch8-R** (Out Ch8-R) • Tone 1 • Tone 2 • Tone 3 • Tone 4

Table 6-2. ACO6800+4X2+ICQST Parameters for SDI *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Audio > Tones				
	Tone1 400Hz Level (dBFS)	8,5	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)
	Tone2 1kHz Level (dBFS)	8,6	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)
	Tone3 2kHz Level (dBFS)	8,7	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)
	Tone4 4kHz Level (dBFS)	8,8	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)

ACO6800+4X2+ICQST Parameters for ASI

Table 6-3. ACO6800+4X2+ICQST Parameters for ASI

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]	--	Displays the serial number of the module	<string>
	License Key	N/A	Box to type in the license key	<string>
	Enabled Options [RO]	--	Displays the current license option	<string>
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI (**Factory Recall** does not change this parameter. It has no default value.	• SDI Mode • ASI Mode
	Submodule Type [RO]	--	Shows whether there is a submodule included on the module	• None • ISCST/ICQST
	Backmodule Type [RO]	--	Displays the type of back module connected to the front module	• 4X2D/DSD/IDSD/ISD • ISCST • ICQST
	Factory Recall	0, F	Sets your module back to factory default settings	• -- • Recall
	Soft Reboot	0, E	Activates a soft reboot of the module	• **Off** • On
System				
	AUX Output Source	0, 9	Sets the AUX output source (when PGM is selected, the AUX output is the same as PGM output)	• **PGM** • In 1 • In 2 • In 3 • In 4
	Switch Event [RO]		Displays the event that triggered the last switching operation	• GPI • Manual • Alarm • Relay
System > Switch Settings				
	PGM Output Source [RO]	--	Displays which input source is routed to PGM output.	• In 1 • In 2 • In 3 • In 4

Table 6-3. ACO6800+4X2+ICQST Parameters for ASI

Group	Parameter Name	Bank, Switch	Function	Options
	Switch High Priority	1, 1	Sets the high priority for switching	• **GPI** • Manual • Alarms
	Switch Medium Priority	1, 2	Sets the medium priority for switching	• GPI • **Manual** • Alarms
	Switch Low Priority	1, 3	Sets the low priority for switching	• GPI • Manual • **Alarms**
	Manual Switch	1, 4	Selects the output source by manual control	• **Disabled** • In 1 • In 2 • In 3 • In 4
System > Switch Settings > Alarm Switch				
	In 3 Alarm Switch	1, 5	Sets whether **In 3** is a candidate for alarm switching (an unreliable or "bad" input should not be enabled)	• Disabled • **Enabled**
	In 4 Alarm Switch	1, 6	Sets whether **In 4** is a candidate for alarm switching (an unreliable or "bad" input should not be enabled)	• Disabled • **Enabled**
	Alarm Single Switch Level	1, 9	Sets the level for alarm auto switch in Single mode (this parameter does not function when **Alarm Switch Trigger Mode** is set to **Combinational**)	• 1 to 10 (**6**)
	Alarm Switch Mode	1, A	Sets the switch mode to **Automatic** or **Non-Resetting** (see page 85)	• **Automatic** • Non-Resetting
	Alarm Reset	1, B	Clear non-resetting status, and trigger one-time command to rescan the input source (see page 85)	• **Off** • On
	Non-resetting Protection	1, C	Sets what the output source will be when no lower priority input source is suitable (see page 85)	• Switch to Higher • Stay at the Current
System > Relay Control				
	In (1-2) Relay Bypass	2, 1, 2, 3	Manually activates relay bypass	• **Off** • On

Table 6-3. ACO6800+4X2+ICQST Parameters for ASI

Group	Parameter Name	Bank, Switch	Function	Options
	In (1-2) Relay Status [RO]	--	Reports whether or not the relay bypass has been activated	• On • Off
	In (1-2) Relay Auto Hold	2, 2 2, 4	Sets whether to automatically activate the relay bypass after the module reboots. (If enabled, the relay is automatically activated and the signal is bypassed directly. To release the relay, set **In 1-2 Relay Bypass** to **Off**.)	• **Disabled** • Enabled
System > General Purpose Interface > GPI Setting				
	GPI Trigger Mode	2, 8	Selects the GPI working mode (see page 80)	• **Standard** • 4X2D
	GPI Input Trigger Level	Standard Mode: 2, 9 4X2D Mode: 2, A	Selects the GPI Inputs trigger level for an activated command	Standard mode: • **Active Low** • Active High 4X2D mode: • **Rising Edge** • Falling Edge
	GPI Output Trigger Level	2, B	Selects GPI Outputs trigger level for an activated command	• Active Low • **Active High**
	GPI Input Filter Window	3,1	Selects the time duration to filter out a GPI glitch. Any pulse smaller than the window is ignored.	0 to 100 (10) (unit = ms)
	GPI Output Trigger Level	2, B	Selects GPI Outputs trigger level for an activated command	• Active Low • **Active High**
	GPI I/O 6 Functionality	3,2	Selects the functionality for **GPI Input 6** and **GPI Output 6**. (**GPI Trigger Mode** must be set to **4X2D**; See Table 6-1 on page 80 for details.)	• **GPI Clear** • Auto Trigger
	Auto Trigger Mode	3,3	Selects the condition for executing the **Auto Trigger** command (**GPI I/O 6 Functionality** must be set to **Auto Trigger)** • **Conditional**: If any current input source is good and allowable for **Alarm Switch**, the **Auto** command is accepted. • **Absolut**e: The **Auto** command is accepted in any case.	• **Conditional** • Absolute

Table 6-3. ACO6800+4X2+ICQST Parameters for ASI

Group	Parameter Name	Bank, Switch	Function	Options
	Virtual Auto Trigger	3,4	Performs the same functionality as triggering **GPI Input 6** (it would be reset to "--" automatically afterwards; **Virtual Auto Trigger** is only available when **Auto Trigger** is the **GPI I/O 6 Functionality** setting).	Enabled - -
System > General Purpose Interface > GPI Status				
	GPI Input 1 [RO]	--	Reports whether the command on GPI Input 1 (switched to **In 1**) is activated.	• N/A • Switch to In 1
	GPI Input 2 [RO]	--	Reports whether the command on GPI Input 2 (switched to In 2) is activated	• N/A • Switch to In 2
	GPI Input 3 [RO]	--	Reports whether the command on GPI Input 3 (activate **In 1** relay bypass) is activated	• N/A • Relay Bypass
	GPI Input 4 [RO]	--	Reports whether the command on GPI Input 4 (switched to **In 3**) is activated	• N/A • Switch to In 3
	GPI Input 5 [RO]	--	Reports whether the command on GPI Input 5 (switched to **In 4**) is activated	• N/A • Switch to In 4
	GPI Input 6 [RO]	--	Reports whether the command on GPI Input 6 is activated	• N/A • Enable In 2 Relay • Clear All GPI Inputs • Auto Trigger
	GPI Output 1 [RO]	--	Reports whether In 1 is on-line	• N/A • In 1 online
	GPI Output 2 [RO]	--	Reports whether In 2 is on-line	• N/A • In 2 online
	GPI Output 3 [RO]	--	Reports whether the In 1 relay bypass has been activated	• N/A • Signal Bypass

Table 6-3. ACO6800+4X2+ICQST Parameters for ASI

Group	Parameter Name	Bank, Switch	Function	Options
	GPI Output 4 [RO]	--	Reports whether In 3 is on-line	• N/A • In 3 online
	GPI Output 5 [RO]	--	Reports whether In 4 is on-line	• N/A • In 4 online
	GPI Output 6 [RO]	--	In **Standard** mode: Reports whether the In 2 relay bypass has been activated In **4X2D** mode: Reports whether any GPI switching command is active	• N/A • In 2 Relay is Active • No GPI Input Triggered • Auto Switch

ACO6800+4X2+ICQST Subdevice Parameters

The parameters in SDI mode and in ASI mode cannot be shown at the same time. The one ASI subdevice parameter appears at the end of this list.

Table 6-4. ACO6800+4X2+ICQST Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
Parameters available in SDI Mode				
Status				
	Video Present [RO]		Indicates video is present	• On • Off
	Video Standard [RO]		Lists the incoming video standard	<string>
	Match With Operation Standard [RO]	--	Displays whether the input signal standard is the same as the operation standard	• On • Off
	Audio Group Present [RO]	--	Reports the presence of an audio group package (**P** represents **Present**; = represents absence) The MSB is for group 1 while the LSB is for group 4.	<string>
	Y CRC Error Counter [RO]	--	Displays the Y-channel CRC error counter	0 - 65535
	C CRC Error Counter [RO]	--	Displays the C-channel CRC error counter	0 - 65535
	CRC Error Counter Clear	In 1: A,1 In 2: B,1 In 3: C,1 In 4: D,1	Clears the Y- and C- CRC error counter	• **No** • Yes
	EDH Error Counter [RO]	--	Displays the EDH error counter	0 - 32767
	EDH Error Counter Clear	In 1: A,2 In 2: B,2 In 3: C,2 In 4: D,2	Clears the EDH error counter	• **No** • Yes
	EDH Present [RO]	--	Reports whether EDH is present	• On • Off
SQM Settings				
	Luma Low Threshold	In 1: A,6 In 2: B,6 In 3: C,6 In 4: D,6	Sets the threshold below which the SDI Luma Low alarm is triggered	-6.8% to 15% (**7.5%**)

Table 6-4. ACO6800+4X2+ICQST Subdevice Parameters *(Continued)*

	Luma Peak Threshold	In 1: A,7 In 2: B,7 In 3: C,7 In 4: D,7	Sets the threshold at which excessive luminance triggers the SDI Luma Peak alarm	90% to 108% (**102%**)
	Chroma Low Threshold	In 1: A,8 In 2:B,8 In 3: C,8 In 4: D,8	Sets the threshold below which the SDI Chroma Low alarm is triggered	**0%** to 15% (**0%**)
	Chroma Peak Threshold	In 1: A,9 In 2: B,9 In 3: C,9 In 4: D,9	Sets the threshold at or above which an excessive chrominance level triggers the SDI Chroma Peak alarm	90% to 108% (**102%**)
	Video Black Threshold	In 1: A,A In 2: B,A In 3: C,A In 4: D,A	Sets the threshold below which the SDI Video Black alarm is triggered	0% to 10% (**5.5%**)
	Peak Audio Threshold (dBFS)	In 1: A,B In 2: B,B In 3: C,B In 4:D,B	Sets the threshold above which SDI Embedded Ch01 peak to SDI Embedded Ch02 peak alarms are triggered	-20 dBFS to 0 dBFS (**-2 dBFS**)
	Low Audio Threshold (dBFS)	In 1: A,C In 2: B,C In 3: C,C In 4: D,C	Sets the threshold below which SDI Embedded Ch01 Low Audio to SDI Embedded Ch16 Low Audio alarms are triggered	-80 dBFS to -30 dBFS (**-60 dBFS**)
	Loss of Sound Threshold (dBFS)	In 1: A,D In 2: B,D In 3: C,D In 4: D,D	Sets the threshold below which SDI Embedded Ch01 Loss of Sound to SDI Embedded Ch16 Loss of Sound alarms are triggered	-100 dBFS to -60 dBFS (**-90 dBFS**)
	Audio Average Level Reporting	In 1: A,E In 2: B,E In 3: C,E In 4: D,E	Displays the SDI Embedded Channel Average Level value	• **Disable** • Enable
	Audio Average Level Restart	In 1: A,F In 2: B,F In 3: C,F In 4: D,F	Restarts the calculation of the average audio level	• **Off** • On
SQM				
	SDI Emb.Ch1–16 Average Level (dBFS) [RO]		Displays the embedded audio average level for the channel	-99 dBFS to 0 dBFS
Parameters Available in ASI Mode				
Status				
	ASI Error [RO]		Reports whether or not there is an ASI error (including ASI loss)	• On • Off

LEDs and Alarms

The ACO6800+4X2+ICQST modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 6-1 shows the location of typical LEDs. Table 6-5 and Table 6-6 on page 107 describe each LED in more detail.

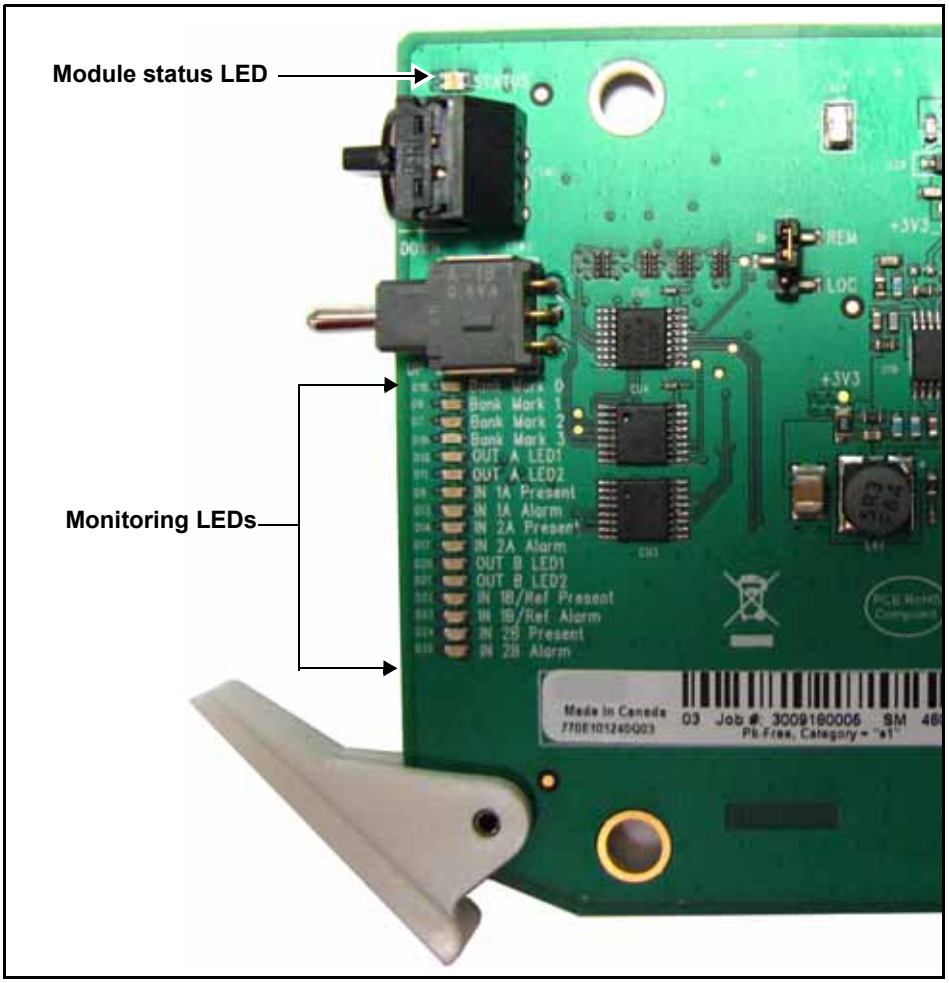


Figure 6-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 6-5. ACO6800+4X2+ICQST Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	Not used	
2	Out A LED 2		
3	In 1A Present	Input 1 signal is present.	Green
4	In 1A Alarm	Input 1 is in an alarm state.	Amber
5	In 2A Present	Input 2 signal is present.	Green
6	In 2A Alarm	Input 2 is in an alarm state.	Amber
7	Out B LED 1	Not used	
8	Out B LED 2		
9	In 1B Present	Input 3 signal is present.	Green
10	In 1B Alarm	Input 3 is in an alarm state.	Amber
11	In 2B Present	Input 4 signal is present.	Green
12	In 2B Alarm	Input 4 is in an alarm state.	Amber

Module Status LEDs

The ACO6800+4X2+ICQSTmodule does not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 6-1 on page 106 for the location of the LED, and Table 6-6 for a description of the LED colors.

Table 6-6. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 6-7. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

These alarms are available in ASI and SDI modes.

Table 6-8. Main Device Alarms For ACO6800+4X2+ICQST Modules

Alarm Name	Description	Priority	Trigger (Sec)	Default Clear Time (Sec)
In 1 Relay Bypass On	Reports In 1 Relay Bypass is activated	1	1.0	2.0
In 2 Relay Bypass On	Reports In 2 Relay Bypass is activated			
Genlock Loss (SDI only)	Reports Genlock is not present			
Genlock Framerate Mismatch (SDI only)	Reports Genlock frame rate mismatches with operation standard			
Genlock Unlocked (SDI only)	Reports Genlock is not locked			
Switch Away From In 1	Reports current output source is not In 1			
Switch Away From In 2	Reports current output source is not In 2			
Switch Away From In 3	Reports current output source is not In 3			
Switch Away From In 4	Reports current output source is not In 4			
Switch Away From Still Image (SDI only)	Reports current output source is not Still Image			
Output Source Switch	Detects change in selected input source		0.0 *	5.0
Switch Event Alert	Detects change in switch event status			
GPI 1-6 Triggered	Reports change from inactive to active status for the designated GPI			
* The three indicated alarms must be set to 0.0 sec.				

Subdevice Alarms

Table 6-9 describes the alarms for each of the subdevices on the ACO6800+4X2+ICQST. You can only identify specific alarms using a software control application.

Table 6-9. ACO6800+4X2+ICQST Subdevice Alarm

Alarm Name	Alarm Option Default Settings		
	Alarm Priority	Trigger (s)	Clear (s)
SDI Mode			
SDI Loss of Video	6 (Major)	1.0	2.0
SDI Video Standard Mismatch	1 (Minor)	1.0	2.0
SDI EDH Error	1 (Minor)	2.0	2.0
SDI CRC Error	1 (Minor)	2.0	2.0
SDI Luma Peak	1 (Minor)	240.0	2.0
SDI Luma Low	1 (Minor)	240.0	2.0
SDI Chroma Peak	1 (Minor)	240.0	2.0
SDI Chroma Low	1 (Minor)	240.0	2.0
SDI Video Black	6 (Major)	30.0	2.0
SDI Video Frozen	1 (Minor)	30.0	2.0
SDI CC EIA/CEA-608-B Missing	1 (Minor)	240.0	2.0
SDI CC/XDS Data Missing	1 (Minor)	240.0	2.0
SDI CC EIA/CEA-708-B Missing	1 (Minor)	240.0	2.0
SDI AFD Missing	1 (Minor)	30.0	2.0
SDI WSS Missing	1 (Minor)	240.0	2.0
SDI ATC Missing	1 (Minor)	30.0	2.0
SDI Embedded Ch01to Ch 16 Peak	1 (Minor)	30.0	2.0
SDI Embedded Ch01to Ch16 Low	1 (Minor)	30.0	2.0
SDI Embedded Ch01 to Ch16 Loss Of Sound	1 (Minor)	30.0	2.0
SDI Embedded Ch01 to Ch16 Vbit Set	1 (Minor)	1.0	2.0
SDI Embedded Ch01 to Ch16 Missing	1 (Minor)	1.0	2.0
SDI Embedded Audio Group 1 to Group 4 Missing	1 (Minor)	1.0	2.0
ASI Mode			
ASI Error	1	1.0	2.0

Chapter 7

ACO6800+IDSD Parameters, LEDs, and Alarms

On-Screen Display Monitoring

If you are using card-edge controls to configure your ACO6800**+**IDSD module, you can use the on-screen display (OSD) monitoring feature to view the current parameter selections. When the OSD monitoring is activated, the current parameter selections are displayed on module's monitoring outputs. For information on enabling OSD monitoring, see "Activating On-Screen Display" on page 23.

Using Alarm Switch Mode

Three parameters help handle situations when the module's current source is on the secondary channel and the primary channel becomes good, or the secondary channel becomes bad.

- When the **Alarm Switch Mode** parameter is set to **Automatic**, the **Non-Resetting Protection** parameter is unavailable. The module returns to its primary input after the primary input channel's alarm clears.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Switch to A1**, the module switches to its primary channel when the secondary input channel becomes bad.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Stay with to A2**, the module stays with the secondary channel even when the secondary input channel is bad.
- Set the **Alarm Reset** parameter to **On** to switch back to primary input when applicable. This parameter is unavailable when the **Alarm Switch Mode** parameter is set to **Automatic**.

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.
- The parameters are listed in the order that they appear in CCS Navigator.

ACO6800+IDSD Parameters

Table 7-1. ACO6800+IDSD Parameters

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key		Provides a location for entering license key numbers	<string>
	Enabled Options [RO]		Displays the current license option	<string>
	Factory Recall	0, F	Sets your module back to factory default settings **Note** There are two independent sets of default values for SDI mode and ASI mode. Factory Recall in SDI mode does not affect the parameters in ASI mode, and vice versa.	• On • **Off**
	Soft Reboot	0, E	Activates a soft reboot of the module	• On • **Off**
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI **Note** Factory recall does not change this parameter. It has no default value.	• SDI • ASI
	Thumbnail Source	0, 2	Selects the thumbnail source **Note** This parameter is not available in ASI mode.	• **Input A1** • Input A2 • Input B1 • Input B2 • Output GrpA • Output GrpB
	Submodule Type [RO]		Displays whether or not there is a submodule included on the module	• None • For ISCS

Table 7-1. ACO6800+IDSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Backmodule Type [RO}		Displays which back module is connected to the front module	• For DS/IDS • For ISCS
ACO Group A > Switch Settings				
	Group A Output Source [RO]		Displays the current output source	• Input A1 • Input A2
	Group A Switch High Priority	1, A	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Group A Switch Medium Priority	1, B	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Group A Switch Low Priority	1, C	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Group A Alarm Switch Level	1, D	Sets the level for alarm auto switch	1 to 10 (**6**)
	Group A Manual Switch	1, E	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
	Group A Alarm Switch Mode	1, 8	When **Automatic** is selected, the module returns to the primary input (A1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Group A Reset	1, 9	Sets the output source to the primary input	• On • **Off**
	Group A Non-Resetting Protection	1, F	Sets what the output source will be when current source is A2, A1 is good, and A2 becomes bad	• Switch to A1 • **Stay with A2**
	Group A Relay Bypass	1, 1	Activates the relay bypass	• On • **Off**
	Group A Relay Status [RO]		Displays whether or not the relay is active	• On • Off
ACO Group A > General Purpose Interface				
	Group A GPI In Trigger Level	1, 2	Sets the level at which an alarm is triggered for the Group A GPI Input	• **Active Low** • Active High

Table 7-1. ACO6800+IDSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Group A GPI Out Trigger Level	1, 3	Sets the level at which an alarm is triggered for the Group A GPI Output	• Active Low • **Active High**
	Group A GPI Input_1 [RO]		Displays whether or not GPI Input_1 has been switched to A1	• N/A • Switch to A1
	Group A GPI Input_2 [RO]		Displays whether or not GPI Input_2 has been switched to A2	• N/A • Switch to A2
	Group A GPI Input_3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	Group A GPI Output_1 [RO]		Displays whether or not A1 is selected as the current output source	• N/A • Input A1 online
	Group A GPI Output_2 [RO]		Displays whether or not A2 is selected as the current output source	• N/A • Input A2 online
	Group A GPI Output_3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass
ACO Group A > MISC Settings				
	OutA OSD Enable	1, 4	Enables the on-screen display **Note** This parameter is not present in ASI mode.	• **Off** • On
	OutA EDH Control	1, 5	Inserts or clears the EDH when the input online is SD-SDI **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear
ACO Group B > Switch Settings				
	Group B Output Source [RO]		Displays the current output source	• Input B1 • Input B2
	Group B Switch High Priority	4, A	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Group B Switch Medium Priority	4, B	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Group B Switch Low Priority	4, C	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Group B Alarm Switch Level	4, D	Sets the alarm level at which the channel will be switched automatically	1 to 10 (**6**)

Table 7-1. ACO6800+IDSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Group B Manual Switch	4, E	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to B1 • Switch to B2
	Group B Alarm Switch Mode	4, 8	When **Automatic** is selected, the module returns to the primary input (A1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Group B Reset	4, 9	Sets the output source to the primary input	• On • **Off**
	Group B Non-Resetting Protection	4, F	Sets what the output source will be when current source is A2, and A1 is good and A2 becomes bad	• Switch to A1 • **Stay with A2**
	Group B Relay Bypass	4, 1	Activates the relay bypass	• On • **Off**
	Group B Relay Status [RO]		Displays whether the relay is active or not	• On • Off
ACO Group B > General Purpose Interface				
	Group B GPI In Trigger Level	4, 2	Sets the level at which an alarm is triggered for the Group B GPI Input	• **Active Low** • Active High
	Group B GPI Out Trigger Level	4, 3	Sets the level at which an alarm is triggered for the Group B GPI Output	• Active Low • **Active High**
	Group B GPI Input_1 [RO]		Displays whether or not GPI Input_1 has been switched to B1	• N/A • Switch to B1
	Group B GPI Input_2 [RO]		Displays whether or not GPI Input_2 has been switched to B2	• N/A • Switch to B2
	Group B GPI Input_3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	Group B GPI Output_1 [RO]		Displays whether or not B1 is selected as current output source	• N/A • Input B1 on line
	Group B GPI Output_2 [RO]		Displays whether or not B2 is selected as current output source	• N/A • Input B2 on line
	Group B GPI Output_3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass

Table 7-1. ACO6800+IDSD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
ACO Group B > MISC Settings				
	Out B EDH Control	4, 5	Inserts or clears the EDH when the input online is SD **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear
Frozen Detection Sensitivity				
	Level Sensitivity	1, 6	Adjusts level threshold sensitivity for freeze detection **Note** A higher level indicates increased sensitivity.	0 to 10 (**5**)
	Pixel Sensitivity	1, 7	Adjusts pixel number threshold sensitivity for freeze detection **Note** A higher level indicates increased sensitivity.	0 to 10 (**5**)

ACO6800+IDSD Subdevice Parameters

The parameters in SDI mode and in ASI mode can not be shown at the same time.

Table 7-2. ACO6800+IDSD Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
Parameters available in SDI Mode				
Status				
	Video Present [RO]		Indicates that video is present	• On • Off
	Video Standard [RO]		Lists the incoming video standard	
	Audio Grp (1-4) Present		Displays the presence of the specified audio group package	• On • Off

Table 7-2. ACO6800+IDSD Subdevice Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
SQM Settings				
	Set Expected Video Standard A1 A2 B1 B2	 2, 1 3, 1 5, 1 6, 1	Selects the expected format **Note** When the format deviates from this format, one of the SDI Video Standard Mismatch alarms triggers.	• **525** • 625 • 1080i • 1080p • 720p • 1080psf
	Luma Low Threshold A1 A2 B1 B2	 2, 2 3, 2 5, 2 6, 2	Sets the threshold below which the SDI Luma Low alarm is triggered	-6.8% to 15% (**7.5%**)
	Luma Peak Threshold A1 A2 B1 B2	 2, 3 3, 3 5, 3 6, 3	Sets the threshold at which excessive luminance triggers the SDI Luma Peak alarm	90% to 108% (**102%**)
	Chroma Low Threshold A1 A2 B1 B2	 2, 4 3, 4 5, 4 6, 4	Sets the threshold below which the SDI Chroma Low alarm is triggered	**0%** to 15% (**0%**)
	Chroma Peak Threshold A1 A2 B1 B2	 2, 5 3, 5 5, 5 6, 5	Sets the threshold at or above which an excessive chrominance level triggers the SDI Chroma Peak alarm	90% to 108% (**102%**)
	Video Black Threshold A1 A2 B1 B2	 2, 6 3, 6 5, 6 6, 6	Sets the threshold below which the SDI Video Black alarm is triggered	0% to 10% (**5.5%**)
	Peak Audio Threshold (dBFS) A1 A2 B1 B2	 2, 7 3, 7 5, 7 6, 7	Sets the threshold above which SDI Embedded Ch01 peak to SDI Embedded Ch02 peak alarms are triggered	-20 dBFS to 0 dBFS (**-2 dBFS**)

Table 7-2. ACO6800+IDSD Subdevice Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Low Audio Threshold (dBFS) A1 A2 B1 B2	 2, 8 3, 8 5, 8 6, 8	Sets the threshold below which SDI Embedded Ch01 Low Audio to SDI Embedded Ch16 Low Audio alarms are triggered	-80 dBFS to -30 dBFS (**-60 dBFS**)
	Loss of Sound Threshold (dBFS) A1 A2 B1 B2	2, 9 3, 9 5, 9 6, 9	Sets the threshold below which SDI Embedded Ch01 Loss of Sound to SDI Embedded Ch16 Loss of Sound alarms are triggered	-100 dBFS to -60 dBFS (**-90 dBFS**)
	Audio Average Level Reporting A1 A2 B1 B2	 2, A 3, A 4, A 5, A	Displays the SDI Embedded Channel Average Level value	• Enable • **Disable**
	Audio Average Level Restart A1 A2 B1 B2	 2, B 3, B 5, B 6, B	Restarts the calculation of the average audio level	• On • **Off**
SQM				
	SDI Emb.Ch1–16 Average Level (dBFS) [RO]		Displays the embedded audio average level for the channel	-99 dBFS to 0 dBFS
Parameters available in ASI Mode				
Status				
	ASI Error [RO]		Displays whether or not there is an ASI error (including ASI loss)	• On • Off

LEDs and Alarms

The ACO6800+IDSD modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 7-1 shows the location of the LEDs on a typical ACO6800+ module. Table 7-3 and Table 7-4 describe each LED in more detail.

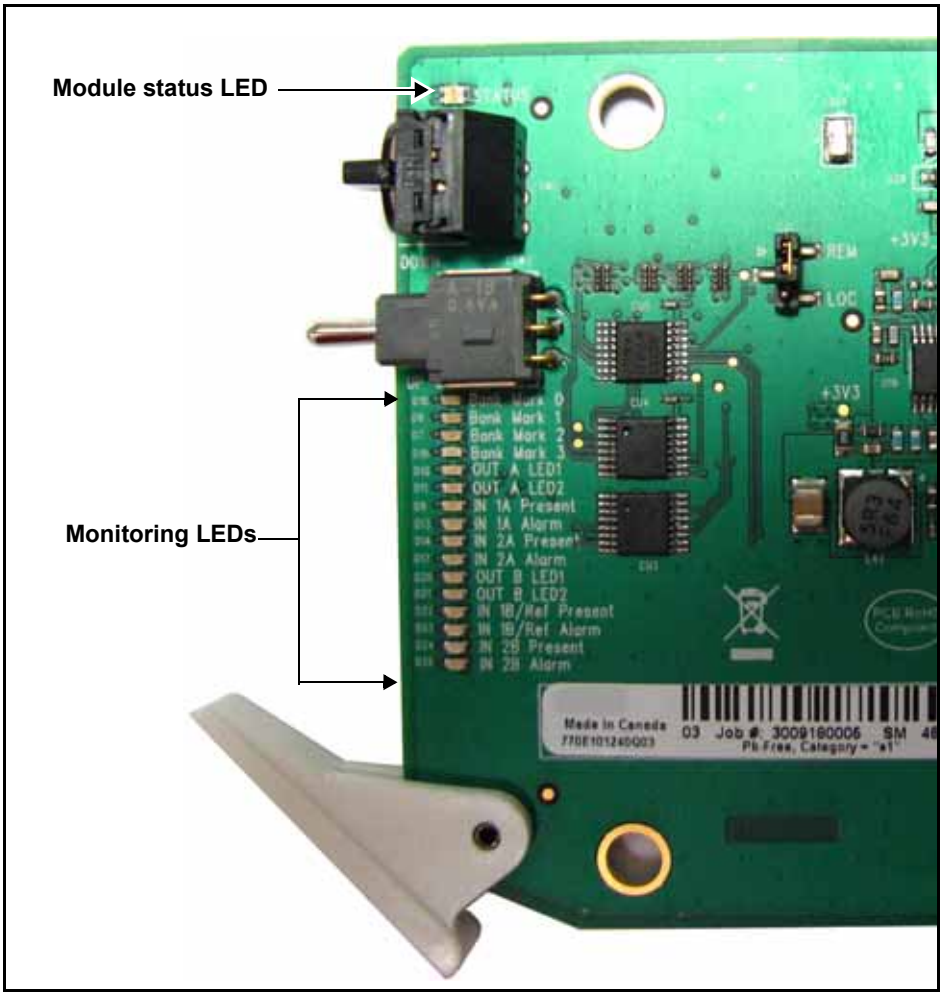


Figure 7-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 7-3. ACO6800+IDSD Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	The current selected input is 1A for group A.	Green
2	Out A LED 2	The current selected input is 2A for group A.	Green
3	In 1A Present	Input 1A signal is present.	Green
4	In 1A Alarm	Input 1A is in an alarm state.	Amber
5	In 2A Present	Input 2A signal is present.	Green
6	In 2A Alarm	Input 2A is in an alarm state.	Amber
7	Out B LED 1	The current selected input is 1B for group B.	Green
8	Out B LED 2	The current selected input is 2B for group B.	Green
9	In 1B Present	Input 1B signal is present.	Green
10	In 1B Alarm	Input 1B is in an alarm state.	Amber
11	In 2B Present	Input 2B signal is present.	Green
12	In 2B Alarm	Input 2B is in an alarm state.	Amber

Module Status LEDs

The ACO6800+IDSD modules do not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 7-1 on page 119 for the location of the LED, and Table 7-4 for a description of the LED colors.

Table 7-4. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 7-5. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

These alarms are available in both ASI and SDI modes.

Table 7-6. Device Alarms For ACO6800+IDSD Modules

Alarm Name	Priority	Trigger (s)	Clear (s)
Grp A Relay Bypass On	1	1.0 s	2.0 s
Grp B Relay Bypass On	1	1.0 s	2.0 s

Subdevice Alarms

Table 7-7 describes the alarms for each of the subdevices on the ACO6800+IDSD module. You can only identify specific alarms using a software control application. Depending on which module you are using, some of the subdevice alarms may not be available.

Table 7-7. ACO6800+IDSD Subdevice Alarms

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI Mode				
SDI Video Standard Mismatch	The standard video input does not match the expected standard	1	2.0	2.0
SDI EDH Error	Reports recurring EDH errors in the standard definition video signal	1	2.0	2.0
SDI CRC Error	Reports recurring CRC errors in the high definition video signal	1	2.0	2.0
SDI Loss of Video	Reports that active HD or SD video has not been present	6	2.0	2.0
SDI CC EIA/CEA-608-B Missing (525 only)	Reports that the standard definition CC data on line 21 field 1is not detected	1	240.0	2.0
SDI CC EIA/CEA-708-B Missing	Reports that the high definition CC data on line 21 (284) is not detected	1	240.0	2.0
SDI WSS Missing (625 only)	Reports that the presence of Wide Screen Signaling for Wide Screen Format is not detected	1	240.0	2.0
SDI Luma Peak	Reports that the HD or SD luma component has exceeded the threshold defined by the Luma Peak Threshold parameter	1	240.0	2.0
SDI Luma Low	Reports that the HD or SD luma component remains below the threshold defined by the Luma Low Threshold parameter	1	240.0	2.0
SDI Chroma Peak	Reports that the HD or SD chroma component has exceeded the threshold defined by Chroma Peak Threshold parameter	1	240.0	2.0
SDI Chroma Low	Reports that the HD or SD chroma component remains below the threshold defined by the Chroma Low Threshold parameter	1	30.0	2.0
SDI Video Black	Reports that the HD or SD video level does not exceed the level defined by the Video Black Threshold parameter	6	240.0	2.0
SDI CC/XDS Data Missing (525 only)	Reports that the standard definition CC/Extended Data Services on line 21 field 2 is not detected	1	240.0	2.0
SDI VChip Data Missing	Reports that VChip data is not present on Line 21 Field 2	1	240.0	2.0
SDI Video Frozen	Reports that the HD or SD content in the video frame is not changing	1	30.0	2.0

Table 7-7. ACO6800+IDSD Subdevice Alarms *(Continued)*

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI AFD Missing	Reports that AFD is not present	1	30.0	2
SDI Embedded Ch(01–16) Peak	Detects that the peak audio level meets or exceeds the limit set in the Peak Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Loss of Sound	Detects that the audio amplitude has fallen below the limit set in the Loss of Sound Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Vbit Set	Detects a set V-Bit in the embedded audio source	1	1.0	2.0
SDI Embedded Ch(01–16) Low Audio	Detects that the peak audio sample has stayed below the level set in the Low Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Missing	Reports if the SDI embedded audio channel is missing	1	1.0	2.0
SDI Embedded Audio Group (1–4) Missing	Reports that the audio in the specified group is not present	1	1.0	2.0
ASI Mode				
ASI Error	Reports an ASI error (including ASI loss) in streaming	1	1.0	2.0

Chapter 8

ACO6800+ISCST Parameters, LEDs, and Alarms

On-Screen Display Monitoring

If you are using card-edge controls to configure your ACO6800+ISCST module, you can use the on-screen display (OSD) monitoring feature to view the current parameter selections. When the OSD monitoring is activated, the current parameter selections are displayed on module's monitoring outputs. For information on enabling OSD monitoring, see "Activating On-Screen Display" on page 23.

Note

The ACO6800+4X2+ICQST does not pass SMPTE 352M video payload for all supported HD-SDI video formats.

Using the Line Sync Feature

The line sync feature supports non-frozen switching between two video streams. The line sync blocks for each channel are independent, and the output phase after line sync is aligned to the internal reference point.

To activate the line sync feature, follow these steps:

1. Ensure that the following conditions are met:
   - Genlock is available
   - The input video stream is present and has the same standard as **Operation Standard**
   - The input video stream is locked with genlock
   - The input video stream is within 4 lines ahead of internal reference point (±2 lines tolerance between the two input video streams)
2. Set the Sync Mode Set parameter to Genlock.
3. Set the Line Sync Mode parameter to Auto.

Using Alarm Switch Mode

Three parameters help handle situations when the module's current source is on the secondary channel and the primary channel becomes good, or the secondary channel becomes bad.

- When the **Alarm Switch Mode** parameter is set to **Automatic**, the **Non-Resetting Protection** parameter is unavailable. The module returns to its primary input after the primary input channel's alarm clears.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Switch to In1**, the module switches to its primary channel when the secondary input channel becomes bad.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Stay with to In2**, the module stays with the secondary channel even when the secondary input channel is bad.
- Set the **Alarm Reset** parameter to **On** to switch back to primary input when applicable. This parameter is unavailable when the **Alarm Switch Mode** parameter is set to **Automatic**.

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.
- The parameters are listed in the order that they appear in CCS Navigator.

Cross-Functional Parameter Changes

When you configure certain parameters on an ACO6800+ISCST module, you force a change in other associated parameters. These cross-functional parameter changes for are described in Table 8-1.

Table 8-1. ACO6800+ISCST Cross-Functional Parameter Changes

Position	Parameter	Setting	Unavailable Parameters
System	Operation Standard	• 1080i • 1080p • 720p	• EDH (Out 1_2 Settings) • SD-SDI Mux 24 bits (audio)
Video > AUX Settings	AUX Output Source	Frame Sync	• AUX OSD Enable • AUX EDH
Audio > Processing > SRC Bypass	SRC Bypass Mode	Auto	SRC (1-8) Bypass
Audio > Processing > SRC Bypass	SRC Bypass	Yes **Note** Note: if the SRC Bypass Mode is Auto and the audio package is detected as Data, ACO6800+ISCST will automatically switch SRC * Bypass to Yes.	• Gain Lock • Gain All • Gain (ch * -L/R) • Invert All • Invert (ch * -L/R)
Audio > Processing > Delay	Delay Lock	Yes	Delay (1-16) (ch 1 - L–ch 8 -R)
		No	Delay All
Audio > Processing > Gain	Gain Lock	Yes	Gain (1-16) (ch 1 - L–ch 8 -R)
		No	Gain All
Audio > Processing > Phase Invert	Invert All	On	Invert (1-16) (ch 1 - L–ch 8 -R)
Audio > Output > MUX	Follow Input	Yes	SDI Grp (1–4) Mux En

ACO6800+ISCST Parameters for SDI

Table 8-2. ACO6800+ISCST SDI Parameters

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key [RO]		Displays the license code of the module	<string>
	Enabled Options [RO]		Displays the current license option	<string>
	Factory Recall	0, F	Sets your module back to factory default settings	• **Off** • On
	Soft Reboot	0, E	Activates a soft reboot of the module	• **Off** • On
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI **Note** Factory Recall does not change this parameter. It has no default value.	• SDI Mode • ASI Mode
	SubmoduleType [RO]		Shows whether there is a submodule included on the module	• None • For ISCS
	Back Module Type		Displays the type of back module connected to the front module	• For DS/IDS • For ISCS
System				
	Genlock Source	0, 2	Selects the genlock source	• Frame • **External**
	Sync Mode Set	0, 3	Sets the sync mode for the system	• Freerun • **Genlock**
	Sync Mode Feedback [RO]		Displays the current sync mode **Note** If genlock is not available, system operates in freerun mode.	• Freerun • Genlock
	Operation Frame Rate	0, 4	Sets the operation frame rate for system **Note** The Auto option is only available when sync mode is genlock.	• 25Hz or 50Hz • 29.97Hz or 59.94Hz • **Auto**
	Operation Standard	29/59: 0, 6 25/50: 0, 7	Sets the operation standard for the system **Note** The available options depend on the system's operation frame rate.	<operation frame rate> (default: **525/625**)
	Genlock Present [RO]		Displays whether the genlock is present or not	• On • Off

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Genlock Lock Status [RO]		Displays whether the genlock is locked or not	• No • Yes
	Genlock Standard Feedback [RO]		Displays the genlock standard	<string>
System > Switch Settings				
	Output Source [RO]		Displays which output source is active	• In 1 • In 2 • Still Image
	Switch High Priority	1, A	Sets the high priority for switching	• **GPI** • Manual • Alarms
	Switch Medium Priority	1, B	Sets the medium priority for switching	• GPI • **Manual** • Alarms
	Switch Low Priority	1, C	Sets the low priority for switching	• GPI • Manual • **Alarms**
	Alarms Switch Level	1, D	Sets the level for alarm auto switch	1 to 10 (**6**)
	Manual Switch	1, E	Sets the what the output source will be when a channel is switched manually	• **Disabled** • In 1 • In 2
	Alarm Switch Mode	1, 5	When **Automatic** is selected, the module returns to the primary input (In 1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Alarm Reset	1, 6	Sets the output source to the primary input	• **Off** • On
	Non-Resetting Protection	1, 7	Sets what the output source will be when the current source is In 2, In 1 is good, and In 2 becomes bad	• Switch to In 1 • **Stay with In 2**
	Relay Bypass	1, 1	Determines whether or not the relay bypass is activated	• **Off** • On
	Relay Status [RO]		Displays whether or not the bypass relay has been activated	• On • Off

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
System > General Purpose Interface				
	GPI Input Trigger Level	1, 2	Sets the level at which an alarm is triggered for the GPI Input of group A	• **Active Low** • Active High
	GPI Output Trigger Level	1, 3	Sets the level at which an alarm is triggered for the GPI Output group A	• Active Low • **Active High**
	GPI Input 1 [RO]		Displays whether or not GPI Input 1 has been switched to In 1	• N/A • Switch to In 1
	GPI Input 2 [RO]		Displays whether or not GPI Input 2 has been switched to In 2	• N/A • Switch to In 2
	GPI Input 3 [RO]		Displays whether or not GPI Input 3 has been switched to Relay Bypass	• N/A • Relay Bypass
	GPI Output 1 [RO]		Displays whether or not the output is set to In_1	• N/A • In 1 Online
	GPI Output 2 [RO]		Displays whether or not the output is set to In_2	• N/A • In 2 Online
	GPI Output 3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass
Video				
	LOV Mode	4, 1	Determines the processing mode when there is a loss of video on the selected input	• Pass • Black • **Freeze**
	Still Image Mode	4, 2	Forces the output to a still image (see page 30 for details)	• **Auto** • Force
	Still Image Source	4, 3	Selects the source for the still image	• Trouble Slide • **TSG** • None
	TSG Pattern	4, 4	Selects the TSG pattern	• Black • **75% Color Bar** • 100% Color Bar • H Sweep • Multiburst • Ramp
	Thumbnail Source	4, 7	Sets the thumbnail source	• In 1 • In 2 • **Frame Sync**

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Video > FS Settings				
	Horizontal Phase	4, A	Sets the Frame Sync horizontal phase **Note** Available options depend on the system's set video standard.	<set video standard>
	Vertical Phase	4, B	Sets the Frame Sync vertical phase **Note** Available options depend on the system's set video standard.	<set video standard>
	Frame Delay	4, D	Sets the Frame Sync delay range	**0** to 6 frames
	Force Freeze Type	4, C	Determines which mode is activated when the video freezes	• **Field 1** • Field 2 • Frame
	Force Freeze	4, E	Activates the force freeze mode	• On • **Off**
	FS Frozen [RO]		Indicates if output is frozen by frame sync	• On • **Off**
	Force Black	4, F	Activates the force black mode	• On • **Off**
Video > Trouble Slide				
	Trouble Slide Source	4, 5	Selects the trouble slide pattern	• **Default** • Trouble Slide 1 • Trouble Slide 2 • Trouble Slide 3
	Trouble Slide Background	4, 6	Select the background for default trouble slide	• **Black** • 75% Color Bar • 100% Color Bar • H Sweep • Multiburst • Ramp
	MicroSD Card Status [RO]	--	Indicates whether the SD card is available	• Absent • Locating File • Not Compatible • Please Select File • Loading File • File Loaded
	MicroSD Card Loading Process [RO]	--	Reports the image loading process (percentage)	<values> (unit =%)
	Trouble Slide (1–3) [RO]		Displays the trouble slide name stored on SD card	<string>

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Video > Video Procamp				
	Luma Gain	5, 1	Sets the video luminance gain	-6 to 6 dB (**0**)
	Luma Offset	5, 2	Sets the video luminance offset **Note** Units depend on the operation frame rate: IRE @ 59.94 or mV @ 50.	• 0 to 15 IRE (**0**) • -100 to 100 mV (**0**)
	Cb Gain	5, 3	Sets the video Cb gain	-6 to 6 dB (**0**)
	Cr Gain	5, 4	Sets the video Cr gain	-6 to 6 dB (**0**)
	Cb Offset	5, 5	Sets the video Cb offset	0 to 100% (**50%**)
	Cr Offset	5, 6	Sets the video Cr offset	**0** to 100% (**50%**)
	Hue	5, 7	Sets the hue for color **Note** Range depends on the set operation standard: -90 to 90 only @ SD-625.	• -180 to 180 degrees (**0**) • -90 to 90 degrees (**0**)
	White Clip Enable	5, 8	Activates the white clip	• **Disable** • Enable
	White Clip Level	5, 9	Sets the white clip level **Note** Units depend on the set operation frame rate: IRE @ 59.94 or mV @ 50.	• 90.1 to 109.0 IRE (**100**) • 636.8 to 763.2 mV (**700**)
	Black Clip Enable	5, A	Activates the black clip	• **Disable** • Enable
	Black Clip Level	5, B	Sets the black clip level **Note** Units depend on the set operation frame rate: IRE @ 59.94 ore mV @ 50.	• -6.8 to 6.8 IRE (**0**) • -47.9 to 47.9 mV (**0**)
Video > Out 1_2 Settings				
	OSD Enable	5, C	Activates the on-screen display on outputs 1 and 2	• **Off** • On
	EDH	5, D	Activates the EDH insert after frame synchronizer **Note** Only available when the operation standard is 525 or 625.	• Clear • **Insert**
Video > AUX Settings				
	AUX Output Source	1, F	Sets the backup channel's output source **Note** When Frame Sync is selected, the source is the output of the synchronizer. When AUX is selected, the source is always the different input from one selected into the synchronizer.	• **Frame Sync** • AUX • In 1 • In 2
	AUX OSD Enable	5, E	Activates the on-screen display on AUX outputs	• **Off** • On

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	AUX EDH	5, F	Activates the EDH insert on AUX **Note** This parameter is only available when selected input for AUX is 525 or 625.	• Clear • **Insert**
Audio				
	LOV Mute En	6, 9	Mutes the audio as soon as the video is lost	• Disable • **Enable**
	Fade Time	6, A	Adjusts the global fade rate for audio gain	0.01 s to 10s (**2**)
	Master Mute	6, B	Mutes audio on all output channels	• **Disable** • Enable
	V-bit Mute	6,C	Mutes audio when V bit is set	• **Disable** • Enable
Audio >Input > Demux Status				
	Ch (1-8) L/R Audio Type [RO]		Reports the audio presence and type	• N/A • PCM Audio • Data
Audio > Input > Demux Status > Error Status				
	Group 1 to Group 4 Checksum Error* [RO]		Reports if a checksum error has occurred in the de-embedder of the designated group	• On • Off
	Group 1 to Group 4 DBN Error* [RO]	--	Reports if a data block number error has occurred in the designated group 1 de-embedder.	• On • Off
	Group 1 to Group 4 Parity Error* [RO]	--	Reports if a parity error has occurred in the designated group de-embedder.	• On • Off
	Group 1 to Group 4 ECC Error* [RO]	--	Reports if an Error Correction Code error has occurred in the designated group de-embedder.	• On • Off
Audio > Input > Demux Setting				
	SDI Group Error Control		Sets the audio output behavior when the audio has an error	• **Mute** • Repeat
	SDI DBN Error Control		Sets the reporting behavior when the audio has a DBN error	• Ignore • **Alert**

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Audio > Processing > SRC Bypass				
	SRC Bypass Mode	6, D	Sets the SRC control mode **Note** When this parameter is set to Auto, the module automatically bypasses SRCs when a Dolby package is detected. When it is set to Manual, you can manually change the SRC (1-8) Bypass parameters.	• **Auto** • Manual
	SRC (1-8) L/R Bypass		Enables bypass for the specified SRC when SRC Bypass Mode is set to Manual	• **No** • Yes
Audio > Processing > Delay				
	Delay Lock	8, 1	Sets whether you can adjust the audio delay separately or for all channels **Note** When this parameter is set to Yes, Delay All is available, and you can adjust the Delay All parameter to change the delay for all 16 audio channels at the same time. When it is set to No, the Delay (1-8) parameters are available, and you can adjust the delay of each audio channel separately.	• **No** • Yes
	Delay All	8, 2	Sets the audio delay for all channels when Delay Lock is enabled	0 to 2500 ms (**0**)
	Delay 1 (Ch1-L) and Delay 2 (Ch1-R) to Delay 15 (Ch.8-L) and Delay 16 (Ch8-R)		Adjusts the audio delay for each channel when Delay Lock is disabled	0 to 2500 ms (**0**)
Audio > Processing > Gain				
	Gain Lock	8, 3	Sets the audio gain separately or for all channels	• **No** • Yes
	Gain All	8, 4	Adjusts the audio gain for all channels when Gain Lock is enabled	-18 dB to 18 dB (**0**)
	Gain 1 (Ch1-L) and Gain 2 (Ch1-R) to Gain 15 (Ch8-L) and Gain 16 (Ch8-R)		Adjusts the audio gain for each channel when Gain Lock is disabled **Note** The gain control is disabled when the SRC is set to Bypass.	-18 dB to 18 dB (**0**)
Audio > Processing > Phase Invert				
	Invert All	6, E	Inverts the audio phase for all channels	• **Off** • On
	Invert 1 (Ch1-L) and Invert 2 (Ch1-R) to Invert 15 (Ch8-L) and Invert 16 (Ch8-R)		Inverts the audio phase for each channel when Gain Lock is disabled **Note** The inverter is disabled when the SRC is bypassed.	• **Off** • On

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Audio > Processing > Audio Processing Bit Width				
	Ch (1-8) L/R Audio Bit Width		Specifies the internal processing bit width of the audio	• 16 bit • **20 bit** (Default when operational standard is SD) • **24 bit** (Default when operational standard is HD)
Audio > Output > Mux				
	SD-SDI Mux 24-bit	7, A	Selects the audio mux bit width when the signal is SD	• **No** • Yes
	Group Format Follow Input	7, B	Enables SDI embedding group format follow input setting	• **No** • Yes
	SDI Grp (1-4) Mux En	7, C • 7, F	Enables SDI embedding for audio groups 1, 2, 3, and 4 when **Group Format Follow Input** is disabled	• **Off** • On
Audio > Output > Routing				
	Out Ch (1-L– 8-R)	6, 1 6, 2 6, 3 6, 4 6, 5 6, 6 6, 7 6, 8 7, 1 7, 2 7, 3 7, 4 7, 5 7, 6 7, 7 7, 8	Sets an audio source for the SD/HD embedder	• **In Ch1-L** (Out Ch1-L) • **In Ch1-R** (Out Ch1-R) • **In Ch2-L** (Out Ch2-L) • **In Ch2-R** (Out Ch2-R) • **In Ch3-L** (Out Ch3-L) • **In Ch3-R** (Out Ch3-R) • **In Ch4-L** (Out Ch4-L) • **In Ch4-R** (Out Ch4-R) • **In Ch5-L** (Out Ch5-L) • **In Ch5-R** (Out Ch5-R) • **In Ch6-L** (Out Ch6-L) • **In Ch6-R** (Out Ch6-R) • **In Ch7-L** (Out Ch7-L) • **In Ch7-R** (Out Ch7-R) • **In Ch8-L** (Out Ch8-L) • **In Ch8-R** (Out Ch8-R) • Tone 1 • Tone 2 • Tone 3 • Tone 4
Audio > Tones				
	Tone1 400Hz Level (dBFS)	8,5	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)
	Tone2 1kHz Level (dBFS)	8,6	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)

Table 8-2. ACO6800+ISCST SDI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Tone3 2kHz Level (dBFS)	8,7	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)
	Tone4 4kHz Level (dBFS)	8,8	Adjusts the audio gain of the specified tone	-28 to 0 dBFS (**-18**)
Line Sync				
	Line Sync Mode	8, E	Enables line sync block **Note** When in Auto mode, line sync automatically runs for each channel if all other requirements are met. Otherwise, the line sync block is bypassed. When disabled, both line sync blocks are always bypassed.	• **Disabled** • Auto
	Line Sync Succeed		Reports if both line sync blocks are running	• On • Off
	Signals Synced		Reports if both input signals are synced after line sync	• On • Off
	In (1-2) Locked with Genlock		Reports if the specified input is locked to a genlock signal	• On • Off
	In (1-2) in Delay Window		Reports if the specified input is in delay window for line sync	• On • Off
	Genlock Window	8, F	Adjusts the internal reference point relating to genlock; the line duration follows the genlock standard	• **0** - 525 (525i) • **0** - 625 (625i) • **0** - 1125 (1080i) • **0** - 750 (720p)
	In (1-2) Line Distance		Reports the line distance ahead of internal reference point	•
	In (1-2) Horizontal Distance		Reports the extra horizontal distance ahead of the internal reference point	•
Frozen Detection Sensitivity				
	Level Sensitivity	1, 8	Adjusts level threshold sensitivity for freeze detection **Note** A higher level indicates increased sensitivity.	0 to 10 (**5**)
	Pixel Sensitivity	1, 9	Adjusts pixel number threshold sensitivity for freeze detection **Note** A higher level indicates increased sensitivity.	0 to 10 (**5**)

ACO6800+ISCST Parameters for ASI

Table 8-3. ACO6800+ISCST ASI Parameters

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key [RO]		Displays the license code of the module	<string>
	Enabled Options [RO]		Displays the current license option	<string>
	Factory Recall	0, F	Sets your module back to factory default settings	• **Off** • On
	Soft Reboot	0, E	Activates a soft reboot of the module	• **Off** • On
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI **Note** Factory recall does not change this parameter. It has no default value.	• SDI Mode • ASI Mode
	SubmoduleType [RO]		Shows whether there is a submodule included on the module	• ISCST/ICQST
	Back Module Type		Displays the type of back module connected to the front module	• 4X2D/DSD/IDSD/ISD • ISCST • ICQST
System > Switch Settings				
	Output Source [RO]		Displays the current output source	• In1 • In2
	Switch High Priority	1, A	Sets the high priority for switching	• **GPI** • Manual • Alarms
	Switch Medium Priority	1, B	Sets the medium priority for switching	• GPI • **Manual** • Alarms
	Switch Low Priority	1, C	Sets the low priority for switching	• GPI • Manual • **Alarms**
	Alarms Switch Level	1, D	Sets the level for alarm auto switch	1 to 10 (**6**)
	Manual Switch	1, E	Sets the what the output source will be when a channel is switched manually	• **Disabled** • In 1 • In 2

Table 8-3. ACO6800+ISCST ASI Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	AUX Source	1, F	Sets the backup channel's output source	• **AUX** • In 1 • In 2
	Alarm Switch Mode	1, 5	When **Automatic** is selected, the module returns to the primary input (In 1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Alarm Reset	1, 6	Sets the output source to the primary input	• **Off** • On
	Non-Resetting Protection	1, 7	Sets what the output source will be when the current source is In 2, In 1 is good, and In 2 becomes bad	• Switch to In 1 • **Stay with In 2**
	Relay Bypass	1, 1	Determines whether or not the relay bypass is activated	• **Off** • On
	Relay Status [RO]		Displays whether or not the bypass relay has been activated	• On • Off
System > General Purpose Interface				
	GPI Input Trigger Level	1, 2	Sets the trigger level for GPI Input of Group A	• **Active Low** • Active High
	GPI Output Trigger Level	1, 3	Sets the trigger level for GPI Output Group A	• Low Level • **High Level**
	GPI Input 1 [RO]		Displays whether or not GPI Input_1 has been switched to In 1	• N/A • Switch to In 1
	GPI Input 2 [RO]		Displays whether or not GPI Input_2 has been switched to In 2	• N/A • Switch to In 2
	GPI Input 3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	GPI Output 1 [RO]		Displays whether or not In 1 is online	• N/A • In 1 Online
	GPI Output 2 [RO]		Displays whether or not In 2 is online	• N/A • In 2 Online
	GPI Output 3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass

ACO6800+ISCST Subdevice Parameters

The parameters in SDI mode and in ASI mode cannot be shown at the same time.

Table 8-4. ACO6800+ISCST Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
Parameters available in SDI Mode				
Status				
	Video Present [RO]		Indicates that video is present	• On • Off
	Video Standard [RO]		Lists the incoming video standard	<string>
	Match With Operation Standard		Displays whether the input signal standard is the same as the operation standard	• On • Off
	Audio Group (1-4) Present		Displays the presence of audio group package	• On • Off
SQM Settings				
	Luma Low Threshold	In 1: 2, 2 In 2: 3, 2	Sets the threshold below which the SDI Luma Low alarm is triggered	-6.8% to 15% (**7.5%**)
	Luma Peak Threshold	In 1: 2, 3 In 2: 3, 3	Sets the threshold at which excessive luminance triggers the SDI Luma Peak alarm	90% to 108% (**102%**)
	Chroma Low Threshold	In 1: 2, 4 In 2: 3, 4	Sets the threshold below which the SDI Chroma Low alarm is triggered	**0%** to 15% (**0%**)
	Chroma Peak Threshold	In 1: 2, 5 In 2: 3, 5	Sets the threshold at or above which excessive chrominance level triggers the SDI Chroma Peak alarm	90% to 108% (**102%**)
	Video Black Threshold	In 1: 2, 6 In 2: 3, 6	Sets the threshold below which the SDI Video Black alarm is triggered	0% to 10% (**5.5%**)
	Peak Audio Threshold (dBFS)	In 1: 2, 7 In 2: 3, 7	Sets the threshold above which SDI Embedded Ch01 peak to SDI Embedded Ch02 peak alarms are triggered	-20 dBFS to 0 dBFS (**-2 dBFS**)
	Low Audio Threshold (dBFS)	In 1: 2, 8 In 2: 3, 8	Sets the threshold below which SDI Embedded Ch01 Low Audio to SDI Embedded Ch16 Low Audio alarms are triggered	-80 dBFS to -30 dBFS (**-60 dBFS**)
	Loss of Sound Threshold (dBFS)	In 1: 2, 9 In 2: 3, 9	Sets the threshold below which SDI Embedded Ch01 Loss of Sound to SDI Embedded Ch16 Loss of Sound alarms are triggered	-100 dBFS to -60 dBFS (**-90 dBFS**)

Table 8-4. ACO6800+ISCST Subdevice Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Audio Average Level Reporting	In 1: 2, A In 2: 3, A	Displays the SDI Embedded Channel Average Level value	• **Disable** • Enable
	Audio Average Level Restart	In 1: 2, B In 2: 3, B	Restarts the calculation of the average audio level	• **Off** • On
SQM				
	SDI Emb Ch1–16 Average Level (dBFS)		Displays the embedded audio average level for the channel	-99 dBFS to 0 dBFS
Parameters available in ASI Mode				
Status				
	ASI Error [RO]		Displays where or not there is an ASI error (including ASI loss)	• On • Off

LEDs and Alarms

The ACO6800+ISCST modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 8-1 shows the location of the LEDs on a typical ACO6800+ module. Table 8-5 and Table 8-6 describe each LED in more detail.

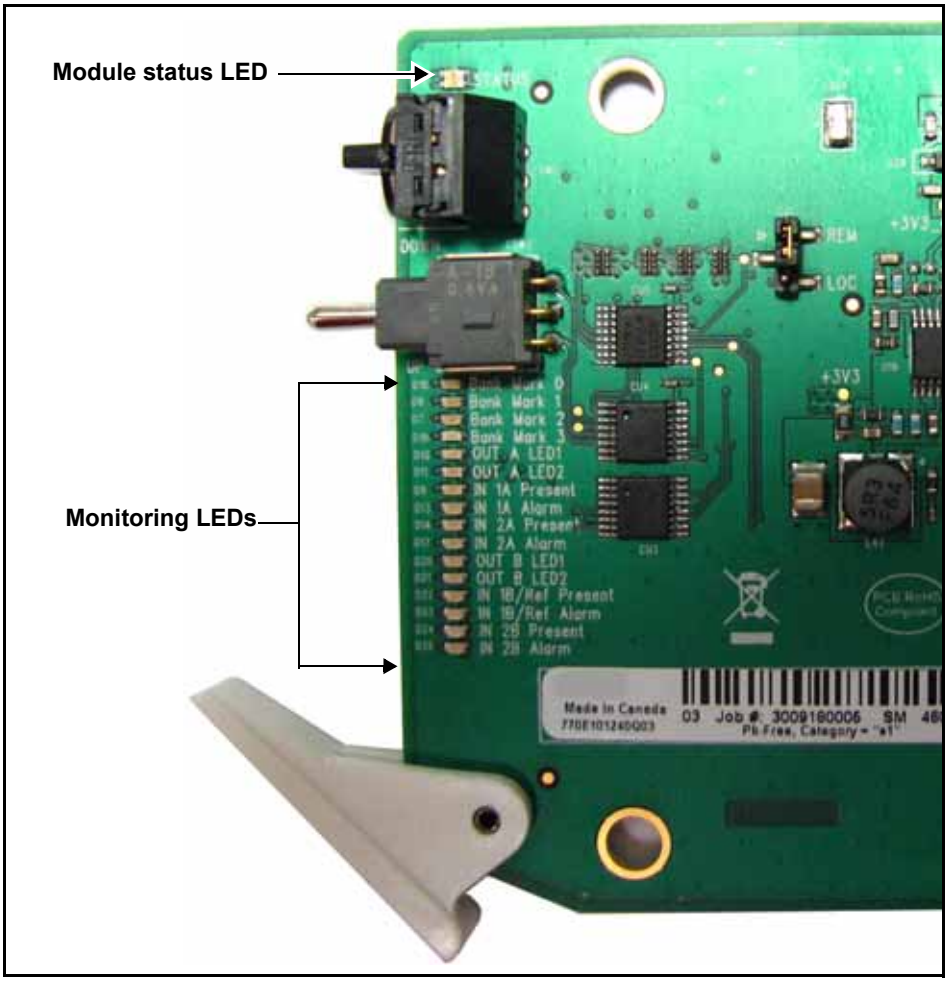


Figure 8-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 8-5. ACO6800+ISCST Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	The current selected input is Input 1.	Green
2	Out A LED 2	The current selected input is Input 2.	Green
3	In 1A Present	Input 1 signal is present.	Green
4	In 1A Alarm	Input 1 is in an alarm state.	Amber
5	In 2A Present	Input 2 signal is present.	Green
6	In 2A Alarm	Input 2 is in an alarm state.	Amber
7	Out B LED 1	Not used	
8	Out B LED 2		
9	Genlock Present	Genlock is present.	Green
10	Genlock Alarm	Genlock is in an alarm state.	Amber

Module Status LEDs

The ACO6800+ISCST modules do not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 8-1 on page 141 for the location of the LED, and Table 8-6 for a description of the LED colors.

Table 8-6. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 8-7. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

Table 8-8. Device Alarms For ACO6800+ISCST Modules

Alarm Name	Priority	Trigger (s)	Clear (s)	SDI Mode	ASI Mode
Relay Bypass On	1	1.0 s	2.0 s	Yes	Yes
Genlock Not Present	1	1.0 s	2.0 s	Yes	
Genlock Framerate Mismatch	1	1.0 s	2.0 s	Yes	
Genlock Unlocked	1	1.0 s	2.0 s	Yes	

Subdevice Alarms

Table 8-9 describes the alarms for each of the subdevices on the ACO6800+ISCST module. You can only identify specific alarms using a software control application. Depending on which module you are using, some of the subdevice alarms may not be available.

Table 8-9. ACO6800+ISCST Subdevice Alarms

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI Mode				
SDI Loss of Video	Reports that active HD or SD video has not been present	6	1.0	2.0
SDI Video Standard Mismatch	The standard video input does not match the expected standard or operation standard	1	1.0	2.0
SDI EDH Error	Reports recurring EDH errors in the standard definition video signal	1	2.0	2.0
SDI CRC Error	Reports recurring CRC errors in the high definition video signal	1	2.0	2.0
SDI WSS Missing (625 only)	Reports that the presence of Wide Screen Signaling for Wide Screen Format is not detected	1	240.0	2.0
SDI Luma Peak	Reports that the HD or SD luma component has exceeded the threshold defined by the Luma Peak Threshold parameter	1	240.0	2.0
SDI Luma Low	Reports that the HD or SD luma component remains below the threshold defined by the Luma Low Threshold parameter	1	240.0	2.0
SDI Chroma Peak	Reports that the HD or SD chroma component has exceeded the threshold defined by Chroma Peak Threshold parameter	1	240.0	2.0
SDI Chroma Low	Reports that the HD or SD chroma component remains below the threshold defined by the Chroma Low Threshold parameter	1	24.0	2.0
SDI Video Black	Reports that the HD or SD video level does not exceed the level defined by the Video Black Threshold parameter	6	30.0	2.0
SDI CC EIA/CEA-608-B Missing (525 only)	Reports that the standard definition CC data on line 21 field 1is not detected	1	240.0	2.0
SDI CC EIA/CEA-708-B Missing	Reports that the high definition CC data on line 21 (284) is not detected	1	240.0	2.0
SDI CC/XDS Data Missing (525 only)	Reports that the standard definition CC/Extended Data Services on line 21 field 2 is not detected	1	240.0	2.0
SDI VChip Data Missing	Reports that VChip data is not present on Line 21 Field 2	1	240.0	2.0
SDI Video Frozen	Reports that the HD or SD content in the video frame is not changing	1	30.0	2.0

Table 8-9. ACO6800+ISCST Subdevice Alarms *(Continued)*

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
AFD Missing	Reports that AFD is not present	1	30.0	2.0
SDI Embedded Ch(01–16) Peak	Detects that the peak audio level meets or exceeds the limit set in the Peak Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Loss of Sound	Detects that the audio amplitude has fallen below the limit set in the Loss of Sound Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Vbit Set	Detects a set V-Bit in the embedded audio source	1	1.0	2.0
SDI Embedded Ch(01–16) Low Audio	Detects that the peak audio sample has stayed below the level set in the Low Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Missing	Reports if the SDI embedded audio channel is missing	1	1.0	2.0
SDI Embedded Audio Group (1–4) Missing	Reports that the audio in the specified group is not present	1	1.0	2.0
SDI ATC Missing	Reports the absence of ATC (Ancillary Time Code)	1	20.0	2.0
ASI Mode				
ASI Error	Reports an ASI error (including ASI loss) in streaming	1	1.0	2.0

Chapter 9

ACO6800+ISD Parameters, LEDs, and Alarms

On-Screen Display Monitoring

If you are using card-edge controls to configure your ACO6800**+**ISD module, you can use the on-screen display (OSD) monitoring feature to view the current parameter selections. When the OSD monitoring is activated, the current parameter selections are displayed on module's monitoring outputs. For information on enabling OSD monitoring, see "Activating On-Screen Display" on page 23.

Using Alarm Switch Mode

Three parameters help handle situations when the module's current source is on the secondary channel and the primary channel becomes good, or the secondary channel becomes bad.

- When the **Alarm Switch Mode** parameter is set to **Automatic**, the **Non-Resetting Protection** parameter is unavailable. The module returns to its primary input after the primary input channel's alarm clears.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Switch to A1**, the module switches to its primary channel when the secondary input channel becomes bad.
- When the **Alarm Switch Mode** parameter is set to **Non-Resetting** and the **Non-Resetting Protection** parameter is set to **Stay with to A2**, the module stays with the secondary channel even when the secondary input channel is bad.
- Set the **Alarm Reset** parameter to **On** to switch back to primary input when applicable. This parameter is unavailable when the **Alarm Switch Mode** parameter is set to **Automatic**.

Parameter Table Notes

When you look at the control parameter tables, note the following:

- Shaded table rows and [RO] after the parameter name indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For more information about using the card-edge controls, see page 21.
- The parameters are listed in the order that they appear in CCS Navigator.

ACO6800+ISD Parameters

Table 9-1. ACO6800+ISD Parameters

Group	Parameter Name	Bank, Switch	Function	Options
General				
	Serial Number [RO]		Displays the serial number of the module	<string>
	License Key		Provides a location for entering license key numbers	<string>
	Enabled Options [RO]		Displays the current license option	<string>
	Factory Recall	0, F	Sets the module back to factory default settings **Note** There are two independent sets of default values for SDI mode and ASI mode. Factory Recall in SDI mode does not affect the parameters in ASI mode, and vice versa.	• On • **Off**
	Soft Reboot	0, E	Activates a soft reboot of the module	• On • **Off**
	Operation Mode	0, 1	Sets the ACO work mode to SDI or ASI **Note** Factory recall does not change this parameter. It has no default value.	• SDI • ASI
	Thumbnail Source	0, 2	Selects the thumbnail source **Note** This parameter is not available in ASI mode.	• **Input A1** • Input A2 • Output GrpA
	Submodule Type [RO]		Displays whether or not there is a submodule included on the module	• None • For ISCS

Table 9-1. ACO6800+ISD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Backmodule Type [RO}		Displays which back module is connected to the front module	• For DS/IDS • For ISCS
ACO Group A > Switch Settings				
	Group A Output Source [RO]		Displays the current output source	• Input A1 • Input A2
	Group A Switch High Priority	1, A	Sets the high priority for switching	• **GPI Input** • Manual • Alarms
	Group A Switch Medium Priority	1, B	Sets the medium priority for switching	• GPI Input • **Manual** • Alarms
	Group A Switch Low Priority	1, C	Sets the low priority for switching	• GPI Input • Manual • **Alarms**
	Group A Alarms Switch Level	1, D	Sets the level for alarm auto switch	1 to 10 (**6**)
	Group A Manual Switch	1, E	Sets what the output source will be when a channel is switched manually	• **Disable** • Switch to A1 • Switch to A2
	Group A Alarm Switch Mode	1, 8	When **Automatic** is selected, the module returns to the primary input (A1) after an alarm clears; when **Non-resetting** is selected, the module must be switched back input manually, or depends on the setting for the **Non-Resetting Protection** parameter	• **Automatic** • Non-resetting
	Group A Reset	1, 9	Sets the output source to the primary input	• On • **Off**
	Group A Non-Resetting Protection	1, F	Sets what the output source will be when current source is A2, A1 is good, and A2 becomes bad	• Switch to A1 • **Stay with A2**
	Group A Relay Bypass	1, 1	Activates the relay bypass	• On • **Off**
	Group A Relay Status [RO]		Displays whether or not the relay is active	• On • Off
ACO Group A > General Purpose Interface				
	Group A GPI In Trigger Level	1, 2	Sets the level at which an alarm is triggered for the Group A GPI Input	• **Active Low** • Active High

Table 9-1. ACO6800+ISD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Group A GPI Out Trigger Level	1, 3	Sets the level at which an alarm is triggered for the Group A GPI Output	• Active Low • **Active High**
	Group A GPI Input_1 [RO]		Displays whether or not GPI Input_1 has been switched to A1	• N/A • Switch to A1
	Group A GPI Input_2 [RO]		Displays whether or not GPI Input_2 has been switched to A2	• N/A • Switch to A2
	Group A GPI Input_3 [RO]		Displays whether or not GPI Input_3 has been switched to Relay Bypass	• N/A • Relay Bypass
	Group A GPI Output_1 [RO]		Displays whether or not A1 is selected as current output source	• N/A • Input A1 online
	Group A GPI Output_2 [RO]		Displays whether or not A2 is selected as current output source	• N/A • Input A2 online
	Group A GPI Output_3 [RO]		Displays whether or not the relay bypass has been activated	• N/A • Signal Bypass
ACO Group A > MISC Settings				
	OutA OSD Enable	1, 4	Enables the on-screen display **Note** This parameter is not present in ASI mode.	• **Off** • On
	OutA EDH Control	1, 5	Inserts or clears the EDH when the input online is SD-SDI **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear
ACO Group A > Out B Settings				
	OutB Source	4, 6	Select output source for Out B	• **Follow Out A** • Input A1 • Input A2
	OutB EDH Control	4, 7	Inserts or clears the EDH when the input online is SD-SDI **Note** This parameter is not available in ASI mode, and is grayed out when the selected input is HD.	• **Insert** • Clear

Table 9-1. ACO6800+ISD Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
Frozen Detection Sensitivity				
	Level Sensitivity	1, 6	Adjusts level threshold sensitivity for freeze detection **Note** A higher level indicates increased sensitivity.	0 to 10 (**5**)
	Pixel Sensitivity	1, 7	Adjusts pixel number threshold sensitivity for freeze detection **Note** A higher level indicates increased sensitivity.	0 to 10 (**5**)

ACO6800+ISD Subdevice Parameters

The parameters in SDI mode and in ASI mode cannot be shown at the same time.

Table 9-2. ACO6800+ISD Subdevice Parameters

Group	Parameter Name	Bank, Switch	Function	Options
Parameters available in SDI Mode				
Status				
	Video Present [RO]		Indicates that video is present	• On • Off
	Video Standard [RO]		Lists the incoming video standard	<string>
	Audio Grp (1-4) Present		Displays the presence of the specified audio group package	• On • Off
SQM Settings				
	Set Expected Video Standard A1 A2	 2, 1 3, 1	Selects the expected format **Note** When the format deviates from this format, one of the SDI Video Standard Mismatch alarms triggers.	• **525** • 625 • 1080i • 1080p • 720p • 1080psf
	Luma Low Threshold A1 A2	 2, 2 3, 2	Sets the threshold below which the SDI Luma Low alarm is triggered	-6.8% to 15% (**7.5%**)

Table 9-2. ACO6800+ISD Subdevice Parameters *(Continued)*

Group	Parameter Name	Bank, Switch	Function	Options
	Luma Peak Threshold A1 A2	 2, 3 3, 3	Sets the threshold at which excessive luminance triggers the SDI Luma Peak alarm	90% to 108% (**102%**)
	Chroma Low Threshold A1 A2	 2, 4 3, 4	Sets the threshold below which the SDI Chroma Low alarm is triggered	**0%** to 15% (**0%**)
	Chroma Peak Threshold A1 A2	 2, 5 3, 5	Sets the threshold at or above which an excessive chrominance level triggers the SDI Chroma Peak alarm	90% to 108% (**102%**)
	Video Black Threshold A1 A2	 2, 6 3, 6	Sets the threshold below which the SDI Video Black alarm is triggered	0% to 10% (**5.5%**)
	Peak Audio Threshold (dBFS) A1 A2	 2, 7 3, 7	Sets the threshold above which SDI Embedded Ch01 peak to SDI Embedded Ch02 peak alarms are triggered	-20 dBFS to 0 dBFS (**-2 dBFS**)
	Low Audio Threshold (dBFS) A1 A2	 2, 8 3, 8	Sets the threshold below which SDI Embedded Ch01 Low Audio to SDI Embedded Ch16 Low Audio alarms are triggered	-80 dBFS to -30 dBFS (**-60 dBFS**)
	Loss of Sound Threshold (dBFS) A1 A2	 2, 9 3, 9	Sets the threshold below which SDI Embedded Ch01 Loss of Sound to SDI Embedded Ch16 Loss of Sound alarms are triggered	-100 dBFS to -60 dBFS (**-90 dBFS**)
	Audio Average Level Reporting A1 A2	 2, A 3, A	Displays the SDI Embedded Channel Average Level value	• Enable • **Disable**
	Audio Average Level Restart A1 A2	 2, B 3, B	Restarts the calculation of the average audio level	• On • **Off**
SQM				
	SDI Emb.Ch1–16 Average Level (dBFS) [RO]		Displays the embedded audio average level for the channel	-99 dBFS to 0 dBFS
Parameters available in ASI Mode				
Status				
	ASI Error [RO]		Displays where or not there is an ASI error (including ASI loss)	• On • Off

LEDs and Alarms

The ACO6800+ISD modules have LEDs that serve as a quick monitoring reference, and one module status LED. Figure 9-1 shows the location of the LEDs on a typical ACO6800+ module. Table 9-3 and Table 9-4 describe each LED in more detail.

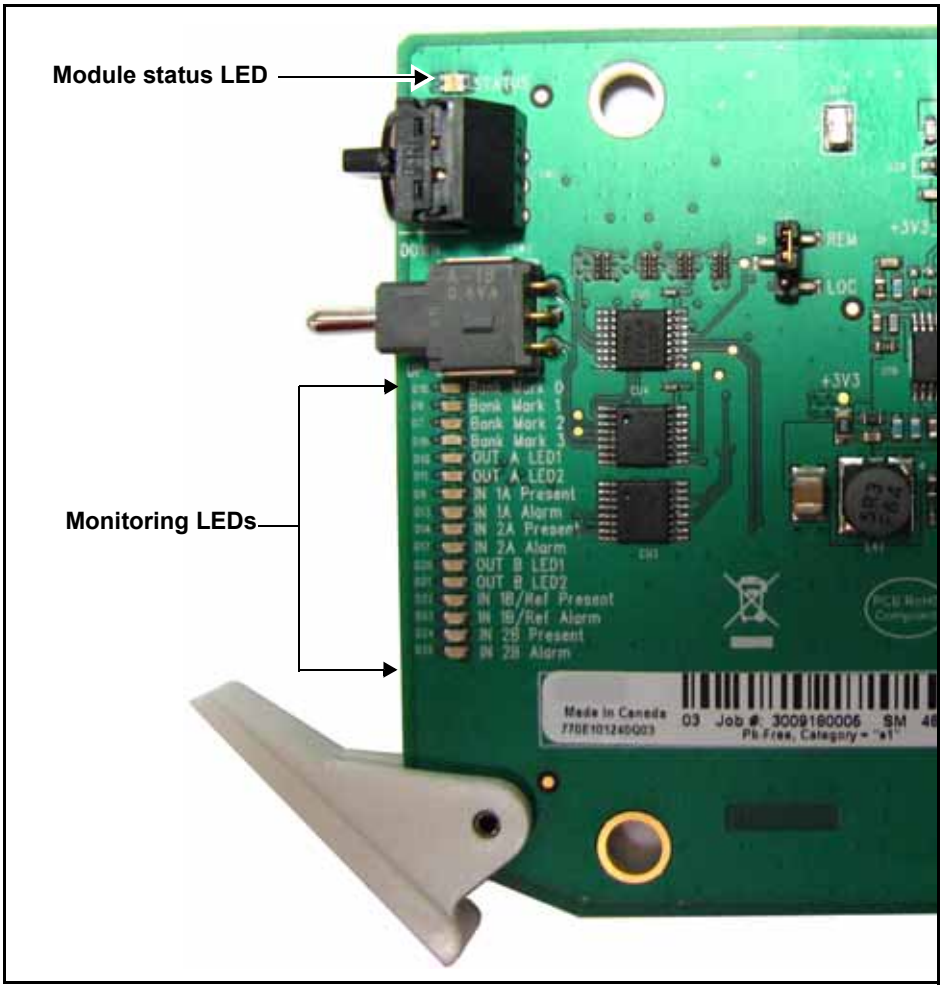


Figure 9-1. Location of Typical ACO6800+ LEDs

Monitoring LEDs

Table 9-3. ACO6800+ISD Monitoring LEDs Indicators

LED	Name	Description	Color Indication
1	Out A LED 1	The current selected input is 1A for group A.	Green
2	Out A LED 2	The current selected input is 2A for group A.	Green
3	In 1A Present	Input 1A signal is present.	Green
4	In 1A Alarm	Input 1A is in an alarm state.	Amber
5	In 2A Present	Input 2A signal is present.	Green
6	In 2A Alarm	Input 2A is in an alarm state.	Amber
7	Out B LED 1	Not used	
8	Out B LED 2		
9	In 1B Present		
10	In 1B Alarm		
11	In 2B Present		
12	In 2B Alarm		

Module Status LEDs

The ACO6800+ISD modules do not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 9-1 on page 153 for the location of the LED, and Table 9-4 for a description of the LED colors.

Table 9-4. Module Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Yellow	The module is undergoing configuration.

Note

If the LED is flashing red, contact your Customer Service representative.

Alarms

If a major or minor alarm is triggered within your modules, the Status LED will light red.

Alarms are usually logged and monitored within available software control applications. You can only differentiate between major and minor alarms within a software control application. See the appropriate software control user manual or online help for more information.

The following settings can be made for each alarm within the software:

Table 9-5. Alarm Options

Alarm Option	Effect
Enable/Disable	This option toggles between Enabled and Disabled. If the alarm is **Enabled**, an alarm condition will generate an alarm; but if it is **Disabled**, the alarm condition will be ignored.
Alarm priority	This setting determines whether a triggered alarm will be reported as major or minor. The range is 1–10. A priority of 6 or higher is a major alarm, and a priority of 5 or lower is a minor alarm.

Table 9-5. Alarm Options *(Continued)*

Alarm Option	Effect
Trigger (s)	This option determines how long an alarm condition must exist (in seconds) before the alarm is triggered. If the alarm level is reached for less time than the **Trigger** duration, then the alarm will not trigger. Choose any duration from 0 to 7200 (or 2 hours). If this option is set to 0 and the alarm condition exists for any period of time, the alarm will trigger.
Clear (s)	Determines the amount of time the alarm condition must be in abate in order for the alarm to be turned off. Choose any duration from 0 to 7200 seconds (or 2 hours). If this option is set to 0 and the alarm condition ceases for any period of time, the alarm will clear.
Ack	When an alarm is active, click here to allow other users on the network to see that you have acknowledged the alarm.

Main Device Alarms

This alarm is available in both ASI and SDI modes.

Table 9-6. Device Alarms For ACO6800+ISD Modules

Alarm Name	Priority	Trigger (s)	Clear (s)
Grp A Relay Bypass On	1	1.0 s	2.0 s

Subdevice Alarms

Table 9-7 describes the alarms for each of the subdevices on the ACO6800+ISD module. You can only identify specific alarms using a software control application. Depending on the module you are using, some of the subdevice alarms may not be available.

Table 9-7. ACO6800+ISD Subdevice Alarms

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI Mode				
SDI Video Standard Mismatch	The standard video input does not match the expected standard	1	2.0	2.0
SDI EDH Error	Reports recurring EDH errors in the standard definition video signal	1	2.0	2.0
SDI CRC Error	Reports recurring CRC errors in the high definition video signal	1	2.0	2.0
SDI Loss of Video	Reports that active HD or SD video has not been present	6	2.0	2.0

Table 9-7. ACO6800+ISD Subdevice Alarms *(Continued)*

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI CC EIA/CEA-608-B Missing (525 only)	Reports that the standard definition CC data on line 21 field 1 is not detected	1	240.0	2.0
SDI CC EIA/CEA-708-B Missing	Reports that the high definition CC data on line 21 (284) is not detected	1	240.0	2.0
SDI WSS Missing (625 only)	Reports that the presence of Wide Screen Signaling for Wide Screen Format is not detected	1	240.0	2.0
SDI Luma Peak	Reports that the HD or SD luma component has exceeded the threshold defined by the Luma Peak Threshold parameter	1	240.0	2.0
SDI Luma Low	Reports that the HD or SD luma component remains below the threshold defined by the Luma Low Threshold parameter	1	240.0	2.0
SDI Chroma Peak	Reports that the HD or SD chroma component has exceeded the threshold defined by Chroma Peak Threshold parameter	1	240.0	2.0
SDI Chroma Low	Reports that the HD or SD chroma component remains below the threshold defined by the Chroma Low Threshold parameter	1	30.0	2.0
SDI Video Black	Reports that the HD or SD video level does not exceed the level defined by the Video Black Threshold parameter	6	240.0	2.0
SDI CC/XDS Data Missing (525 only)	Reports that the standard definition CC/Extended Data Services on line 21 field 2 is not detected	1	240.0	2.0
SDI VChip Data Missing	Reports that VChip data is not present on Line 21 Field 2	1	240.0	2.0
SDI Video Frozen	Reports that the HD or SD content in the video frame is not changing	1	30.0	2.0
SDI AFD Missing	Reports that AFD is not present	1	30.0	2
SDI Embedded Ch(01–16) Peak	Detects that the peak audio level meets or exceeds the limit set in the Peak Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Loss of Sound	Detects that the audio amplitude has fallen below the limit set in the Loss of Sound Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Vbit Set	Detects a set V-Bit in the embedded audio source	1	1.0	2.0

Table 9-7. ACO6800+ISD Subdevice Alarms *(Continued)*

Alarm Name	Alarm Description	Alarm Option Default Settings		
		Alarm priority	Trigger (s)	Clear (s)
SDI Embedded Ch(01–16) Low Audio	Detects that the peak audio sample has stayed below the level set in the Low Audio Threshold parameter	1	30.0	2.0
SDI Embedded Ch(01–16) Missing	Reports if the SDI embedded audio channel is missing	1	1.0	2.0
SDI Embedded Audio Group (1–4) Missing	Reports that the audio in the specified group is not present	1	1.0	2.0
ASI Mode				
ASI Error	Reports an ASI error (including ASI loss) in streaming	1	1.0	2.0

Chapter 10

Specifications

Inputs

HD/SD-SDI Video

Table 10-1. HD/SD-SDI Video Input Specifications

Item	HD-SDI Specification	SD-SDI Specification
Number of inputs	• 4 (ACO6800✚4X2D, ACO6800✚4X2✚ICQST, ACO6800✚DSD, and ACO6800✚IDSD) • 2 (ACO6800✚ISCST and ACO6800✚ISD)	
Standards	ACO6800✚4X2D, ACO6800✚DSD, ACO6800✚IDSD, and ACO6800✚ISD: • SMPTE274M: 1080i/60,1080i/59.94, 1080i/50, 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, 1080p/23.98 • SMPTE296M: 720p/60, 720p/59.94, 720p/50 • SMPTE RP-211-2000: 1080psf/24, 1080psf/23.98 ACO6800✚4X2✚ICQST and ACO6800✚ISCST: • SMPTE274M: 1080i/59.94, 1080i/50, 1080p/25, 1080p/23.98 • SMPTE296M: 720p/59.94, 720p/50	SMPTE 259M-C 270 Mbps, 525/625 component video
Connector	BNC per IEC 169-8	BNC per IEC 169-8
Impedance	75Ω	75Ω
Return loss	>15 dB (typical) from 5 MHz to 1485 MHz	>15 dB (typical) from 5 MHz to 270 MHz
Equalization	Adaptive cable equalization for up to 393 ft (120 m), typical, of Belden 1694A coaxial cable	Up to 918 ft (280 m) for Belden 8218B coaxial cable

ASI Transport Stream (ACO6800+ASID)

Table 10-2. ASI Transport Stream Input Specifications

Item	ASI Specification
Number of inputs	2
Standards	DVB-ASI, 270 MB/sec
Connector	BNC per IEC 169-8
Impedance	75Ω
Return loss	>15 dB (typical) from 5 MHz to 270 MHz
Signal level	800 mV ± 10%
D.C. offset	0.0 V ± 0.5 V
Rise and fall time	400 ps to 1500 ps (20% to 80%)
Overshoot	<10% of amplitude
Jitter	< 0.2 UI (pk-to-pk)

Genlock (ACO6800+4X2+ICQST and ACO6800+ISCST)

Table 10-3. Genlock Inputs

Item	Specification
Connector	Frame Genlock, or BNC per IEC 169-8
Return loss	> 40 dB, 0.1 MHz to 6 MHz
Input level	• 1 V pk-to-pk, -5.0 dB to + 6.0 dB for NTSC/PAL-B • 1 V pk-to-pk, -3.5 dB to + 6.0 dB for Tri-level sync (1080i/720p)
Standards	NTSC/PAL-B analog composite ± 300 mV Tri-level sync (1080i59.94/1080i50/720p59.94/720p50)
Impedance	75Ω

Outputs

HD/SD-SDI Video

Table 10-4. HD/SD-SDI Output Specifications

Item	HD-SDI Specification	SD-SDI Specification
Number of outputs	4	4
Standards	ACO6800✚4X2D, ACO6800✚DSD, ACO6800✚IDSD, and ACO6800✚ISD: • SMPTE274M: 1080i/60,1080i/59.94, 1080i/50, 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, 1080p/23.98 • SMPTE296M: 720p/60, 720p/59.94, 720p/50 • SMPTE RP-211-200:1080psf/24, 1080psf/23.98 ACO6800✚4X2✚ICQST and ACO6800✚ISCST: • SMPTE274M: 1080i/59.94, 1080i/50, 1080p/25, 1080p/23.98 • SMPTE296M: 720p/59.94, 720p/50	SMPTE 259M-C (270 Mbps, 525/625 component video)
Connector	BNC per IEC 169-8	BNC per IEC 169-8
Impedance	75Ω	75Ω
Return loss	>15 dB (typical) from 5 MHz to 1485 MHz	>15 dB (typical) from 5 MHz to 270 MHz
DC offset	0.0 V ± 0.5 V	0.0 V ± 0.5 V
Signal level	800 mV ±10%	800 mV ±10%
Rise and fall time	<270 ps (20% to 80%)	400 to 1500 ps (20% to 80%)
Overshoot	<10% of amplitude	<10% of amplitude
Jitter	• Timing jitter: <1UI (673 ps pk-to-pk) • Alignment jitter: <0.2 UI (135 ps pk-to-pk)	• <0.2 UI pk-to-pk • <0.2 UI pk-to-pk

ASI Transport Stream Output (ACO6800+ASID)

Table 10-5. ASI Transport Stream Output Specifications

Item	ASI Specification
Number of Outputs	4 (1 primary relay bypass)
Standards	DVB-ASI, 270 MB/sec
Connector	BNC per IEC 169-8
Impedance	75
Return loss	>15 dB (typical) from 5 MHz to 270 MHz
Signal level	800 mV ± 10%
D.C. offset	0.0 V ± 0.5 V
Rise and fall time	400 ps to 1500 ps (20% to 80%)
Overshoot	<10% of amplitude
Jitter	< 0.2 UI (pk-to-pk)

Miscellaneous

Propagation Delays

Table 10-6. Propagation Delays

ACO6800+4X2D, ACO6800+DSD, ACO6800+IDSD, and ACO6800+ISD Modules		
Standard	**Propagation Delay**	
525/625	3.3 µs	
• 1080i/59.94 • 1080p/29.97 • 1080p/23.98 • 720p/59.94 • 1080i/50 • 1080p/25 • 1080p/24 • 720p/50 • 1080i/60 • 1080p/30 • 720p/60	1.0 µs	
ACO6800+4X2+ICQST and ACO6800+ISCST Modules		
Frame Rate	**Standard**	**Propagation Delay**
59.94 Hz	525	1 frame
	1080i	
	720p	
50 Hz	625	
	1080i	
	720p	
23.98 Hz	1080p	
25 Hz	1080p	
ACO6800+ASID Module		
Standard	**Propagation Delay**	
ASI	<30 µs typical	

General Purpose Interface

Table 10-7. GPI Input and Output Specifications

Item	Specification
GPI inputs (transmitter)	• 6 (ACO6800✚4X2D, ACO6800✚4X2✚ICQST, ACO6800✚DSD, and ACO6800✚IDSD) • 3 (ACO6800✚ASID, ACO6800✚ISCST, and ACO6800✚ISD) Internally pulled HIGH, with external contact closure to ground to trigger
GPI outputs (receiver)	• 6 (ACO6800✚4X2D, ACO6800✚4X2✚ICQST, ACO6800✚DSD, and ACO6800✚IDSD) • 3 (ACO6800✚ASID, ACO6800✚ISCST, and ACO6800✚ISD) TTL compatible, with sink of 64 mA, source 32 mA
Connector	Mini mate header

Power Consumption

Table 10-8. Power Consumption Specifications

Module	Power Consumption
ACO6800✚4X2D	<12 W
ACO6800✚4X2✚ICQST	<14 W
ACO6800✚ASID	<12 W
ACO6800✚DSD	<12 W
ACO6800✚IDSD	<12 W
ACO6800✚ISCST	<13 W
ACO6800✚ISD	<12 W

Operating Temperature

The operating temperature for ACO6800✚ modules is 41° to 113°F (5° to 45°C).

Appendix A

Communication and Control Troubleshooting Tips

Software Communication Problems

Problem

The frame is powered up, but the module does not communicate with CCS Navigator or the web GUI interface.

Solutions

- Ensure you have specified the proper module slot.

  See your *6800+ Frame Installation and Operation Manual* for more information about slot identification.
- Confirm there is an 6800+ETH module installed in the frame.
- Remove any legacy 6800 series product that is in the frame.

  CCS software cannot communicate with legacy 6800 series products, even if these modules may operate with card-edge controls in the frame. Legacy 6800 products do not have the "+" symbol on their extractor handles.
- Check for damaged pins on the back module by following this procedure:
  i. Unplug the front module.
  ii. Unscrew and remove the back module.
  iii. Inspect the 20- or 30-pin spring connector at the bottom of the back module, and verify that the connector does not have any slightly bent, or severely depressed pins.
  iv. Carefully reposition any bent or depressed pins. If this is not possible, contact our Customer Support.

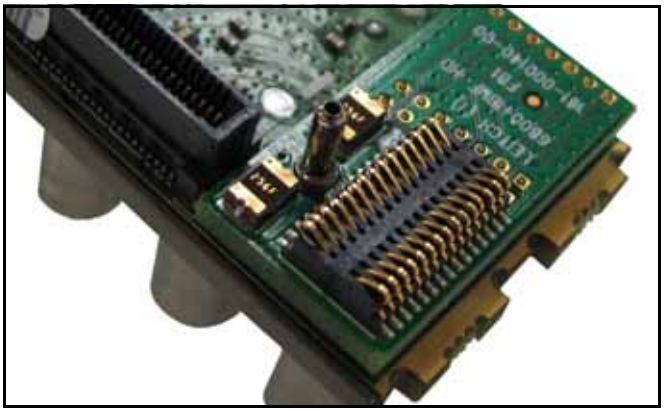


Figure A-1. Typical Back Module Spring Connector

Problem

The IP address of the frame has been forgotten.

Solution

Follow this procedure:

1. Remove the ETH6800**+** module from the frame.
2. Select DIP switch **2** on the ETH6800**+** module and slide the tab to the forward position.

   This sets the ETH6800**+** module to its default IP address of **192.168.100.250**.

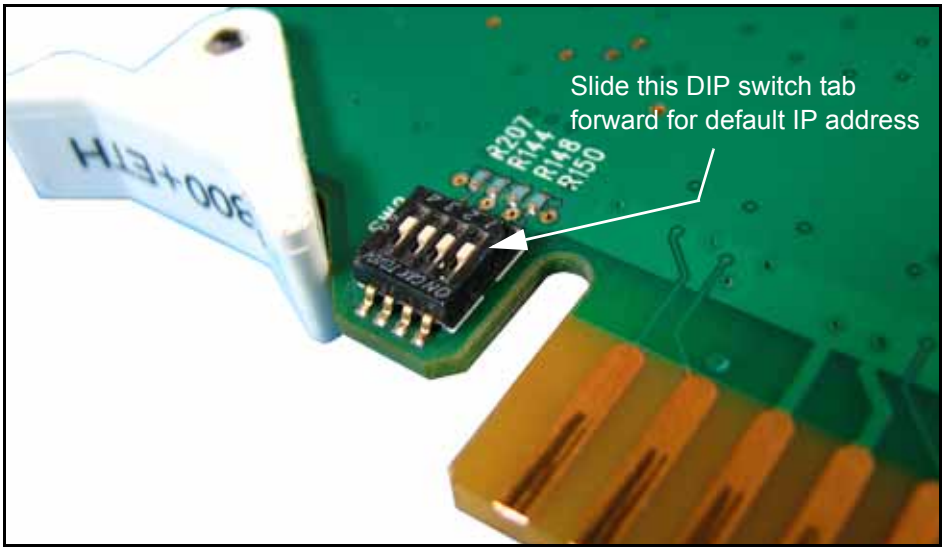


Figure A-2. ETH6800+ DIP Switch

3. Use CCS Navigator or the web browser to interface with the ETH6800**+** module and then set the desired IP address.
4. Set the DIP switch back to its normal position and then re-insert the module.

Problem

There is no Ethernet connectivity with the frame.

Solutions

- Verify that the correct IP address is being used. If your are not certain, refer to the above procedure to set to default IP.
- Verify that the Ethernet cable is the correct type (a *crossover* cable is required for direct connection from a PC).
- Verify the **Link** and **Activity** (left and right) status LEDS are active on the RJ-45 connector at the rear of the frame.
- Verify the **Status** LED is lit and green on the ETH6800+ card, as viewed from the front of the frame with the door open.
- Verify that the security settings on the PC allow for connection to a frame (TCP port 80 and UDP ports 4000/4050 must be open).
- Verify that the PC is configured for and can communicate on the desired subnet.
- Verify that the frame reference signal has not been mistakenly connected to a Communications port on the rear of the frame.

Problem

CCS software sees the frame, but does not find all of the modules.

Solutions

- Remove any legacy 6800 series products.
- Plug your modules in before starting the discovery.
- Start your discovery after the frame and all modules have fully powered up.
- Refresh the CCS software and ensure that the installed modules are fully powered up first before discovery.

Problem

CCS Software does not respond after it is launched.

Solutions

Close any CCS software that is already launched.

Problem

CCS software shows a module in the **Control** window, but cannot control it.

Solution

Follow this procedure:

1. Set the module's Local/Remote jumper to **Remote.**
2. Ensure the module name in the **Control** window matches the module type in the frame.

3. Gently push the module into its slot in the frame to ensure it is seated properly and powered up.
4. Verify that the **Control** window indicates the device is ready.

Hardware Communication Problems

Problem

After a power failure, the frames and PC do not communicate.

Solution

Follow this procedure:

1. Wait four minutes for the frames to recover from the power failure.
2. Close the CCS software, and then restart the PC.
3. Restart the software application.

Problem

The module does not seem to work.

Solutions

- Ensure the correct frame is powered up.
- Verify that all appropriate rear connections are secure.
- Gently push the module into its slot in the frame to ensure it is seated properly. Then verify the **Status** LED on the module is lit and green.
- Ensure the back module does not have any slightly bent, or severely depressed pins.

  Follow this procedure:

  i. Unplug the front module.

  ii. Unscrew and remove the back module.

  iii. Carefully reposition any slightly bent, or severely depressed pins. If this is not possible, contact Customer Support.

Appendix B

Glossary

Glossary of Terms

Advanced Television Systems Committee (ATSC): The parent organization that developed, tested, and described the form and function of the US digital television formats.

Asynchronous Serial Interface (ASI): A transmission method adopted by the DVB, and called DVB-ASI. The transmission method allows for the transport of varying data payloads in a constant data stream. The DVB-ASI transport stream rate is 270 Mb/s.

Bandwidth: The range of frequencies used to transmit information such as picture and sound.

(BAT) See Bouquet Association Table

Bouquet Association Table (BAT): Provides a grouping of services which serves as one basis on which a receiver presents the available services to a user.

Cable Virtual Channel Table (CVCT): Defines the virtual channel structure for the collection of MPEG-2 programs embedded in the Transport Stream in which the CVCT is carried.

Conditional Access (CA): An encryption/decryption management method (security system) where the broadcaster controls the subscriber's access to digital and Interactive TV services.

Conditional Access Table (CAT): Contains CA descriptors which identify PID values for CA data.

Cyclic Redundancy Check (CRC): An error checking method to ensure all bits of a transmitted signal are received.

Digital Video Broadcasting (DVB): A specific project office of the European Broadcast Union. This group has produced a set of digital broadcasting standards.

DVB: See *Digital Video Broadcasting.*

Elementary Stream (ES): A generic term for one of the coded video, audio or other variable length bit streams that are packetized to form MPEG-2 transport streams. Consists of compressed data from a single source (audio, video, data, etc.). One elementary stream is carried in a sequence of PES packets with one and only one stream ID.

Extended Text Table (ETT): Describes the detailed descriptions of virtual channels.

Event Information Tables (EIT): Describes 3 hours of events (TV programs, titles, start times, etc.), including all of the virtual channels listed in the TVCT.

GPI: General Purpose Interface.

High Definition Television (HDTV): High definition television has a resolution of approximately twice that of conventional television in both the horizontal (H) and vertical (V) dimensions and a picture aspect ratio (H to V) of 16:9.

High Level: A range of allowed picture parameters defined by the MPEG-2 video coding specification that corresponds to high definition television.

LED: Light-Emitting Diode.

Main Level: A range of allowed picture parameters defined by the MPEG-2 video coding specification with maximum resolution equivalent to standard definition television.

Main Profile: A subset of the syntax of the MPEG-2 video coding specification that is supported over a large range of applications. Applications include MP@HL (Main Profile at High Level), and MP@ML (Main Profile at Main Level).

The Master Guide Table (MGT): Provides general information about all of the other tables. Defines the type, size, packet identifiers, and versions for all the other PSIP tables in this Transport Stream, except for the System Time Table (STT).

Mbps: Megabits per second.

mV: Millivolts.

MP@HL: Main Profile at High Level.

MP@ML: Main Profile at Main Level.

MPEG: Refers to standards developed by the ISO/IEC JTC1/SC29 WG11, Moving Picture Experts Group.

MPEG-2: Refers to ISO/IEC standards 13818-1 (Systems), 13818-2 (Video), 13818-3 (Audio), and 13818-4 (Compliance).

Network Information Table (NIT): Provides a grouping of Transport Streams and the relevant tuning information and contains information on frequency, code rates, modulation, polarization etc. of various programs which the decoder can use.

Packet: Consists of a header followed by a number of contiguous bytes from an elementary data stream. It is a layer in the system coding syntax.

Packet Identifier (PID): A unique integer value used to associate elementary streams of a program in a single or multi-program transport stream.

Packetized Elementary Stream (PES): The data structure used to carry elementary stream data. The packets consist of a header followed by payload data; a stream is a series of packets that form an elementary stream and have a single stream identification.

PAT: See *Program Association Table.*

PCR: See *Program Clock Reference*.

PES: See *Packetized Elementary Stream.*

PMT: See *Program Map Table.*

Program: A transport stream combination of a video stream and one or more audio and data streams associated with that video stream. In analog terms, "Program" refers to the Base Band video and audio produced by the final output of a switcher.

Program and System Information Protocol (PSIP): Information sent out as part of an ATSC transport stream that lists all of the video, audio, data, and program information contained in the stream. This is the "TV guide" for a given stream.

Program Association Table (PAT): A list of all programs in the ATSC data stream.

Program Clock Reference (PCR): A time reference signal placed in MPEG streams to coordinate various data streams.

Program Map Table (PMT): A listing of all elementary streams that comprise a complete (television) program.

PSIP: See *Program and System Information Protocol*.

Segment Error Rate (SER): A calculated average of uncorrected transport stream packets vs. total packets as accumulated over a designated period.

Rating Region Table (RRT): Defines the TV parental guideline (rating information) system referenced by any content advisory descriptor carried within the Transport Stream.

SMPTE: Society of Motion Picture and Television Engineers.

Standard Definition Television (SDTV): Signifies a digital television system in which the quality is approximately equivalent to that of NTSC. This equivalent quality may be achieved from pictures originated at the 4:2:2 level of ITU-R BT.601 and subjected to processing as part of the bit rate compression. The results should be such that when judged across a representative sample of program material, subjective equivalence with NTSC is achieved. The displayed picture may be either the traditional 4:3 or the wide-screen 16:9 aspect ratio.

Service Description Table (SDT): lists the names and other parameters of the services within transport stream.

System Time Table (STT): defines the current date and time of day.

Transport Stream—ATSC (TS): Consists of the following: (1) Packets: 188 bytes, fixed length with descriptive data; (2) Carries several programs; (3) a PID that identifies the type of TS packet (video, audio, other); and (4) carries descriptive information about the program.

Terrestrial Virtual Channel Table (TVCT): Defines the MPEG-2 programs embedded in the Transport Stream in which the TVCT is carried

Virtual Channel Table (VCT): Contains a list of all the channels that are or will be on-line plus their attributes. Among the attributes we have the channel name, navigation identifiers, stream components and types, etc.

Information was taken from ATSC A65 and other ATSC and DVB standards

Index

A

P

Q

R

S

T

U

V

W