



DriveLogix Controller System

Catalog Number 5720

When to Use These Release Notes

These release notes should be used with DriveLogix Controller firmware major revision 12, minor revision 15. Use this firmware with:

Update this:	To this revision or later:
RSLinx® software	2.41
RSLogix™ 5000 software	12.01
RSNetWorx™ for ControlNet™ software	4.11
RSNetWorx for DeviceNet™ software	4.12

What Is In These Release Notes

These release notes provide the following information:

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Determining Firmware Revision Level

To determine the firmware revision level for a DriveLogix controller, use RSNetWorx or RSLinx software to view the properties of the node occupied by the controller.

Before You Update Your System

Before you update your controller or RSLogix 5000 software to this revision, do the following preliminary actions:

If:	Then:
Your controller is connected to a DH-485 network.	Disconnect it from the DH-485 network <i>before</i> you update the firmware of the controller. If you update the firmware of a controller while it is connected to a DH-485 network, communication on the network may stop.
Your controller is close to its limits of memory.	This revision <i>may</i> require more memory than previous revisions. Before you upgrade to this revision, do the following: <ol style="list-style-type: none">1. Check the amount of unused memory that you have in the controller. To determine your unused memory, see either of the following documents:<ul style="list-style-type: none">• Knowledgebase document G19984. To access Rockwell Automation's Knowledgebase, go to www.ab.com. Select <i>Support</i>.• <i>Logix5000 Controllers Common Procedures</i>, publication 1756-PM001E or later2. If your controller is close to its limits of memory, see "Additional Memory Requirements" on page 7 to determine how much additional memory you require.3. For additional information on how the controller organizes its memory, see Knowledgebase document G19984.

Enhancements

This revision of DriveLogix controllers contains the following new features:

Enhancement:	Description:
Event Tasks	<p>An event task performs a function only when a specific event (trigger) occurs. Whenever the trigger for the event task occurs, the event task:</p> <ul style="list-style-type: none"> • interrupts any lower priority tasks • executes one time • returns control to where the previous task left off <p>The trigger can be an EVENT instruction</p>
Cache Up to 32 Connections	<p>This revision lets you cache up to 32 connections, regardless of the type of Message (MSG) instruction (block transfer, etc.).</p> <p><i>Previous</i> revisions let you cache up to 16 connections for block-transfer MSGs and 16 connections for other types of MSGs.</p>
Supported Motion Commands	<p>This revision supports the following Logix Motion Instructions:</p> <p>Motion State</p> <ul style="list-style-type: none"> • MSO (Motion Servo On) • MSF (Motion Servo Off) • MASD (Motion Axis Shutdown) • MASR (Motion Axis Shutdown Reset) • MAFR (Motion Axis Fault Reset) <p>Motion Move</p> <ul style="list-style-type: none"> • MAJ (Motion Axis Jog) • MAM (Motion Axis Move) • MAS (Motion Axis Stop) • MAH (Motion Axis Home) • MAG (Motion Axis Gearing) • MCD (Motion Change Dynamics) • MRP (Motion Redine Position) • MCCP (Motion Calculate Position Profile) • MAPC (Motion Axis Position Cam) • MATC (Motion Axis Time Cam) <p>Motion Event</p> <ul style="list-style-type: none"> • MAW (Motion Arm Watch) • MDW (Motion Disarm Watch) • MAR (Motion Arm Registration) • MDR (Motion Disarm Registration) • MAOC (Motion Arm Output Cam) • MDOC (Motion Disarm Output Cam) <p>Motion Group</p> <ul style="list-style-type: none"> • MGS (Motion Group Stop) • MGSD (Motion Group Shutdown) • MGSR (Motion Group Shutdown Reset) • MGSP (Motion Group Strobe Position)

Corrected Anomalies

The corrected anomalies are listed in the table below.

Corrected anomaly:	Corrected in	Description:
LDL2 Instruction Produced Inaccurate Coefficients or Non-Recoverable Fault	DriveLogix FW 12.15	<p>A Second-Order Lead Lag (LDL2) instruction might have produced the following when certain input parameters were = 0:</p> <ul style="list-style-type: none"> • inaccurate internal coefficients • non-recoverable fault (solid red OK LED) <p style="text-align: right;">Logix00036816</p>
Array Subscript That Was Out of Range Produced Non-Recoverable Fault	RSLogix 5000, version 12.01	<p>Under the following <i>combination</i> of circumstances, an array subscript produced a non-recoverable fault (solid red OK LED):</p> <ul style="list-style-type: none"> • A CMP, CPT, FAL, or FSC instruction operated on an array. • A tag identified the subscript of the array (indirect address). • The indirect address used an expression to calculate the value for the array subscript. • The indirect address produced a subscript that was too large for the array. (This produced a major fault.) • The controller contained a fault routine that tried to clear the major fault. <p>When the controller experiences a non-recoverable fault, it clears the project from memory.</p> <p style="text-align: right;">Logix00038663</p>
Enhanced PID (PIDE) Function Block Failed to Clamp Control Variable	DriveLogix FW 12.15	<p>When ZCOff = 0 and the error value crossed zero and remained within the ZCDeadband range, ZCDeadbandOn failed to remain =1. This prevented the instruction from clamping the control variable.</p> <p style="text-align: right;">Logix00030777</p>
Enhanced PID (PIDE) Function Block Failed to Keep Control Variable at Saturation	DriveLogix FW 12.15	<p>When a PIDE instruction drove the control variable to one of its limits (saturation), the instruction failed to keep the control variable at saturation long enough.</p> <ul style="list-style-type: none"> • As soon as the process variable began to change, the PIDE instruction let the control variable leave its limit. • With this revision, the PIDE instruction more accurately keeps the control variable at its full output. <p style="text-align: right;">Logix00036344</p>
Resetting an SFC Corrupted a Simultaneous Branch	DriveLogix FW 12.15	<p>If you reset a sequential function chart (using an SFR instruction) while it was executing the next to last step of a path of a simultaneous branch, that path might have become corrupted. When the simultaneous branch was executed again, the controller might have experienced a non-recoverable fault (solid red OK LED) and cleared the project from its memory.</p> <p style="text-align: right;">Logix00038637</p>
Controller Could Not Connect to a Toledo Weigh Scale Over a ControlNet Network	DriveLogix FW 12.15	<p>The controller was unable to establish a connection with a Toledo weigh scale over a ControlNet network.</p> <ul style="list-style-type: none"> • To communicate with the weigh scale, the I/O configuration of the project used the Generic ControlNet Module type. • If the input or output assembly instance = 255, the controller incorrectly encoded the value (16-bit instead of 8-bit). This prevented the controller from connecting to the weigh scale. • RSLogix 5000 software returned a module fault code of 16#0315. <p style="text-align: right;">Logix00038188</p>

Corrected anomaly:	Corrected in	Description:
Use of a Third-Party OPC Server Produced a Non-Recoverable Fault	DriveLogix FW 12.15	<p>If you monitored data using a third-party OPC server that by-passed RSLinx software, the controller might have experienced a non-recoverable fault (solid red OK LED) and cleared the project from its memory.</p> <p style="text-align: right;">Logix00037557</p>
Unconnected Messages Over an EtherNet/IP Network Produced a Non-Recoverable Fault	DriveLogix FW 12.15	<p>Under the following combination of circumstances, a Message (MSG) instruction might have produced a non-recoverable fault (solid red OK LED):</p> <ul style="list-style-type: none"> • The MSG was configured as a PLC2, PLC3, PLC5, or SLC type message. • Communication was over an EtherNet/IP network. • The destination device was <i>not</i> present. <p>When the controller experiences a non-recoverable fault, it clears the project from memory.</p> <p style="text-align: right;">Logix00039180</p>
Product Service Advisory—Power Disruptions Cleared Memory	DriveLogix FW 12.15	<p>Important: This revision corrects the following anomaly only if your controller is currently at 11.x firmware.</p> <p>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.</p> <ul style="list-style-type: none"> • If the controller did not have enough time to complete a critical portion of the power-up sequence (less than 1 second), the controller typically cleared its memory. • This might have occurred during brownouts or other situations where power to the controller fluctuated for a short duration. <p style="text-align: right;">Logix00036366, Logix00036367</p>
Problems on Power-Up or Power Cycling When a 1794-VHSC Exists on the Local DIN Rail	DriveLogix FW 12.15	<p>When using a 1794-VHSC on the local or extended-local rails, the DriveLogix controller experienced the following anomalies after power-up or when power was cycled:</p> <ul style="list-style-type: none"> • The controller may have lost its current Date and Time. • The controller may have had difficulties establishing connections to the 1794-VHSC or other I/O modules, including RSLogix 5000 reporting a 'module in use' error. <p>The support of the 1794-VHSC on the local or extended-local rails was added in v11, so this anomaly only occurs with firmware v11 revisions up to and including 11.24.</p>

Restrictions

This firmware version has these restrictions:

Restriction:	Description:
Forcing is not supported between the PowerFlex 700S and DriveLogix	The forcing values can be set for the controller inputs and outputs. However, these values will not be used by the Logix Program nor will they be transmitted to the PowerFlex 700S.
Minimum RPI for local Flex I/O	The minimum recommended Requested Packet Interval (RPI) setting for the local Flex I/O rail is 30 ms.
"Custom User-Defined Control" Comm Format not supported	The "Custom User-Defined Control" Comm Format is presently not supported. If an attempt is made to configure the controller and drive for this format, the controller will cease functioning.
Unsupported Motion Commands	<p>This revision does not support the following Logix Motion Instructions:</p> <p>Motion State</p> <ul style="list-style-type: none"> • MDO (Motion Direct Drive On) • MDF (Motion Direct Drive Off) <p>Motion Configuration</p> <ul style="list-style-type: none"> • MAAT (Motion Apply Axis Tuning) • MRAT (Motion Run Axis Tuning) • MAHD (Motion Apply Hookup Diagnostics) • MRHD (Motion Run Hookup Diagnostics)
Flash Updating to 12	When using the controller's serial port for flash upgrade, the memory expansion option must be temporarily removed during the flush upgrade.
Communicating on Third-Party Link not supported	This revision does not support the 1788-MODULE, generic module communications daughtercard

Additional Memory Requirements

Revision 12.x *may* require more memory than previous revisions (e.g., 10.x, 11.x). To estimate the additional memory that your project *may* require, use the following table:

Table 1 Additional memory requirements when you convert a project to revision 12 (Sheet 1 of 2)

If you have this firmware revision (add <i>all</i> that apply):	Then add the following memory requirements to your project:		Which comes from this type of memory: ⁽¹⁾		
	Component	Increase per instance	I/O (base)	Data and Logic (expansion)	
11.x or earlier	tag that uses the MOTION_INSTRUCTION data type	4 bytes		Yes	
	tag for an axis				
	If the data type is:	And the tag is:			
	AXIS_CONSUMED	⇒⇒⇒⇒⇒⇒⇒⇒⇒⇒	264 bytes	Yes	
	AXIS_SERVO	produced for another controller	264 bytes	Yes	
		<i>not</i> produced for another controller	264 bytes		Yes
	AXIS_SERVO_DRIVE	produced for another controller	288 bytes	Yes	
		<i>not</i> produced for another controller	288 bytes		Yes
	AXIS_VIRTUAL	produced for another controller	264 bytes	Yes	
		<i>not</i> produced for another controller	264 bytes		Yes
	output cam execution targets	648 bytes		Yes	
user-defined data type: <ul style="list-style-type: none"> number of user-defined data types in the controller organizer ⇒Data Types folder ⇒User-Defined folder <i>not</i> the use of that data type in tags 	128 bytes		Yes		
indirect address (using a tag as the subscript for an array in an instruction, e.g., Array_A[Tag_B]). This memory change applies <i>only</i> if the array: <ul style="list-style-type: none"> uses a user-defined data type has only one dimension (e.g., UDT_1[5]) 	(-60 bytes)				
10.x or earlier	project for a DriveLogix controller	1200 bytes	Yes		
	programs	12 bytes		Yes	
	routines	16 bytes		Yes	
9.x or earlier	tag that uses the MESSAGE data type	376 bytes		Yes	
8.x or 9.x	produced or consumed axis	(-21.6K bytes)	Yes		
	axis that <i>is not</i> produced or consumed	(-21.6K bytes)		Yes	
8.x or earlier	output cam execution targets	5,404 bytes		Yes	
	motion group	32 bytes		Yes	

Table 1 Additional memory requirements when you convert a project to revision 12 (Sheet 2 of 2)

If you have this firmware revision (add <i>all</i> that apply):	Then add the following memory requirements to your project:			Which comes from this type of memory: ⁽¹⁾		
	Component	Increase per instance	I/O (base)	Data and Logic (expansion)		
7.x or earlier	project for a DriveLogix controller	1050 bytes	Yes			
	tags	0.55 bytes			Yes	
	messages that: <ul style="list-style-type: none"> transfer more than 500 bytes of data <i>and</i> target 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	Yes			
6.x or earlier	base tags	24 bytes			Yes	
	alias tags	16 bytes			Yes	
	produced and consumed tags	Data type	Bytes per tag			
		DINT	4	12 bytes	Yes	
		REAL	4	12 bytes	Yes	
			3 x bytes per tag	Yes		
		3 x bytes per tag	Yes			
6.x	routines	68 bytes			Yes	
5.x or earlier	routines	116 bytes			Yes	

⁽¹⁾ In the DriveLogix controller, the I/O and expansion memory types are merged into a single memory pool.

IMPORTANT

An internal change on DriveLogix controllers resulted in less available memory with major revision 7 as compared to major revision 6.

- The 1794-L33 controller has 34k bytes less memory available.
- The 1794-L34 controller has 96k bytes less memory available.

Subsequent upgrades to new major revisions maintain this internal change.

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Rockwell Automation Support

Before you contact Rockwell Automation for technical assistance, we suggest you please review the troubleshooting information contained in this publication first.

If the problem persists, call your local distributor or contact Rockwell Automation in one of the following ways:

Phone	United States/Canada	1.262.512.8176 (7 AM - 6 PM CST) 1.440.646.5800 (25 hour support)
	Outside United States/Canada	You can access the phone number for your country via the Internet: Go to http://www.ab.com Click on <i>Support</i> (http://support.rockwellautomation.com/) Under <i>Contact Customer Support</i> , click on <i>Phone Support</i>
Internet	⇒	Go to http://www.ab.com/support/abdrives/
E-mail	⇒	support@drives.ra.rockwell.com

Be prepared to furnish the following information when you contact support:

- Product Catalog Number
- Product Serial Number
- Firmware Revision Level

Allen-Bradley Replacements

Notes:

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