

|             |  |
|-------------|--|
| NCF<br>060A | <b>Deceleration Stop _NCF060A_Stop</b> |
|-------------|--|

|                       |  |  |  |
|-----------------------|--|--|--|
| <b>Basic function</b> | Decelerates an operating axis to a stop. (Busy attachment) |  |  |
| <b>Symbol</b>         |  |  |  |

|                          |   |  |  |
|--------------------------|---|--|--|
| <b>File name</b>         | Lib\FBL\omronlib\PositionController\NCF\_NCF060A_Stop11.cxf |  |  |
| <b>Applicable models</b> | Position Unit   | CJ1W-NCF71, CS1W-NCF71   |  |
|                          | CPU Unit  | CS1*-CPU**H Unit Version 3.0 or later<br>CJ1*-CPU**H Unit Version 3.0 or later<br>CJ1M-CPU** Unit Version 3.0 or later<br>CP1H |  |
|                          | CX-Programmer   | Version 5.0 or later   |  |

**Languages in function block definitions** Ladder programming

**Conditions for usage** The following conditions for usage should be the Position Control Unit version 1.2 or earlier. (It will not be required in the Position Control Unit version 1.3 or later)

■CX-Programmer Setting

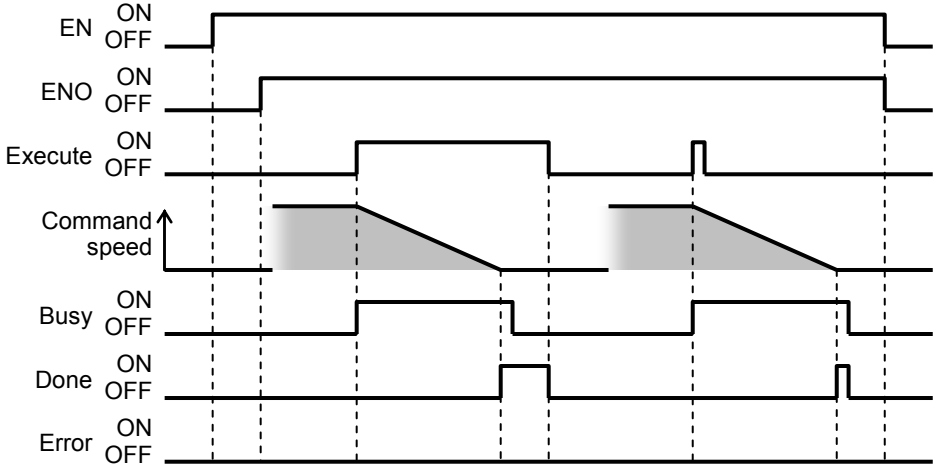
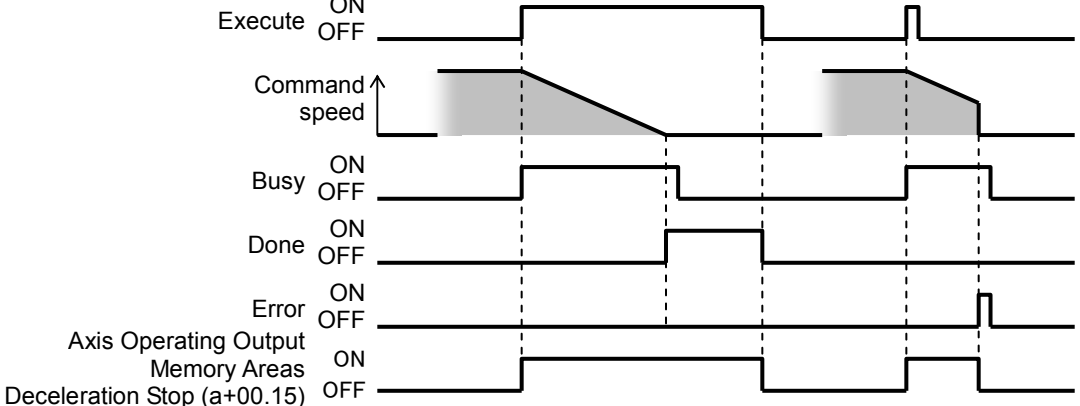
The function blocks related to the Position Control Units will not operate if the area H512 or higher (default setting) is specified as the Non Retain Area through the Function block memory allocation. Make sure to change the memory area to unused area (DM or EM, for example) from the CX-Programmer. To change this value, click **PLC/Function Block Memory/Function Block Memory Allocation** from the Menu Bar.

| FB Instance Area | Start Address | End Address | Size |
|------------------|---------------|-------------|------|
| No Retain        | H512          | H1407       | 896  |
| Retain           | H1408         | H1535       | 128  |
| Timers           | T3072         | T4095       | 1024 |
| Counters         | C3072         | C4095       | 1024 |

| FB Instance Area | Start Address | End Address | Size |
|------------------|---------------|-------------|------|
| No Retain        | D32020        | D32767      | 748  |
| Retain           | H1408         | H1535       | 128  |
| Timers           | T3072         | T4095       | 1024 |
| Counters         | C3072         | C4095       | 1024 |

Specify unused area.  
The required size varies depending on the used FB and the number of FBs.  
If an area being used in the ladder program is specified or sufficient free space cannot be found, the CX-Programmer will display a compile error.

For example, to use the memory area from D32020 to D32767 (748 words), specify the addresses as shown in the left.

|                                     |  |
|-------------------------------------|--|
| <p><b>Function description</b></p>  | <p>The Busy Output is added to the _NCF060_Stop in this FB.</p> <p>When the Start (Execute) turns ON, the Deceleration Stop operation for the axis of the specified Unit No. (UnitNo) and Axis No. (Axis) is started.</p> <p>The operation command is not accepted while the Start (Execute) is ON. Refer to the manual in Related manuals for details.</p> <p>The Deceleration stop completed flag (Done) is turned ON when the deceleration stop has been completed for this FB.</p> <p>The Busy flag (Busy) will be set when the Start (Execute) is turned ON.</p> <p>The Busy flag (Busy) will be reset when the Deceleration stop completed flag (Done) , Abort (CommandAborted), or Error flag (Error) is turned ON.</p> <p>If the error occurs when the input variables is out of the range etc., the Busy flag (Busy) will be set for at least one cycle.</p> <p>The Error flag (Error) will be turned ON and the Error code (ErrorID) will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB.</p> <p>These statuses (Done/CommandAborted/Error/ErrorID) will be reset when the Start (Execute) turns OFF. If the Start (Execute) turns OFF before the operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred.</p>  <p>Note:<br/>The Deceleration Stop of Position Control Units is used in this FB. Refer to the manual in Related manuals for details.</p> |
| <p><b>Kind of FB definition</b></p> | <p>Always execution type.</p> <p>Connect the EN input to the Always ON Flag (P_On).</p> <p>The same instance cannot be used in two or more places.</p>   |
| <p><b>FB precautions</b></p>        | <ul style="list-style-type: none"> <li>The deceleration stop status is hold when the Start (Execute) is ON while the Deceleration stop completed flag (Done) is ON. In the deceleration stop status, operations other than Servo Unlock, Deviation Counter Reset and Emergency Stop are disabled. Refer to the manual in Related manuals for details.</li> <li>The deceleration stop status will be released by this FB when the following conditions are satisfied.<br/>When "Deceleration stop completed flag (Done)" turns OFF<br/>When "Abort (CommandAborted)", or "Error flag (Error)" turns ON</li> </ul>   |
| <p><b>EN input condition</b></p>    | <ul style="list-style-type: none"> <li>Connect the EN input to the Always ON Flag (P_On).</li> <li>If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.</li> </ul>   |

| <p><b>Restrictions</b><br/><b>Other</b></p> | <ul style="list-style-type: none"> <li>• This FB uses Unit Error Reset, Write Data, Read Data and Save Data Bits of the Position Control Unit (see Note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).</li> <li>• The output variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error Reset, Write Data, Read Data and Save Data Bit is left ON.</li> <li>• This FB uses the Deceleration Stop Bit in the Axis Operating Output Memory Areas. Therefore, do not turn these bits ON or OFF until the operation is completed. For the same reason, do not use these bits for coil outputs (OUT commands).</li> </ul> <p>Note:<br/>For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, and when changing "Unit No. (UnitNo)", "Axis No. (Axis)" of the input variable and set "Start (Execute)".</p>  |                            |  |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
|---|---|----------------------------|--|----------------------------|--|--------|----|--------|-----|-------|--------|--------|--|-------|------|--------|-----------------|--------|---------|--------|-------------|--|--|--------|------------------|--|--|--------|-----------------------|
| <p><b>Application example</b></p>           | <p>Turning the Start Trigger ON from OFF will decelerate to stop the Servomotor (axis1) connected to the Position Control Unit with a unit number 0.</p> <p>The diagram illustrates the application of the <code>_NCF060A_Stop</code> function block. It shows a hardware connection between the CPU and NCF (NCF060A) units, with a callout for "Unit No.: 0" pointing to the NCF unit. A Servomotor Axis 1 is connected to the NCF. The ladder logic diagram shows a "Start Trigger" normally open contact leading to a coil output "Bit A". A normally closed contact "Bit A" is connected in parallel with the "Start Trigger". Below this, an "Always ON (P_On)" contact is connected to the EN input of the <code>_NCF060A_Stop</code> function block. The function block has several inputs: "Unit No." (INT) with value &amp;0, "Axis No." (INT) with value &amp;1, and "Start" (BOOL) with value Bit A. The function block has several outputs: ENO (BOOL), "Deceleration stop completed flag" (BOOL) Bit B, "Busy flag" (BOOL) Bit C, "Abort" (BOOL) Bit D, "Error flag" (BOOL) Bit E, and "Error code" (WORD) ErrorID D0.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Sample</th> <th colspan="2"><code>_NCF060A_Stop</code></th> </tr> </thead> <tbody> <tr> <td>(BOOL)</td> <td>EN</td> <td>(BOOL)</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>UnitNo</td> <td>(BOOL)</td> <td>Deceleration stop completed flag Bit B</td> </tr> <tr> <td>(INT)</td> <td>Axis</td> <td>(BOOL)</td> <td>Busy flag Bit C</td> </tr> <tr> <td>(BOOL)</td> <td>Execute</td> <td>(BOOL)</td> <td>Abort Bit D</td> </tr> <tr> <td></td> <td></td> <td>(BOOL)</td> <td>Error flag Bit E</td> </tr> <tr> <td></td> <td></td> <td>(WORD)</td> <td>Error code ErrorID D0</td> </tr> </tbody> </table> | Sample                     |  | <code>_NCF060A_Stop</code> |  | (BOOL) | EN | (BOOL) | ENO | (INT) | UnitNo | (BOOL) | Deceleration stop completed flag Bit B | (INT) | Axis | (BOOL) | Busy flag Bit C | (BOOL) | Execute | (BOOL) | Abort Bit D |  |  | (BOOL) | Error flag Bit E |  |  | (WORD) | Error code ErrorID D0 |
| Sample                                      |   | <code>_NCF060A_Stop</code> |  |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
| (BOOL)                                      | EN  | (BOOL)                     | ENO                                    |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
| (INT)                                       | UnitNo  | (BOOL)                     | Deceleration stop completed flag Bit B |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
| (INT)                                       | Axis  | (BOOL)                     | Busy flag Bit C                        |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
| (BOOL)                                      | Execute   | (BOOL)                     | Abort Bit D                            |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
|   |   | (BOOL)                     | Error flag Bit E                       |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
|   |   | (WORD)                     | Error code ErrorID D0                  |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |
| <p><b>Related manuals</b></p>               | <p>Position Control Units OPERATION MANUAL (W426-E1)<br/>         4-7-3 Axis Operating Output Memory Area Priority<br/>         10-9 Stop Functions<br/>         12-4 Error Codes</p>   |                            |  |                            |  |        |    |        |     |       |        |        |  |       |      |        |                 |        |         |        |             |  |  |        |                  |  |  |        |                       |

## ■Variable Tables

### Input Variables

| Name     | Variable name | Data type | Default | Range     | Description                                    |
|----------|---------------|-----------|---------|-----------|--|
| EN       | EN            | BOOL      |         |           | 1 (ON): FB started<br>0 (OFF): FB not started. |
| Unit No. | UnitNo        | INT       | &0      | &0 to &15 | Specify the unit number.                       |
| Axis No. | Axis          | INT       | &1      | &1 to &16 | Specify the axis number.                       |
| Start    | Execute       | BOOL      | 0(OFF)  |           | ↕ : Starts the deceleration stop.              |

### Output Variables

| Name                             | Variable name  | Data type | Range | Description  |
|----------------------------------|----------------|-----------|-------|--|
| ENO                              | ENO            | BOOL      |       | 1 (ON): FB operating normally<br>0 (OFF): FB not operating normally<br><ul style="list-style-type: none"> <li>•FB not started</li> <li>•Input variable out of the range</li> <li>•FB ended with error</li> <li>•Common Parameters could not be read</li> </ul>   |
| Deceleration stop completed flag | Done           | BOOL      |       | Turns ON when the deceleration stop operation has been completed.  |
| Busy flag                        | Busy           | BOOL      |       | 1 (ON) indicates that the FB is in progress.   |
| Abort                            | CommandAborted | BOOL      |       | 1 (ON): Aborted<br>It will be aborted when any of the following conditions is met during operation<br><ul style="list-style-type: none"> <li>•Stopped with Emergency Stop.</li> <li>•Executed Servo Unlock, Deviation Counter Reset on an operating axis.</li> <li>•Attempted to execute FB while Servo Unlock, Emergency Stop or Deviation Counter Reset Bit is ON.</li> <li>•Executed this FB during Servo OFF.</li> <li>•The Deceleration Stop Bit is changed by the other FB during Deceleration Stop in operation.</li> </ul> |
| Error flag                       | Error          | BOOL      |       | Turns ON when an error has occurred in the FB.   |
| Error code                       | ErrorID        | WORD      |       | Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned if any of the following conditions is satisfied.<br><ul style="list-style-type: none"> <li>•Input variable is out of range.</li> <li>•The common parameters of the Position Control Units are out of range.</li> <li>•Not established communications with a specified axis.</li> </ul>  |

### ■Version History

| Version | Date     | Contents            |
|---------|----------|---------------------|
| 1.13    | 2006.01. | Original production |

### ■Note

This document explains the function of the function block.

It does not provide information of restrictions on the use of Units and Components or combination of them. For actual applications, make sure to read the operation manuals of the applicable products.