



# Installation and Operation Manual

## **VSM6801+**

### **Serial Monitoring Distribution Amplifier**

**Edition A**

**175-000411-00**

**Delivering the Moment**

[imaginecommunications.com](http://imaginecommunications.com)

## Publication Information

© 2014 Imagine Communications Corp. Proprietary and Confidential.

Imagine Communications considers this document and its contents to be proprietary and confidential. Except for making a reasonable number of copies for your own internal use, you may not reproduce this publication, or any part thereof, in any form, by any method, for any purpose, or in any language other than English without the written consent of Imagine Communications. All other uses are illegal.

This publication is designed to assist in the use of the product as it exists on the date of publication of this manual, and may not reflect the product at the current time or an unknown time in the future. This publication does not in any way warrant description accuracy or guarantee the use for the product to which it refers. Imagine Communications reserves the right, without notice to make such changes in equipment, design, specifications, components, or documentation as progress may warrant to improve the performance of the product.

## Trademarks

6800+™, ADC™, CCS Navigator™, Channel ONE™, ChannelView™, ClipSync™, Delay™, D Series™, D Series DSX™, Deliver the Moment™, Delivering the Moment™, FAME™, Farad™, G8™, G Scribe™, HView™, IconMaster™, IconLogo™, IconStation™, IconKey™, InfoCaster™, InfoCaster Creator™, InfoCaster Manager™, InfoCaster Player™, InstantOnline™, Invenio®, Live Update™, mCAPTURE™, Magellan™, Magellan CCS Navigator™, Magellan Q SEE™, MultiService SDN™, NetPlus™, NetVX™, NewsForce™, Nexio® G8™, Nexio AMP® ChannelView™, Nexio® Channel ONE™, Nexio® ClipSync™, Nexio® Delay™, Nexio® Digital Turnaround Processor™, Nexio® Farad™, Nexio® G Scribe™, Nexio® IconKey™, Nexio® IconLogo™, Nexio® IconMaster™, Nexio® IconStation™, Nexio® InfoCaster™, Nexio® InfoCaster Creator™, Nexio® InfoCaster Manager™, Nexio® InfoCaster Player™, Nexio® InfoCaster Traffic™, Nexio® InstantOnline™, Nexio® mCAPTURE™, Nexio® NewsForce™, Nexio® NXIQ™, Nexio® Playlist™, Nexio® Remote™, Nexio® RTX Net™, Nexio® TitleMotion™, Nexio® TitleOne™, Nexio® Velocity ESX™, Nexio® Velocity PRX™, Nexio® Velocity XNG™, Nexio® Volt™, OPTO+™, Panacea™, Platinum™, Playlist™, Predator II GRF™, Predator II GX™, Punctuate™, Remote™, RTX Net™, Quic™, Q SEE™, SD STAR™, Selenio™, Selenio 6800+™, SelenioNext™, Selenio X50™, Selenio X85™, Selenio X100™, TitleMotion™, TitleOne™, Velocity ESX™, Velocity PRX™, Velocity XNG™, Versio™, Videotek® SD STAR™, X50™, and X85™ are trademarks of Imagine Communications or its subsidiaries.

Altitude Express®, Connectus®, Enabling PersonalizedTV®, ICE® Broadcast System, ICE Illustrate®, ICE Q® algorithms, ICE-PAC®, Imagine ICE®, Inscribe®, Inscribe® Connectus®, Invenio®, NEO®, Nexio®, Nexio AMP®, PersonalizedTV®, Router-Works®, Videotek®, Videotek® ASI STAR®, Videotek® GEN STAR®, and Videotek® HD STAR® are registered trademarks of Imagine Communications or its subsidiaries.

Microsoft® and Windows® are registered trademarks of Microsoft Corporation. HD BNC is a trademark of Amphenol Corporation. Some products are manufactured under license from Dolby Laboratories. Dolby and the double D symbol are registered trademarks of Dolby Laboratories. DTS Neural audio products are manufactured under license from DTS Licensing Limited. DTS and the Symbol are registered trademarks & the DTS Logos are trademarks of DTS, Inc. © 2008 2010 DTS, Inc. All other trademarks and trade names are the property of their respective companies.

## Contact Information

Imagine Communications has office locations around the world. For locations and contact information see:

<http://www.imaginecommunications.com/contact-us/>

## Support Contact Information

For support contact information see:

- Support Contacts: <http://www.imaginecommunications.com/services/technical-support/>
- eCustomer Portal: <http://support.imaginecommunications.com>

# **VSM6801 +**

## **Serial Monitoring Distribution Amplifier**

---

# **Installation and Operation Manual**



# Contents

---

## Preface

Manual Information .....	vii
Purpose .....	vii
Audience .....	vii
Revision History .....	vii
Writing Conventions .....	viii
Obtaining Documents .....	viii
Unpacking/Shipping Information .....	ix
Unpacking a Product .....	ix
Product Servicing .....	ix
Returning a Product .....	ix
Restriction on Hazardous Substances (RoHS) Compliance .....	x
Waste from Electrical and Electronic Equipment (WEEE) Compliance .....	xi
Safety .....	xii
Safety Terms and Symbols in this Manual .....	xii

## Chapter 1: Introduction

Overview .....	1
Product Description .....	2
Module Descriptions .....	3
Front Module .....	3
Back Connectors .....	5
Signal Flow .....	7

## Chapter 2: Installation

Overview .....	9
Maximum 6800+ Frame Power Ratings .....	10
Unpacking the Module .....	11

Preparing the Product for Installation ..... 11

Checking the Packing List ..... 11

Setting Jumpers ..... 12

    Setting the J1 Jumper for Local or Remote Control ..... 12

    Setting the J3 Jumper for Manual or Automatic Selection ..... 13

Installing 6800+ Modules ..... 14

    Installing 6800+ Modules into a 6800/7000 Series Frame ..... 14

**Chapter 3: Operation**

Overview ..... 17

Understanding Card-Edge Controls ..... 18

    Operating Notes ..... 20

    Reading the Software and Hardware Version ..... 21

LEDs and Alarms ..... 22

    Channel LEDs ..... 22

    Module Status LEDs ..... 23

    Alarms ..... 23

**Chapter 4: Specifications**

Overview ..... 25

Input ..... 26

    Serial Digital Video Input ..... 26

Output ..... 27

    Serial Digital Video Output ..... 27

    Composite Analog Output ..... 27

Performance ..... 28

Power Consumption ..... 28

Start-up Time ..... 28

**Appendix A: Communication and Control Troubleshooting Tips**

Overview ..... 29

General Troubleshooting Steps ..... 30

Control and Monitoring Using CCS Software ..... 31

Software Communication and Control Issues ..... 32

    + Pilot Lite Fails to Communicate with Installed Modules ..... 32

    + Pilot Lite Does Not Find All Modules in Frame ..... 33

    + Pilot Lite or CCS Software Application Not Responding ..... 34

+ Pilot Lite Cannot Control a Module Showing in the Control Window .....	34
+ Pilot Lite Status Bar Reports “Not Ready” .....	34
CCS Software Application or Remote Control Panel Does Not Communicate with Module .....	35
Alarm Query Fails When a Device Reboots .....	35
Hardware Communication and Control Issues .....	36
Frames Fail to Communicate with the PC after a Power Failure ...	36
Module Does Not Seem to Work .....	36
Contacting Customer Service .....	36

**Index**

Keywords .....	37
----------------	----





# Preface

---

## Manual Information

### Purpose

This manual details the features, installation, operation, maintenance, and specifications for the VSM6801+ Serial Monitoring Distribution Amplifier.

### Audience

This manual is written for engineers, technicians, and operators responsible for installation, setup, maintenance, and/or operation of the VSM6801+ Serial Monitoring Distribution Amplifier.

### Revision History


**Table P-1.** Revision History of Manual

Edition	Date	Comments
A	December 2007	Initial release

# 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
<b>Bold</b>	Indicates dialog boxes, property sheets, fields, buttons, check boxes, list boxes, combo boxes, menus, submenus, windows, lists, and selection names
<i>Italics</i>	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
<b>Code</b>	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
<a href="#">hyperlink</a>	Indicates a jump to another location within the electronic document or elsewhere
<a href="#">Internet address</a>	Indicates a jump to a Web site or URL
 <b>Note</b>	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.

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, VSM6801+ modules are not designed for field servicing. All hardware 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 a product needs to be returned for service. 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

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)

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 on dates and deadlines for compliance.) 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 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, the producers or users of these products were 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 on dates and deadlines for compliance.) 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. It is recommended that each frame be connected to a separate electrical circuit for protection against circuit overloading. If this product relies on forced air cooling, it is recommended that all obstructions to the air flow be removed prior to mounting the frame in the rack.

If this product has a provision for external earth grounding, it is recommended that the frame be grounded to earth via 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.

# Introduction

---

## Overview

The VSM6801+ is a single-channel serial monitoring distribution amplifier. It combines the functions of an equalizing, reclocking serial distribution amplifier, and a 4:2:2 to NTSC/PAL converter of a single channel.

The following topics are described in this chapter:

- [“Product Description” on page 2](#)
- [“Module Descriptions” on page 3](#)
- [“Signal Flow” on page 7](#)

# Product Description

The VSM6801+ monitors one serial digital video 4:2:2 isolated input. The SDI input has four corresponding composite outputs and four corresponding copy outputs that are equalized and reclocked.

You can set up, control, and monitor the VSM6801+ either locally via card-edge switches or remotely on a PC. For remote control, you can use either a serial RS-232 or optional ICE6800+ or 6800+ETH Ethernet connection.

Other VSM6801+ features include the following:

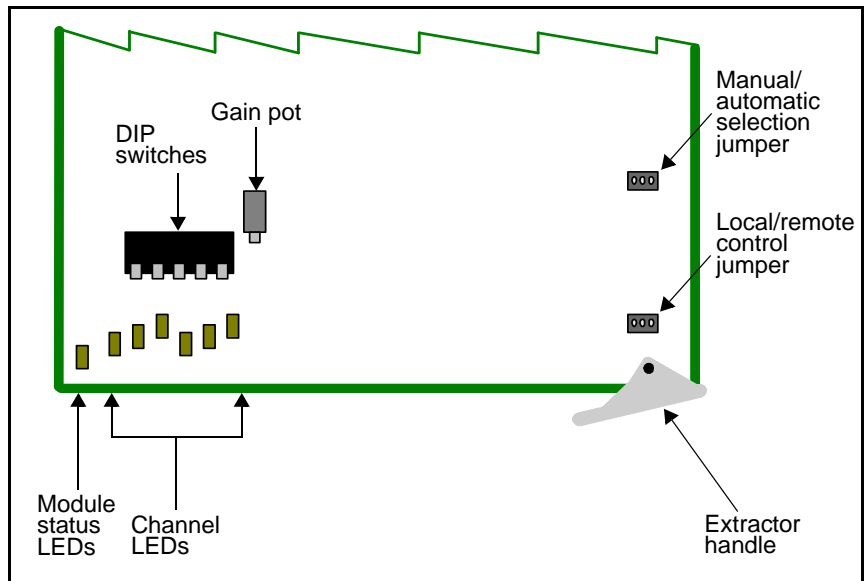
- SMPTE 259M-C/270 Mbps compatible
- Automatic or user-selectable standard mode NTSC/PAL-B
- Vertical blanking (pass/delete)
- Setup on/off option (NTSC only)
- Local gain control
- Burst and chroma on/off
- Encoder with 10-bit DAC and 8-bit input data path
- Build-in color bar test signal through local or remote
- Status LEDs with signal presence indicators



# Module Descriptions

## Front Module

See [Figure 1-1](#) for an illustration showing a partial top view of the VSM6801+ module, and the general location of LEDs, switches, and jumpers.



**Figure 1-1.** VSM6801+ Front Module

For a brief description of the general VSM6801+ LEDs, switches, and jumper, see Table 1-1. See [Chapter 3: “Operation”](#) for more information on specific VSM6801+ front module controls.

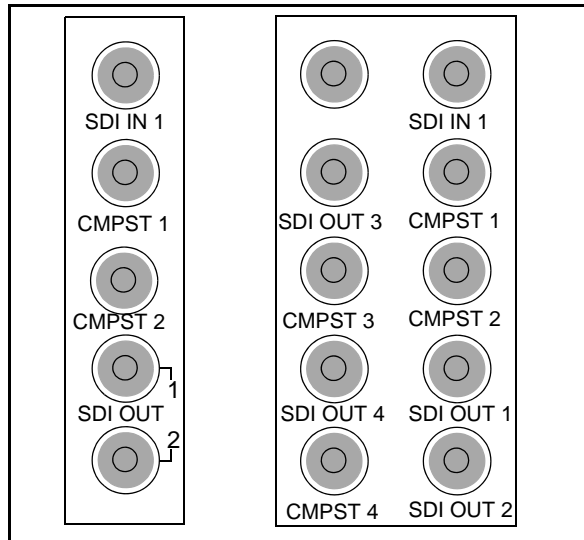
**Table 1-1.** Generic 6800+ Front Module Features

Feature	Description
Module status LEDs	Various color and lighting combinations of these LEDs indicate the module state. See <a href="#">“Module Status LEDs” on page 23</a> for more information.
DIP switches	The module has one bank of DIP switches that has five individual switches that allow you to adjust the composite output from the module. See <a href="#">“DIP Switch Functions” on page 20</a> for a list of DIP switch functions.
Channel LEDs	Each DIP switch has a corresponding LED. When the module is in local control mode, the LEDs indicate the DIP switch settings. When the module is in remote control mode, the LEDs indicate the settings currently applied to the module. See <a href="#">“Channel LEDs” on page 22</a> for a description of these LEDs.
Gain pot control	Composite output has a corresponding gain pot control. (This control is factory set.)
Local/remote control jumper	<ul style="list-style-type: none"><li>• <b>Local:</b> Locks out control by external control panels and software applications; allows card-edge control only. However, the module’s status can still be monitored remotely.</li><li>• <b>Remote:</b> Allows remote configuration, operation, and monitoring of the VSM6801+.</li></ul>

## Back Connectors

### FR6802+ Frame Back Connectors

Figure 1-2 shows the single-slot (VSM6801+SR) and double-slot (VSM6801+DR) back connectors that can be used with the VSM6801+ module when it is installed in an FR6802+ or FR6802+QXF frame.



**Figure 1-2.** Back Connectors for the FR6802+ Frame

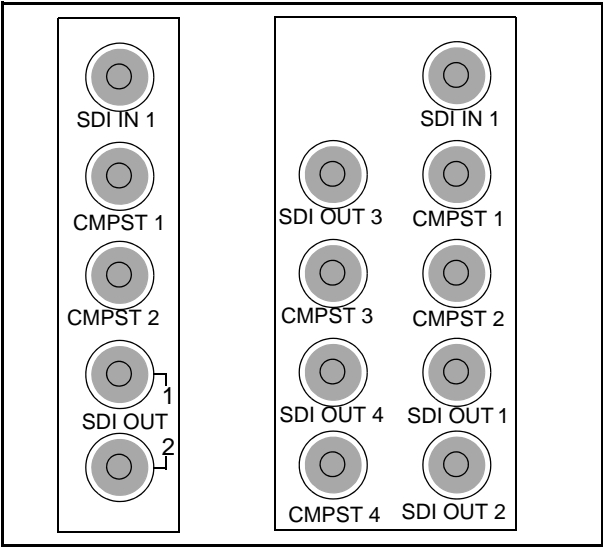
### 6800/7000 Series Frame Back Connector Overlays



#### Note

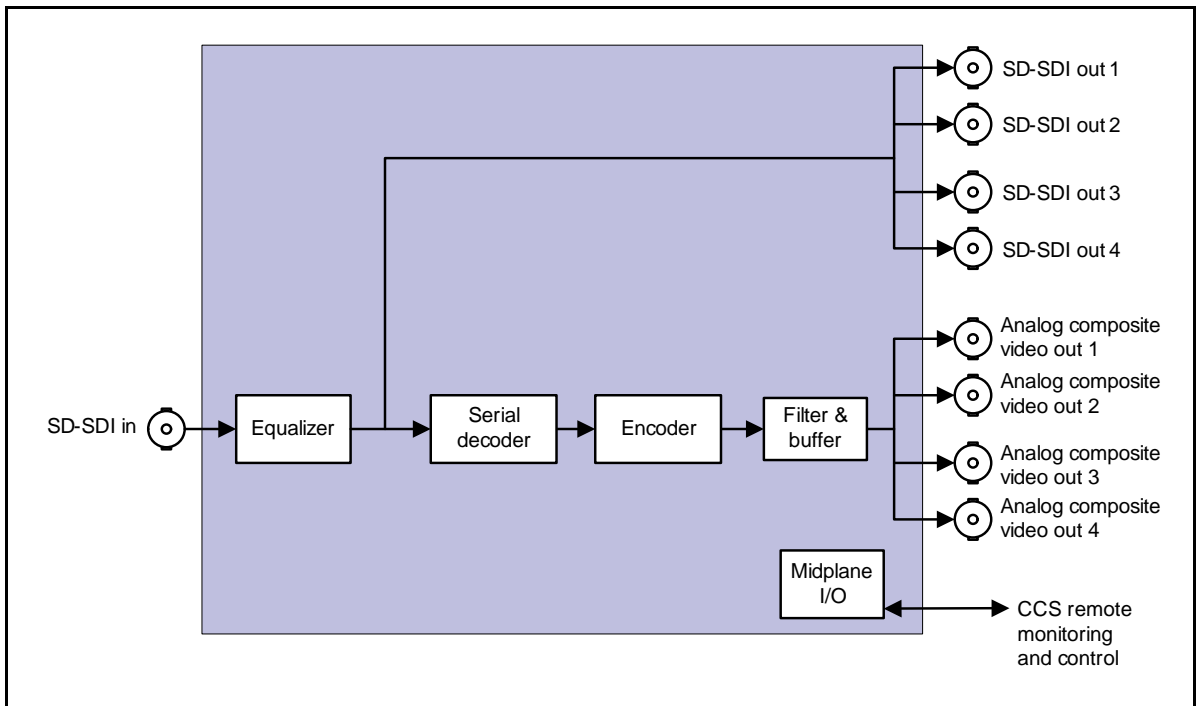
Remote control for this 6800+ module is not available if it is installed in a 6800/7000 series frame.

Figure 1-3 shows the single- and double-slot back connector overlays used for the VSM6801+ when installed in a 6800/7000 series frame.



**Figure 1-3.** Back Connector Overlays for 6800/7000 Series Frame

# Signal Flow



**Figure 1-4.** VSM6801+ Signal Flow Diagram



# Installation

---

## Overview

This chapter describes the VSM6801+ installation process, including the following topics:

- [“Maximum 6800+ Frame Power Ratings” on page 10](#)
- [“Unpacking the Module” on page 11](#)
- [“Setting Jumpers” on page 12](#)
- [“Installing 6800+ Modules” on page 14](#)



### Caution

Before installing this product, read the *6800+ Series Safety Instructions and Standards* document that ships with every *FR6802+ Frame Installation and Operation Manual*, or can be downloaded from our website. This safety booklet contains important information about the safe installation and operation of 6800+ series products.

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

See the *6800 Series Frames and Power Supply Installation and Operation Manual* for information about installing and operating a 6800/7000 series frame.

# Maximum 6800+ Frame Power Ratings

The power consumption for the VSM6801+ module is typically less than 5 W.

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

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

6800+ Frame Type	Max. Frame Power Dissipation	Number of 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 the Product for Installation

Before you install the VSM6801+, 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”](#) for more information.
- Remove the anti-static shipping pouch, if present, and all other packaging material.



### Note

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

- 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 2-2.** VSM6801+ Packing List

Ordered Product	Content Description
VSM6801+	<ul style="list-style-type: none"><li>• One VSM6801+ front module</li><li>• One VSM6801+ back connector overlay (for use with a 6800/7000 series frame)</li><li>• One <i>VSM6801+ Installation and Operation Manual</i></li></ul>
VSM6801+SR	<ul style="list-style-type: none"><li>• One VSM6801+SR standard single-slot, 5-BNC back connector (For use with an FR6802+ frame)</li></ul>
VSM6801+DR	<ul style="list-style-type: none"><li>• One VSM6801+DR standard double-slot, 10-BNC back connector (For use with an FR6802+ frame)</li></ul>

# Setting Jumpers

The VSM6801+ module has two jumpers, **J1** and **J3**.

- Jumper **J1** allows you to select either **Local** control or **Remote** control.
- Jumper **J3** allows you to select either **Manual** or **Automatic** mode selection for NTSC/PAL-B.

Figure 2-1 shows the location of the two jumpers.

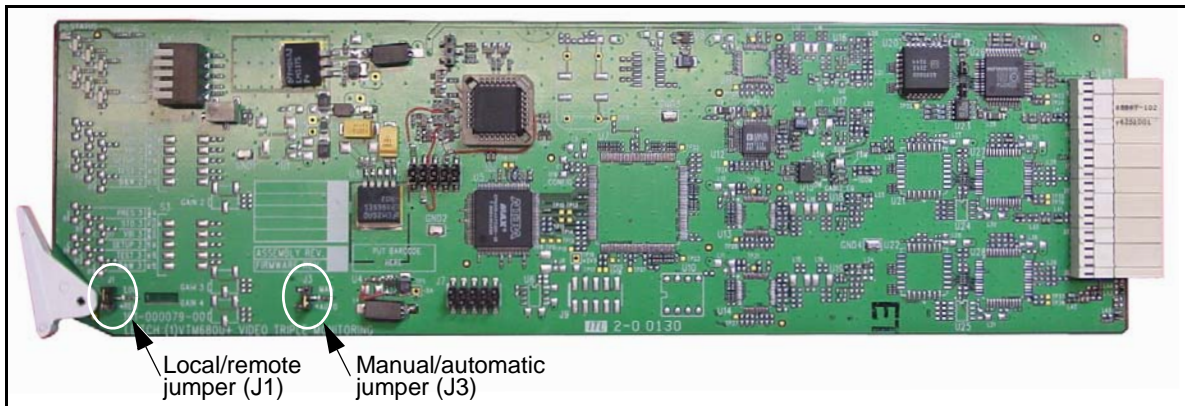


Figure 2-1. Location of the J1 and J3 Jumpers

## Setting the J1 Jumper for Local or Remote Control



### Note

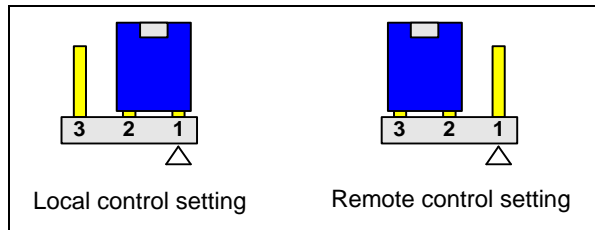
You need to configure modules for local or remote operation *prior* to power-up. To change the configuration, first remove power from the module, reset the jumper, and then reapply power.

Follow this procedure to set the **J1** jumper for either local or remote control:

1. Locate jumper **J1** on the module (beside the extractor handle).

Figure 2-1 shows the standard location of the J1 jumper.

- Place a jumper on pins 1 and 2 to set the module for **Local** control, or pins 2 and 3 to set the module for **Remote** control. See [Figure 2-2](#).



**Figure 2-2.** The J1 Settings for Local and Remote Control



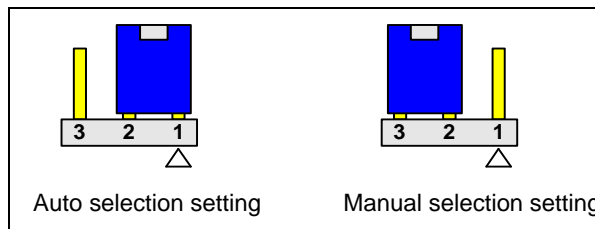
### Note

The white triangle on the module near the jumper pins indicates pin 1.

## Setting the J3 Jumper for Manual or Automatic Selection

Follow this procedure to set the **J3** jumper for either manual or automatic selection:

- Locate jumper **J3** on the module. See [Figure 2-1 on page 12](#).
- Place a jumper on pins 1 and 2 to set the module for **Auto** selection, or pins 2 and 3 to set the module for **Manual** selection. See [Figure 2-3](#).



**Figure 2-3.** The J3 Settings for Manual and Automatic selection



### Note

The white triangle on the module near the jumper pins indicates pin 1.

## Installing 6800+ Modules

There are three types of modules:

- Single-slot back connectors
- Double-slot back connectors
- Front modules

Back connectors come in two sizes: double-slot and single-slot. You can install a VSM6801+ module in an FR6802+XF, FR5702+XF48, FR6802+QXF, FR6802+DM or 6800/7000 series frame.



### Caution

Before inserting, removing, or replacing a back module, you must power down the frame. Failure to do so could result in damage to the frame, modules, or power supply.

These modules require no specialized installation or removal procedures. However, if you are installing both front and rear modules, ensure that the back module is installed first before plugging in the front module. Likewise, ensure that the front module is unplugged from the frame before removing the rear module.

- See the *FR6802+ Frame Installation and Operation Manual* for information about installing and operating an FR6802+ frame and its components.
- See the *6800+ Safety Instructions and Standards Manual* for important information about safely installing your module.

Once you have installed your VSM6801+ modules, you can connect them to the appropriate input and outputs.

## Installing 6800+ Modules into a 6800/7000 Series Frame

Follow these steps to install 6800+ modules into a 6800/7000 series frame. (The 6800/7000 series frames have a back panel already in place. There is no need to install an individual back connector into this type of frame.)

All modules are hot-swappable and can be installed with the power supply either turned on or turned off.

1. Pull out the finger-release screws on the right and left side of the front panel, and then open it.

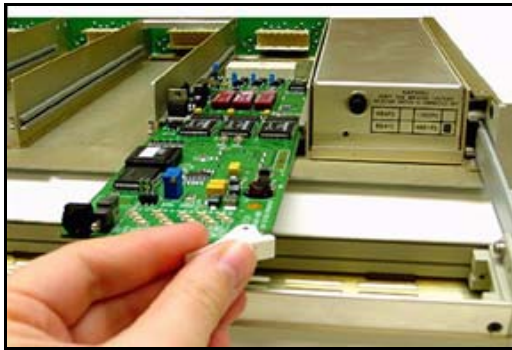
2. Locate the front module slot that corresponds with the matching back connector, and then slide the module into the guides.



### Caution

Do not mix front modules and back connector modules. The front module must mate with its corresponding back connector; otherwise, you may damage the module.

See [Figure 2-4](#) for a 1RU horizontal installation illustration and [Figure 2-5](#) for a 2RU vertical installation illustration.



**Figure 2-4.** 1RU Installation of a Module



**Figure 2-5.** 2RU Installation of a Module

The module is properly seated when its edge is flush with the guide edge and the extractor handle closes.



## Caution

To prevent overheating during general frame operation and maintain proper airflow, keep the front panel closed and all back connector slots covered during operation.

3. Close the front panel to ensure proper frame ventilation.

Once you have installed the VSM6801+ module, you can connect it to the appropriate input and outputs. See [Figure 1-2](#) and [Figure 1-3](#) on [page 6](#).

## Overview

This chapter describes how to operate the VSM6801+ using card-edge 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-1U Remote Control Panel Manual for Ethernet control interface

The following topics are discussed in this chapter:

- [“Understanding Card-Edge Controls” on page 18](#)
- [“LEDs and Alarms” on page 22](#)

## Understanding Card-Edge Controls

You can operate and monitor settings for the VSM6801+ using the bank of DIP switches and the LED indicators on the card edge of the module. As with all 6800+ products, external local or remote monitoring equipment (for example, a PC or control panel) is also required.



### Note

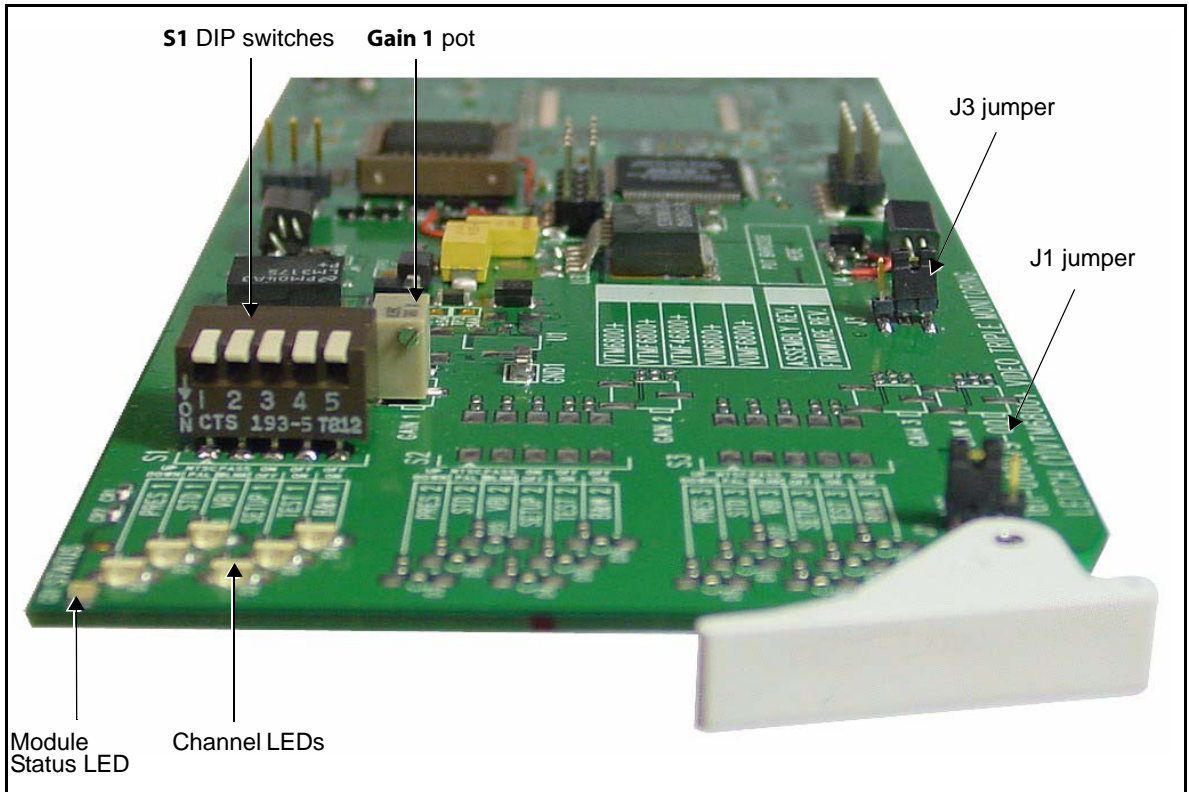
For best results, use the available 6800+ software control options (serial/local or Ethernet/remote) to aid in viewing, setting, and confirming parameter values. See [Appendix A](#) for more information.

You can control the composite output by adjusting the DIP switch settings. Each DIP switch has a corresponding LED so that you can easily monitor the DIP switch settings from the card edge.

The VSM6801+ also has one potentiometer (pot) control that you can use to adjust the gain for the channel.



See [Figure 3-1](#) for the location of these controls.



**Figure 3-1.** Location of the DIP Switches and LEDs

During local control, when a DIP switch is down, its corresponding LED is on. When a DIP switch is up, its corresponding LED is off.

During remote control, the LEDs are lit according to the settings that are applied to the module. Jumper J1 must be set to remote control in order for you to control the module remotely. See [“Setting Jumpers” on page 12](#).

## Operating Notes

You can affect the composite output by adjusting the DIP switches. The bank of DIP switches has the following five controls:

**Table 3-1. DIP Switch Functions**

DIP Switch	Function	Description
1	STD	<ul style="list-style-type: none"> <li>When the MAN/AUTO J3 jumper is set to MAN, STD controls standard selection. You can set this switch for either NTSC or PAL-B.</li> <li>When the MAN/AUTO J3 jumper is set to AUTO, STD is disabled and output standard follows input standard.</li> </ul>
2	VBI	This setting controls vertical blanking. You can set this switch for either pass or blank. A blank setting results in blanking lines 10 to 19 and 273 to 282 in NTSC operation and lines 6 to 22 and 319 to 335 in PAL operation.
3	SETUP	This setting controls setup (pedestal) in NTSC operation. When the channel is set to PAL operation, this switch has no effect.
4	TEST	This setting controls color bars test signal. You can set this switch so that the color bars test signal is displayed at the composite output (100/7.5/75/7.5 for NTSC and 100/0/77/0 for PAL). This feature requires valid CCIR-601 4:2:2 video data input.
5	B&W	This setting controls black and white output. You can remove the chrominance and burst from the channel, thereby creating black and white output.

See [Table 3-2](#) for specific instructions for setting the DIP switches and monitoring the LEDs.

The following table identifies the DIP switch control positions and LED indicators for each bank of DIP switches:

**Table 3-2.** DIP Switch Controls and LED Indicators

DIP Switch	Function	Action	Switch Position	LED
1	STD	NTSC	Up	Off
		PAL	Down	On
2	VBI	Pass	Up	Off
		Blank	Down	On
3	Setup	On	Up	Off
		Off	Down	On
4	Test	Test off	Up	Off
		Test on	Down	On
5	B&W	Black and white off	Up	Off
		Black and white on	Down	On

## Reading the Software and Hardware Version

The current software version of your VSM6801+ module can only be viewed using CCS software such as Navigator (via Ethernet control). See your *CCS Navigator User Manual* or online help for information on viewing software versions.

# LEDs and Alarms

## Channel LEDs

The VSM6801+ has six channel LEDs that serve as a quick reference to channel settings. See [Table 3-3](#) for details about the channel LEDs.

**Table 3-3.** Channel LEDs

LED	Function	Color Description
Pres	Signals if the channel is receiving SDI input	<ul style="list-style-type: none"><li>• Green: SDI input present</li><li>• Off: SDI input absent</li></ul>
STD	Signals if the selection is PAL or NTSC format	<ul style="list-style-type: none"><li>• Green: PAL-format selection</li><li>• Off: NTSC-format selection</li></ul>
VBI	Signals if the vertical blanking option is pass or blank	<ul style="list-style-type: none"><li>• Green: Blank vertical blanking</li><li>• Off: Pass vertical blanking</li></ul>
Setup (for NTSC operation)	Signals if the NTSC setup is on or off	<ul style="list-style-type: none"><li>• Green: Setup is off</li><li>• Off: Setup is on</li></ul>
Test	Signals if the color bar test signal is set on or off	<ul style="list-style-type: none"><li>• Green: Color bar test on</li><li>• Off: Color bar test off</li></ul>
B&W	Signals if the output is black and white or color	<ul style="list-style-type: none"><li>• Green: Black and white output</li><li>• Off: Color output</li></ul>

## Module Status LEDs

Module status LEDs on the corner of the module light up if an error is detected. See [Figure 3-1 on page 19](#) for the location of these LEDs, and [Table 3-4](#) for a definition of the LED colors.

**Table 3-4.** 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.
Amber	The module is undergoing configuration

## Alarms

The VSM6801+ module does not have any card-edge alarms. Alarms are usually logged and monitored within the available 6800+ software control applications (for example, + Pilot Lite or Navigator). See the appropriate software control user manual or online help for more information.



# Specifications

---

## Overview

The following specification tables appear in this chapter:

- [“Input” on page 26](#)
- [“Output” on page 27](#)
- [“Performance” on page 28](#)
- [“Power Consumption” on page 28](#)
- [“Start-up Time” on page 28](#)

Specifications and designs are subject to change without notice.

# Input

## Serial Digital Video Input

**Table 4-1.** Serial Digital Video Input Specifications

Item	Specification
Format compatibility	4:2:2 serial component
Connector	BNC per IEC169-8
Impedance	75Ω
Return loss	>18 dB from 5 MHz to 270 MHz
Signal level	800 mV ±10%
Max. input cable	>300 m
CMRR	30 V peak-to-peak, up to 60 Hz



# Output

## Serial Digital Video Output

**Table 4-2.** Serial Digital Video Output Specifications

Item	Specification
Quantity	1 BNC per channel
Connector	BNC per IEC169-8
Overshoot	<10% (all outputs terminated)
Impedance	75 $\Omega$
Return loss	>18 dB to clock frequency
Signal level	800 mV $\pm$ 10%
Jitter	<0.2 UI
Rise and fall times	0.40 to 1.5 ns (as per SMPTE-259)

## Composite Analog Output

**Table 4-3.** Composite Analog Output Specifications

Item	Specification
Standards	NTSC, PAL-B
Quantity	1 BNC per channel
Signal level	1 V peak-to-peak, nominal ( $\pm$ 10% adjustable)
DC offset	< $\pm$ 100 mV
Impedance	75 $\Omega$
Return loss	>40 dB to 5.75 MHz
Output quantizing	10 bits (encoding inputs 8 bits)
Frequency response	< $\pm$ 0.25 dB to 5 MHz
Differential gain	<1.5%
Differential phase	<1.2 degrees
Signal to noise	>54 dB RMS to 5 MHz

# Performance

**Table 4-4.** Performance Specifications

Item	Specification
Processing delay	1.6μs
Test signal	Color bar: NTSC 100/7.5/75/7.5, PAL 100/0/75/0

# Power Consumption

The power consumption for VSM6801+ modules is less than 5 W.

# Start-up Time

The start-up time specification for VSM6801+ modules is less than one second.

# Communication and Control Troubleshooting Tips

---

## Overview

Find the following troubleshooting information in this appendix:

- [“General Troubleshooting Steps” on page 30](#)
- [“Software Communication and Control Issues” on page 32](#)
- [“Hardware Communication and Control Issues” on page 36](#)
- [“Contacting Customer Service” on page 36](#)

## General Troubleshooting Steps

Follow these steps in troubleshooting 6800+ product problems:

1. Review the “[Software Communication and Control Issues](#)” on [page 32](#) outlined in this chapter.
2. Search this product manual and other associated documentation for answers to your question.



### Note

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 a 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 36](#).

# 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 VSM6801+ 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 a VSM6801+ Module

To discover your module, 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**, 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 VSM6801+ in the Navigation pane. The **Control** window opens, displaying the module’s controls.

## Software Communication and Control Issues

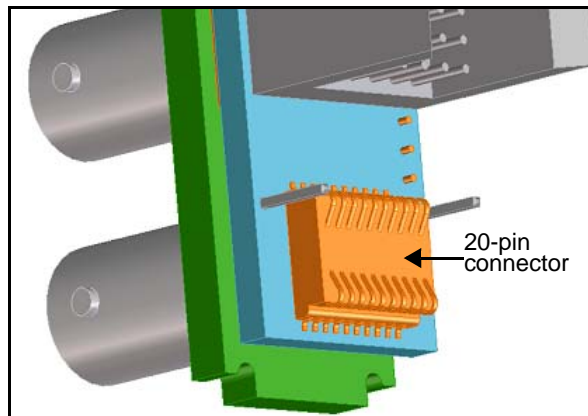
- “+ Pilot Lite Fails to Communicate with Installed Modules” on page 32
- “+ Pilot Lite Does Not Find All Modules in Frame” on page 33
- “+ Pilot Lite or CCS Software Application Not Responding” on page 34
- “+ Pilot Lite Cannot Control a Module Showing in the Control Window” on page 34
- “+ Pilot Lite Status Bar Reports “Not Ready”” on page 34
- “CCS Software Application or Remote Control Panel Does Not Communicate with Module” on page 35
- “Alarm Query Fails When a Device Reboots” on page 35

### + Pilot Lite Fails to Communicate with Installed Modules

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

- The 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.
- The COM port is used elsewhere (Check that the correct COM port is configured in + Pilot Lite and that another application is not using that COM port).
- The actual frame ID does not match with the two DIP switch settings in the back of the frame (+ Pilot Lite is not communicating with the proper frame). See your *FR6802+ Frame Installation and Operation Manual* for more information on frame ID switch settings.
- A null modem cable is not being used. Between the PC running + Pilot Lite and the FR6802+ frame, there should be a null RS-232 modem cable. At minimum, this requires that pins 2 and 3 are crossed and 5 to 5 for ground.
- An ICE6800+ or 6800+ETH module is installed in the frame (+ Pilot Lite control is disabled if an ICE6800+ or 6800+ETH control 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. (See [Figure A-1.](#))



**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 VSM6801+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 such as Navigator or Pilot 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 set the jumper for local control? If so, set this jumper to the REM position 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”**

+ 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 an 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

- [“Frames Fail to Communicate with the PC after a Power Failure” on page 36](#)
- [“Module Does Not Seem to Work” on page 36](#)

### Frames Fail to Communicate with the PC after a Power Failure

You must exit the software 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

We are committed to providing round-the-clock, 24-hour service to our customers around the world. Visit our website for information on how to contact the Customer Service team in your geographical region.

# Index

---

## A

Alarms [22](#), [23](#)  
    alarm query failed [35](#)  
    card-edge indicators [23](#)  
Application not responding [34](#)  
Automatic selection jumper [13](#)  
Automatic standard selection [20](#)

## B

Back connector  
    in 6800/7000 series frame [5](#)  
    in FR6802+/FR6802+QXF frame [5](#)  
Black and white output [20](#)  
Blanking lines [20](#)  
Burst removal [20](#)

## C

CCS applications [34](#)  
    changing parameter settings [31](#)  
    refreshing and discovering modules [31](#)  
Channel LEDs [4](#), [22](#)  
Chrominance removal [20](#)  
Color bars [20](#)  
Communication failure, frame [36](#)  
Compatible frames [10](#)  
Composite output [20](#)  
    control [4](#)

Control parameters  
    changing using CCS applications [31](#)  
Control problems [34](#)  
CoPilot [34](#)

## D

Description, module [2](#)  
DIP switches [4](#), [21](#)  
    location [3](#), [19](#)  
Discovering a module [31](#)  
Discovery failure [33](#)  
Double-slot back connector [5](#)

## E

Extractor handle [15](#)

## F

Features, module [2](#)  
Frames, compatible [10](#)  
    6800/7000 [14](#)  
Front module description [3](#)

## G

Gain pot [3](#), [4](#), [18](#)

## I

### Installation

- in 6800/7000 frames [14](#)
- in FR6802+/FR6802+QXF frames [14](#)
- preparing for [11](#)

### Installed modules [33](#)

## J

### J1 jumper [12](#)

### J3 jumper [13](#), [20](#)

### Jumpers [20](#)

- locations [3](#)
- setting [12](#)

## L

### LEDs

- channel [4](#), [22](#)
- DIP switch indicators [21](#)
- locations [3](#), [19](#)
- module status [4](#), [23](#)

### Local control [34](#)

- jumper, setting [12](#)

### Local/remote control jumper [4](#)

## M

### Manual information [vii](#)

### Manual selection jumper [13](#)

### Manual standard selection [20](#)

### Maximum allowable power ratings [10](#)

### Module

- back connector [5](#)
- description [2](#), [3](#)

### Module not found [33](#)

### Module status LEDs [4](#), [23](#)

## N

### Navigator [34](#)

### Network connection [34](#)

### Not ready status [34](#)

### NTSC selection [20](#)

## P

### Packing list [11](#)

### PAL-B selection [20](#)

### Parameter settings

- changing using CCS applications [31](#)

### Pedestal [20](#)

### Pilot [34](#)

### Pilot Lite [32](#)

### Potentiometer [18](#)

### Power

- failure [36](#)
- maximum frame ratings [10](#)

### Precautions, safety [xii](#)

### Product servicing [ix](#)

## R

### Reboot device [35](#)

### Refreshing a module with Pilot Lite [31](#)

### Remote control [34](#)

- jumper location [4](#)
- jumper, setting [12](#)

### Returning a product [ix](#)

### Revision history of the manual [vii](#)

### RoHS-compliance [x](#)

## S

### Safety precautions [xii](#)

### Setup [20](#)

### Shipping information [ix](#)

### Signal flow diagram [7](#)

### Single-slot back connector [5](#)

### Software version, reading [21](#)

### Standard selection [20](#)

### Standards

- RoHS compliance [x](#)
- WEEE compliance [xi](#)

### Status not ready [34](#)

### Support documents [viii](#)

## T

Test signal [20](#)  
Troubleshooting [29–36](#)  
    communication [32](#)  
    control [35](#)  
    installation [36](#)

## U

Unpacking information [ix, 11](#)  
Usable slots [10](#)

## V

VBI DIP switch [20](#)  
Version, software [21](#)  
Vertical blanking [20](#)

## W

WEEE compliance [xi](#)  
Writing conventions [viii](#)





**Customer Service Support**

+1 888 534 8246

[BCDSERVICE@harris.com](mailto:BCDSERVICE@harris.com)

Harris is a registered trademark of Harris Corporation. Trademarks and tradenames are the property of their respective companies.



Broadcast Communications Division  
4393 Digital Way | Mason, OH USA 45040 | Tel: 1 (513) 459 3400  
[www.broadcast.harris.com](http://www.broadcast.harris.com)

©2007 Harris Corporation