APR Fault Attributes

The following attribute table contains all APR (Absolute Position Recovery) fault related attributes associated with a Motion Device Axis, including standard APR faults and Rockwell Automation specific APR faults. APR Faults are conditions that can occur during the device initialization process when trying to restore the absolute position of an axis. Unlike Initialization Faults, these faults are recoverable and may be cleared with a Fault Reset request.

CIP APR Faults

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - E	Get/GSV	T	WORD	-	-	-	Bit map: 0 = Reserved 1 = Memory Write Error 2 = Memory Read Error 3 = Feedback Serial Number Mismatch 4 = Buffer Allocation Fault 5 = Scaling Configuration Changed 6 = Feedback Mode Changed 7 = Feedback Integrity Loss 8-15 = Reserved

The CIP APR Faults attribute is a bit mapped value that represents the state of all standard APR (Absolute Position Recovery) faults. An APR fault is generated when the system fails to recover the absolute position of the axis after power cycle, reset, or reconnection. APR faults are detected during the initial configuration or initialization of the drive axis.

When an APR fault occurs, the actual position of the axis is no longer correlated to the position of the axis prior to the power cycle, reset, or reconnect. Examples of standard APR faults are feedback serial number mismatch, and scaling configuration change. APR faults are recoverable and can be cleared with a Fault Reset request.

CIP APR Faults - RA

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - E	Get/GSV	T	WORD	-	-	-	Bit map: 0 = Reserved 1 = Persistent Media Fault 2 = Firmware Error 3 = Feedback Battery Loss 4-15 = Reserved

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The CIP APR Faults - RA attribute is a bit mapped value that represents the state of all Rockwell Automation specific APR (Absolute Position Recovery) faults. An APR fault is generated when the system fails to recover the absolute position of the axis after power cycle, reset, or reconnection. APR faults are detected during the initial configuration or initialization of the drive axis. When an APR fault occurs, the actual position of the axis is no longer correlated to the position of the axis prior to the power cycle, reset, or reconnect. These faults are specific to Rockwell Automation APR implementation. APR faults are recoverable and can be cleared with a Fault Reset request.

Standard APR Faults

The following table defines a list of standard faults associated with the APR Faults attribute.

Standard APR Fault Descriptions

Bit	Exception Name	Description
0	-- Reserved --	This bit cannot be used since the Fault Code is defined by the associated exception bit number and Fault Code of 0 means no fault condition is present.
1	Memory Write Error	Error in saving absolute position data to NV memory.
2	Memory Read Error	Error in reading absolute position data from NV memory.
3	Feedback Serial Number Mismatch	Position Feedback Serial Number does not match saved Feedback Serial Number.
4	Buffer Allocation Fault	Caused when there is not enough RAM memory left to save APR data.
5	Scaling Configuration Changed	Scaling attribute configuration for this axis has changed and does not match the saved scaling configuration.
6	Feedback Mode Changed	Feedback Mode has changed and does not match the saved Feedback Mode configuration.
7	Feedback Integrity Loss	The Feedback Integrity bit of CIP Axis Status attribute has transitioned from 1 to 0 during device operation.
8-15	-- Reserved --	

Rockwell Automation Specific APR Faults

The following table defines a list of Rockwell Automation specific faults associated with the APR Faults-RA attribute.

Bit	Exception Name	Description

Converter AC Line Monitoring Attributes
Converter AC Line Source Configuration Attributes
Converter Bus Voltage Control Configuration Attributes
Converter Bus Voltage Control Signal Attributes
Converter Control Mode Attributes
Converter Current Control Configuration Attributes
Converter Current Control Signal Attributes
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Frequency Control Configuration Attributes
Frequency Control Signal

0	-- Reserved --	This bit cannot be used since the Fault Code is defined by the associated exception bit number and Fault Code of 0 means no fault condition is present.
1	Persistent Media Fault	(L6x) - Means that all 6 sectors reserved for APR in Persistent Memory (for example, NAND flash) are marked as bad. This is not a recoverable fault condition.
2	Firmware Error	Used to trap firmware errors that should never happen.
3	Feedback Battery Loss	Battery powered Absolute Feedback device has failed to maintain absolute position through a power cycle due to low battery level or disconnected battery power.
4-15	-- Reserved --	

The APR Fault exception names in the preceding tables have corresponding Logix Designer APR Fault tag names. The naming conventions for the tag names are to remove the spaces from the fault bit name and then append the "APRFault" suffix. For example "Memory Write Error" becomes "MemoryWriteErrorAPRFault".

See also

Absolute Position Recovery Functionality

APR Recovery Scenarios

Attribute

General Feedback Info Attributes

General Feedback Signal Attributes

General Linear Motor Attributes

General Motor Attributes

General Permanent Magnet Motor Attributes

General Rotary Motor Attributes

Guard Safety Attributes

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Hookup Test Configuration Attributes

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Identify Motion Axis Attributes Based on Device Function Codes

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Inertia Test Result Attributes

Initialization Faults Attributes

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Linear PM Motor Attributes

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Power and Thermal Management Status Attributes

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Reset an APR Fault

Rockwell Automation Specific CIP Axis Alarm Names

Rockwell Automation Specific Exceptions

Rockwell Automation Specific CIP Axis Fault Names

Rockwell Automation Specific Initialization Faults

Rockwell Automation Specific Start Inhibits

Rotary PM Motor Attributes

Standard CIP Axis Fault and Alarm Names

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Rotary PM Motor Attributes

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- Statistical Instructions
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- Studio 5000 Logix Designer Glossary

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