Motion Group Shutdown Reset (MGSR)

This information applies to the CompactLogix 5370, ControlLogix 5570, Compact GuardLogix 5370, GuardLogix 5570, Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers.

Use the Motion Group Shutdown Reset (MGSR) instruction to transition a group of axes from the shutdown operating state to the axis ready operating state. As a result of this command, all faults associated with the axes in the group are cleared and any OK relay contacts of motion modules associated with the specified group are closed.

Available Languages

Ladder Diagram

Function Block

This instruction is not available in function block.

Structured Text

MGSR(Group,MotionControl);

Operands

Ladder Diagram and Structured Text

Operand	Type	Format	Description
Group	MOTION_GROUP	Tag	Name of the group of axes to perform operation on
Motion Control	MOTION_INSTRUCTION	Tag	Structure used to access instruction status parameters.

See *Structured Text Syntax* for more information on the syntax of expressions within structured text.

MOTION_INSTRUCTION Structure

Mnemonic	Description
.EN (Enable) Bit 31	The enable bit indicates when the instruction is enabled. It remains set until servo messaging completes and Rung-condition-in goes false.
.DN (Done) Bit 29	The done bit indicates when the instruction resets the group of axes from the shutdown operating state.
.ER (Error) Bit 28	The error bit indicates when the instruction detects an error, such as if messaging to the servo module failed.

Description

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Motion Configuration

The MGSR instruction takes all the axes in the specified group out of the Shutdown state by clearing all axis faults and closing any associated OK solid-state relay contacts for the motion modules within the group. This action places all axes within the motion group in the Axis Ready state.

Just as the Motion Group Shutdown (MGSD) instruction forces all the axes in the targeted group into the Shutdown state. The MGSR instruction takes all the axis in the specified group out of the Shutdown state and into the Axis Ready state. One of the unique characteristics of the Shutdown state is that, if supported, the OK solid state relay contact for each of the group's motion modules is Open. Hence, the result of an MGSR instruction applied to a group of motion modules is that all motion module OK relay contacts close. This feature can be used to close the E-Stop strings that control main power to the various drive systems and permits the customer to reapply power to the drives.

To successfully execute a MGSR instruction, the targeted group must be configured.

Important: The instruction execution may take multiple scans to execute because it requires multiple coarse updates to complete the request. The Done (.DN) bit is not set immediately, but only after the request is completed.

This is a transitional instruction:

- In relay ladder, toggle Rung-condition-in from false to true each time the instruction should execute.
- In structured text, condition the instruction so that it only executes on a transition.

Affects Math Status Flags

No

Major/Minor Faults

None specific to this instruction. See *Common Attributes* for operand-related faults.

Execution

Ladder Diagram

Condition/State	Action Taken
Prescan	The .EN, .DN, .ER, and .IP bits are cleared to false.
Rung-condition-in is false	The .EN bit is cleared to false if either the .DN or .ER bit is true.
Rung-condition-in is true	The .EN bit is set to true and the instruction executes.
Postscan	N/A

Structured Text

Condition/State	Action Taken
Prescan	See Prescan in the Ladder Diagram table.
Normal execution	See Rung-condition-in is false, followed by rung is true in the Ladder Diagram table.
Postscan	See Postscan in the Ladder Diagram table.

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Postscan	See Postscan in the Ladder Diagram table.

Status Bits

MGSR Changes to Status Bits

Bit Name	State	Meaning
ServoActionStatus	FALSE	Axis in Servo Off state with the servo loop inactive.
DriveEnableStatus	FALSE	Axis Drive Enable output is inactive.
ShutdownStatus	FALSE	Axis is in Shutdown state.

Examples

When the input conditions are true, the controller transitions all axes in group1 from the shutdown operating state to the axis ready operating state.

Ladder Diagram

Structured Text

```
MGSR(Motion,MGSR_3);
```

See also

Motion Group Shutdown (MGSD)

Structured Text Syntax

Motion Error Codes (ERR)

Common Attributes

How are we doing?