



Installation Instructions

SRM Redundancy Module

(Cat No. 1757-SRM)

This document tells you how to install the SRM Redundancy Module into the ProcessLogix system. You should read these installation instructions in their entirety before you begin installing the SRM Redundancy module.

Installation Requirements

Before you begin assembling the components of your redundant systems, take a moment to ensure that all aspects of your redundant system components are identical. This means:

- Chassis and system setup of the primary and secondary (redundant) control chassis must be identical, with all modules in the exact same order (slot for slot), in identical-sized chassis'.
- The firmware revision levels of all module partners must be compatible.



ATTENTION: If the primary and secondary (redundant) system are **not** assembled in identically the same configuration, and are **not** comprised of components with exactly the same firmware revision levels, the SRM Redundancy module will be unable to qualify the secondary to the primary.

Redundancy System Assembly Overview

Assembling the primary and secondary chassis for redundancy is the same as assembling any ProcessLogix chassis - except in this instance you will be assembling two identical chassis'.

1. Ensure that all firmware revision levels are compatible between primary and secondary module pairs.
2. Slot-for-slot, assemble the chassis' identically, following Installing ProcessLogix Hardware Installation Instructions, Publication 1757-5.1 and ControlLogix ControlNet Bridge Series C, Publication 1756-5.32.



ATTENTION: If you are adding redundancy to an already operational ProcessLogix system, it will be necessary to power-down your process to install the SRM Redundancy module and to designate the primary system.

3. Install the SRM redundancy modules in identical slots of the primary and secondary chassis according to the Installing the SRM Redundancy Module instructions included later in this document.
4. Connect the SRM Redundancy modules using the ProcessLogix Redundancy Module Cable (Catalog Number 1757-SRC1,-SRC3, or SRC10). Install the cable between the primary and secondary modules according to the ProcessLogix Redundancy Module Cable Installation Instructions, Publication 1757-5.14.
5. Power-up one of the chassis to designate the primary chassis, then power-up the secondary chassis and allow it to qualify.

Installing the SRM Redundancy Module

The SRM Redundancy Module can be installed in any slot of the chassis. However, the primary and secondary system must have the SRM modules installed in exactly the same slot.

1. Align the left module circuit board with the top and bottom guides in the chassis.
2. Slide the module into the chassis. Make sure the module properly connects to the chassis backplane.
 - ▶ The module is fully installed when it is flush with the power supply or other installed modules and the modules locking clips click into place.
 - ▶ 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.

Designating the Primary Chassis and Qualifying the System

Once you have assembled the chassis, you must designate the primary chassis and then qualify the system to assure that all module pairs are indeed at compatible firmware revision level.

Important: Initial power-up of the chassis(s) is crucial to designating the primary and secondary chassis. Do not power up the chassis until you have read and understood the instructions for designating the Primary Chassis.

Designating the Primary Chassis

The chassis that is first powered up is automatically designated as the primary controller. The SRM Redundancy module will display PRIM on the SRM 4 character display to acknowledge that this chassis is the primary control chassis.

If both modules are powered up simultaneously, the module with the lowest serial number will be designated as the primary chassis and will display PRIM on the SRM Redundancy module 4 character display. In addition, the PRI status light on the primary SRM will be ON.

The secondary chassis is acknowledged by either DISQ or SYNC, depending on the state of the secondary chassis. In addition, the PRI status light on the secondary SRM will be OFF.

Qualifying the System

On initial start-up of the complete primary and secondary chassis, the redundant system will begin a qualification process.

The individual chassis modules are at the heart of the qualification process. In qualification, the primary modules are compared with the secondary module partners to ensure that hardware and firmware are adequate matches.

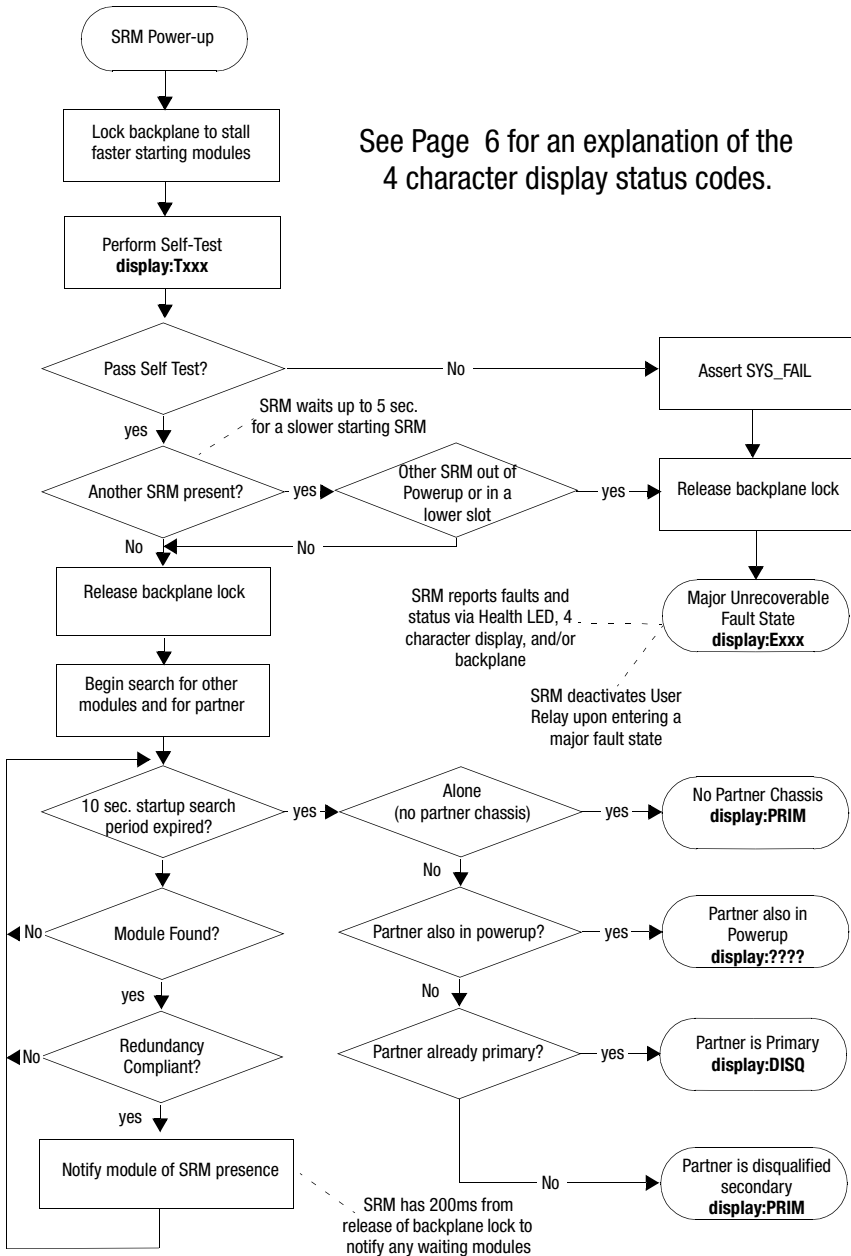
If the chassis configuration and the firmware revision levels are correct, the processor will display SYNC after the chassis has been powered-up and has run through the power-up cycle.

If there is a problem with the chassis configuration, or a misalignment of firmware revision levels between the primary and secondary module partners, the processor will display DISQ.

► The secondary SRM will initially display DISQ until it completes the qualification process. This may take anywhere from 1 to 3 minutes.

Flow Chart of Power-up of a Chassis with a Healthy SRM

See Page 6 for an explanation of the 4 character display status codes.



Health LED

The right-most LED on the SRM module face is the SRM Health LED. Bi-color (red/green), the Health LED is labeled “OK” and indicates whether or not the module has power and operates correctly. The following table explains how to read the Health LED:

Condition	Status
No power to SRM	off
Powerup self test	solid red
SRM O.K. but not communicating with other modules	flashing green
SRM configured improperly	flashing red
SRM O.K.	solid green
SRM NVS update	flashing red
SRM non-critical failure	flashing red
SRM critical failure	solid red

Chassis State LED

The left-most LED on the SRM module face is the Chassis State. Bi-color (red/green), the Chassis State LED indicates when the chassis is primary.

Condition	LED Status
No power	off
Powerup	green > 1 second
SRM chassis state is any secondary of failed state	off
SRM chassis state is any primary state	solid green

Inter-SRM Comm LED


The center LED on the SRM module state is the Inter-SRM Comm LED. Bi-color (red/green), the Inter-SRM Comm LED is labeled “COM” and indicates

activity on the Inter-SRM communications link. The following table explains how to read the Inter-SRM Comm LED.

Condition	LED Status
No power	off
Powerup	red > 1 second
No Inter-SRM Comm activity	off
Communication activity present	green > 250 ms.
Critical failure	red (if possible)

4 Character Display Codes

The table below outlines the codes displayed by the 4 character status display on the face of the SRM Module.

Display	SRM State
 (1)	Testing 4 character display at startup
Txxx ⁽²⁾	SRM self test at startup
????	Resolving initial 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 ⁽³⁾	Major fault situation
message ⁽⁴⁾	The shifted message string will alternate with the error ID code

⁽¹⁾ All Pixels on

⁽²⁾ xxx represents a hexadecimal test identification number

⁽³⁾ xxx represents an error or fault code, with the 2 least significant characters in decimal

⁽⁴⁾ a shifted message string

Major Fault Codes

The table below outlines the major fault codes displayed by the 4 character status display in the case of a major fault.

1st word	2nd word	3rd word	4th word	Definition
CNFG	FALT	-	-	Configuration fault
CABL	FALT	-	-	Cabling fault
COMM	FALT	-	-	Communications fault
CARD	FAIL	-	-	Module hardware failure
DUPL	NODE	-	-	Duplicate communications node
INVL	PROG	-	-	Invalid firmware
DB	FALT	-	-	Database fault

Shifting Messages

Messaging shifting only occurs in abnormal situations where the SRM is not supporting chassis bridging and where there is a need to have additional information conveyed to the user. For the certain fault situations, specific recovery instructions will shift across the 4 character status display. Examples are:

- Check Cable
- Replace SRM
- Cycle Chassis Power
- Reload Firmware

Specifications

electrical	backplane current	0.75 amp@3.3VDC 1.0 amp@5.1 VDC 0.090 amp@24 VDC		
	power dissipation	9.6 watts		
	thermal dissipation	9.6 watts		
environmental	operating temperature	0 to 60 deg. C		
	storage temperature	-40 to 85 deg. C		
	relative humidity	5 to 95% without condensation		
physical	module type	redundancy		
	module size	(ICP std. 2 slots wide)		
	chassis location (recommended default)	slots 5-6 in 10-slot and 17-slot	slots 4-5 in 7-slot and 13-slot	
	weight	0.452 kg		
interfaces	redundancy cable	connectors	SC-type (fiber-optic)	
		cable type	62.5/125 micron multi-mode fiber-optic cable	
		channels	one (transmit and receive fiber)	
		ground isolation	N/A (fiber-optic interface)	
	status contact cable interface	connectors	3-terminal Weidmuller #150191 mating connector supplied with redundancy module for use on user cable.	
		cable type	shielded pair; conductor size range = AWG #14-22	
		voltage/current ratings	30 v ac/dc maximum / 100 milliamps maximum	
		channels	one	
		ground isolation	1500 vac	

agency certification

(when product or packaging is marked)



marked for all applicable directives



Class 1 Div 2 Hazardous⁽¹⁾ ⁽²⁾

⁽¹⁾ CSA certification - Class 1, Division 2, Group A,B,C,D or nonhazardous locations

⁽²⁾ FM approval - Class 1, Division 2, Group A,B,C,D or nonhazardous locations

CSA Hazardous Location Approval

CSA certifies products for general use as well as for use in hazardous locations. Actual CSA certification is indicated by the product label as shown below, and not by statements in any user documentation.

Example of the CSA certification product label:

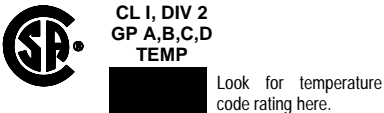


To comply with CSA certification for use in hazardous locations, the following information becomes part of the product literature for this CSA-certified industrial control product.

- This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D, or non-hazardous locations only.
- The products having the appropriate CSA markings (that is, Class I, Division 2, Groups A, B, C, are certified for use in other equipment where the suitability of combination (that is, application or use) is determined by the CSA or the local inspection office having jurisdiction.

Important: Due to the modular nature of a programmable control system, the product with the highest temperature rating determines the overall temperature code rating of a programmable control system in a Class I, Division 2, location. The temperature code rating is marked on the product label as shown.

Temperature code rating:



The following warnings apply to products having CSA certification for use in hazardous locations.

ATTENTION: : Explosion hazard--



- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not disconnect connectors unless power has been switched off or the area is known to be non-hazardous. Secure any user-supplied connectors that mate to external circuits on this equipment by using screws, sliding latches, threaded connectors, or other means such that any connection can withstand a 15 Newton (3.4 lb.) separating force applied for a minimum of one minute.
- Batteries must only be changed in an area known to be non-hazardous.

Approbation d'utilisation dans des environnements dangereux par la CSA

La CSA certifie des produits pour une utilisation générale aussi bien que pour une utilisation en environnements dangereux. La certification CSA en vigueur est indiquée par l'étiquette produit et non par des indications dans la documentation utilisateur.

Exemple d'étiquette de certification d'un produit par la CSA :

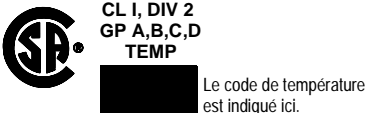


Pour satisfaire à la certification CSA en environnements dangereux, les informations suivantes font partie intégrante de la documentation des produits de commande industrielle certifiés.

- Cet équipement ne convient qu'à une utilisation dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux.
- Les produits portant le marquage CSA approprié (c'est-à-dire Classe 1, Division 2, Groupes A, C, D) sont certifiés pour une utilisation avec d'autres équipements, les combinaisons d'applications et d'utilisation étant déterminées par la CSA ou le bureau local d'inspection.

Important: De par la nature modulaire des systèmes de commande programmables, le produit ayant le code de température le plus élevé détermine le code de température global du système dans un environnement de Classe I, Division 2. Le code de température est indiqué sur l'étiquette produit.

Code de température :



Les avertissements suivants s'appliquent aux produits ayant la certification CSA pour une utilisation dans des environnements dangereux.

ATTENTION: Risque d'explosion --



- La substitution de composants peut rendre ce matériel inadapté à une utilisation en environnement de Classe 1, Division 2.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de remplacer des composants.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.
- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs fournis par l'utilisateur pour se brancher aux circuits externes de cet appareil à l'aide de vis, loquets coulissants, connecteurs filetés ou autres, de sorte que les connexions résistent à une force de séparation de 15 Newtons (1,5 kg - 3,4 lb.) appliquée pendant au moins une minute.
- S'assurer que l'environnement est classé non dangereux avant de changer les piles.

Drives

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