Release Note

GuardLogix Controllers Revision 14

Catalog Numbers 1756-L61S, 1756-L62S, 1756-LSP

When to Use These Release Notes

These release notes correspond to GuardLogix version 14.33 controllers. These release notes include the changes and corrected anomalies of earlier revisions of 14.x firmware.

Compatible Revisions

To use this controller revision, update your system as follows:

Update This Software	To This Revision or Later
RSLinx	2.43
RSLogix5000	14.01
RSNetWorx for DeviceNet	5.11
RSNetWorx for EtherNet /IP	5.11
RSNetWorx for ControlNet	5.11

Changing Controllers

Because GuardLogix safety controllers have special requirements and do not support certain standard features, you must understand the behavior of the system when changing controllers from standard to safety or safety to standard. Changing controller type affects:

- supported features
- physical configuration of the project (for example, Safety Partner and Safety I/O)
- controller properties
- project components (such as tasks, programs, routines, and tags)

In addition, the ladder logic instructions permitted in safety applications are limited to a specific subset of the Logix instruction set.

Safety applications may also take advantage of specialized safety application instructions.

Refer to the GuardLogix Controllers User Manual, publication 1756-UM020, for details.

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Enhancements

This revision of ControlLogix firmware adds more stringent range checks when reading to or writing from tags. This could cause some MSG instructions that worked in previous firmware revisions to not work in revision 14 firmware.

For example, use a CIP Generic MSG instruction to perform a Get Attribute Single service. The attribute is 4 bytes in length. Assume the destination tag is an INT data type (2 bytes in length). In revision 13 firmware, the MSG instruction places the first 2 bytes of the attribute in the destination tag. In revision 14 firmware, the MSG instruction results in an error because the destination tag is not large enough. To correct this error, change the destination tag to a DINT data type.

Corrected Anomalies

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Corrected anomaly	Description
Watchdog Continued to Run When the Safety Task Recovered from a Power Up	If the safety controller powered down while executing the safety task, the next time power was applied, a safety task watchdog fault could be generated even though the safety task was not running. Lgx00053908
Programmatic Change of MSG Status Bits Could Cause the MSG to Appear Remain Active (.EN Set)	If you programmatically reset the .DN or .ER bits of a MSG due to the asynchronous nature of the MSG, the MSG could appear to remain active (.EN set). In fact, the MSG was not active. The MSG required manual intervention to trigger it to execute again. This firmware revision removes the need for manual intervention to trigger the MSG to execute again. Lgx00053112
Produce Tag Connections Did Not Speed Up When a Consumer Requested a Faster RPI	If you had a tag produced for one consumer and then a second consumer requested a connection to the same tag at a faster rate, the second connection would open, but at the slower rate of the first consumer. This firmware revision correctly sends produced data at the requested rate. Lgx00054434
Major, Non-Recoverable Fault Due to Internal Diagnostic Failure	A rare, internal diagnostic failure could cause a major, non-recoverable fault. Lgx00054678
Major, Non-Recoverable Fault When Accessing Data Monitor from RSLinx Software	With more current versions of RSLinx software, when you browsed the serial port of the controller and tried to monitor data, RSLinx software appeared to lock up and the controller generated a major, non-recoverable fault. Lgx00054973

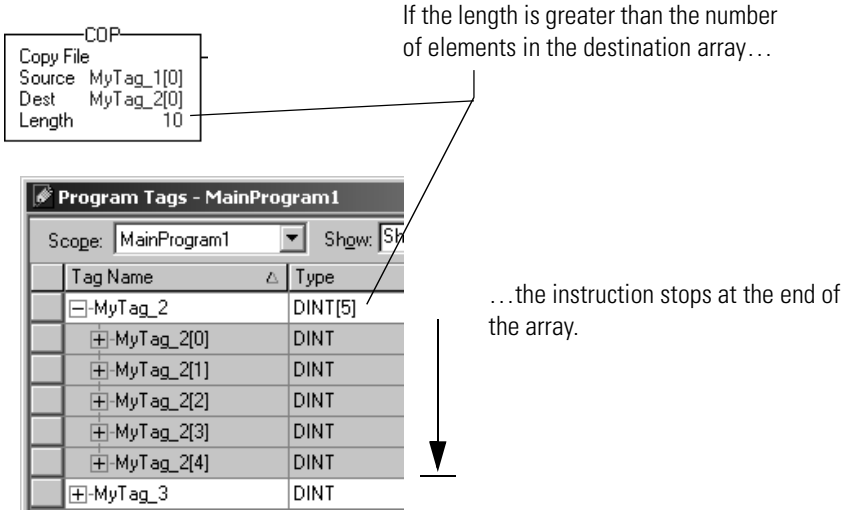
Corrected anomaly	Description
The File Search Compare (FSC) Instruction Caused a Non-Recoverable Fault	The FSC instruction caused an non-recoverable fault if both these conditions occurred: • a major fault was declared from within the expression of an FSC instruction • the user fault routine cleared the fault When the user fault routine attempted to recover, information previously saved was not properly restored, which resulted in corrupted system registers and a non-recoverable fault. Lgx00055522
CONCAT Instruction Generated Minor Fault When the Length of the Data Equaled the Maximum Characters Allowed for the String	The CONCAT instruction incorrectly generated a minor fault (Type 4, Code 51) when the length of the data was equal to the maximum number of characters allowed for the string data type. Lgx00056558
POINT I/O Modules Added Via RSNetWorx for ControlNet Software Would Not Associate Correctly with RSLogix 5000 Software	If you added 1734-IB8,1734-OB8, or 1734-OB4 POINT I/O modules to a ControlNet network, associated the network file in RSLogix 5000 software, and scheduled the network, when you saved, you received a warning that some connections were not scheduled (even though they were clearly scheduled and worked on the network). Then if you downloaded this saved project to the controller, your POINT I/O adapter modules may not have established connections and in the module properties you would see a connection not scheduled error. Lgx00058833

Restrictions

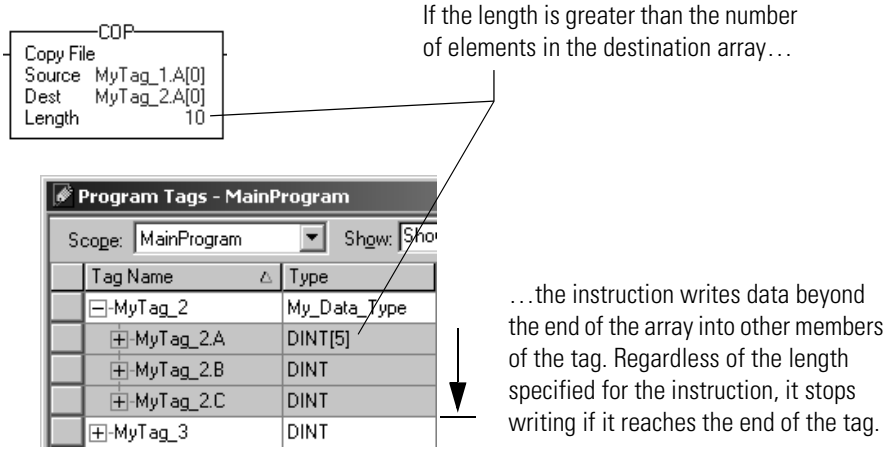
This revision of ControlLogix controllers has the following restrictions:

Restriction	Description
In a Tag of a User-Defined Data Type, an Instruction May Write Past the End of an Array	If you write too much data to an array that is within a user-defined data type, some instructions write beyond the array and into other members of the tag.

Example 1: Instruction Stops at the End of the Array



Example 2: Instruction Writes Beyond the Array



The following instructions write beyond the array into other members of the tag:

BSL	FBC	LFL
BSR	FFL	LFU
COP	FFU	SQL
CPS	FLL	SRT
DDT	GSV	SSV

This restriction also applies to **all previous revisions**.

To prevent writing beyond the limits of the destination array, make sure the length operand of the instruction is less than or equal to the number of elements in the array.

Lgx00033747

Additional Memory Requirements

Revision 14.0 or later **may** require more memory than previous revisions (such as 10.x, 11.x). To estimate the additional memory that your project **may** require, use the following table:

If You Have This Firmware Revision (Add All That Apply)	Then Add the Following Memory Requirements to Your Project		Which Come From This Type of Memory	
	Component	**Increase per Instance**	**I/O (Base)**	**Data and Logic (Expansion)**
13.x or earlier	program	12 bytes		✔
	task	4 bytes		✔
	user-defined data type	4 bytes		✔
	I/O module	16 bytes	✔ (8 bytes)	✔ (8 bytes)
	produced or consumed tag	8 bytes	✔	
12.x or earlier	I/O module with a comm format = **Rack Optimization**	90 bytes		✔
	I/O module with a comm format = something other than **Rack Optimization** (for example, direct connection)	144 bytes		✔
	CompactLogix 1769 I/O module	170 bytes		✔
	bridge module with a comm format = **None**	160 bytes		✔
	bridge module with a comm format = **Rack Optimization**	220 bytes		✔
11.x or earlier	user-defined data type: • number of user-defined data types in the controller organizer ⇒Data Types folder ⇒User-Defined folder • **not** the use of that data type in tags	128 bytes		✔
	indirect address (using a tag as the subscript for an array in an instruction, such as Array_A[Tag_B]). This memory change applies **only** if the array: • uses a structure as its data type • does **not** use one of these data types: CONTROL, COUNTER, PID, or TIMER • has only one dimension (such as UDT_1[5])	(-60 bytes)		✔
10.x or earlier	program	12 bytes		✔
	routine	16 bytes		✔
9.x or earlier	tag that uses the MESSAGE data type	376 bytes		✔

If You Have This Firmware Revision (Add All That Apply)	Then Add the Following Memory Requirements to Your Project				Which Come From This Type of Memory	
	Component			Increase per Instance	I/O (Base)	Data and Logic (Expansion)
7.x or earlier	project			1050 bytes	✔	
	tag			0.55 bytes		✔
	message that: • transfers more than 500 bytes of data and • targets a controller in the same chassis This memory is allocated only when the MSG instruction is enabled. To estimate, count the number of these messages that are enabled and/or cached at one time.			2000 bytes	✔	
6.x or earlier	base tag			24 bytes		✔
	alias tag			16 bytes		✔
	produced or consumed tag	Data type	Bytes per tag			
		DINT	4	12 bytes	✔	
		REAL	4	12 bytes	✔	
				3 x bytes per tag	✔	
				3 x bytes per tag	✔	
6.x	routine			68 bytes		✔
5.x or earlier	routine			116 bytes		✔

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