# ControlLogix™ Redundancy System

Cat. No. 1756-CNB/D, -CNBR/D, -L55, -L55M12, -L55M13, -L55M14, -L55M16, -L55M22, -L55M23, -L55M24, 1757-SRM/A, -SRM/B

| **IMPORTANT** | If you have a 1756-L55 controller, you must install a memory board. For more information, see the *ControlLogix Controller and Memory Board Installation Instructions*, publication 1756-IN101. |
|---|---|

## When to Use These Release Notes

These release notes correspond to the following components of the ControlLogix redundancy system:

| Component: | Catalog number: | Revision: |
|---|---|---|
| ControlLogix5555™ controller | 1756-L55Mxx | 11.60 or later |
| ControlNet bridge module | 1756-CNB/D or -CNBR/D | 5.36 or later |
| redundancy module | 1757-SRM/A or -SRM/B | 3.25 or later |

## Compatible Revisions

To use this revision, update your system as follows:

| Update this: | To this revision or later: |
|---|---|
| RSLinx™ software | 2.41.00 Build 10 |
| RSLogix 5000™ software | 11.11 |
| RSNetWorx™ for ControlNet software | 4.11 |
| RSNetWorx for DeviceNet software | 4.12 |

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## What Is In These Release Notes

These release notes provide the following information about the components of the redundancy system:

| For information about: | See this section: | On this page: |
|---|---|---|
| order in which to update your system | How to Update Your System | 2 |
| new features | Enhancements | 3 |
| restrictions that no longer apply | Corrected Anomalies | 3 |
| restrictions to your redundancy system | Restrictions | 5 |

For more information on the ControlLogix redundancy system, see the *ControlLogix Redundancy System User Manual*, publication 1756-UM523.

## How to Update Your System

Update your system in the following order:

**1.** Install the RSLinx software.

**ATTENTION**

**2.** Update the SRM module firmware.

It takes several minutes to update a 1757-SRM/A or -SRM/B module. *Do not* interrupt the process. Make sure you wait until the SRM module displays REV 3.25 on its four-character display. If you interrupt the process, the module may become inoperative.

When you update the module, it performs the following sequence:

- Two downloads (ERAS/PROG on display twice)
- Reset to rev. 2.20 (FLSH UPDT REQD)
- Two more downloads (ERAS/PROG on display twice)
- Second reset before the update is complete

If the OK LED on the SRM module is red flashing and the 4-character display is blank, then the firmware update has failed. *Do not* cycle the power to the module. Leave the power on and update the firmware of the module again.

**3.** Update the CNB module firmware.

**4.** Update the controller firmware.

## Enhancements

This revision provides the following enhancements:

| Enhancement: | Description: |
|---|---|
| 1756-L55M12 and -L55M22 Controllers | You can use a 1756-L55M12 or -L55M22 controller in a redundant system. |
| Nonvolatile Memory | You can store or load a project to the nonvolatile memory of a 1756-L55M22, -L55M23, or -L55M24 controller. For step-by-step procedures, see the *ControlLogix Redundancy System User Manual*, publication 1756-UM523. |
| general enhancements | This revision also contains the enhancements that were previously available to non-redundant systems via the general releases of Logix revision 10.x and 11.x software and firmware.<br><br>For more information on those enhancements, see the following release notes:<br><br>• For revision 10.x enhancements, see publication 1756-RN004S-EN-E.<br><br>• For revision 11.x enhancements, see publication 1756-RN004W-EN-E |

## Corrected Anomalies

This revision corrects the following anomalies, which were present in major revision 8 or preliminary minor revisions of major revision 11:

| Anomaly: | Description: |
|---|---|
| SRM Module in Slot 0 | If you placed a 1757-SRM module in slot 0, it might have caused other modules to fault when they power up. |
| Absence of I/O Might Have Prevented Synchronization | The following *combination* of events might have prevented the secondary controller from synchronizing (both events must have occurred together):<br><br>• The primary controller could not communicate with multiple devices in its I/O configuration. This occurred if multiple nodes were turned off or disconnected from the ControlNet network.<br><br>• The secondary controller became disqualified for any reason.<br><br>If this occurred, the Event log of the SRM Configuration software indicated the following:<br><br>`L55 partner not present` |
| CNB Module Might Have Displayed PwNS | In very rare instances, a power cycle to the secondary chassis might have caused the CNB module or modules in the primary chassis to display *PwNS* on their 4 character display. |
| Indirect Addressing of an ASCII String | You could not download a project that used an indirect address (tag in the subscript of an array) to a string data type. |
| SRM Module Placed in a Slot Configured for Another Module | If you placed the left-hand side of a 1757-SRM module in a slot that was configured for a CNB module, other modules might have faulted when they powered up. |
| Switchover Caused a CNB Module to Fail | In some instances, a switchover might have caused a CNB module to stop communicating (solid red OK LED). When this occurred, the CNB module displayed a message that started with either of the following:<br><br>• ASSERT…<br><br>• FAULT… |
| Major Fault During Prescan | If a major fault occurred during prescan (i.e., change from program mode to run mode), a switchover might *not* have occurred and the secondary controller might have experienced a non-recoverable fault (solid red OK LED). If this occurred, you had to manually clear the fault and then cycle power to the secondary chassis. |

| Anomaly: | Description: | |
|---|---|---|
| CIP Data Table Write Messages Failed | In a synchronized system, Message (MSG) instructions that were configured as CIP Data Table Write *did not* work. The instruction did not write the data and its ER bit was set. | |
| Online Edits Might Have Corrupted the Project in the Secondary Controller | If you performed online edits in a synchronized system, you might have corrupted the project in the secondary controller. To avoid this situation, you had to perform online edits while the secondary chassis was disqualified. | |
| Creating a Task or Program Online | In a synchronized system, if you created a task or program while online with the controller the secondary chassis might have disqualified. | |
| Power Disruptions Cleared Memory | If power to the controller turned on and then turned off again in less than a second, the controller might have cleared the project from its memory. This might have occurred during brownouts or other situations where power to the controller fluctuated for a short duration. | |
| Secondary Chassis Failed to Synchronize | In rare instances, the secondary chassis might have failed to synchronize after a switchover and required manual intervention: | |

| | If a: | Then you had to: |
|---|---|---|
| | secondary controller was faulted (task watchdog) | Clear the fault. |
| | CNB module in either chassis displayed a no partner (PwNS, DSNP) condition on its 4 character display | Use the SRM Module Configuration dialog box in RSLinx software to synchronize the secondary chassis. |

| Anomaly: | Description: |
|---|---|
| ControlNet Trunk Line Break Caused the Secondary Chassis to Disqualify | If a ControlNet trunk line broke and was re-connected, the secondary chassis might have disqualified and then automatically synchronized. During this time the primary chassis maintained control of the system. |
| Task Watchdog Fault | In the following situations, either a primary or secondary controller might have experienced a major fault (flashing red OK LED) due to the watchdog timer of a task: <br><br> • In a synchronized system, a failure of a primary CNB module caused the system to switch to the secondary chassis. But the controller that was previously the primary controller was left with a task watchdog fault. <br><br> • In a system with a disqualified secondary chassis, a failure of a primary CNB module caused the primary controller to experience a task watchdog fault. No switchover occurred. <br><br> You had to manually clear the fault from either the controller. |
| Controller Failed to Reconnect with a Remote Chassis | Under the following *combination* of circumstances, a controller was sometimes unable to re-establish connections with a remote chassis (both must have occurred): <br><br> • The remote chassis contained a 1756-CNB/B or -CNBR/B module. <br><br> • You disconnected the remote chassis during a switchover. |
| Communication with a Device Over RIO Sometimes Failed | If your system communicated with I/O over a universal remote I/O network, the following could have occurred: <br> • If power was cycled to the remote device, the controller might not reestablish communication with the device. In the *Properties* dialog box of the remote I/O adapter for the device, the *Status* line displayed "Shutting Down." |

## Restrictions

This revision contains the following restrictions:

| Restriction: | Description: |
|---|---|
| Online Editing During a Switchover | In some instances, RSLogix 5000 software may not let you perform additional online edits of a function block diagram. This may occur if you edit the function block diagram while online and the system is switching over and synchronizing.<br><br>If this occurs:<br><br>1. Close and then open RSLogix 5000 software.<br><br>2. Upload the RSLogix 5000 project from the primary controller. |
| Deleting a Task Online | If you delete a task while online with the controller, the secondary chassis may disqualify and then synchronize. |
| Motion Control | You *cannot* use the ControlLogix redundancy system in applications that require motion control. (I.e., You *cannot* use a 1756-M02AE, -M08SE, or -M16SE module.) |
| Sequential Function Charts | You *cannot* use the sequential function chart (SFC) programming language to program your redundancy system. If you attempt to download a project with an SFC, the download fails and you get the following error message: "Attribute list error." |
| Local ENBT modules | 1756-ENBT modules are *not* permitted in a redundant chassis. |
| ASCII Instructions May Prevent the Secondary Controller From Synchronizing | After you download a project that contains ASCII instructions (e.g., ABL, ACB) to a pair of redundant controllers, the secondary controller may disqualify and fail to synchronize. If this occurs, turn off both controllers (primary and secondary) and then turn the controllers back on. |
| Simultaneous Power Up Could Cause the Secondary Chassis to Fail to Synchronize | If you turn on the power to both redundant chassis at the same time, the secondary chassis may *not* synchronize.<br><br>• If this occurs, cycle the power to the secondary chassis.<br><br>• To prevent this, design your system so you can power up each redundant chassis independent of the other redundant chassis. |
| Controller May Momentarily Drop Its Connection to a Digital I/O Module | In rare instances, if a tap to a 1756-CNB module is disconnected or breaks, the primary controller may monetarily drop its connection to a digital I/O module. The connection automatically re-establishes.<br><br>To minimize this, use redundant ControlNet media. Redundant ControlNet media prevents a loss of communication if a trunkline or tap is severed or disconnected. |

| Restriction: | Description: |
|---|---|
| Communication Loss When Bridging Through a 1756-CNB/B or -CNBR/B Module | The following combination of modules in a remote chassis could cause a temporary communication loss with the chassis:<br><br>• 1756-CNB/B or -CNBR/B module<br><br>• 1756-DHRIO module that is connected to a remote I/O network. |
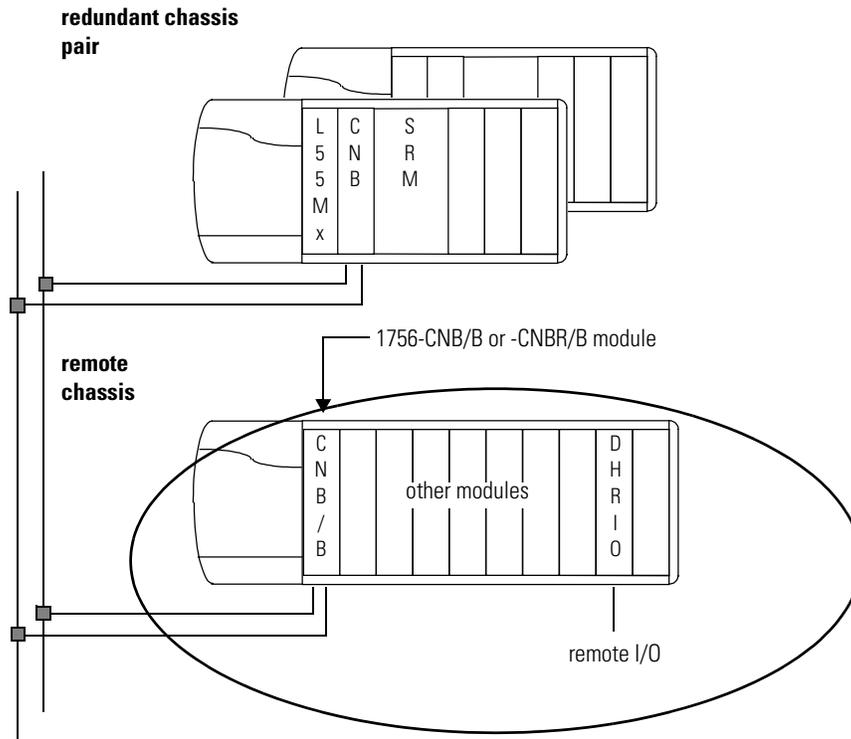


**On the first switchover after you download a project to the controller, you may temporarily lose communications with these devices.**

The loss of communication occurs on the first switchover after you download the project to the redundant controller.

• You lose communication with the remote chassis and any devices to which you were bridging via the chassis, such as the remote I/O modules.

• During the communication loss, the I/O modules go to their configured state for a communication fault.

• The communication loss is temporary. Communications restore themselves.

To prevent this situation, use 1756-CNB/D or -CNBR/D modules.

| Restriction: | Description: |
|---|---|
| If the Lowest Node Is a 1756-CNB/B or -CNBR/B Module, Removing a Tap or Breaking a Cable Could Stop All Communications over the Network | If the lowest node on a ControlNet network is a 1756-CNB/B or -CNBR/B module, all communications over the network could stop if:<br><br>• A tap to the 1756-CNB/B or -CNBR/B module is disconnected or breaks and then is replaced while power is still applied to the 1756-CNB/B or -CNBR/B module<br><br>If a tap to a 1756-CNB/B or -CNBR/B module becomes disconnected or broken, take these actions:<br><br>1. Turn off the power to the 1756-CNB/B or -CNBR/B module.<br><br>2. Replace the tap.<br><br>If a communication failure occurs because of a disconnected or broken tap, cycle power to each primary controller on the network.<br><br>To prevent this situation, use a 1756-CNB/D or -CNBR/D module as your lowest node on the network. |
| 1756-L55M16 Controllers Have a 3.5M Byte Limit of Tags | You *cannot* download a project that has more than 3.5M bytes of data to a 1756-L55M16 controller. (For redundancy operations, the controller requires enough memory for 2 copies of all data.) During the download, RSLogix 5000 software indicates that the controller is out of memory.<br><br>To stay within the 3.5M byte limit, take this precaution:<br><br>• As you create tags, periodically download the project. If the project successfully downloads, then you know you are within the 3.5M byte limit. |
| 1756-L55M16 Controllers: Guidelines for the Size of Routines | You *cannot* download a project that has very large routines. During the download, RSLogix 5000 software indicates that the controller is out of memory. (While online, you may be able to create a very large routine, but once offline you will be unable to download the project.)<br><br>To avoid creating routines that are too large, take these precautions:<br><br>• Limit the number of rungs in a routine to less than 2500. (Use a series of smaller routines.)<br><br>• If you are entering a large number of rungs in a routine, do this offline.<br><br>• As you enter rungs, periodically download the project. If the project successfully downloads, then your routines are within limits. |

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# Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using our 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 | 1.440.646.3223<br>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 our products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs 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. |