

Motion Control Status Attributes

These are the motion control status attributes associated with a Motion Control Axis. The Axis Event Bits are located in Event Capture Attributes.

Motion Status Bits

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|-------------------|--------------------------|---|-----------|---------|-----|-----|--|
| Required - All | Get/ GSV ¹ | T | DWORD | - | - | - | Bitmap 0 = AccelStatus 1 = DecelStatus 2 = MoveStatus 3 = JogStatus 4 = GearingStatus 5 = HomingStatus 6 = StoppingStatus 7 = AxisHomedStatus 8 = PositionCamStatus 9 = TimeCamStatus 10 = PositionCamPendingStatus 11 = TimeCamPendingStatus 12 = GearingLockStatus 13 = PositionCamLockStatus 14 = Reserved 15 = Master Offset Move Status 16 = CoordinatedMotionStatus 17 = TransformStateStatus 18 = ControlledByTransformStatus 19 = DirectVelocityControlStatus 20 = DirectTorqueControlStatus 21 = MovePendingStatus 22 = MoveLockStatus 23 = JogPendingStatus 24 = JogLockStatus 25 = MasterOffsetMovePendingStatus 26 = MasterOffsetMoveLockStatus 27 = MaximumSpeedExceeded 28...31 = Reserved |

Search




- ▷ [Quick Start Steps](#)
- ▷ [Logix Designer](#)
- ▷ [Module Information](#)
- ◀ [Instruction Set](#)

Logix 5000 Controllers Instruction and Application Considerations

Logix Designer Application

Instruction Set

Interpret the Attribute Tables

Array Concepts

- ▲ [CIP Axis Attributes](#)
 - [AXIS_CIP_DRIVE Diagrams](#)
 - [AXIS_CIP_DRIVE Structure](#)
 - ▷ [Accessing Attributes](#)
 - [AC Line Condition Attributes](#)
 - [Acceleration Control Attributes](#)
 - [Acceleration Control Configuration Attributes](#)
 - [Additional Error Code Information](#)
 - ▷ [APR Fault Attributes](#)
 - [Auto-Tune Configuration Attributes](#)
 - ▷ [Axis Exception Action Configuration Attributes](#)
 - [Axis Info Attributes](#)
 - [Axis Safety Status Attributes](#)
 - [Axis Statistical Attributes](#)
 - [CIP Axis Status Attributes](#)
 - [CIP Error Codes](#)
 - [CIP Motion Axis Control Modes](#)
 - ▷ [Command Reference Generation Attributes](#)
 - [Configuration Fault Attributes](#)
 - [Control Mode Attributes](#)
 - [Converter AC Line Configuration Attributes](#)
 - [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](#)

¹ *Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.*

This is a bitmapped collection of status conditions associated with the motion planner function.

Motion Axis Status Bits Descriptions

This table provides descriptions of the various Motion Axis Status Bits:

| Bit | Motion Status | Description |
|-----|-----------------|--|
| 0 | Accel Status | The Acceleration and Deceleration Status bit attributes (AccelStatus and DecelStatus) can be used to determine if the axis is currently being commanded to accelerate or decelerate. If neither bit is set then the axis is running at steady state velocity or at rest. |
| 1 | Decel Status | |
| 2 | Move Status | The MoveStatus bit attribute is set if a Move motion profile is currently in progress. As soon as the Move is complete or superseded by some other motion operation, the MoveStatus bit is cleared. |
| 3 | Jog Status | The JogStatus bit attribute is set if a Jog motion profile is currently in progress. As soon as the Jog is complete or superseded by some other motion operation, the JogStatus bit is cleared. |
| 4 | Gearing Status | The GearingStatus bit attribute is set if the axis is currently Gearing to another axis. As soon as the gearing operation is stopped or superseded by some other motion operation, the GearStatus bit is cleared. |
| 5 | Homing Status | The HomingStatus bit attribute is set if a Home motion profile is currently in progress. As soon as the Home is complete or superseded by some other motion operation, the HomeStatus bit is cleared. |
| 6 | Stopping Status | <p>The StoppingStatus bit attribute is set if there is a stopping process currently in progress. As soon as the stopping process is complete, the Stopping Status bit is cleared.</p> <p>The stopping process is used to stop an axis (initiated by an MAS, MGS, MGSP, Stop Planner fault action, or mode change). This bit is no longer associated with the gearing Clutch bit (MAG with Clutch selected), which for I4B has been explicitly named the GearingLockStatus bit.</p> |

[Converter Current Control Signal Attributes](#)

[Converter Current Reference Configuration Attributes](#)

[Converter Current Reference Signal Attributes](#)
[Converter Output Attributes](#)

[Converter Reactive Power Control Attributes](#)

[Converter Types](#)
[Current Control Signal Attributes](#)

[Current Control Configuration Attributes](#)

[Cyclic Read and Cyclic Write](#)
[DC Bus Condition Attributes](#)

[Device Function Codes](#)
[Device Commissioning Attributes](#)

[Drive General Purpose I/O Attributes](#)

[Drive Output Attributes](#)
[Drive Parameters](#)

[Event Capture Attributes](#)
[Exception Factory Limit Info Attributes](#)

[Exception User Limit Configuration Attributes](#)
[Exception, Fault and Alarm Attributes](#)

[Exceptions](#)
[Fault and Alarm Behavior](#)
[Feedback Interface Types](#)

[Feedback Configuration Attributes](#)

[Frequency Control Configuration Attributes](#)
[Frequency Control Signal 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](#)
[Guard Safety Status Attributes](#)

[Hookup Test Configuration Attributes](#)

| | | |
|----|-----------------------------|--|
| 7 | Homed Status | <p>The HomedStatus bit attribute is cleared at powerup or reconnection. The bit is set to 1 by the MAH instruction upon successful completion of the configured homing sequence. This bit would be later cleared if the axis entered the shutdown state.</p> <p>The HomedStatus bit is set by the MAH instruction upon successful completion of the configured homing sequence. This bit indicates that an absolute machine reference position has been established. When this bit is set, operations that require a machine reference, such as Software Overtravel checking can be meaningfully enabled.</p> <p>The HomedStatus bit is cleared under the following conditions:</p> <ol style="list-style-type: none">1. Download, Control power cycle, or Reconnection with Incremental Feedback device.2. Absolute Position Recovery (APR) fails with Absolute Feedback device.3. Feedback Integrity bit is cleared by CIP Motion drive. <p>The HomedStatus bit is directly used by the control system to qualify the Software Overtravel checking function. Thus, if the HomedStatus bit is clear, Soft Overtravel checking will not occur even if the Soft Overtravel Checking bit is set.</p> |
| 8 | Position Cam Status | <p>The PositionCamStatus bit attribute is set if a Position Cam motion profile is currently in progress. As soon as the Position Cam is complete or superseded by some other motion operation, the PositionCamStatus bit is cleared.</p> |
| 9 | Time Cam Status | <p>The TimeCamStatus bit attribute is set if a Time Cam motion profile is currently in progress. As soon as the Time Cam is complete or superseded by some other motion operation, the TimeCamStatus bit is cleared.</p> |
| 10 | Position Cam Pending Status | <p>The PositionCamPendingStatus bit attribute is set if a Position Cam motion profile is currently pending the completion of a currently executing cam profile. This would be initiated by executing an MAPC instruction with Pending execution selected.</p> <p>As soon as the current position cam profile completes, initiating the start of the pending cam profile, the PositionCamPending Status bit is cleared. This bit is also cleared if the position cam profile completes, or superseded by some other motion operation.</p> |
| 11 | Time Cam Pending Status | <p>The TimeCamPendingStatus bit attribute is set if a Time Cam motion profile is currently pending the completion of a currently executing cam profile. This would be initiated by executing an MATC instruction with Pending execution selected.</p> <p>As soon as the current time cam profile completes, initiating the start of the pending cam profile, the TimeCamPending status bit is cleared. This bit is also cleared if the time cam profile completes, or superseded by some other motion operation.</p> |
| 12 | Gearing Lock Status | <p>The GearingLockStatus bit attribute is set whenever the slave axis is locked to the master axis in a gearing relationship according to the specified gear ratio.</p> <p>The clutch function of the gearing planner is used to ramp an axis up, or down, to speed in a gearing process (MAG with Clutch selected). During the intervals where the axis is clutching, the GearingLockStatus bit is clear.</p> |

- [Hookup Test Result Attributes](#)
- [Identify Motion Axis Attributes Based on Device Function Codes](#)
- [Induction Motor Attributes](#)
- [Inertia Test Configuration Attributes](#)
- [Inertia Test Result Attributes](#)
- [Initialization Faults Attributes](#)
- [Interior Permanent Magnet Motor Attributes](#)
- [Linear PM Motor Attributes](#)
- [Load Transmission and Actuator Attributes](#)
- [Local Mode Configuration Attribute](#)
- [Module/Node Fault and Alarm Attributes](#)
- ▷ [Motion Control Axis Behavior Model](#)
- [Motion Control Configuration Attributes](#)
- [Motion Control Interface Attributes](#)
- [Motion Control Methods](#)
- [Motion Control Modes](#)
- [Motion Control Signal Attributes](#)
- [Motion Control Status Attributes](#)
- [Motion Database Storage Attributes](#)
- [Motion Dynamic Configuration Attributes](#)
- [Motion Fault and Alarm Exceptions](#)
- [Motion Homing Configuration Attributes](#)
- [Motion Instruction Compatibility](#)
- [Motion Planner Configuration Attributes](#)
- [Motion Planner Output Attributes](#)
- ▷ [Motion Scaling Attributes](#)
- [Motor Attributes](#)
- [Motor Attributes Model](#)
- [Motor Test Result Attributes](#)
- [No Control Mode](#)
- [Position Control Mode](#)
- [Position Loop Signal Attributes](#)
- [Position Loop Configuration Attributes](#)

| | | |
|----|--------------------------------|---|
| 13 | Position Cam Lock Status | <p>The PositionCamLockStatus bit attribute is set whenever the master axis satisfies the starting condition of a currently active Position Cam motion profile. The starting condition is established by the Start Control and Start Position parameters of the MAPC instruction.</p> <p>As soon as the current position cam profile completes, or is superseded by some other motion operation, the Position Cam Lock bit is cleared. In unidirectional master direction mode, the PositionCamLockStatus bit clears when moving in the wrong direction and sets when moving in the correct direction.</p> |
| 15 | Master Offset Move Status | <p>The MasterOffsetMoveStatus bit attribute is set if a Master Offset Move motion profile is currently in progress.</p> <p>As soon as the Master Offset Move is complete or superseded by some other motion operation, the MasterOffsetMoveStatus bit is cleared.</p> |
| 16 | Coordinated Motion Status | <p>The CoordinatedMotionStatus bit attribute is set if any coordinated motion profile is currently active upon this axis.</p> <p>As soon as the Coordinated Motion is complete or stopped, the CoordinatedMotionStatus bit is cleared.</p> |
| 17 | Transform State Status | <p>The Transform State Status bit is set if the axis is involved in a transform. The axis is in one of the coordinate systems specified in an active MCT instruction. True will indicate the axis is involved in a transform, false will indicate it is not.</p> |
| 18 | Controlled By Transform Status | <p>The Controlled By Transform Status bit is set if the axis is under transform control. True indicates the axis is under transform control and false indicates it is not under transform control. An axis under transform control cannot be commanded to move.</p> |
| 19 | Direct Velocity Control Status | <p>When the Direct Velocity Control Status bit is set, the axis speed is directly controlled by the Direct Command Velocity value.</p> <p>This bit is set by the Motion Drive Start instruction (MDS) and only applies to CIP Drive axis types.</p> |
| 20 | Direct Torque Control Status | <p>When the Direct Torque Control Status bit is set, the axis torque is directly controlled by the Command Torque value.</p> <p>This bit is set by the Motion Drive start instruction (MDS) and only applies to CIP Drive axis types.</p> |
| 21 | Move Pending Status | - |
| 22 | Move Lock Status | <p>The MoveLockStatus bit is set when the master axis satisfies the Lock Direction request of a Motion Axis Move (MAM) Instruction. If the Lock Direction is Immediate Forward Only or Immediate Reverse Only the MoveLockStatus bit will be set immediately when the MAM is initiated. If the Lock Direction is Position Forward Only or Position Reverse Only the bit will be set when the Master Axis crosses the Master Lock Position in the specified direction.</p> <p>The MoveLockStatus bit is cleared when the Master Axis reverses direction and the Slave Axis stops following the Master Axis. The MoveLockStatus bit is set again when the Slave Axis resumes following the Master Axis.</p> |
| 23 | Jog Pending Status | - |

[Power and Thermal Management Configuration Attributes](#)

[Power and Thermal Management Status Attributes](#)

[Replicated Attributes](#)

[Required vs. Optional Axis Attributes](#)

[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](#)

[Standard Exceptions](#)

[Rotary PM Motor Attributes](#)

[Standard Initialization Faults](#)

[Standard Start Inhibits](#)

[Start Inhibits Attributes](#)

[State Behavior](#)

▷ [Stopping and Braking Attributes](#)

[Torque Control Mode](#)

[Torque/Force Control Configuration Attributes](#)

[Torque/Force Control Signal Attributes](#)

[Velocity Control Mode](#)

[Velocity Loop Configuration Attributes](#)

[Velocity Loop Signal Attributes](#)

▷ [Module Configuration Attributes](#)

[Bit Addressing](#)

[Common Attributes](#)

[Data Conversions](#)

[Elementary data types](#)

[LINT data types](#)

[Floating Point Values](#)

[Immediate values](#)

[Index Through Arrays](#)

[Math Status Flags](#)

[Motion Error Codes \(.ERR\)](#)

[Structures](#)

| | | |
|----|-----------------------------------|--|
| 24 | Jog Lock Status | <p>The JogLockStatus bit is set when the master axis satisfies the Lock Direction request of a Motion Axis Jog (MAJ) Instruction. If the Lock Direction is Immediate Forward Only or Immediate Reverse Only the JogLockStatus bit will be set immediately when the MAJ is initiated. If the Lock Direction is Position Forward Only or Position Reverse Only the bit will be set when the Master Axis crosses the Master Lock Position in the specified direction.</p> <p>The JogLockStatus bit is cleared when the Master Axis reverses direction and the Slave Axis stops following the Master Axis. The JogLockStatus bit is set again when the Slave Axis resumes following the Master Axis.</p> |
| 25 | Master Offset Move Pending Status | - |
| 26 | Master Offset Move Lock Status | <p>The MasterOffsetMoveLockStatus bit is set when the master axis satisfies the Lock Direction request of a Master Offset Move executed using MAM instruction. If the Lock Direction is Immediate Forward Only or Immediate Reverse Only the MasterOffsetMoveLockStatus bit will be set immediately when the MAM is initiated. If the Lock Direction is Position Forward Only or Position Reverse Only the bit will be set when the Master Axis crosses the Master Lock Position in the specified direction.</p> <p>The MasterOffsetMoveLockStatus bit is cleared when the Master Axis reverses direction and the Slave Axis stops following the Master Axis. The MasterOffsetMoveLockStatus bit is set again when the Slave Axis resumes following the Master Axis.</p> |
| 27 | Maximum Speed Exceeded | The MaximumSpeedExceeded bit is set when the axis command velocity at any time exceeds the maximum speed configured for an axis. The bit will be cleared when the axis velocity is reduced below the maximum speed. |

Axis Status Bits

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|----------------|--------------------------|---|-----------|---------|-----|-----|---|
| Required - All | Get/ GSV ¹ | T | DWORD | - | - | - | 0 = ServoActionStatus 1 = DriveEnableStatus 2 = AxisShutdownStatus 3 = ConfigurationUpdateInProgress 4 = InhibitStatus 5 = DirectControlStatus 6 = AxisUpdateStatus 7...31 = Reserved |

¹Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

The Axis Status Bits attribute is a collection of basic status conditions associated with the axis. These represent key status conditions used by the system in executing motion control instructions.

This table provides descriptions of the Axis Status Bits:

- ▷ [Equipment Sequence instructions](#)
- ▷ [Equipment Phase Instructions](#)
- ▷ [Alarm Instructions](#)
- ▷ [Advanced Math Instructions](#)
- ▷ [Array \(File\)/Misc Instructions](#)
- ▷ [Array \(File\)/Shift Instructions](#)
- ▷ [ASCII Conversion Instructions](#)
- ▷ [ASCII Serial Port Instructions](#)
- ▷ [ASCII String Instructions](#)
- ▷ [Bit Instructions](#)
- ▷ [Compare Instructions](#)
- ▷ [Debug Instructions](#)
- ▷ [Drives Instructions](#)
- ▷ [Drive Safety Instructions](#)
- ▷ [For/Break Instructions](#)
- ▷ [Filter Instructions](#)
- ▷ [Function Block Attributes](#)
- ▷ [Structured Text Attributes](#)
- ▷ [Compute/Math Instructions](#)
- ▷ [Move/Logical Instructions](#)
- ▷ [Input/Output Instructions](#)
- ▷ [License Instructions](#)
- ▷ [Math Conversion Instructions](#)
- ▷ [Metal Form Instructions](#)
- ▷ [Motion Configuration Instructions](#)
- ▷ [Motion Event Instructions](#)
- ▷ [Motion Group Instructions](#)
- ▷ [Motion Move Instructions](#)
- ▷ [Motion State Instructions](#)
- ▷ [Multi-Axis Coordinated Motion Instructions](#)
- ▷ [Logical and Move Instructions](#)
- ▷ [Program Control Instructions](#)
- ▷ [Sequencer Instructions](#)
- ▷ [Special Instructions](#)
- ▷ [Timer and Counter Instructions](#)
- ▷ [Trigonometric Instructions](#)
- ▷ [Process Control Instructions](#)
- ▷ [Select/Limit Instructions](#)
- ▷ [Sequential Function Chart \(SFC\) Instructions](#)
- ▷ [Statistical Instructions](#)
- ▷ [Safety Instructions](#)
- ▷ [Studio 5000 Logix Designer Glossary](#)

| Bit | Axis Status | Description |
|-----|---------------------------------|--|
| 0 | Servo Action Status | The ServoActionStatus bit attribute is set when the associated axis motor control function is tracking command reference from the controller. |
| 1 | Drive Enable Status | The DriveEnableStatus bit attribute is set when the power structure associated with the axis is currently enabled. If the bit is not set then the power structure associated with the axis is currently disabled. |
| 2 | Axis Shutdown Status | The AxisShutdownStatus bit attribute is set when the associated axis is currently in the Shutdown state. As soon as the axis is transitioned from the Shutdown state to another state, the Shutdown Status bit is cleared. |
| 3 | Configuration Update in Process | <p>The Configuration Update in Process Status Bits attribute provides a method for monitoring the progress of one or more specific module configuration attribute updates initiated by either a Set Attribute List service or an SSV in the user program. As soon as such an update is initiated, the Logix processor sets the ConfigurationUpdateInProgress bit.</p> <p>The bit remains set until the Set Attribute List reply comes back from the servo module indicating that the data update process was successful. Thus the Configuration Update In Process Status Bits attribute provides a method of waiting until the servo configuration data update to the connected motion module is complete before starting a dependent operation.</p> |
| 4 | Inhibit Status | The InhibitStatus bit attribute is set when the axis is in the inhibited state. This bit can also be used to determine when an inhibit/uninhibit operation has been completed (for example, connections have been shutdown, reconnected and then the reconfiguration process completed). During the inhibit/uninhibit process this bit will remain in the previous state and then once it completes it will be updated to the new state. |

| | | |
|---|-----------------------|---|
| 5 | Direct Control Status | <p>When the Direct Control Status bit is set, axis motion is driven by the Direct Velocity Control and Direct Torque Control functions. In this mode, the Motion Planner functionality is disabled. So if you attempt to move the axis with a Motion Planner instruction, for example, MAM, MAJ, and MAG, a ran instruction error occurs.</p> <p>In Direct Control, you do not have to establish or maintain absolute reference position. So, when you attempt to execute the MAH and MRP instructions, an instruction error occurs.</p> <p>When the Direct Control Status bit is clear, axis motion is controlled by the Motion Planner. If you attempt to move the axis in this mode with a Direct Control instruction, for example, an MDS, an instruction error occurs. This bit only applies to CIP Drive axis types.</p> <p>The illustration describes the following behavior.</p> <p>The Direct Control Status bit is set by the Motion Drive Start instruction (MDS) and once set, can only be cleared by executing an MSO instruction from the Stopped or Stopping State. Similarly, once the Direct Control Status bit is cleared by the Motion Servo On instruction (MSO), the bit can only be set again by executing an MDS instruction from the Stopped or Stopping State.</p> |
| 6 | Axis Update Status | <p>The Axis Update bit indicates whether or not this axis instance was updated in last execution of Motion Task. In general, axis instances are updated in Motion Task according to their Axis Update Schedule. Thus, a given axis instance may or may not be updated during Motion Task execution. When inspected as part of an Event Task triggered by Motion Group Execution, the Axis Update bit can be used to qualify program instructions based on whether or not the axis was updated by the preceding Motion Task.</p> |

Axis Fault Bits

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|----------------|----------------------|---|-----------|---------|-----|-----|--|
| Required - All | Get/GSV ¹ | T | DWORD | - | - | - | Bitmap 0 = PhysicalAxisFault 1 = ModuleFault 2 = ConfigurationFault 3 = GroupFault 4 = MotionFault 5 = GuardFault 6 = InitializationFault 7 = APRFault 8 = SafetyFault 9...31 = Reserved |

¹ *Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.*

The Axis Fault Bits attribute is a collection of basic fault types associated with the axis. Each valid axis fault type is assigned a bit in this word. Any fault condition associated with a given fault type will result in the setting of the appropriate fault bit.

Each bit in the Axis Fault Bits attribute represents a roll-up of the associated fault types. One or more faults of a given fault type result in the associated bit of the Axis Fault Bits attribute being set.

This table provides descriptions of the Axis Fault Bits:

| Bit | Name | Description |
|-----|---------------------|--|
| 0 | Physical Axis Fault | <p>If the Physical Axis Fault bit is set, it indicates that one or more fault conditions have been reported by the physical axis. The specific fault conditions can then be determined through access to the axis data type specific fault attributes of the associated physical axis.</p> <p>For CIP Drive axis data types, Physical Axis Faults map to standard CIP Axis Faults attribute or manufacturer specific CIP Axis Faults.</p> |
| 1 | Module Fault | <p>The Module Fault bit attribute is set when one or more faults have occurred related to the motion module associated with the selected axis. The specific fault conditions can then be determined through access to the Module Fault attribute of the associated axis. Usually a module fault impacts all axes associated with the motion module. A module fault generally results in the shutdown of all associated axes. Reconfiguration of the motion module is required to recover from a module fault condition.</p> |
| 2 | Configuration Fault | <p>The Configuration Fault bit is set when an update operation targeting an axis configuration attribute of an associated motion module has failed. Specific information concerning the Configuration Fault may be found in the Attribute Error Code and Attribute Error ID attributes associated with the motion module.</p> |
| 3 | Group Fault | <p>The Group Fault bit attribute is set when one or more faults have occurred related to the motion group associated with the selected axis. The specific fault conditions can then be determined through access to the Group Fault attribute of the associated motion group. Usually a group fault impacts all axes associated with the motion group. A group fault generally results in the shutdown of all associated axes. Reconfiguration of the entire motion subsystem is required to recover from a group fault condition.</p> |
| 4 | Motion Fault | <p>If the Motion Fault bit is set, it indicates that one or more fault conditions have occurred related to the Motion Planner function. The specific fault conditions can then be determined through access to the Motion Fault attribute of the associated axis.</p> |
| 5 | Guard Fault | <p>If the Guard Fault bit is set, it indicates that one or more fault conditions have occurred related to the embedded Guard Motion safety function. The specific fault conditions can then be determined through access to the Guard Fault attribute of the associated axis. Guard Faults are only applicable if the drive device is equipped with "Hardwired" Guard Safety functionality.</p> |

| | | |
|---|----------------------|--|
| 6 | Initialization Fault | The Initialization Fault bit is set when initialization of a CIP Motion device fails for any reason. Specific information concerning the Initialization Fault may be found either in the standard CIP Initialization attributes or in the manufacturer specific CIP Initialization Fault attributes associated with the CIP Drive axis data types. |
| 7 | APR Fault | The APR (Absolute Position Recovery) Fault bit is set when during axis configuration the system is not able to recover the absolute position of the axis. Specific information concerning the APR Fault may be found either in the standard APR Fault attributes or int he manufacturer specific APR Fault attributes associated with the CIP Drive axis data types. |
| 8 | Safety Fault | If the Safety Fault bit is set, it indicates that there is one or more fault conditions have occurred related to the axis safety function. The specific fault conditions can then be determined through access to the Axis Safety Fault attributes of the associated axis. Safety Faults are only applicable if the motion device supports "Networked" Safety functionality through a CIP Safety connection. |

Axis Event Bits

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|----------------|----------------------|---|-----------|---------|-----|-----|---|
| Required - All | Get/GSV ¹ | T | DWORD | - | - | - | Bitmap - AxisFault 0 = WatchEventArmedStatus 1 = WatchEventStatus 2 = RegEvent1ArmedStatus 3 = RegEvent1Status 4 = RegEvent2ArmedStatus 5 = RegEvent2Status 6 = HomeEventArmedStatus 7 = HomeEventStatus 8... 31= Reserved |

¹Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

The Axis Event Bit attributes are a collection of basic event conditions. This attribute is for use primarily by the system during execution of various Motion Event instructions.

Axis Event Bit Descriptions

| Bit | Name | Description |
|-----|--------------------------|---|
| 0 | Watch Event Armed Status | The Watch Event Armed Status bit attribute is set when a watch event has been armed through execution of the MAW (Motion Arm Watch) instruction. This bit is cleared when either a watch event occurs or a MDW (Motion Disarm Watch) instruction is executed. |

| | | |
|---|-----------------------------------|---|
| 1 | Watch Event Status | The Watch Event Status bit attribute is set when a watch event has occurred. This bit is cleared when either another MAW (Motion Arm Watch) instruction or a MDW (Motion Disarm Watch) instruction is executed. |
| 2 | Registration 1 Event Armed Status | The Registration 1 Event Armed Status bit attribute is set when a registration checking has been armed for registration input 1 through execution of the MAR (Motion Arm Registration) instruction. This bit is cleared when either a registration event occurs or a MDR (Motion Disarm Registration) instruction is executed for registration input 1. |
| 3 | Registration 1 Event Status | The Registration 1 Event Status bit attribute is set when a registration event has occurred on registration input 1. This bit is cleared when either another MAR (Motion Arm Registration) instruction or a MDR (Motion Disarm Registration) instruction is executed for registration input 1. |
| 4 | Registration 2 Event Armed Status | The Registration 2 Event Armed Status bit attribute is set when a registration checking has been armed for registration input 2 through execution of the MAR (Motion Arm Registration) instruction. This bit is cleared when either a registration event occurs or a MDR (Motion Disarm Registration) instruction is executed for registration input 2. |
| 5 | Registration 2 Event Status | The Registration 2 Event Status bit attribute is set when a registration event has occurred on registration input 2. This bit is cleared when either another MAR (Motion Arm Registration) instruction or a MDR (Motion Disarm Registration) instruction is executed for registration input 2. |
| 6 | Home Event Armed Status | The Home Event Armed Status bit attribute is set when a home event has been armed and is used by the MAH (Motion Axis Home) instruction to manage various homing events that occur during the configured homing sequence. This bit is cleared when a home event occurs. |
| 7 | Home Event Status | The Home Event Status bit attribute is set when a home event has occurred and is used by the MAH (Motion Axis Home) instruction to manage various homing events that occur during the configured homing sequence. This bit is cleared when another MAH instruction is executed. |

Output Cam Status

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|--------------|-----------------------|---|-----------|---------|-----|-----|--------------------------------|
| Required - E | Get/ GSV ¹ | T | DWORD | - | - | - | Set of Output Cam Status bits. |

¹ Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

The Output Cam Status bit is set when an Output Cam has been initiated. The Output Cam Status bit is reset when the cam position moves beyond the cam start or cam end position in "Once" execution mode with no Output Cam pending or when the Output Cam is terminated by a Motion Disarm Output Cam (MDOC) instruction.

Output Cam Pending Status

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|--------------|-----------------------|---|-----------|---------|-----|-----|--|
| Required - E | Get/ GSV ¹ | T | DWORD | - | - | - | Set of Output Cam Pending Status bits. |

¹ Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

The Output Cam Pending Status bit is set if an Output Cam is currently pending the completion of another Output Cam. This would be initiated by executing an Motion Arm Output Cam (MAOC) instruction with Pending execution selected. As soon as this output cam is armed, being triggered when the currently executing Output Cam has completed, the Output Cam Pending bit is cleared. This bit is also cleared if the Output Cam is terminated by a Motion Disarm Output Cam (MDOC) instruction.

Output Cam Lock Status

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|--------------|-----------------------|---|-----------|---------|-----|-----|-------------------------------------|
| Required - E | Get/ GSV ¹ | T | DWORD | - | - | - | Set of Output Cam Lock Status bits. |

¹ Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

The Output Cam Lock Status bit is set when an Output Cam has been armed. This would be initiated by executing a Motion Arm Output Cam (MAOC) instruction with Immediate execution selected, when a pending output cam changes to armed, or when the axis approaches or passes through the specified axis arm position. As soon as this output cam current position moves beyond the cam start or cam stop position, the Output Cam Lock bit is cleared. This bit is also cleared if the Output Cam is terminated by a Motion Disarm Output Cam (MDOC) instruction.

Output Cam Transition Status

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|--------------|-----------------------|---|-----------|---------|-----|-----|---|
| Required - E | Get/ GSV ¹ | T | DWORD | - | - | - | Set of Output Cam Transition Status bits. |

¹ Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

The Output Cam Transition Status bit is set when a transition between the currently armed and the pending Output Cam is in process. Therefore, each Output Cam controls a subset of Output Bits. The Output Cam Transition Status bit is reset, when the transition to the pending Output Cam is complete or when the Output Cam is terminated by a Motion Disarm Output Cam (MDOC) instruction.

Motion Alarm Bits and Motion Fault Bits

| Usage | Access | T | Data Type | Default | Min | Max | Semantics of Values |
|-------|--------|---|-----------|---------|-----|-----|---------------------|
| | | | | | | | |

| | | | | | | | |
|----------------|-----------------------|---|-------|---|---|---|---|
| Required - All | Get/ GSV ¹ | T | DWORD | - | - | - | Bitmap - MotionAlarm 0 = Reserved 1 = SoftTravelLimitPositiveAlarm 2 = SoftTravelLimitNegativeAlarm 3...31 = Reserved |
| Required - All | Get/ GSV ¹ | T | DWORD | - | - | - | Bitmap - MotionFault 0 = Reserved 1 = SoftTravelLimitPositiveFault 2 = SoftTravelLimitNegativeFault 3...31 = Reserved |

¹ Direct Tag access is supported. Bit names shown are used as data type member names in the Logix Designer application.

Motion Alarm Bits and Motion Fault Bits Descriptions

| Bit | Name | Description |
|-----|--|---|
| 0 | Reserved | - |
| 1 | SoftTravelLimitPositiveAlarm SoftTravelLimitPositiveFault | <p>This exception condition occurs when Soft Travel Checking is enabled and when actual position has exceeded the configured Soft Travel Limit - Positive attribute value while commanding motion in the positive direction.</p> <p>If the Motion Exception Action for this bit is set for Stop Planner, the faulted axis can be moved or jogged back inside the soft travel limits. Any attempt, however, to move the axis further beyond the Soft Travel Limit - Positive value using a motion instruction will result in an instruction error.</p> <p>For commanded axes, the Soft Travel Fault can be cleared with a Fault Reset while the axis position is beyond the Soft Travel Limit - Positive value to allow the axis to be moved back within the Soft Travel Limits. As long as the axis is not commanded to move further away from the travel limit, no Soft Travel Limit Fault shall be generated.</p> |

| | | |
|--------|--|---|
| 2 | SoftTravelLimitNegativeAlarm SoftTravelLimitNegativeFault | <p>This exception condition occurs when Soft Travel Checking is enabled and when actual position has exceeded the configured Soft Travel Limit - Negative attribute value while commanding motion in the negative direction.</p> <p>If the Motion Exception Action for this bit is set for Stop Planner, the faulted axis can be moved or jogged back inside the soft travel limits. Any attempt, however, to move the axis further beyond the Soft Travel Limit - Negative value using a motion instruction will result in an instruction error.</p> <p>For commanded axes, the Soft Travel Limit Fault can be cleared with a Fault Reset while the axis position is beyond the Soft Travel Limit - Negative value to allow the axis to be moved back within the Soft Travel Limits. As long as the axis is not commanded to move further away from the travel limit, no Soft Travel Limit Fault shall be generated.</p> |
| 3...31 | Reserved | - |

See also

[Event Capture Attributes](#)

[Exceptions](#)

[Event Capture Attributes](#)

[APR Fault Attributes](#)