



Installation and Operation Manual

DA-H6802+: 1×8 3G/HD-SDI/SD-SDI / DA-HR6802+: 1×8 3G/HD-SDI/SD-SDI / DA-S6802+: 1×8 SD-SDI / DA-SR6802+: 1×8 SD-SDI

Distribution Amplifiers / Distribution Amplifiers with Reclocking / Distribution Amplifiers with Reclocking

Edition A

175-001023-00

Publication Information

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6800+

**DA-H6802+: 1×8 3G/HD-SDI/SD-SDI
Distribution Amplifiers**

**DA-HR6802+: 1×8 3G/HD-SDI/SD-SDI
Distribution Amplifiers with Reclocking**

**DA-S6802+: 1×8 SD-SDI Distribution
Amplifiers**

**DA-SR6802+: 1×8 SD-SDI Distribution
Amplifiers with Reclocking**

Installation and Operation Manual

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Preface

Manual Information

Purpose

This manual details the features, installation procedures, operational procedures, and specifications of the following distribution amplifiers:

- DA-H6802+ 1×8 3G/HD-SDI/SD-SDI distribution amplifiers
- DA-HR6802+ 1×8 3G/HD-SDI/SD-SDI distribution amplifiers with reclocking
- DA-S6802+ 1×8 SD-SDI distribution amplifiers
- DA-SR6802+ 1×8 SD-SDI distribution amplifiers with reclocking

Audience

This manual is written for engineers, technicians and operators responsible for the installation, setup, and/or operation of the DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ distribution amplifiers.

Revision History

Table P-1. Manual Revision History

Edition	Date	Revision History
A	December 2008	Initial release

Writing Conventions

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

Table P-2. Manual Style and 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.
<i>Italics</i>	Indicates email 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.

Obtaining Documents

Product support documents can be viewed or downloaded from our website. Alternatively, contact your Customer Service representative to request a document.

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.

Product Servicing

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

Returning a Product

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

Keep at least one set of original packaging, in the event that you need to return a product for servicing. If the original packaging is not available, you can purchase replacement packaging at a modest cost or supply your own packaging as long as it meets the following criteria:

- Withstands the weight of the product
- Holds the product rigid within the packaging
- Leaves at least two inches of space between the product and the container
- Protects the corners of the product

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.

Safety Standards and Compliances

See the 6800+ *Safety Instructions and Standards Manual* to find the safety standards and compliances for this 6800+ series product. A safety manual is shipped with every FR6802+ *Frame Installation and Operation Manual* and can be downloaded from our website. Alternatively, contact your Customer Service representative for a copy of this safety manual.

Safety Terms and Symbols

This product manual uses the following safety terms and symbols to identify certain conditions or practices. See the 6800+ *Safety Instructions and Standards Manual* for more information.

Table P-3. Safety Terms and Symbols

Symbol	Description
	WARNING: Identifies conditions or practices that can result in personal injury or loss of life—high voltage is present. Uninsulated dangerous voltage within the product's enclosure may be sufficient to constitute a risk of electric shock to persons.
	CAUTION: Identifies conditions or practices that can result in damage to the equipment or other property. Important operating and maintenance (servicing) instructions are included in the literature accompanying the product.

Restriction on Hazardous Substances (RoHS) Directive

Directive 2002/95/EC—commonly known as the *European Union (EU) 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)

In accordance with this EU Directive, 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 symbol, as shown in [Figure P-1](#).

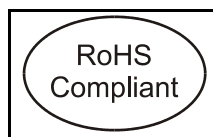


Figure P-1. RoHS Compliance Symbol

Waste from Electrical and Electronic Equipment (WEEE) Directive

The *European Union (EU) Directive 2002/96/EC on 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 are required to recycle electrical and electronic equipment at end of its useful life, and must 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 symbol, as shown in [Figure P-2](#).

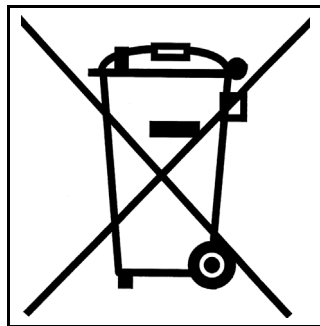


Figure P-2. WEEE Compliance Symbol

Overview

The following topics are described in this chapter:

- “Main Features” on page 2
- “Module Descriptions” on page 4
- “Product Description” on page 2
- “Signal Flow” on page 6

Product Description

The DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ series of distribution amplifiers are designed to distribute serial digital video signals according to SMPTE 257C, DVB, and other related standards. They feature high reliability, excellent video performance, and low cost.

The individual modules are available as follows:

- **DA-H6802+**: 1×8 3G/HD-SDI/SD-SDI distribution amplifiers
- **DA-HR6802+**: 1×8 3G/HD-SDI/SD-SDI distribution amplifiers with reclocking
- **DA-S6802+**: 1×8 SD-SDI distribution amplifiers
- **DA-SR6802+**: 1×8 SD-SDI distribution amplifiers with reclocking

You can control and monitor these distribution amplifier modules locally (via card-edge LEDs) or remotely (via RS-232 ports or optional ICE6800+ and 6800+ETH Ethernet connection).

Main Features

DA-H6802+

- One input, eight outputs
- Input signal presence detect and report
- Automatic input cable equalization
- Maximum equalized cable length adjustable (for 270 Mb/s and remotely only)
- Direct fanout the input signal (5 Mb/s to 3 Gb/s) without reclocking
- Card-edge control by jumpers with LED display
- Remote control via RS-232 or Ethernet

DA-HR6802+

- One input, eight outputs
- Input signal presence detect and report
- Automatic input cable equalization
- Maximum equalized cable length adjustable (for 270 Mb/s and remotely only)
- Reclocking Mode selectable as automatic or manual
- Re-lockable for 270 Mb/s, 1.5 Gb/s and 3.0 Gb/s SMPTE signal
- Re-lockable for DVB-ASI signal
- Reclock status and rate report by LEDs
- Reclocking Bypass mode is selectable as automatic or enforced
- Card-edge control by jumpers with LED display
- Remote control via RS-232 or Ethernet

DA-S6802+

- Input signal presence detect and report
- Automatic input cable equalization
- Eight fanout outputs
- LED display on card edge
- Remote monitoring via RS-232 or Ethernet

DA-SR6802+

- One input, eight outputs
- Input signal presence detect and report
- Automatic input cable equalization
- Automatic reclocking 270 Mb/s SMTPE SD and DVB-ASI
- Reclock status and rate report by LEDs
- Automatic bypass reclocking stage if not relockable
- Card edge control by jumpers with LED display
- Remote monitoring via RS-232 or Ethernet

Typical Broadcast and Production Applications

DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ distribution amplifiers can be used in broadcast, cable, production, educational, and auditorium applications where high performance SD-SDI signal distribution is required.

Module Descriptions

Front Module

[Figure 1-1](#) is a generic top-front view of a typical front module. See [Figure 3-2 on page 20](#) and [Figure 3-3 on page 21](#) for LED locations.

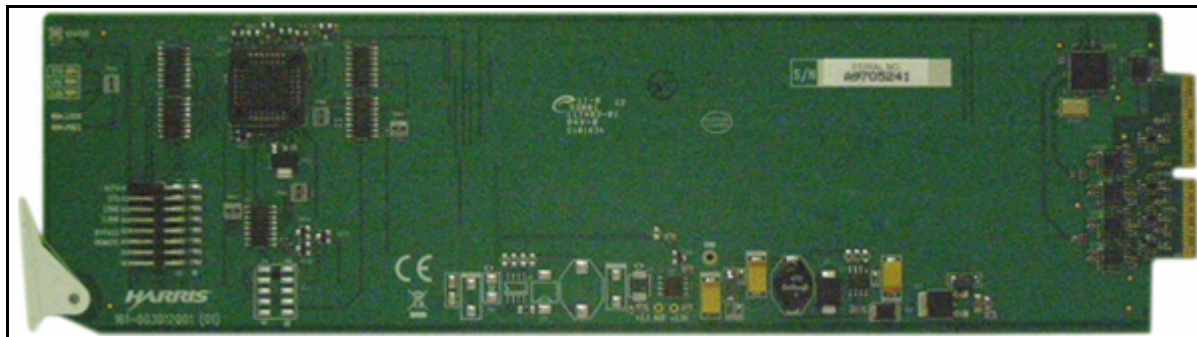


Figure 1-1. Typical Front Module

Back Modules

DA-H/HR6802+ and DA-S/SR6802+ modules can be installed with double-width (1×8) or single-width (1×4) back modules in FR6802+QX(F) and FR6802+DM frames. These modules cannot be installed in 6800/7000 series frames.

FR6802+ Frame Back Modules

[Figure 1-2 on page 5](#) shows the double-width back connector module used by the DA-H/HR6802+ and DA-S/SR6802+ when installed in an FR6802+XF, FR6802+QXF, or FR6802+DM frame.

[Figure 1-3 on page 5](#) shows the single-width back connector module used by the DA-H/HR6802+ and DA-S/SR6802+ when installed in an FR6802+XF, FR6802+QXF, or FR6802+DM frame.

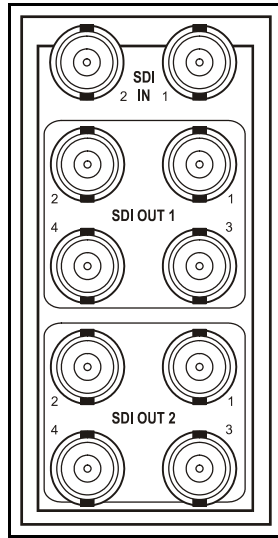


Figure 1-2. Double-Width Back Module for FR6802+X(F) and FR6802+DM Frames

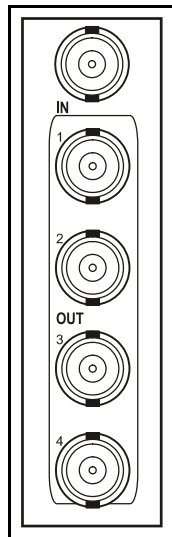


Figure 1-3. Single-Width Back Module for FR6802+X(F) and FR6802+DM Frames

Signal Flow

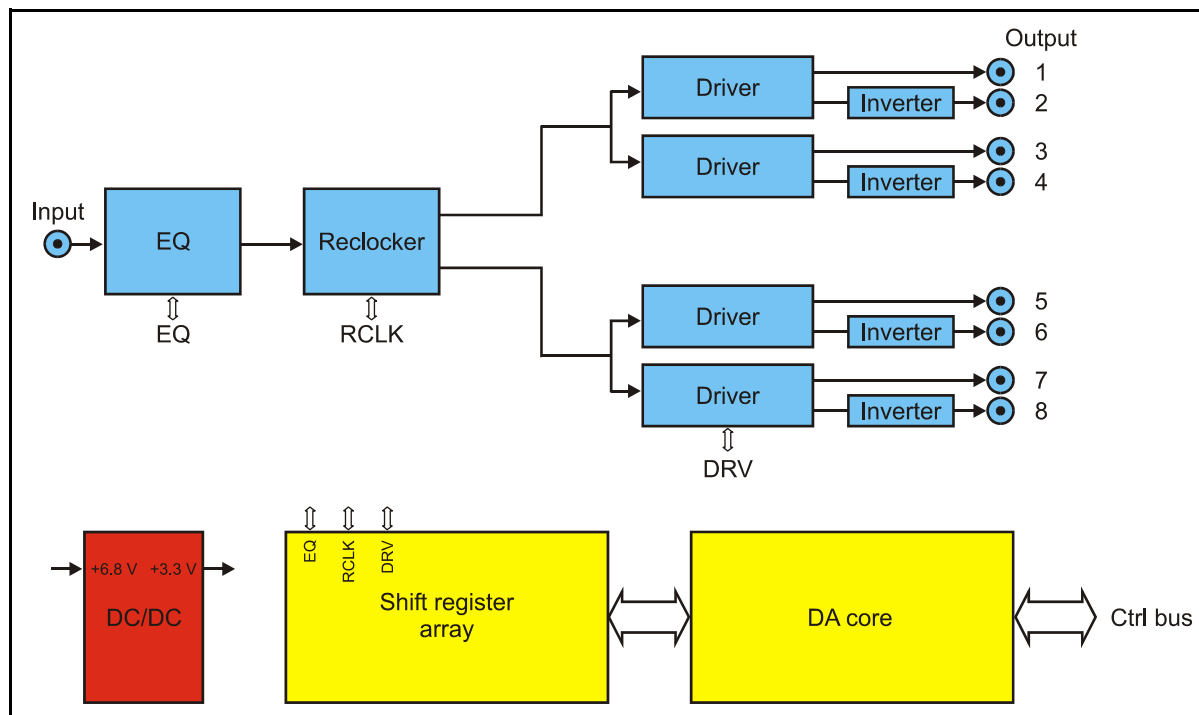


Figure 1-4. Signal Flow Diagram

Overview

This chapter describes DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ modules' installation process, including the following topics:

- “Installing Modules” on page 12
- “Making Connections” on page 12
- “Maximum 6800+ Frame Power Ratings” on page 8
- “Removing Modules” on page 12
- “Required Frames and Back Module Connector Types” on page 12
- “Setting Jumpers” on page 11
- “Unpacking the Module” on page 8

See the *FR6802+ Frame Installation and Operation Manual* for information about installing and operating an FR6802+ frame and its components.



Caution

Before installing this product, read the *6800+ Series Safety Instructions and Standards* manual shipped with every *FR6802+ Frame Installation and Operation Manual*, or downloadable from our website. This safety manual contains important information about the safe installation and operation of 6800+ series products.

Maximum 6800+ Frame Power Ratings

Power consumption information is listed in [Chapter 4: “Specifications” on page 26](#).

[Table 2-1](#) describes the maximum allowable power ratings for 6800+ frames. Note the given maximums before installing any 6800+ modules in your frame.

DA-H/HR6802+ and DA-S/SR6802+ modules can be installed in FR6802+ frames. They cannot be installed in 6800/7000 series frames.

Table 2-1. Maximum Power Ratings for 6800+ Frames

6800+ Frame Type	Max. Frame Power Dissipation	No. Usable Slots	Max. Power Dissipation Per Slot
FR6802+XF (frame with AC power supply)	120 W	20	6 W
FR6802+XF48 (frame with DC power supply)	105 W	20	5.25 W
FR6802+QXF (frame with AC or DC power supply)	120 W	20	6 W

Unpacking the Module

Preparing for Installation

Before you install DA-H/HR6802+ or DA-S/SR6802+ modules, perform 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 9](#) for more information.
- Remove the anti-static shipping pouch, if present, and all other packaging material.
- Retain the original packaging materials for possible re-use.
- Contact your Customer Service representative if parts are missing or damaged. See [“Unpacking/Shipping Information” on page ix](#) for information about returning a product for servicing.

Checking the Packing List

Table 2-2. DA-H/HR6802+ Distribution Amplifiers Packing List

Ordered Product	Content Description
DA-H6802+ Distribution Amplifier Module	
DA-H6802+	- One DA-H6802+ front module - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-H6802+S	- One DA-H6802+ front module - One single-slot back connector - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-H6802+D	- One DA-H6802+ front module - One double-slot back connector - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-H6802+SR	One single-slot back connector
DA-H6802+DR	One double-slot back connector
DA-HR6802+ Distribution Amplifier Module with Reclocking	
DA-HR6802+	- One DA-HR6802+ front module - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-HR6802+S	- One DA-HR6802+ front module - One single-slot back connector - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-HR6802+D	- One DA-HR6802+ front module - One double-slot back connector - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-HR6802+SR	One single-slot back connector
DA-HR6802+DR	One double-slot back connector

Table 2-3. DA-S/SR6802+ Distribution Amplifiers Packing List

Ordered Product	Content Description
DA-S6802+ Distribution Amplifier Module	
DA-S6802+	- One DA-S6802+ front module - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>
DA-S6802+S	- One DA-S6802+ front module - One single-slot back connector - One <i>DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual</i>

Table 2-3. DA-S/SR6802+ Distribution Amplifiers Packing List (Continued)

Ordered Product	Content Description
DA-S6802+D	- One DA-S6802+ front module - One double-slot back connector - One DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual
DA-S6802+SR	One single-slot back connector
DA-S6802+DR	One standard double-slot back connector
DA-SR6802+ Distribution Amplifier Module with Reclocking	
DA-SR6802+	- One DA-SR6802+ front module - One DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual
DA-SR6802+S	- One DA-SR6802+ front module - One single-slot back connector - One DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual
DA-SR6802+D	- One DA-SR6802+ front module - One double-slot back connector - One DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ Installation and Operation Manual
DA-SR6802+SR	One single-slot back connector
DA-SR6802+DR	One double-slot back connector

Setting Jumpers

You need to configure modules for local or remote operation *before* power-up. To change the configuration, first remove power from the module, reset the jumper, and then reapply power.

Setting J1 Jumpers

The J1 jumper is used to select local control reclock settings. Follow this procedure to set the jumpers:

1. Locate the J1 jumper set on the module. [Figure 2-1](#) shows the standard location of the jumper set.
2. Place a shunt on the pin that corresponds to the mode that you want. (See [page 14](#) for a description of the J1 settings.)

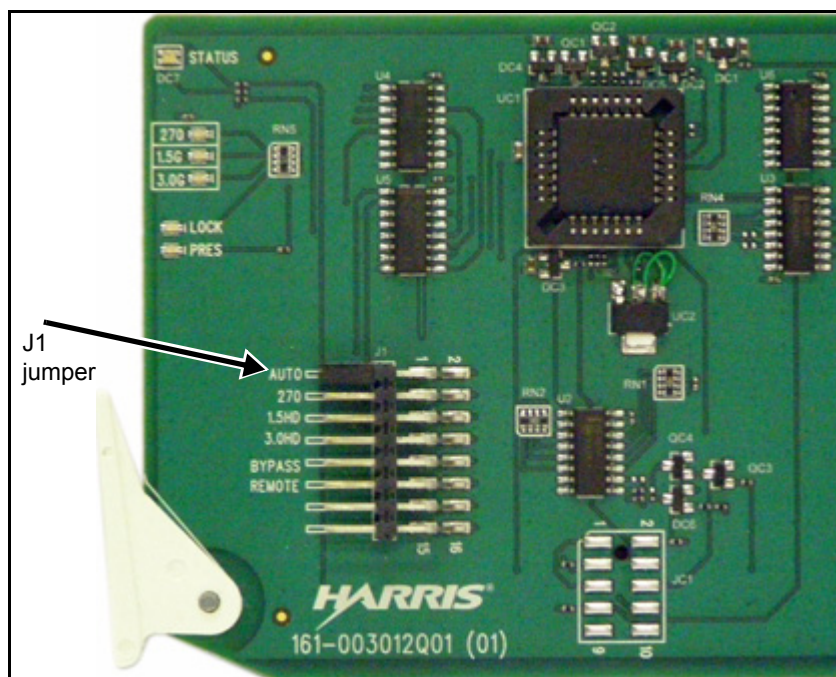


Figure 2-1. J1 Jumper Set Locations

Installing 6800+ Modules

Required Frames and Back Module Connector Types

DA-H/HR6802+ and DA-S/SR6802+ distribution amplifiers use single- or double-width back modules that can be installed in an FR6802+ series frame. See the *FR6802+ Frame Installation and Operation Manual* for details on installing back connectors in an FR6802+ frame.

These modules cannot be installed in 6800/7000 series frames.

Installing Modules

These modules require no specialized installation procedures. See the *FR6802+ Frame Installation and Operation Manual* for information about installing and operating an FR6802+ frame and its components.

Removing Modules

These modules require no specialized removal procedures. See the *FR6802+ Frame Installation and Operation Manual* for information about removing components in an FR6802+ frame.

Making Connections

Once you have installed the module, you can connect it to the appropriate input and outputs.

Overview

This chapter describes how to operate DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ modules using local controls only. See the following documents for information on how to operate this product remotely:

- + Pilot Lite™ *User Manual* for serial control interface
- CCS™ *Navigator™*, *Pilot™*, *CoPilot™*, or *RCP-CCS-IU Remote Control Panel Installation and Operation Manual* for Ethernet control interface

The following topics are discussed in this chapter:

- [“Changing Parameter Settings Using CCS Software” on page 18](#)
- [“LEDs and Alarms” on page 20](#)
- [“Operating Notes” on page 14](#)
- [“Setting Remotely Controlled Parameters” on page 17](#)
- [“Understanding Parameter Types” on page 15](#)

Operating Notes

When you change a control parameter on a DA-HR/H6802+ or DA-SR/S6802+ module, 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.

Understanding Jumper Controls

Introducing Jumper Control Types

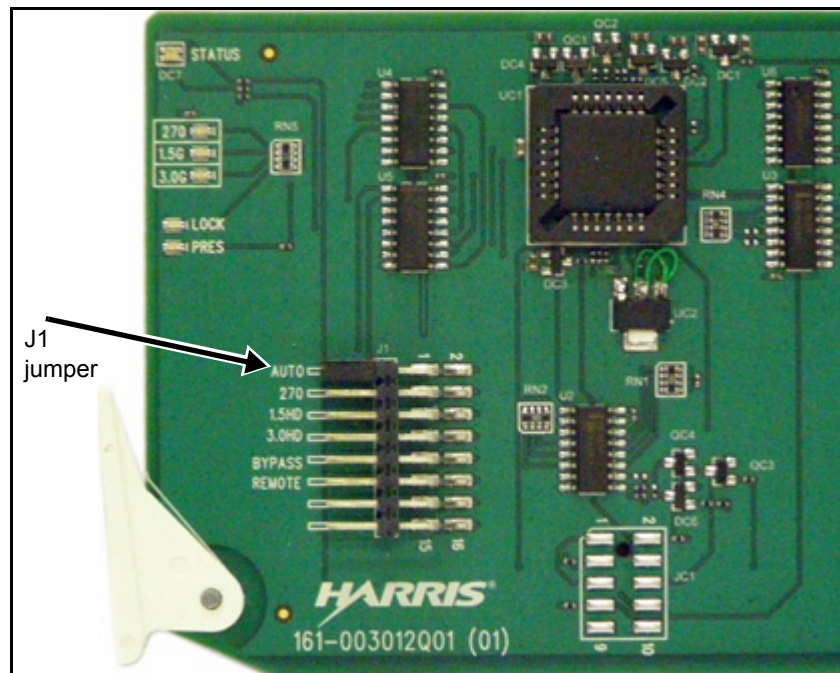


Figure 3-1. Location of the Jumper Set

J1 Jumpers

You can use the J1 jumper to select local control reclock setting. [Figure 3-1 on page 14](#) illustrates the location of this jumper.

For local control, the J1 jumpers are used to determine reclocking mode. See [“Setting Locally Controlled Parameters” on page 16](#).

Understanding Parameter Types

Most module parameters are adjustable, and can be set via a CCS software application (see [“Setting Remotely Controlled Parameters” on page 17](#) and [“Changing Parameter Settings Using CCS Software” on page 18](#)). However, there are some parameters that are considered “read-only” and cannot be changed. Indicated by the abbreviation “[RO],” these parameters provide status and feedback information only.

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

Adjustable Parameters

Two types of adjustable parameters can be changed:

- *Numerical* parameters require you to select a value within a numerical range.
- *Selectable* parameters require you to select a specific option.

Both numerical and selectable parameter changes are immediate.

Use the available 6800+ software controls (serial/local or Ethernet/remote network) to view and monitor parameter selections.

Read-Only Parameters

These parameters provide status and feedback information only. They are represented by LEDs on the front of the module’s card edge. See [Figure 3-2 on page 20](#) and [Figure 3-3 on page 21](#) for the location of these LEDs.

Setting Locally Controlled Parameters

Local Control Reclocking Mode

In the local control reclock setting operation mode, all of the settings' data status information appears on the **+** Pilot Lite control screen; however, you cannot change any setting in this mode via **+** Pilot Lite. (To control the reclocking setting mode via **+** Pilot Lite, set the J1 jumper to the remote control reclock setting operation mode.)

For local control, the J1 jumper is used to determine reclocking mode. [Table 3-1](#) describes parameters that are accessible locally.

Table 3-1. DA-HR6802+ and DA-SR6802+ Local Control Reclock Modes

Reclock Mode	Description
AUTO (Default)	Automatically detects the rate; if no selection rate jumpers are selected, the selection will be AUTO
270	Forces channel to lock to a 270 Mb/s signal Set the jumper on the pin that allows the reclocker to handle 270 Mb/s data only • If 270 reclock mode is selected, the 270 Mb/s LED will turn on • If the module can successfully lock to the input, the lock LED will turn on • If reclocking is not successful, the lock LED will turn off and un-reclocked data will be present at output
1.5HD	Set the jumper on the pin that allows the reclocker to handle HD (1.485 Gb/s) data only • If 1.5HD reclock mode is selected, the 1.5G LED will turn on • If the module can successfully lock to the input, the lock LED will turn on • If reclocking is not successful, the lock LED will turn off and un-reclocked data will be present at output
3.0HD	Set the jumper on the pin that allows the reclocker to handle HD (2.97 Gb/s) data only • If 3.0HD reclock mode is selected, the 3.0G LED will turn on • If the module can successfully lock to the input, the lock LED will turn on • If reclocking is not successful, the lock LED will turn off and un-reclocked data will be present at output
BYPASS	Forces channel to bypass the reclocker
REMOTE	Selects remote control operation

Setting Remotely Controlled Parameters

Table 3-2 describes parameters that are accessible remotely. See your CCS control software application manual or online help for more information on setting and monitoring these parameters remotely.

Legend

Bold option=Indicates that this is the default setting for the parameter.

[RO]=Indicates that parameters are read-only/feedback, and cannot be used to select controls.

All parameters clip unless otherwise noted.

Table 3-2. DA-S6802+/DA-SR6802+ Remotely Controlled Parameters

Name	Range	Description
Signal Present [RO]	0=No 1=Yes	Indicates if input is present or not
Loss of Input Alarm	0=Disable 1=Enable	Enables/disables Loss of Input alarm
Loss of Lock Alarm*	0=Disable 1=Enable	Enables/disables Loss of Lock alarm

* DA-SR6802+ only

Changing Parameter Settings Using CCS Software

You can change module parameter settings remotely by selecting the Loss of Input Alarm or Loss of Lock Alarm parameter setting.

Changing Parameters Using CCS Software

Before using CCS software applications to change your module's parameter settings, you must refresh (+ Pilot Lite) or discover (Pilot and Navigator) the module. Refresh and Discovery are the processes by which your CCS software finds, and then connects to your module.

Refreshing Your Module Using + Pilot Lite

When using + Pilot Lite to change your module's control parameters, you must “refresh” the control connection between your 6800+ frame and PC. To refresh the connection, from the + Pilot Lite menu bar, select **File > Refresh**. For information about controlling a device using + Pilot Lite, see your + *Pilot Lite User Manual*.

Discovering Your Module Using CCS Software

To discover your DA-HR/H6802+ and DA-SR/S6802+ modules, your Pilot or Navigator software must be in Build mode. Follow these steps:

1. If the Discovery window is not open, click **Tools > Discovery** in the main menu.
A **Discovery** window 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** to close the **Add IP address** window, and then **OK** again to close the **Discovery Options** window.
5. Click **Start**.

This triggers Pilot or Navigator to run a discovery.

6. When your discovery is complete, **Discovery Completed** is displayed in the **Discovery** window. To continue, click **Save**. The objects you have discovered are saved 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 **DA-HR/H6802+** or **DA-SR/S6802+**, as appropriate, in the **Navigation** pane. The **Control** window opens, displaying the module's controls.

Recalling Default Parameter Settings

You cannot recall default parameter settings for DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ modules.

Reading Software and Hardware Versions

The current software version of your DA-HR/H6802+ or DA-SR/S6802+ module can only be viewed using a CCS-enabled control panel or a CCS software application. See your *RCP-CCS-1U Installation and Operation Manual*, CCS software application user manual, or CCS software application online help for information on viewing software and hardware version numbers.

LEDs and Alarms

Module Status Indicator LED

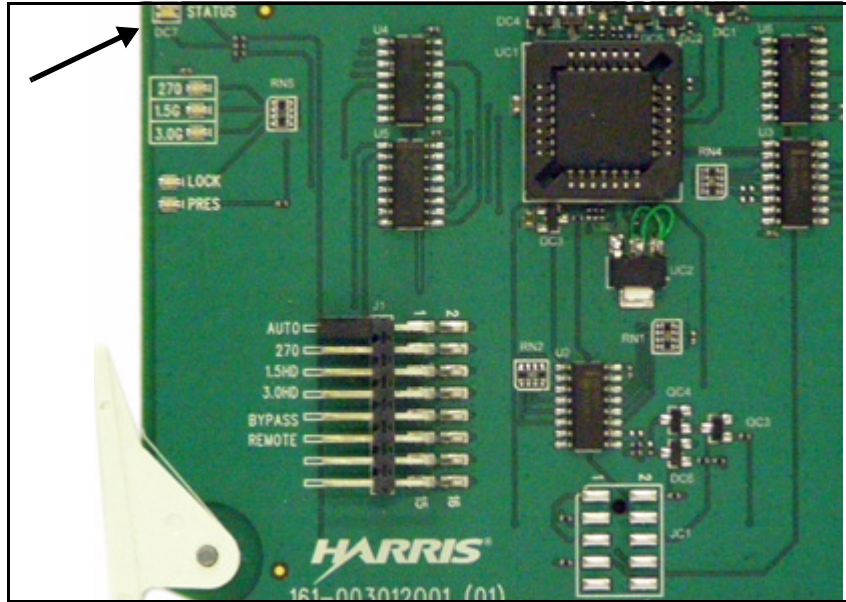


Figure 3-2. Module Status Indicator LED

A module status LED reports the state of the module. See [Figure 3-2](#) for the location of this LED, and [Table 3-3](#) for a definition of the LED colors.

Table 3-3. Module Status Indicator 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.
Amber	There is an alarm condition.

Module-Specific LEDs

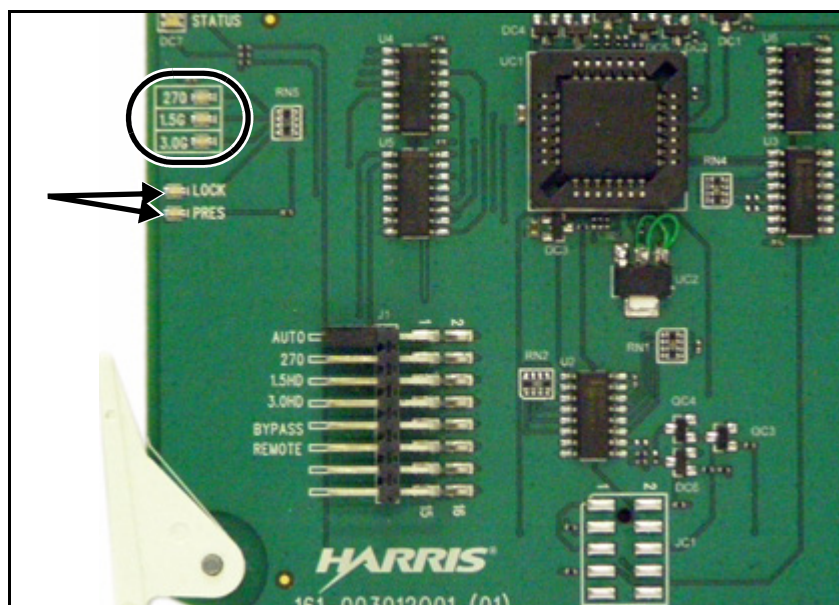


Figure 3-3. Module-Specific LEDs

Each 6800+ module has a number of LEDs assigned to indicate varying states/functions. See [Figure 3-3](#) for the location of these LEDs, and [Table 3-4](#) for these functions.

Table 3-4. Module-Specific Status LEDs

Name	Color	Function
PRES	Green	Input signal present
	Off	Input signal absent
LOCK*	Green	Signal locked
	Off	Signal cannot be locked
270	Green	Input signal is relocked at 270 Mb/s
1.5G	Green	Input signal is relocked at 1.485 Gb/s
3.0G	Green	Input signal is relocked at 2.97 Gb/s

* DA-HR6802+ and DA-SR6802+ modules only

Alarms

If an alarm is triggered within your DA-HR/H6802+ or DA-SR/S6802+ module, the Status LED will turn off.

Alarms are usually logged and monitored within the available 6800+ software control applications (for example, + Pilot Lite or Pilot). See the appropriate software control user manual or online help for more information.

Table 3-5. Alarm Definitions

Alarm Name	Alarm Description	Alarm Level
Loss of input	Indicates input signal is lost or absent	Major
Loss of lock	Indicates signal is not locked	Major

Specifications

Overview

The following specification tables appear in this chapter:

- [“Inputs” on page 24](#)
- [“Outputs” on page 25](#)
- [“Power Consumption” on page 26](#)
- [“Performance” on page 26](#)
- [“Start-Up Time” on page 26](#)
- [“Temperature” on page 26](#)

Specifications and designs are subject to change without notice.

Inputs

Table 4-1. Input Specifications

Item	Specification
Number of inputs	1
Signal type	3.0 G, HD, SD, ASI
Connector	BNC per IEC169-8
Impedance	75 Ω
Return loss	>15 dB 5 Mhz to 1.5 GHz >10 dB 1.5 GHz to 3.0 GHz
Maximum signal level	≥ 0.88 V
Cable equalization	
270 Mb/s	0-1,148 ft (0-350 m) Belden 1694A or equivalent
HD	0- ft 492 (0-150 m) Belden 1694A or equivalent
3.0 G	0-328 ft (0-100 m) Belden 1694A or equivalent

Outputs

Table 4-2. Output Specifications

Item	Specification
Number of outputs	8 with double-width back module 4 with single-width back module
Signal type	SD, ASI
Connector	BNC per IEC169-8
Impedance	75Ω
Return loss	>15 dB 5 MHz to 1.5 GHz >10 dB 1.5 GHz to 3.0 GHz
Signal amplitude	800 mV ± 10%
DC offset	0.0 V ± 0.5 V
Rise and fall time SD/ASI HD 3.0 G	400-700 ps < 270 ps < 135 ps
Overshoot	< 10%
Reclocking	2.97 Gb/s, 1.485 Gb/s, 270 Mb/s

Performance

Table 4-3. Performance Specifications

Item	Specification
Jitter	0.2 UI
Propagation	~5.0 ns (for reference only)

Power Consumption

Power consumption for DA-H6802+, DA-HR6802+, DA-S6802+, and DA-SR6802+ modules is < 2.5 W.

Temperature

Table 4-4. Temperature Specifications

Item	Specification
Performance temperature	32° to 122°F (0° to 50°C)
Operating temperature	41° to 113°F (5° to 45°C)

Start-Up Time

Module start-up time is approximately 3 seconds.

Troubleshooting

Overview

Find the following troubleshooting information in this appendix:

- [“Contacting Customer Service” on page 33](#)
- [“Control and Monitoring Using CCS Software” on page 29](#)
- [“General Troubleshooting Steps” on page 28](#)
- [“Hardware Communication and Control Issues” on page 33](#)
- [“Software Communication and Control Issues” on page 30](#)

General Troubleshooting Steps

Follow these steps in troubleshooting 6800+ product problems:

1. Review the [“Software Communication and Control Issues”](#) on page 30 outlined in this chapter.
2. Search this product manual and other associated documentation for answers to your question.

Associated documentation for 6800+ series products can generally be found in the product-specific manual that accompanies every module, in the *FR6802+ Frame Installation and Operation Manual*, and in the *6800+ Safety Instructions and Standards Manual*.

Product documentation (including manuals, online help, application notes, erratas, product release notes, and more) can be found on our website, along with technical support information, training information, product downloads, and the product knowledge base.

3. Contact your Customer Service representative if, after following these initial steps, you cannot resolve the issue.

To contact Customer Service, see [“Contacting Customer Service”](#) on page 33.

Control and Monitoring Using CCS Software

Before using CCS software applications to control and monitor your module, you must refresh (**+** Pilot Lite) or discover (Pilot and Navigator) the module. Refresh and Discovery are the processes by which your CCS software finds, and then connects to your module.

Refreshing Your Module Using **+** Pilot Lite

When using **+** Pilot Lite to change your module's control parameters, you must "refresh" the control connection between your 6800**+** frame and PC. To refresh the connection, from the **+** Pilot Lite menu bar, select **File > Refresh**. For information about controlling a device using **+** Pilot Lite, see your **+** *Pilot Lite User Manual*.

Discovering Your Module Using CCS Software

To discover your modules, your Pilot or Navigator software must be in Build mode. Follow these steps:

1. If the Discovery window is not open, click **Tools > Discovery** in the main menu.

A **Discovery** window 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** to close the **Add IP address** window, and then **OK** again to close the **Discovery Options** window.
5. Click **Start**.

This triggers Pilot or Navigator to run a discovery.

6. When your discovery is complete, **Discovery Completed** is displayed in the **Discovery** window. To continue, click **Save**. The objects you have discovered are saved 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 DA-DHR/DH6802**+** or DA-DSR/DS6802**+**, as appropriate, in the **Navigation** pane. The **Control** window opens displaying the module's controls.

Software Communication and Control Issues

- “+ Pilot Lite Fails to Communicate with Installed Modules” on page 30
- “+ Pilot Lite Does Not Find All Modules in Frame” on page 31
- “+ Pilot Lite or CCS Software Application Not Responding” on page 31
- “+ Pilot Lite Cannot Control a Module Showing in the Control Window” on page 32
- “+ Pilot Lite Status Bar Reports ‘Not Ready’ Status” on page 32
- “CCS Software Application or Remote Control Panel Does Not Communicate with Module” on page 32
- “Alarm Query Fails When a Device Reboots” on page 32

+ Pilot Lite Fails to Communicate with Installed Modules

Confirm that the following items are not the reason for the communication failure:

- Proper module slot has not been specified (+ Pilot Lite is not communicating with the appropriate slot). See your *FR6802+ Frame Installation and Operation Manual* for more information on slot identification.
- COM port is used elsewhere (+ Pilot Lite is not communicating with the correct COM port).
- Actual Slot ID and Frame ID do not match with the two DIP switch settings in back of frame (+ Pilot Lite is not communicating with the appropriate slot and frame). See your *FR6802+ Frame Installation and Operation Manual* for more information on Slot ID and Frame ID DIP switch settings.
- An ICE6800+ or 6800+ETH module is installed in the frame (+ Pilot Lite control is disabled if an ICE6800+ or 6800+ETH module is installed in the frame; ICE6800+ and 6800+ETH modules are used for CCS control).
- A legacy 6800 series product is in the frame. + Pilot Lite cannot communicate with legacy 6800 series products. They will not be discovered or controlled by + Pilot Lite, although they can be installed in the FR6802+XF frame and work using card-edge controls. The module must be from the 6800+ product family.
- Check that the back module does not have any bent pins, following this procedure:
 - a. Unplug the front module.
 - b. Unscrew and remove the back module.

- c. View the 20-pin spring connector at the bottom of the back module.

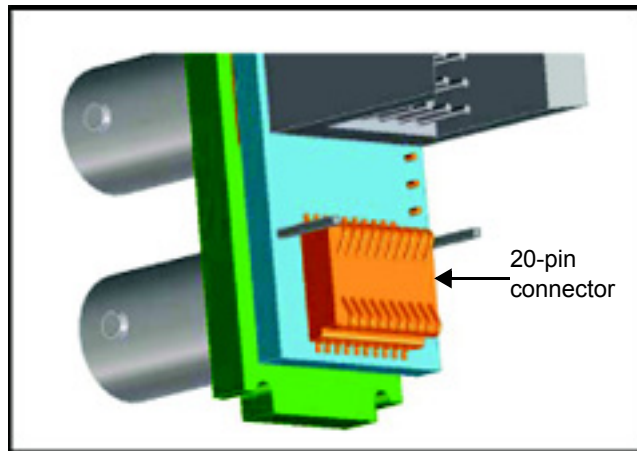


Figure A-1. Back Module to Front Module Connector

This connector should not have any bent or pressed pins. Even a slightly depressed or bent pin may cause genlock issues.

- d. If there are bent pins, carefully reposition them to their correct positions.

If this is not possible, you can exchange the back module for a new one (order part number DA-S6802+DR or DA-SR6802+DR).

+ Pilot Lite Does Not Find All Modules in Frame

If a discovery is started too soon after frame power-up, **+ Pilot Lite** will not find all the installed modules. Refresh **+ Pilot Lite** (**File > Refresh**), and ensure that installed modules are fully powered-up first before discovery.

If a module is plugged into the frame after a discovery, **+ Pilot Lite** does not automatically detect the module. Refresh **+ Pilot Lite** (**File > Refresh**) to discover the newly installed module.

If a legacy 6800 series product is in the frame, **+ Pilot Lite** will not detect it. **+ Pilot Lite** cannot communicate with legacy 6800 series products. They will not be discovered or controlled by **+ Pilot Lite** although they can be installed in the FR6802+XF frame and work using card-edge controls. For **+ Pilot Lite** to find a module, it must be from the 6800+ product family.

+ Pilot Lite or CCS Software Application Not Responding

+ Pilot Lite and CCS applications cannot run on the same PC at the same time. Both applications can be installed, but only one can be opened at a time.

+ Pilot Lite Cannot Control a Module Showing in the Control Window

Consider these questions:

- Did you physically configure the module for local control? If so, configure the device for remote control.
- Does the card name in the control window physically match the card type in the frame?
- Is the module properly seated in the frame? Check the positioning of the module in its slot in the frame.
- Does the Control window indicate the device is “ready”? The device may be powered off or disconnected from the network.

+ Pilot Lite Status Bar Reports ‘Not Ready’ Status

+ Pilot Lite reports each device’s connection status in the status bar. If the connection status message reads “Not Ready,” check the following:

- Is the module properly seated in the frame? Check the position of the module in the frame.
- Is the frame connected to the network? Check the device’s network connection.

If the status bar still reports no status or “Not Ready” for the frame or device, try restarting **+ Pilot Lite**.

CCS Software Application or Remote Control Panel Does Not Communicate with Module

CCS software applications (such as Pilot, CoPilot, and Navigator) and remote control panels require the purchase and installation of an ICE6800+ module in an FR6802+ frame (or and ICE6800+ or 6800+ETH module in a FR6802+QXF frame) in order to communicate remotely via Ethernet.

Alarm Query Fails When a Device Reboots

When you reboot a device connected to your PC, the alarm traffic hitting the network may cause an alarm query request to time out and fail. While the query does not automatically retry, it will post an “Alarm query failed” message to the **Diagnostics** window.

To clear an “Alarm query failed” message, right-click inside the **Diagnostics** window, and then select **Refresh** from the resulting context menu.

Hardware Communication and Control Issues

- [“Frame Fails to Communicate with the PC After a Power Failure”](#) on page 33
- [“Module Does Not Seem to Work”](#) on page 33

Frame Fails to Communicate with the PC After a Power Failure

You must exit the software application and restart after the frame recovers from its power failure. To restore communications between the PC and the frames, ensure that the frames have three or more minutes to recover from the power failure before you exit the application and restart the PC.

Module Does Not Seem to Work

Although the following troubleshooting tips may seem obvious, please take the time to ensure the following:

- All appropriate rear connections are securely made
- The board is securely installed (with no bent pins)
- The frame is turned on

Contacting Customer Service

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