



# DriveLogix™ 5730 Controller (15.03)

Catalog Number 5730

## When to Use These Release Notes

These release notes should be used with DriveLogix5730 Controller firmware major revision 15, minor revision 3. Use this firmware with:

<b>Update this:</b>	<b>To this revision or later:</b>
RSLinx® Classic software	2.43
RSLinx® Enterprise Software	3.00
RSLogix™ 5000 software	15.00
RSNetWorx™ for ControlNet™ software	5.11
RSNetWorx for DeviceNet™ software	5.11
RSNetWorx for EtherNet/IP software	5.11
1769-SDN Firmware	2.2

## Known Issues

- Tasks are the basic scheduling mechanism for executing a program and are created as part of the project and program creation process. In addition to other internal tasks, the DriveLogix5730 controllers have an internal task to provide communication with the 1769 I/O modules. This task executes periodically at the Requested Packet Interval (RPI) selected in the properties of the CompactBus. If the task has not completed before it is time to execute again, a task overlap occurs. This task overlap causes the controller to declare a minor fault of Type = 6 (Task Overlap), Code = 4 (VA task).

You can use various strategies to resolve minor faults due to task watchdog timeout and/or task overlap. For more information, see RSLogix™ 5000 Online Help "Identifying and Managing Tasks".

**In the case of a minor fault caused by VA task overlap, increase the RPI until the overlap no longer occurs.**

- If a 1769 I/O fault occurs, you must cycle power to the DriveLogix5730 controller after clearing the major fault. I/O communications are not restored until after the power cycle. You should NEVER use the fault handling routine to clear local I/O faults. You should clear local I/O faults manually on a per case basis, and then the controller should be power cycled.

## What Is In These Release Notes

These release notes provide the following information:

<b>For information about:</b>	<b>See this section:</b>	<b>On this page:</b>
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## Mandatory Type II Product Service Advisory

Rockwell Automation Product Service Advisory number CPAG 2005-04-001 is a type II advisory, and concerns this firmware upgrade. Upgrading to this new firmware revision level addresses serious, non-safety related commercial or customer satisfaction concerns.

## 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.	<p>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.</p> <p>We recommend that you use DH-485 communications as follows:</p> <ul style="list-style-type: none"> <li>If you update the firmware of a controller while it is connected to a DH-485 network, communication on the network may stop. To prevent this, disconnect the controller from the DH-485 network before you update the firmware of the controller.</li> <li>Logix5000 controllers should be used on DH-485 networks only when you wish to add these controllers to an existing DH-485 network. For new applications with Logix5000 controllers, DeviceNet, Ethernet, and ControlNet are the recommended networks.</li> </ul>

## Enhancements

This revision of DriveLogix controllers adds these enhancements:

- The PhaseManager option provides a state model for your equipment. It includes:
  - equipment phase to run the state model
  - PHASE data type
  - equipment phase instructions (relay ladder and structured text only)

If you want to:	Use this instruction:
Signal a phase that the state routine is complete so go to the next state	Equipment Phase State Complete (PSC)
Change the state or substate of a phase	Equipment Phase Command (PCMD)
Signal a failure for a phase	Equipment Phase Failure (PFL)
Clear the failure code of a phase	Equipment Phase Clear Failure (PCLF)
Initiate communication with RSBizWare Batch software	Equipment Phase External Request (PXRQ)
Clear the NewInputParameters bit of a phase	Equipment Phase New Parameters (PRNP)
Set up breakpoints within the logic of a phase	Equipment Phase Pause (PPD)
Take ownership of a phase to either: <ul style="list-style-type: none"> <li>prevent another program or RSBizWare Batch software from commanding a phase</li> <li>make sure another program or RSBizWare Batch software does <b>not</b> already own a phase</li> </ul>	Attach to Equipment Phase (PATT)
Relinquish ownership of a phase	Detach from Equipment Phase (PDET)
Override a command	Equipment Phase Override Command (POVR)

- Support for 100 programs and equipment phases (combined) per task.

- In function block diagram instructions, DeltaT for periodic timing in a periodic task now includes fractional values.
- The Coarse Update rate has been changed from 4 milliseconds to 2 milliseconds. This change is accompanied by a complimentary change in version 15 of RSLogix™ 5000.
- **DriveLogix5730** - support for duplicate IP address detection. When you change the IP address or connect one of these controllers to an EtherNet/IP network, the controller checks to make sure that the IP address assigned to this controller is not the same as that for any other device already on the network..

## Known Anomaly

This revision of DriveLogix5730 controllers has this known anomaly:

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<b>Restriction:</b>	<b>Description:</b>
LimitsInv and SelectLimitInv Are Swapped in an HLL Instruction	In the HLL instruction, the LimitsInv parameter is set when the SelectLimit is invalid, and the SelectLimitInv parameter is set when the HighLimit and LowLimit parameters are invalid.

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## Corrected Anomalies

This revision of DriveLogix5730 controllers corrects these anomalies:

Corrected Anomaly:	Description:
Large Write MSG Instructions	<p>This revision of DriveLogix firmware adds more stringent range checks when reading to or writing from tags. Message packets are now limited to 240 bytes. This could cause some MSG instructions that worked in previous firmware revisions to not work in revision 15 firmware.</p> <p>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 15 firmware, the MSG instruction errors because the destination tag is not large enough. To correct this error, change the destination tag to a DINT data type.</p>
The File Search Compare (FSC) Instruction Caused a Non-Recoverable Fault	<p>The FSC instruction caused a non-recoverable fault if both these conditions occurred:</p> <ul style="list-style-type: none"> <li>• a major fault was declared from within the expression of an FSC instruction</li> <li>• the user fault routine cleared the fault</li> </ul> <p>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.</p>
Programmatic Change of MSG Status Bits Could Cause the MSG to Appear Remain Active (.EN Set)	<p>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. Revision 15 removes the need for manual intervention to trigger the MSG to execute again.</p>

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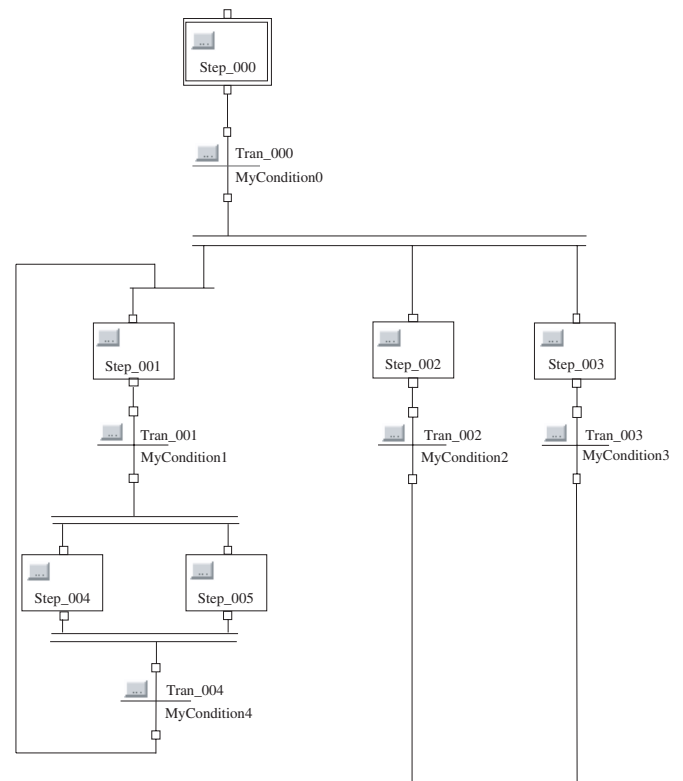
<b>Corrected Anomaly:</b>	<b>Description:</b>
Loss of Power to DriveLogix™ I/O Prior to Controller on Drive Power Cycle	<p>When power is removed from the drive, the controller firmware will persist operating for some time - depending on the size of the drive. The controller on a large drive will persist operating for minutes after the removal of power. Some DriveLogix I/O modules utilize AC line power. If a drive utilizes these I/O modules, they will lose power before the controller ceases execution. This situation will result in a fault condition, because the controller will recognize the a loss of power to the I/O.</p> <p>This issue is best resolved by exploiting a power up handler in the application. The power up handler check for the DriveLogix I/O power loss fault and clears it.</p> <p>Please refer to page 9 of the <i>Restrictions</i> section for the application fault routine discussed above.</p> <p style="text-align: right;">Lgx 00054108</p>
Loss of Backplane Connections after Power Loss to the DriveLogix I/O	<p>If the power is removed from the DriveLogix I/O, eventually the connections on the backplane shutdown. In other words, turning off the DriveLogix I/O will eventually cause a loss of communication to other modules in the rack.</p> <p>This anomaly has been corrected.</p> <p style="text-align: right;">Lgx 00053321</p>

**Corrected Anomaly:**

An SFC Could Execute the Wrong Step

**Description:**

If you had an SFC with nested simultaneous branches, the controller could begin execution at an unexpected step. Following the convergence of a nested simultaneous branch, if the SFC looped back to the initial step of the parent branch, instead of executing that step, the SFC could jump to a step of another path in the nested simultaneous branch. For example:



Execution starts at Step\_000. When Tran\_000 becomes true, Step\_001, Step\_002 and Step\_003 should become active. However, because the nested simultaneous branch in the left path converged and looped back to its parent step (Step\_001), the active steps were actually **Step\_005**, Step\_002 and Step\_003.

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## Additional Memory Requirements

Revision 15.0 or later 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:

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:	
	Component	Increase per instance	I/O (base)	Data and Logic (expansion)
15.x or earlier	tag that uses the COORDINATE SYSTEM data type	60 bytes		✓
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	✓	

## 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.

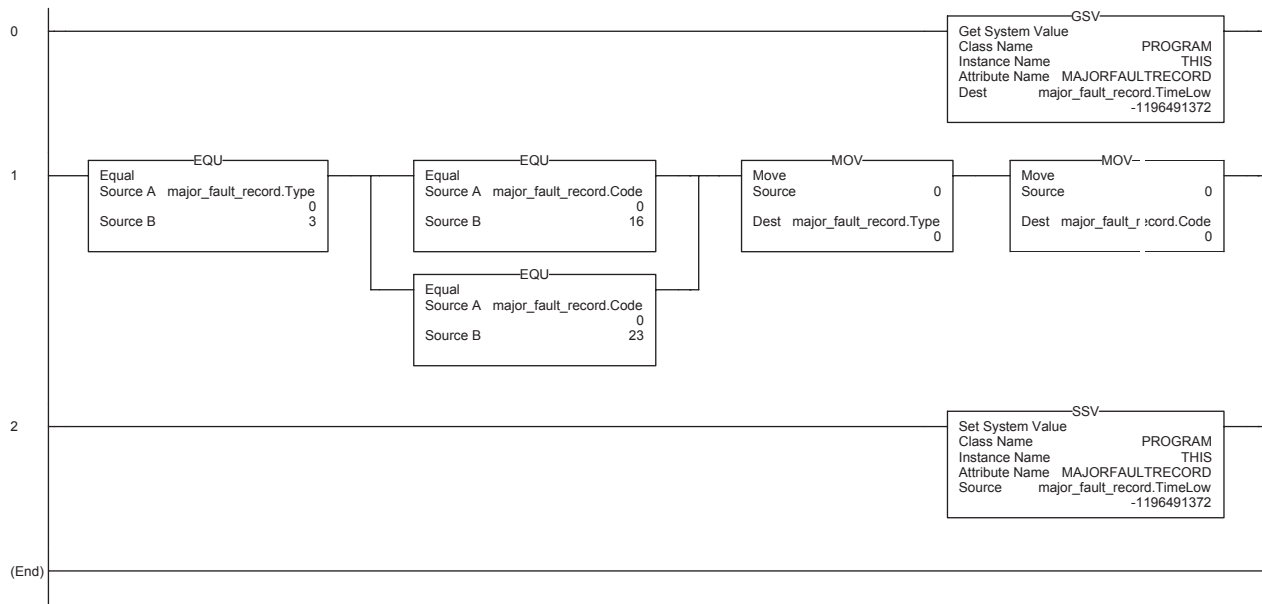
**Restriction:**

Use fault routine to clear fault from local I/O which is generated when controller and I/O are powered down.

**Description:**

When powering down the controller (the host drive) and I/O banks simultaneously, the controller will stay energized slightly longer because the drive's DC bus indirectly powers the controller. In some instances this generates a fault because the controller stays energized long enough to recognize a connection failure. A routine can be exploited to clear this fault. This routine is part of the Power-Up Handler in the RSLogix 5000 project. Use a fault routine like the one below to clear this fault:

**Note:** The use of this fault routine will cause the controller to power up in the Program Mode.



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Unsupported Motion Commands

The following Logix Motion Instructions are not intended for use with DriveLogix and the PowerFlex 700S:

**Motion State (for 1756-M02AE Only)**

- MDO (Motion Direct Drive On)
- MDF (Motion Direct Drive Off)

**Motion Configuration (for tuning SERCOS cards only)**

- MAAT (Motion Apply Axis Tuning)
- MRAT (Motion Run Axis Tuning)
- MAHD (Motion Apply Hookup Diagnostics)
- MRHD (Motion Run Hookup Diagnostics)

Power down banks of local I/O when the controller is powered down.

When powering down the controller (the host drive), also power down any banks of local I/O modules. Leaving additional banks of I/O modules powered on may result in major fault code 22 during the power-up process of the controller.

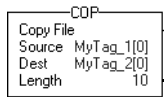
**Restriction:**

**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**

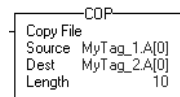


If the length is greater than the number of elements in the destination array . . .

Program Tags - MainProgram1		
Scope:	MainProgram1	Show: Sh
Tag Name	△	Type
MyTag_2		DINT[5]
MyTag_2[0]		DINT
MyTag_2[1]		DINT
MyTag_2[2]		DINT
MyTag_2[3]		DINT
MyTag_2[4]		DINT
MyTag_3		DINT

. . . then the instruction stops at the end of the array.

**Example 2: Instruction Writes Beyond the Array**



If the length is greater than the number of elements in the destination array . . .

Program Tags - MainProgram		
Scope:	MainProgram	Show: Sho
Tag Name	△	Type
MyTag_2		My_Data_Type
MyTag_2.A		DINT[5]
MyTag_2.B		DINT
MyTag_2.C		DINT
MyTag_3		DINT

. . . then the instruction writes data beyond the end of the array into other members of the tag. Regardless of the length specified for the instruction, it stops writing if it reaches the end of the tag.

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 that the length operand of the instruction is less than or equal to the number of elements in the array.

## Hold Last State and User-Defined Safe State Not Supported

When 1769 Compact I/O modules are used as local I/O modules in a DriveLogix5730 system, the local I/O modules do not support the Hold Last State or User-Defined Safe State features, even though you can configure these options in the programming software.

- If a local I/O module fails such that its communication to the controller is lost, or if any module is disconnected from the system bus while under power, the controller will go into the fault mode. All outputs turn off when the system bus or any module faults.
- RSLogix 5000 software creates tags for modules when you add them to the I/O configuration. The 1769 module tags define configuration (C) data type members which may include attributes for alternate outputs. DriveLogix5730 does not enable local modules to use the alternate outputs. Do not configure the attributes listed below:

For digital output modules:	For analog output modules:
<ul style="list-style-type: none"> <li>• ProgToFaultEn</li> <li>• ProgMode</li> <li>• ProgValue</li> <li>• FaultMode</li> <li>• FaultValue</li> </ul>	<ul style="list-style-type: none"> <li>• CHxProgToFaultEn</li> <li>• CHxProgMode</li> <li>• CHxFaultMode</li> <li>• where CHx = the channel number</li> </ul>

Any 1769 Compact I/O modules used as remote I/O modules in a DriveLogix5730 system do support the Hold Last State and User-Defined Safe State features.

# Rockwell Automation Support

Before you contact Rockwell Automation for technical assistance, we suggest you please review the troubleshooting information contained in the supporting product publications first (e.g. publications 20D-UM003..., *User Manual - DriveLogix5730 Controller*, and 1756-PM001..., *Logix5000 Controllers Common Procedures Programming Manual*).

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

<b>Phone</b>	United States/Canada	1.262.512.8176 (7 AM - 6 PM CST)  1.440.646.5800 (24 hour paid support available through the TechConnect Support Program)
	Outside United States/Canada	You can access the phone number for your country via the Internet:  Go to <a href="http://www.ab.com">http://www.ab.com</a>  Click on <i>Support</i> ( <a href="http://support.rockwellautomation.com/">http://support.rockwellautomation.com/</a> )  Under <i>Contact Customer Support</i> , click on <i>Phone Support</i>
<b>Internet</b>	⇒	Go to <a href="http://www.ab.com/support/abdrives/">http://www.ab.com/support/abdrives/</a>
<b>E-mail</b>	⇒	<a href="mailto:support@drives.ra.rockwell.com">support@drives.ra.rockwell.com</a>

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

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



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