



## ***Installation Instructions***

# **ProcessLogix and ControlLogix System Redundancy Module**

Catalog Number 1757-SRM, series B

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### **About This Publication**

Use this publication as a guide to install the 1757-SRM, Series B ProcessLogix and ControlLogix System Redundancy Module into the ProcessLogix or ControlLogix Redundant chassis pair.

### Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.



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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

<b>WARNING</b> 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
<b>IMPORTANT</b>	Identifies information that is critical for successful application and understanding of the product.
<b>ATTENTION</b> 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you to identify a hazard, avoid a hazard and recognize the consequences.
<b>SHOCK HAZARD</b> 	Labels may be on or inside the equipment, such as a drive or motor, to alert people that dangerous voltage may be present.
<b>BURN HAZARD</b> 	Labels may be on or inside the equipment, such as a drive or motor, to alert people that surfaces may reach dangerous temperatures.

## North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
<p>Products marked CL I, "DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>	<p>Les produits marqués CL I, "DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>

<b>WARNING</b> 	EXPLOSION HAZARD	<b>AVERTISSEMENT</b> 	RISQUE D'EXPLOSION
	<p>Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.</p> <p>Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. Substitution of components may impair suitability for Class I, Division 2.</p> <p>If this product contains batteries, they must only be changed in an area known to be nonhazardous.</p>		<p>Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.</p> <p>Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit.</p> <p>La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.</p> <p>S'assurer que l'environnement est classé non dangereux avant de changer les piles.</p>

### Environment and Enclosure

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#### ATTENTION



This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 m (6561 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements, Allen-Bradley publication 1770-4.1.
  - NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.
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## Prevent Electrostatic Discharge

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**ATTENTION**

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
  - Wear an approved grounding wriststrap.
  - Do not touch connectors or pins on component boards.
  - Do not touch circuit components inside the equipment.
  - Use a static-safe workstation, if available.
  - Store the equipment in appropriate static-safe packaging when not in use.
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## Programmable Electronic Systems

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**ATTENTION**

Personnel responsible for the application of safety-related Programmable Electronic Systems (PES) shall be aware of the safety requirements in the application of the system and shall be trained in using the system.

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## Optical Ports

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**ATTENTION**

Under certain conditions, viewing the optical port may expose the eye to hazard. When viewed under some conditions, the optical port may expose the eye beyond the maximum permissible exposure recommendations.

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### European Hazardous Location Approval

European Zone 2 Certification (The following applies when the product bears the EEx Marking).

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC.

The LCIE (Laboratoire Central des Industries Electriques) certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-15.

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**IMPORTANT**

This equipment is not resistant to sunlight or other sources of UV radiation.

This equipment must be installed in an enclosure providing at least IP54 protection when applied in Class I, Zone 2 environments.

This equipment shall be used within its specified ratings defined by Allen-Bradley.

Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Class I, Zone 2 environments.

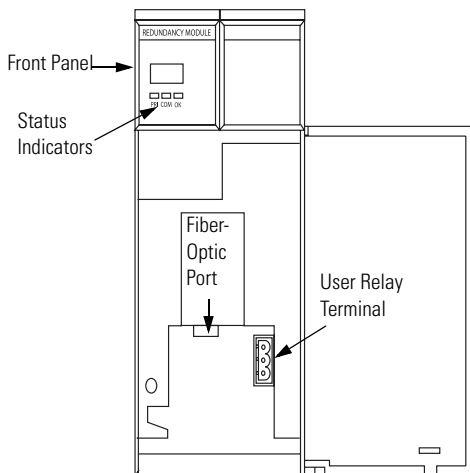
This equipment must be used only with ATEX certified backplanes.

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## About the Module

Use this illustration to identify the external features of the module.

Front View of 1757-SRM Module with Door Open



## Before You Begin

Before you install the module, make sure you:

- know how to handle the module.

See Prevent Electrostatic Discharge on page 5.

- understand redundant systems and redundant media.

For additional information, see the ControlLogix Redundancy System User Manual, publication [1756-UM523](#).

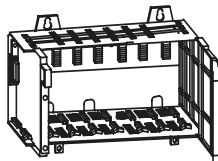
### IMPORTANT

If you are using a ProcessLogix system, search for the appropriate Knowledge Builder documentation at:  
<http://www.rockwellautomation.com/knowledgebase>.

### Parts List

You will need these components.

1756-A4, 1756-A7, 1756-A10,  
1756-A13, or 1756-A17 Chassis



1757-SRM  
Modules



1756-PA72, 1756-PA75,  
1756-PB72, or 1756-PB75  
Power Supplies

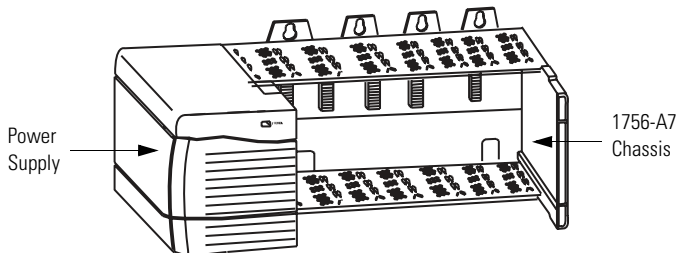


1757-SRCxxx  
Fiber-optic Cable



### Prepare the Chassis for Module Installation

Before you install the module, you must install and connect a ControlLogix chassis and power supply.



Chassis Type (series B)	Chassis Installation Instructions
1756-A4	Publication <a href="#">1756-IN080</a>
1756-A7	
1756-A10	
1756-A13	
1756-A17	



Power Supply	Power Supply Installation Instructions
1756-PA72/C	Publication <a href="#">1756-IN078</a>
1756-PB72/B	
1756-PA75/B	Publication <a href="#">1756-IN596</a>
1756-PB75/B	

**ATTENTION**

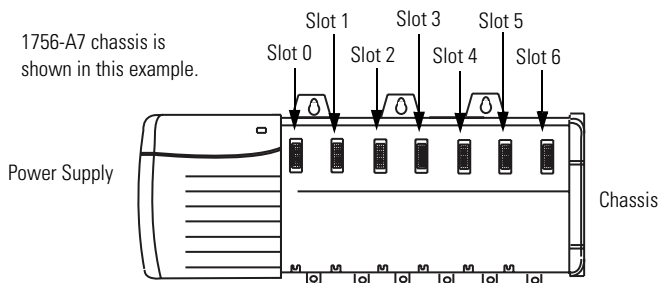
To comply with UL restrictions, the relay terminals must be powered from a source compliant with Class 2.

To comply with the CE Low Voltage Directive (LVD), the relay terminals must be powered from a source compliant with Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).

The line voltage source for the external dc power source to the SRM Relay Terminals must be the same as that used to power the energizing SRM Chassis.

## Determine Module Slot Location

Install the 1757-SRM module in the appropriate slot in the ControlLogix chassis. Slot 0 is the first slot and is always the leftmost slot in the rack.



Chassis Type (series B)	Recommended Slot Locations for 1757-SRM Module
1756-A4	1 or 2
1756-A7	4 or 5
1756-A10	5 or 6
1756-A13	4 or 5
1756-A17	5 or 6

## Installation Requirements

Before you assemble your redundant systems, make sure your redundant system components are identical. Specifically, these items must match:

- primary and secondary (redundant) control chassis, with all modules in the exact same order (slot for slot).
- firmware revisions of all module partners.

### IMPORTANT

If the primary and secondary (redundant) systems are not assembled identically, and are not comprised of modules with matching firmware revisions, the 1757-SRM module cannot qualify the secondary chassis to the primary chassis.

## Redundancy System Assembly

When you assemble the primary and secondary chassis for redundancy, you assemble them just as you would any ProcessLogix or ControlLogix chassis, with the exception that for redundancy you need to assemble two identical chassis.

### ATTENTION



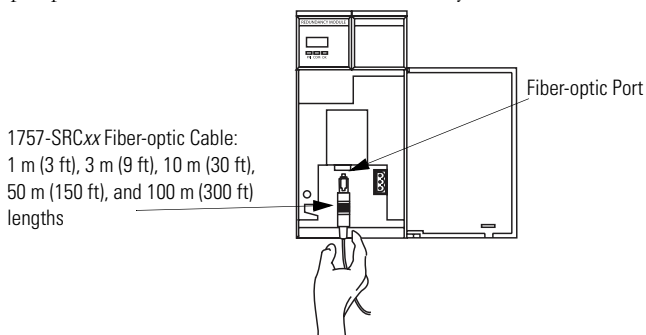
If you are adding redundancy to an already operational ProcessLogix or ControlLogix system, shut off your process to install the 1757-SRM module and designate the primary system.

You may also have to use RSNetworkx software to configure keeper information in the secondary ControlNet communication module if the master keeper for ControlNet communication is in the primary chassis.

You may also need to enable redundancy in your RSLogix 5000 software application and remove any I/O modules from the chassis.

## Connect the Fiber-optic Cable

Prior to installing the 1757-SRM module into the rack, locate the module's fiber-optic port and connect one end of the redundancy module cable to it.



For additional information, see the Redundancy Module Cable Installation Instructions, publication [1757-IN014](#).

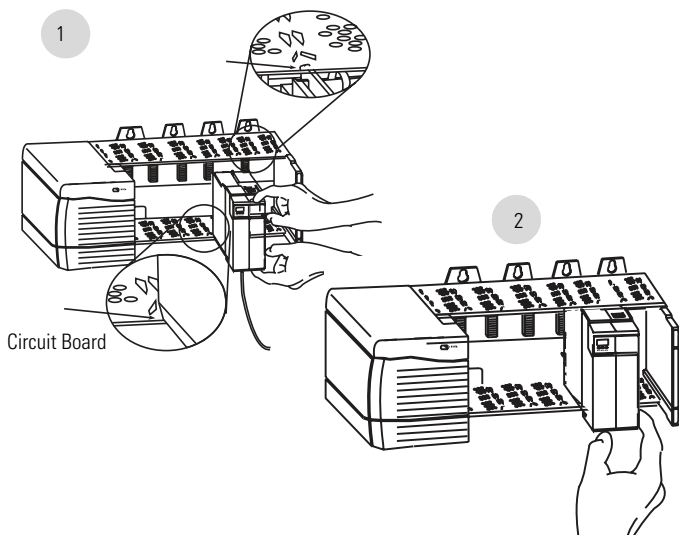
### *Custom Cables*

If you need more than 100 meters (300 feet) of distance between the primary and secondary controller chassis, use your own custom fiber-optic cable. For a custom cable:

- limit total light loss through the cable to less than or equal to 7 dB at 1300 nm wavelength.
- limit total cable length to less than or equal to 4 km (2.49 mi).
- use high quality 62.5/125 micron multi-mode fiber-optic cable.
- use professionally-installed SC connectors to connect to the 1757-SRM modules.

### **Place the Primary and Redundant Modules**

Place a 1757-SRM module in corresponding slots in the primary and redundant chassis. For example, if you place a module in slot five of the primary chassis, you must place the second module in slot five of the redundant chassis.



**WARNING**

When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

1. Align the circuit board with top and bottom guides in the chassis.
2. Slide the module into the chassis, making sure the module backplane connector properly connects to the chassis backplane.

The module is properly installed when it is flush with other installed modules.

**IMPORTANT**

To remove the module, push down on the locking clips at the top right and bottom left of each module. Slide the module out of the chassis.

### Wire to the Separable Terminal Block Connector

If you are using your 1757-SRM modules with the user relay, you need to wire to the separable block connector and plug it into the relay's terminal.

1. Before attaching the separable terminal block connector to the wiring, feed the wire through a ferrite core, keeping the ferrite core as close to the end of the insulation of the wire as possible.

Use the ferrite core manufactured by Steward (part number 28A2029-0A0).

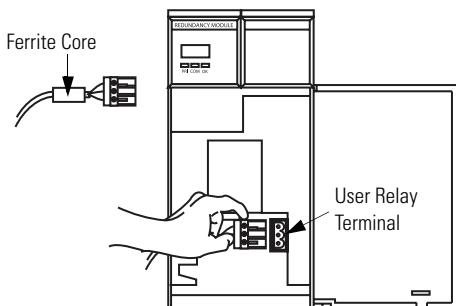
#### **WARNING**



If you connect or disconnect wiring while the field-side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

2. Connect the optional field wiring to the separable terminal block connector and plug it into the user relay terminal.

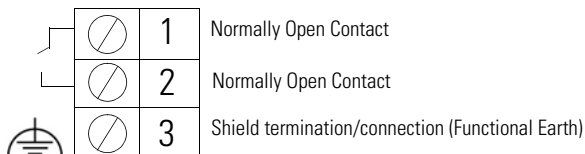
Refer to Using the 1757-SRM Module Relay Terminals on page 15 for more information on terminal designations.



## Using the 1757-SRM Module Relay Terminals

The user relay is available only on the 1757-SRM series B module. The relay will energize when the module determines that it is in a primary control chassis. The relay has these three terminals:

- Normally Open (NO)
- Normally Open Contact (NC)
- Chassis Ground Terminal (GND)



### ATTENTION



The line voltage source for the external dc power source to the SRM Relay Terminals must be the same as that used to power the energizing SRM Chassis.

## Normally Open

The Normally Open contact is located on terminals 1 and 2. The contact is closed when the relay is energized.

These are the user relay contact ratings:

- Maximum Switching Voltage = 30V dc
- Maximum Switching Current = 100 mA

## Chassis Ground Terminal

Terminal 3 is connected to chassis ground. It is intended for use with a shielded two-conductor cable for field wiring of the Normally Open connection. Attach the shield to terminal 3. Leave the opposite end of the shield unconnected. Refer to Specifications on page 30 for a cable listing.

## User-relay Example Application: Connection to an External Switchbox

You can use an external switchbox connected to a user relay on the 1757-SRM series B module to determine which Logix controller you will attach to the other RS232 devices on the serial link. You must assemble an external switchbox to direct serial port devices to one controller of a pair of redundant Logix controllers. Rockwell Automation does not supply the external switchbox with the modules.

This example illustrates a connection scheme, with one single-pole double-throw switch for each RS232 signal. The external power supply output should not exceed the ratings of the external switchbox coil.

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**ATTENTION**

The line voltage source for the external dc power source to the SRM Relay Terminals must be the same as that used to power the energizing SRM Chassis.

Use the same line voltage that provides power to Chassis A, to which user relay connections are made, to provide input power to the external power supply. If you use the same line voltage and your system experiences a line failure to your primary chassis and external power supply, the external switchbox will switch over to Chassis B.

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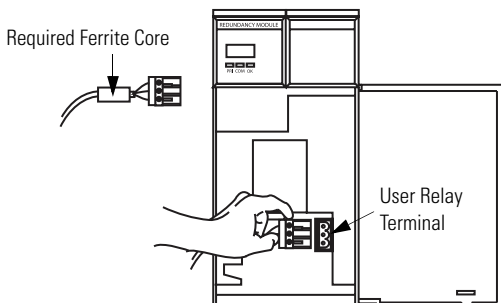
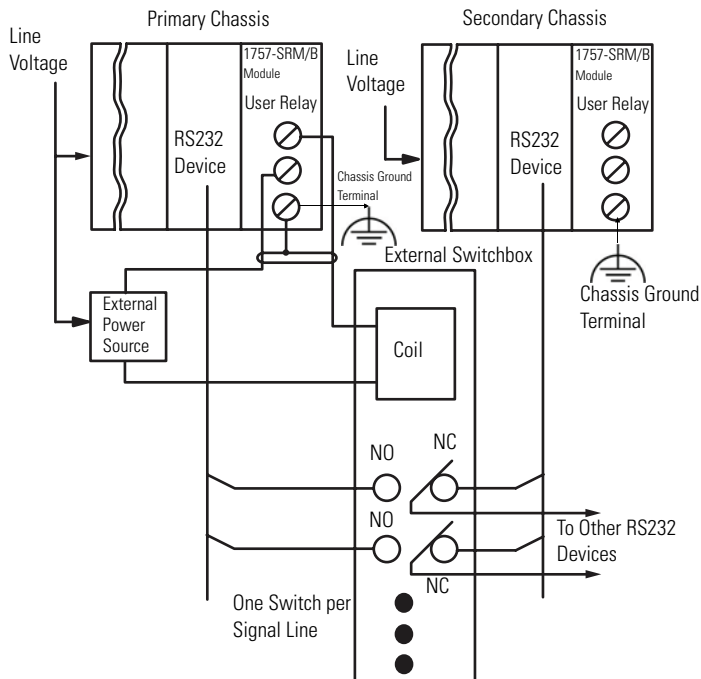
**WARNING**

Failure to use an appropriately rated switchbox may result in an explosion hazard. When installing this equipment in a Class 1, Division 2 hazardous location, select an external switchbox that is appropriately certified for use in this environment.

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# External Switchbox Connections to Logix-controller Serial Port



## Flash Upgrade the Modules

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**IMPORTANT**

Back up any programs or data that you have saved to a device. When you upgrade firmware, all old data will be overwritten.

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To flash upgrade the modules to the latest firmware revision, perform this procedure.

1. Go to <http://support.rockwellautomation.com> and download the latest firmware revision for your 1757-SRM module.
2. Download and install the ControlFLASH Firmware Upgrade Kit.
3. Apply power to only one redundant chassis.
4. Wait for the module to roll display: FACT BOOT FLSH UPDT REQD.
5. Start your ControlFLASH Firmware Upgrade Kit and apply the latest firmware to the module.

For additional information on identifying and upgrading your 1757-SRM module, see the ControlFLASH Firmware Upgrade Kit Quick Start, publication [1756-QS105](#).

**IMPORTANT**

Make sure you know the serial number from your original firmware disk. To upgrade to the latest firmware revision, such as 4.x, you will need to provide the original serial number. If you don't have the serial number, refer to Rockwell Automation Support on the back cover.

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6. Verify that the module displays PRIM, indicating a successful flash upgrade.
7. Turn off the power to the redundant chassis used in step 3.
8. Apply power to the other redundant chassis.

9. Wait for the module to roll display: FACT BOOT FLSH UPDT REQD.
10. Start your ControlFLASH Firmware Upgrade Kit and apply the latest firmware to the module.

**IMPORTANT**

If the flash upgrade is disrupted, cycle power to the chassis. The module will roll display either FACT BOOT FLSH UPDT REQD or USER BOOT FLSH UPDT REQD. Repeat the flash upgrade process.

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## Designate the Primary Chassis and Qualify the System

Once you assemble the chassis, you must designate the primary chassis and then qualify the system so that all module pairs are at compatible firmware revision levels.

**ATTENTION**

Applying power to the chassis is crucial to designating the primary and secondary chassis. Do not apply power to the chassis until you have read the instructions for designating the primary chassis.

Do not attempt to designate a primary chassis without first upgrading the factory boot firmware on the 1757-SRM module.

Refer to Flash Upgrade the Modules on page 18 before you designate the primary chassis and qualify the system.

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## Designate the Primary Chassis

The chassis that you apply power to first is automatically designated as the primary chassis. The 1757-SRM module will display PRIM on the module's four-character display to acknowledge that this chassis is the primary control chassis.

If both modules are have power applied to simultaneously, the module with the lowest serial number will be designated as the primary chassis and will display PRIM on the module's four-character display. In addition, the PRI status indicator on the primary 1757-SRM module will be green. On the 1757-SRM module, the normally open (NO) contacts of the user relay will be closed.

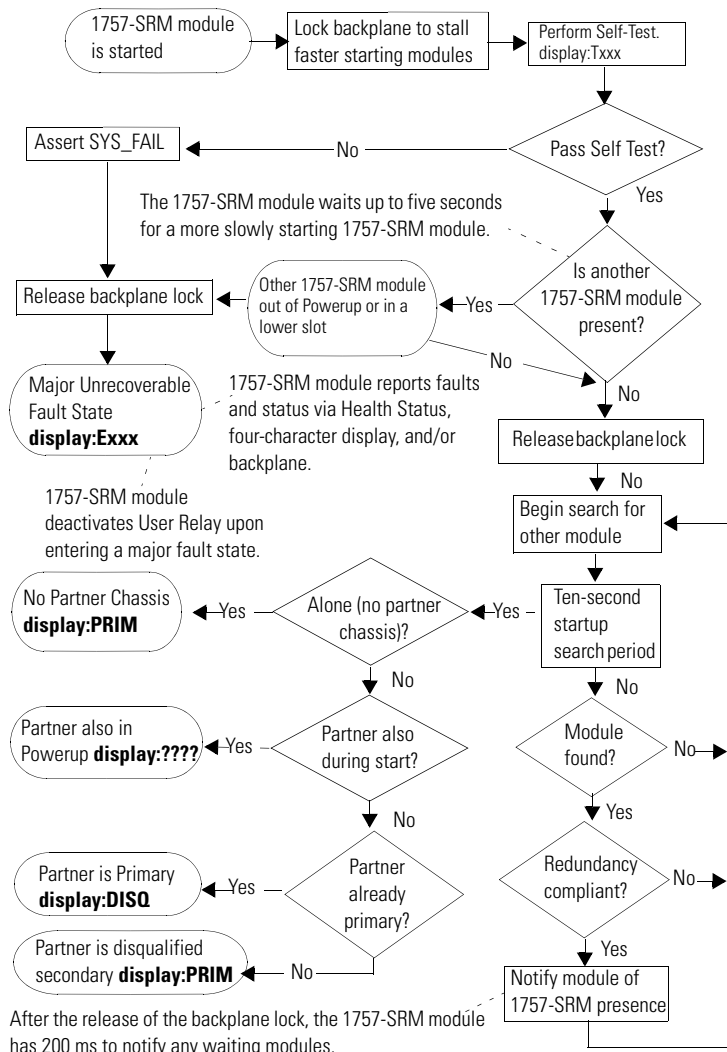
The secondary chassis displays either DISQ or SYNC, depending on the state of the secondary chassis. In addition, the PRI status light on the secondary 1757-SRM module will not be illuminated. On 1757-SRM module, the NO contacts of the user relay will be open.

## Qualify the System

When you first apply power to the designated primary and secondary chassis, the redundant system will begin to qualify them. During qualification, the primary modules are compared with the secondary module partners to verify that the hardware and firmware are compatible.

If the 1757-SRM module displays	Then
<b>SYNC</b> after the chassis has been started and qualified.	The chassis configuration and the firmware revision levels are compatible.
<b>DISQ</b>  <b>Important:</b> The secondary 1757-SRM module will initially display DISQ until it completes the qualification process. This may take 1...3 minutes.	A problem exists: <ul style="list-style-type: none"> <li>• with the chassis configuration.</li> <li>• with incompatible firmware revision levels between the primary and secondary modules. See Flowchart of Starting a Chassis with a Healthy 1757-SRM Module on page 21.</li> <li>• if the ControlNet-module partners' Keeper parameters are not the same.</li> <li>• if the ControlNet MAC IDs are not set to the same node address.</li> </ul>

# Flowchart of Starting a Chassis with a Healthy 1757-SRM Module



### Install or Remove the Module Under Power

You can install or remove this module while chassis power is applied.

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**WARNING**

When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

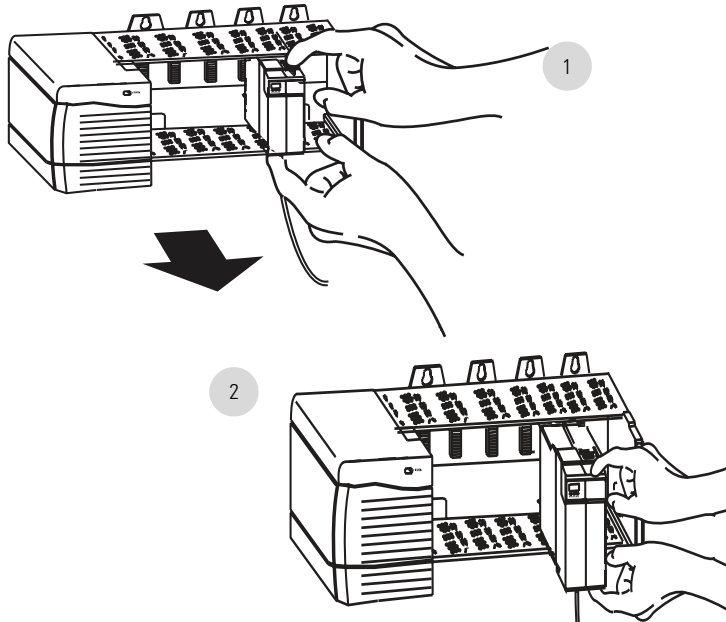
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### Resetting the 1757-SRM Module

There are two ways that you can reset the module.

- If you can cycle power to the chassis without losing control of your process, then cycle power to the chassis.
- If you would lose control of the process by removing power to the chassis, then do not cycle power the chassis. The module can be removed from the chassis and reinserted.

## Remove or Replace the Module



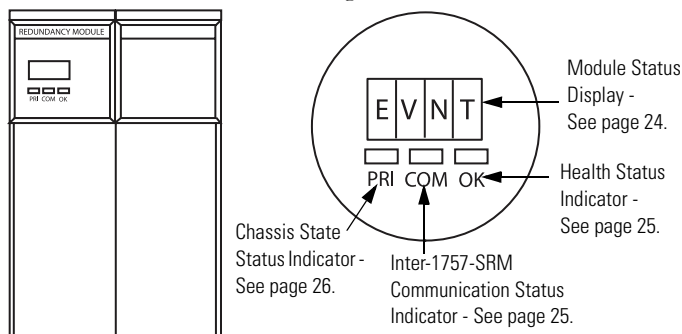
1. Push on upper and lower module tabs to disengage them.
2. Slide the module out of the chassis.

**IMPORTANT**

If you want to resume system operation with an identical module, you must install the new module in the same slot.

## Interpret Status Indicators

The 1757-SRM module has these diagnostic status indicators.



## Module Status Display

The module status display provides diagnostic information.

Display	Cause
	Testing four-character display at startup
Txxx <sup>(1)</sup>	1757-SRM module self test at startup
????	Resolving transition state
DISQ	Disqualified secondary chassis
SYNC	Qualified secondary chassis
PRIM	Primary chassis
BOOT	Boot mode - awaiting further instructions
ERAS	Boot mode - erasing firmware
PROG	Boot mode - loading new firmware
Exxx <sup>(2)</sup>	Major fault situation
message	The shifted message string will alternate with the error ID code

<sup>(1)</sup> xxx represents a hexadecimal test identification number.

<sup>(2)</sup> xxx represents an error or fault code, with the two least-significant characters in decimal.



## Health Status Indicators

The Health status indicator reveals if power has been applied to a module and if it is operating correctly.

Status	Conditions
Off	No power has been applied to the 1757-SRM module.
Solid red	<ul style="list-style-type: none"> <li>The module is conducting a self test while it is being started.</li> <li>The 1757-SRM module has experienced a critical failure.</li> </ul>
Flashing red	<ul style="list-style-type: none"> <li>The 1757-SRM module is experiencing an NVS update.</li> <li>The 1757-SRM module has experienced a noncritical failure.</li> <li>The 1757-SRM module has been configured improperly.</li> </ul>
Solid green	The 1757-SRM module is operating normally.
Flashing green	The 1757-SRM module is operating normally but is not communicating with other modules.

## Inter-1757-SRM Module Communication Status Indicator

The Inter-1757-SRM module communication status indicator indicates activity on the Inter-1757-SRM module communication link.

Status	Conditions
Off	<ul style="list-style-type: none"> <li>No power has been applied to the 1757-SRM module.</li> <li>There is no Inter-1757-SRM module communication activity.</li> </ul>
Red < 1 second	The 1757-SRM module has been started and has established partner communication.
Solid red	The 1757-SRM module has experienced a critical communication failure.
Flashing Green	<ul style="list-style-type: none"> <li>Communication activity is present.</li> <li>Sampled every 250 ms.</li> </ul>

## Chassis State Status Indicator

The Chassis State status indicator identifies whether or not the chassis is primary.

Status	Conditions
Off	<ul style="list-style-type: none"><li>• No power has been applied to the 1757-SRM module.</li><li>• The 1757-SRM chassis state is in secondary or failed state.</li></ul>
Green < 1 second	Powerup with partner 1757-SRM module determining primary state.
Solid green	1757-SRM chassis state is in a primary state.

## 1757-SRM Module Fault Codes and Display Messages

The 1757-SRM module faults fall into four categories.

Fault Type	Description
Minor Recoverable	<ul style="list-style-type: none"><li>• The fault does not stop redundancy operations and provides you with a recovery mechanism.</li><li>• The 1757-SRM module may clear some minor recoverable faults on its own.</li></ul>
Minor Nonrecoverable	<ul style="list-style-type: none"><li>• The fault does not stop redundancy operations.</li><li>• No recovery mechanism is available.</li></ul>
Major Recoverable	<p>The fault will impact redundancy operations, although the effect may not be immediate.</p> <p>For example, if the fault occurred in the secondary 1757-SRM module, it may not affect control until the primary 1757-SRM module fails.</p>
Major Nonrecoverable	<ul style="list-style-type: none"><li>• The fault is a critical fault. Redundancy operations will cease.</li><li>• A switchover may occur.</li><li>• No recover mechanism is available.</li><li>• The module may need to be replaced.</li></ul>

All fault types are logged in the 1757-SRM module's event log, which is stored in nonvolatile memory. See the ControlLogix Controllers Users Manual, publication [1756-UM001](#), for a description of how to access the 1757-SRM module event log.

In addition to the event log, the 1757-SRM module displays major faults on the module's four-character status display in one of two ways; two through four-character word abbreviations and alpha numeric codes.

<b>1st Word</b>	<b>2nd Word</b>	<b>3rd Word</b>	<b>4th Word</b>	<b>Error Description</b>	<b>Actions</b>
CFG	LOG	ERR		Configuration log error.	No action is required.
COMM	RSRC	ERR		Communication resource error.	Reset the 1757-SRM module.
COMM	RSRC	ERR	PRT1	Port1 Communication resource error on Backplane.	Reset the 1757-SRM module and check the rack.
COMM	RSRC	ERR	PRT2	Port2 Communication resource error on Inter-1757-SRM link.	1. Reset the 1757-SRM module. 2. Check the cable.
COMM	ERR	PRT1		Port1 Communication error, Backplane communication.	Check or replace the rack.
COMM	ERR	PRT2		Port2 Communication error, Inter-1757-SRM module communication link.	Check or replace the 1757-SRCxxx fiber-optic cable.
COMM	ERR			General Communication Error.	No action is required.
DUPL	RM			Duplicate 1757-SRM module. This module is not in control.	Remove this 1757-SRM module.
EVNT	LOG	ERR		Event Log Error.	No action is required.
FACT	BOOT			2.22 rev of factory boot code.	Flash upgrade required.

1st Word	2nd Word	3rd Word	4th Word	Error Description	Actions
FLSH	UPDT	REQD		Flash update required.	Flash upgrade the 1757-SRM module with appropriate firmware revision <sup>(1)</sup> .
FMWR	ERR			Firmware error.	Re-flash firmware.
HDW	ERR			Hardware failure.	Replace the 1757-SRM module.
OS	ERR			Operating system error.	Replace the 1757-SRM module.
RM	PWR	DOWN		1757-SRM module Power Down, Module detected a DC_Fail condition.	Check the other modules in the rack.
USR	BOOT			No firmware application on the module.	Re-flash upgrade the module.
WDOG	ERR			Watchdog time out.	Reset the 1757-SRM module.
WDOG	FAIL			Watchdog task failed its status check.	Replace the 1757-SRM module.

<sup>(1)</sup> See Flowchart of Starting a Chassis with a Healthy 1757-SRM Module on page 21.

## Alpha Numeric Error Codes

The fault code is a four-character alpha-numeric string. Valid characters are 0...9 and A through Z, except S and O. The first character is always E. Each firmware subsystem within the 1757-SRM module is assigned a range of fault codes. Each subsystem assigns fault codes within its range.

Valid Character String	Indication
E	Error.
X <sup>1</sup>	The subsystem in which the error was detected.
X <sup>2</sup>	The subsystem function or group of functions in which the error was detected.
X <sup>3</sup>	The specific error.

Range	Subsystem
E 0 __	Backup Control Object
E 1 __	OS Board Support Package
E 2 __	Chassis Profile Object
E 3 __	Coordinated System Time Object
E 4 __	Device Object
E 5 __	Extended Log Object
E 6 __	Event Log Object
E 7 __	Backup Communication Object
E 8 __	ICP Toolkit
E 9 __	Indicator Device Driver

Range	Subsystem
E A __	RM State Machine
E B __	Event Log Device Driver
E C __	Object Communication
E D __	Wall Clock Time Object
E E __	Non-maskable Interrupt Service Routine
E F __	Nonvolatile Storage Object
E G __	RM Fault Handler
E H __	Self Test Object
E I __	Workstation Display Object
E J __	Industrial Control Platform Object
E K __	RM Watchdog Manager

If you encounter one of these error codes, write the Exxx code down and contact Rockwell Automation Product Support by using one of the methods described on the back cover.

### Recovery Messages

For certain faults, the module status display will provide recovery instructions. Up to four, four-character words will be displayed.

Recovery Instruction Code	Description
RPLC MOD	Replace the module.
RSET MOD	Reset the module.
REMV MOD	Remove the module.
SEAT MOD	Reinsert the module into the chassis.

### Specifications

#### System Redundancy Module, Series B - 1757-SRM

Attribute	Value
Backplane current	0.75 A @ 3.3V dc 1.0 A @ 5.1V dc 0.160 A @ 24V dc
Dimensions (HxWxD), approx.	Standard ControlLogix chassis 2 slots wide 14.5 x 7 x 14 cm (5.71 x 2.76 x 5.51 in.)
Weight, approx.	0.452 kg (14.53 oz)
Mounting	ControlLogix chassis
Enclosure type rating	None (open-style)
IEC temperature code	T4
North American temperature code	T4A

Attribute	Value
Power dissipation, max	11.28 W
Thermal dissipation, max	38.49 BTU/hr
Isolation voltage	30V continuous, Basic Insulation Type Type tested at 853V ac for 60 s, Relay Terminals to system

### Redundancy Cable - 1757-SRCxxx

Attribute	Value
Connector	SC-type (fiber-optic)
Cable type	62.5/125 micron multi-mode fiber-optic cable
Channels	1 (transmit and receive fiber)
Wavelength	1300 nm

### User Relay Terminal

Attribute	Value
Power requirements	11...30V dc; 270 mA @ 24V dc (typical) To comply with UL restrictions, the Relay Terminals must be powered from a source compliant with Class 2. To comply with the CE Low Voltage Directive (LVD), the Relay Terminals must be powered from a source compliant with the Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).
Pilot duty rating	Relay terminals: 30V dc Class 2/SELV, 100mA
Wiring category <sup>(1)</sup>	3 - on Relay terminal ports <sup>1</sup>
Relay terminals	0.3... 2.1 mm <sup>2</sup> (22...14 AWG) solid or stranded shielded copper wire rated at 75 °C (167 °F) or greater 1.2 mm (3/64 in.) insulation max
Terminal block torque	0.6...0.8 Nm (5...7 lb-in)

<sup>(1)</sup> Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

## Environmental Specifications

Attribute	Value
Temperature, operating	0...60 °C (32...140 °F) IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)
Temperature, storage	−40...85 °C (−40...185 °F) IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)
Relative humidity	5...95% noncondensing IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)
Vibration	IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10...500 Hz
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 50 g
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g
Emissions	CISPR 11: Group 1, Class A
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
EFT/B immunity	IEC 61000-4-4: ±4 kV at 5 kHz on signal ports
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80%AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100%AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100%AM at 1890 MHz 3V/m with 1 kHz sine-wave 80%AM from 2000...2700 MHz
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80%AM from 150 kHz...80 MHz
Surge transient immunity	IEC 61000-4-5: ±2 kV line-earth (CM) on shielded ports



## Certifications

Certification	Value
Certifications (when product is marked) <sup>(1)</sup>	<p>UL    UL Listed Industrial Control Equipment. See UL File E65584.</p> <p>CSA    CSA Certified Process Control Equipment. See CSA File LR54689C.              CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.</p> <p>FM    FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations</p> <p>CE    European Union 2004/108/EC EMC Directive, compliant with:              EN 61326; Meas./Control/Lab., Industrial Requirements              EN 61000-6-2; Industrial Immunity              EN 61000-6-4; Industrial Emissions              EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</p> <p>C-Tick    Australian Radio Communication Act, compliant with:              AS/NZS CISPR 11; Industrial Emissions</p> <p>EEx    European Union 94/9/EC ATEX Directive, compliant with:              EN 60079-15; Potentially Explosive Atmospheres,              Protection "n" (Zone 2)</p>
TÜV	Certified for Functional Safety: up to and including SIL 2 <sup>(2)</sup>

<sup>(1)</sup> See the Product Certification link at <http://ab.com> for Declarations of Conformity, Certificates, and other certification details.

<sup>(2)</sup> When used with specified firmware revisions.

## Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Contains general guidelines for installing a Rockwell Automation industrial automation system.
ControlLogix Redundancy System User Manual, publication <a href="#">1756-UM523</a>	Contains information about ControlLogix redundancy systems and media.
Redundancy Module Cable Installation Instructions, publication <a href="#">1757-IN014</a>	Contains information on how to install redundancy module cables for communication between 1757-SRM modules.
ControlFLASH Firmware Upgrade Kit Quick Start, publication <a href="#">1756-QS105</a>	Contains information on how to upgrade module firmware.
ControlLogix Controllers User Manual, publication <a href="#">1756-UM001</a>	Contains information on how to install, configure, program, and operate a ControlLogix system.
ControlLogix Chassis-Series B Installation Instructions, publication <a href="#">1756-IN080</a>	Contains information on how to install a ControlLogix chassis.
ControlLogix Power Supplies Installation Instructions, publication <a href="#">1756-IN078</a>	Contains information on how to install the 1756-PA72 and 1756-PB72 ControlLogix power supplies.
ControlLogix Power Supplies Installation Instructions, publication <a href="#">1756-IN596</a>	Contains information on how to install the 1756-PA75 and 1756-PB75 ControlLogix power supplies.

You can view or download publications at <http://literature.rockwellautomation.com>. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.



## Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

## Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running.

United States	1.440.646.3434 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

## New Product Satisfaction Return

Rockwell tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning, it may need to be returned.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

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[www.rockwellautomation.com](http://www.rockwellautomation.com)

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