# Motion Group Strobe Position (MGSP)

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 Strobe Position (MGSP) instruction to latch the current Command and Actual Position of all axes in the specified group at a single point in time. The latched positions are available in the StrobeActualPosition and StrobeCommandPosition parameters in the Motion Axis Object for each axis configured in the group.

Available Languages

Ladder Diagram

```
MGSP
Motion Group Strobe Position          (EN)
Group                           ?  [...] (DN)
Motion Control                  ?       (ER)
```
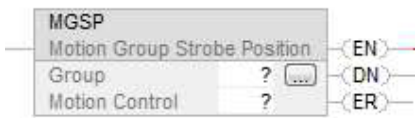
Function Block

This instruction is not available in function block.

Structured Text

MGSP(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	It is set when the rung makes a false-to-true transition and remains set until the servo message transaction is completed and the rung goes false.
.DN (Done) Bit 29	It is set when the group of axes have been successfully set to Shutdown state.
.ER (Error) Bit 28	It is set to indicate that the instruction detected an error, such as if you specified an unconfigured group.

Description

The MGSP instruction synchronously latches all command and actual position values of all axes in the specified group at the time of execution. The MGSP instruction takes only one parameter; simply select or enter the desired axis to strobe.

If the targeted group does not appear in the list of available groups, the group has not been configured for operation. Use the Tag Editor to create and configure a new groups.

The MGSP instruction may be used at any time to capture a complete set of command and actual position information for all axes in the specified group. This operation is often required as a precursor to computations involving position values of different axes within the group.

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

| **Important:** | The MGSP instruction execution completes in a single scan, setting the Done .DN bit immediately. |

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 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.

Status Bits
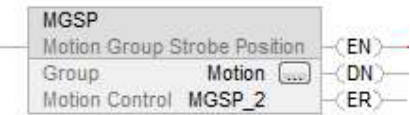
MGSP Changes to Status Bits

MGSP Changes to Status Bits

The MGSP instruction does not make any changes to the status bits.

Examples

When the input conditions are true, the controller latches the current command and the actual position of all axes in group1.

Ladder Diagram

Structured Text

MGSP(Motion,MGSP_2);

See also

[Structured Text Syntax](#)

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

[Common Attributes](#)

[How are we doing?](#)