ControlLogix™ Redundancy System

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

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.

Introduction

The ControlLogix redundancy system operates as follows:

- Redundancy requires no additional programming and is transparent to any devices connected over the ControlNet™ network.
- When a failure occurs in any of the components in the primary chassis, control switches to a controller in a secondary chassis.
- During the switchover, outputs that are controlled by the highest priority task will experience a bump-less switch over. (i.e., Outputs will not revert to a previous state.)
- Outputs in lower priority tasks *may* experience a change of state.

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

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

When to Use These Release Notes

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

Component:	Catalog number:	Revision:
Logix5555™ controller	1756-L55Mxx	8.78 or later
ControlNet bridge module	1756-CNB/D or -CNBR/D	5.27 or later
redundancy module	1757-SRM	2.15 or later

Compatible Revisions

To use this revision, update your system as follows:

Update this:	To this revision or later:
RSLinx™ software	2.30
RSLogix 5000™ software	8.52
RSNetWorx™ for ControlNet software	3.00
RSNetWorx for DeviceNet software	3.00

Corrected Anomalies

This revision of components of the ControlLogix redundancy system corrects the following anomalies:

Outputs Might Have Changed During a Switchover

During a switchover, outputs might have changed briefly to incorrect values.

OPC Communications Failed to Restart

After OPC communications were stopped and then restarted, data would sometimes stop updating correctly.

OPC Communications Caused the Secondary to Re-Qualify

When OPC communications were initiated, the secondary controller would first disqualify and then re-qualify. After the secondary controller re-qualified, the OPC communications would start working.

A Switchover Changed the Message Path

After a switchover, the path of a message was wrong. The switchover changed one of the numbers in the path to a zero. For example, a switchover might have changed the path from 1,5 to 0,5.

Advanced Redundancy Properties Dialog Box Was Inactive

The Advanced Redundancy Properties dialog box was inactive. This required those properties to stay at their default values.

FSC, FAL, AVG, STD, and SRT Instructions May Have Suspended Execution

FSC, FAL, AVG, STD, and SRT instructions may have suspended execution after a switchover. This might have caused those instructions to stay in a non-operating state until they were reset.

Occasional Loss of I/O Communications or Failure of the Controller

Five anomalies that may have occasionally caused either of the following after a switchover:

- temporary loss of communication with an I/O module
- failure of the new primary controller

Either of those could have resulted in the redundancy system losing control of your process after a switchover.

Logix5555 Controller Enhancements

This revision of Logix5555 controllers Logix5555 controllers contains the following new features:

REDUNDANCY Object

The REDUNDANCY object provides status information about your redundancy system. To access this information, use a GSV instruction.

Additional Enhancements

Additional features were available with revision 8.20 or later. See *ControlLogix Controller Firmware Release Notes*, publication 1756-RN004L-EN-E.

Logix5555 Controller Changes

This revision of Logix5555 controllers contains the following changes:

Additional Memory Requirements

For redundancy operations, the controller requires enough memory for 2 copies of all data.

Logix5555 Controller Restrictions

This revision of Logix5555 controllers Logix5555 controllers has the following restrictions:

Motion Control

You *cannot* use the ControlLogix redundancy system in applications that require motion control. (I.e., You *cannot* use a 1756-M02AE module.)
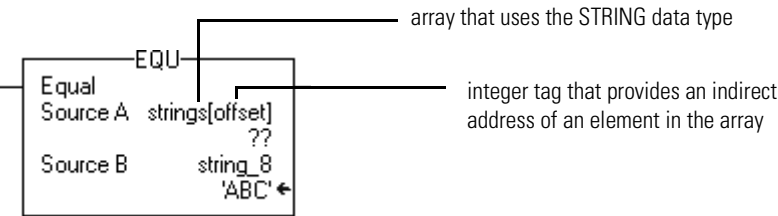
Nonvolatile Memory

You *cannot* store or load a project to the nonvolatile memory of a 1756-L55M23 or -L55M24 controller.

Indirect Addressing of an ASCII String

You *cannot* download a project that uses an indirect address (tag in the subscript of an array) to a string data type, as follows:

For these instructions:	Avoid indirect addresses to these data types:
ARD, ARL, AWA, AWT	any user-defined string data type (The default STRING data type is OK.)
EQU, NEQ, LES, LEQ, GRT, GEQ	all string data types (including the default STRING data type)

For example, the following combinations of tags and instruction would prevent a project from downloading:

array that uses the STRING data type

```
        ┌──EQU──┐
 ──│ Equal        │
   │ Source A  strings[offset]
   │              ??
   │ Source B   string_8
   │             'ABC' ←
```

integer tag that provides an indirect address of an element in the array

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.

To stay within the 3.5M byte limit, take this precaution:

- 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.)

To avoid creating routines that are too large, take these precautions:

- Limit the number of rungs in a routine to less than 2500. (Use a series of smaller routines.)
- If you are entering a large number of rungs in a routine, do this offline.
- As you enter rungs, periodically download the project. If the project successfully downloads, then your routines are within limits.

CNB Module Enhancements

This revision of 1756-CNB/D and -CNBR/D modules contain the following new features:

Additional Diagnostic Information

On the front of the 1756-CNB/D or -CNBR/D module, four character display shows the following information:

Display:	Where:		
%Cxx	xx is the percent of CPU usage.		
Kpxx	xx is the state of the module's keeper function:		
	If xx is:	Then the keeper is:	
	Ai	active network keeper with either: • invalid keeper information or • keeper signature that does not match the keeper signature of the network	
	Av	active network keeper with: • valid keeper information • keeper signature that defines the keeper signature of the network	
	Ii	inactive network keeper with either: • invalid keeper information or • keeper signature that does not match the keeper signature of the network	
	Iv	inactive network keeper with valid keeper information that matches the keeper signature of the network	
	Oi	• powering up with invalid keeper information or • offline with invalid keeper information	
	Ov	• powering up with valid keeper information that may or may not match the keeper signature of the network or • offline with valid keeper information that may or may not match the keeper signature of the network	
nCxx	xx is the number of open connections that are in use by the CNB module.		
nUxx	xx is the number of unconnected buffers that are in use by the CNB module.		
Bxnn	nn is the number of times that the bandwidth of the module was exceeded (bandwidth exceeded error) since the module was turned off or reset. You see this information only if the count is greater than zero.		