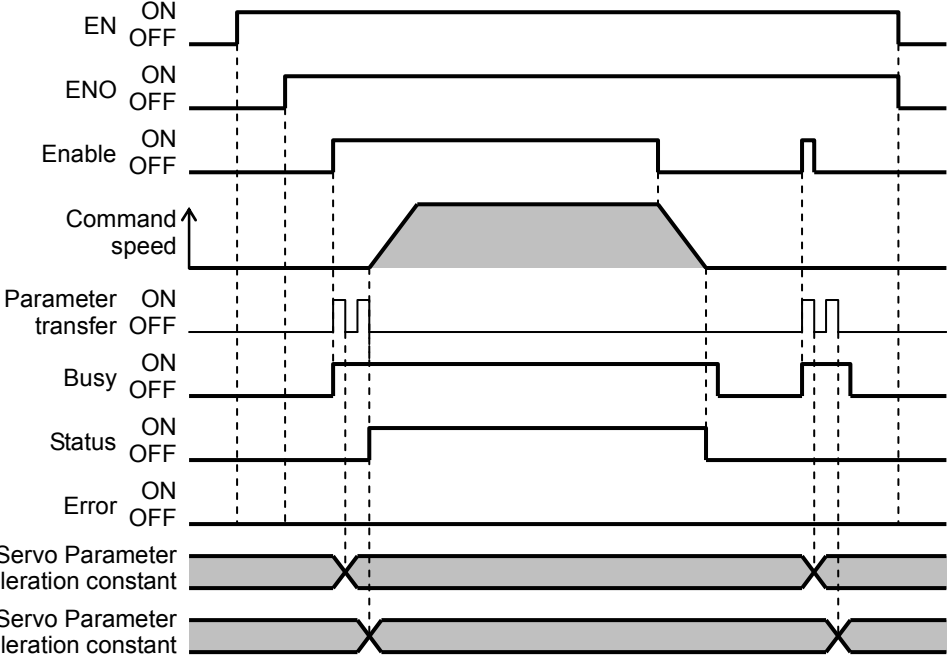


|                 |   |
|-----------------|---|
| <b>NCF 171C</b> | <b>Jogging (DINT) _NCF171C_Jog_DINT</b> |
|-----------------|---|

| <b>Basic function</b>                          | Executes jogging operation. (Acceleration/Deceleration time setting, Busy attachment)   |  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
|--|---|--|------------------|-------------------|-------------|------|-----------|------------|----------|--------------|--------------------------------|----------|------------|-----------------------|--------|---------------|-----------------------------|-----------------------|------------------|-------------------------|---------------|-----------------|---------------------------|-------------------|---------------------|------|-------------------|---------------------|--------|-----|--------|-------|-------|-----|--------|-------|-------|------|----------|-------|-------|------|
| <b>Symbol</b>                                  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Always ON (P_On)</td> <td style="width: 35%; padding: 5px;">_NCF171C_Jog_DINT</td> <td style="width: 35%; padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">(BOOL) EN</td> <td style="padding: 5px;">(BOOL) ENO</td> </tr> <tr> <td style="padding: 5px;">Unit No.</td> <td style="padding: 5px;">(INT) UnitNo</td> <td style="padding: 5px;">(BOOL) Status JOG in operation</td> </tr> <tr> <td style="padding: 5px;">Axis No.</td> <td style="padding: 5px;">(INT) Axis</td> <td style="padding: 5px;">(BOOL) Busy Busy flag</td> </tr> <tr> <td style="padding: 5px;">JOG</td> <td style="padding: 5px;">(BOOL) Enable</td> <td style="padding: 5px;">(BOOL) CommandAborted Abort</td> </tr> <tr> <td style="padding: 5px;">Direction designation</td> <td style="padding: 5px;">(BOOL) Direction</td> <td style="padding: 5px;">(BOOL) Error Error flag</td> </tr> <tr> <td style="padding: 5px;">Speed command</td> <td style="padding: 5px;">(DINT) Velocity</td> <td style="padding: 5px;">(WORD) ErrorID Error code</td> </tr> <tr> <td style="padding: 5px;">Acceleration time</td> <td style="padding: 5px;">(DINT) Acceleration</td> <td></td> </tr> <tr> <td style="padding: 5px;">Deceleration time</td> <td style="padding: 5px;">(DINT) Deceleration</td> <td></td> </tr> </table>   |  | Always ON (P_On) | _NCF171C_Jog_DINT |             |      | (BOOL) EN | (BOOL) ENO | Unit No. | (INT) UnitNo | (BOOL) Status JOG in operation | Axis No. | (INT) Axis | (BOOL) Busy Busy flag | JOG    | (BOOL) Enable | (BOOL) CommandAborted Abort | Direction designation | (BOOL) Direction | (BOOL) Error Error flag | Speed command | (DINT) Velocity | (WORD) ErrorID Error code | Acceleration time | (DINT) Acceleration |      | Deceleration time | (DINT) Deceleration |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Always ON (P_On)                               | _NCF171C_Jog_DINT   |  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
|  | (BOOL) EN   | (BOOL) ENO   |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Unit No.                                       | (INT) UnitNo  | (BOOL) Status JOG in operation   |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Axis No.                                       | (INT) Axis  | (BOOL) Busy Busy flag  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| JOG  | (BOOL) Enable   | (BOOL) CommandAborted Abort  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Direction designation                          | (BOOL) Direction  | (BOOL) Error Error flag  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Speed command                                  | (DINT) Velocity   | (WORD) ErrorID Error code  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Acceleration time                              | (DINT) Acceleration   |  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| Deceleration time                              | (DINT) Deceleration   |  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| <b>File name</b>                               | Lib\FBL\omronlib\PositionController\NCF\_NCF171C_Jog_DINT10.cxf   |  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| <b>Applicable models</b>                       | Position Control 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   |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| <b>Languages in function block definitions</b> | Ladder programming  |  |                  |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |
| <b>Conditions for usage</b>                    | <p>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)</p> <p>■CX-Programmer Setting</p> <p>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 <b>PLC/Function Block Memory/Function Block Memory Allocation</b> from the Menu Bar.</p> <div style="display: flex; align-items: center;"> <table border="1" style="width: 40%; border-collapse: collapse; margin-right: 10px;"> <caption>Function Block Memory Allocation [NewPLC1]</caption> <thead> <tr> <th>FB Instance Area</th> <th>Start Address</th> <th>End Address</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>No Retain</td> <td>H512</td> <td>H1407</td> <td>896</td> </tr> <tr> <td>Retain</td> <td>H1408</td> <td>H1535</td> <td>128</td> </tr> <tr> <td>Timers</td> <td>T3072</td> <td>T4095</td> <td>1024</td> </tr> <tr> <td>Counters</td> <td>C3072</td> <td>C4095</td> <td>1024</td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; width: 50%;"> <p>Specify unused area.<br/>The required size varies depending on the used FB and the number of FBs.<br/>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.</p> </div> <table border="1" style="width: 40%; border-collapse: collapse; margin-left: 10px;"> <caption>Function Block Memory Allocation [NewPLC1]</caption> <thead> <tr> <th>FB Instance Area</th> <th>Start Address</th> <th>End Address</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>No Retain</td> <td>D32020</td> <td>D32767</td> <td>748</td> </tr> <tr> <td>Retain</td> <td>H1408</td> <td>H1535</td> <td>128</td> </tr> <tr> <td>Timers</td> <td>T3072</td> <td>T4095</td> <td>1024</td> </tr> <tr> <td>Counters</td> <td>C3072</td> <td>C4095</td> <td>1024</td> </tr> </tbody> </table> <div style="margin-left: 10px;"> <p>For example, to use the memory area from D32020 to D32767 (748 words), specify the addresses as shown in the left.</p> </div> </div> |  | 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 |
| 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             |                   |             |      |           |            |          |              |                                |          |            |                       |        |               |                             |                       |                  |                         |               |                 |                           |                   |                     |      |                   |                     |        |     |        |       |       |     |        |       |       |      |          |       |       |      |

|                                     |   |
|-------------------------------------|---|
| <p><b>Function description</b></p>  | <p>When the JOG (Enable) turns ON, a JOG operation for the axis of the specified Unit No. (UnitNo) and Axis No. (Axis) is started using the specified Speed command (Velocity), Acceleration time (Acceleration) and Deceleration time (Deceleration), and it stops when the JOG (Enable) turns OFF.</p> <p>When the JOG (Enable) turns ON, the value set in Acceleration time (Acceleration) and Deceleration time (Deceleration) is written to "Acceleration constant" and "Deceleration constant" using the Transferring Servo Parameter function. Refer to the <i>Restrictions Other</i> for the details of Servo Parameter "Acceleration constant" and "Deceleration constant". The Servo parameters will be transferred even when the JOG (Enable) turns OFF before an axis starts operated.</p> <p>Changing the Speed command (Velocity) while the JOG (Enable) is ON will change the actual operation speed.</p> <p>JOG in operation (Status) will turn ON during jogging by this FB.</p> <p>The Busy flag (Busy) will be set when the JOG (Enable) is turned ON.</p> <p>The Busy flag (Busy) will be reset when either Jogging stops, or any of Abort (CommandAborted) or Error flag (Error) is turned ON.</p> <p>Even if an error occurs when the input variable 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 JOG (Enable) turns OFF. If the JOG (Enable) turns OFF before the operation has been completed, the status will be set for at least one cycle when corresponding conditions have occurred.</p>  |
| <p><b>Kind of FB definition</b></p> | <p>Always execution type.<br/>Connect the EN input to the Always ON Flag (P_On).<br/>The same instance cannot be used in two or more places</p>   |
| <p><b>EN input condition</b></p>    | <p>• Connect the EN input to the Always ON Flag (P_On).<br/>If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.</p>  |

**Restrictions  
Other**

- The Acceleration/deceleration constants are calculated based on “Speed command (Velocity)” “Acceleration time (Acceleration)” and “Deceleration time (Deceleration)” in this FB. If the calculated value is out of Servo Parameter range, it will be adjusted to be within the range. In this case, the specified acceleration/deceleration time may be altered.
- (Reference) Acceleration/Deceleration constant setting range (1 to 65535). In this case, the specified acceleration/deceleration time may be altered.

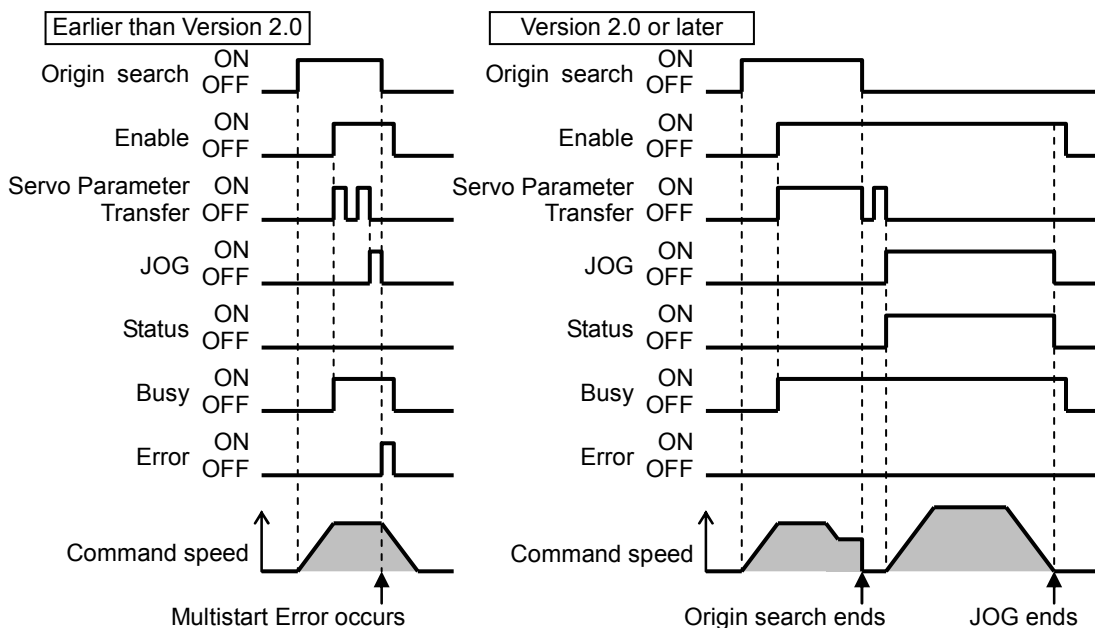
(Reference) Acceleration/Deceleration constant setting range of Servo Drive

| Drive    | PRM No.     | Parameter name                           | Size | Unit                                | Setting range     |
|----------|-------------|--|------|-------------------------------------|-------------------|
| W-Series | Pn80B       | Second-step linear acceleration constant | 2    | ×10000 command units/s <sup>2</sup> | 1 to 65535        |
|          | Pn80E       | Second-step linear deceleration constant | 2    | ×10000 command units/s <sup>2</sup> | 1 to 65535        |
| G-Series | Pn107 (80B) | Linear Acceleration constant             | 2    | ×10000 command units/s <sup>2</sup> | 0 to 65535 (Note) |
|          | Pn10A (80E) | Linear deceleration constant             | 2    | ×10000 command units/s <sup>2</sup> | 0 to 65535 (Note) |

(Note) Setting 0 automatically changes to 1.

- The following cannot be specified for this FB: “Acceleration/deceleration curve designation”, “Forward rotation current limit designation” and “Reverse rotation current limit designation” If any of these functions is required, specify them in advance outside the FB.
- This FB may act differently according to unit versions of the Position Control Units when executing this FB during the Origin Search operation.

|                  |  |
|------------------|--|
| Earlier than 2.0 | A Multistart error occurs right after parameters are transferred. Do not execute this FB during the Origin search operation.                 |
| 2.0 or later     | The parameter transferring status is hold until the Origin search is completed. After the completion, the Move Absolute command is executed. |



- 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).
- 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.
- This FB uses the JOG/ Write Parameter 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).

**Note:**

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 turning "JOG (Enable)" ON.



## 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.  |
| JOG                   | Enable        | BOOL      | 0(OFF)  |                         | ↑: Starts jogging<br>↓: Stops jogging   |
| Direction designation | Direction     | BOOL      | 0(OFF)  |                         | Specify the direction designation.<br>1(ON): Reverse rotation direction<br>0(OFF): Forward rotation direction                                 |
| Speed command         | Velocity      | DINT      | +0      | +0 to<br>+2,147,483,647 | Specify the target speed.<br>Unit: Command units/s<br>Changing the value while the JOG (Enable) is ON will change the actual operating speed. |
| Acceleration time     | Acceleration  | DINT      | +0      | +0 to +65,535           | Specify the acceleration time for the speed specified in "Speed command (Velocity)".<br>Unit: ms  |
| Deceleration time     | Deceleration  | DINT      | +0      | +0 to +65,535           | Specify the deceleration time for the speed specified in "Speed command (Velocity)".<br>Unit: ms  |

### 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>•FB not started<br>•Input variable out of the range<br>•FB ended with error<br>•Common Parameters could not be read  |
| JOG in operation | Status         | BOOL      |       | Turns ON while JOG by this FB is in operation.  |
| 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>•The JOG bit has been reset by other FB during jogging.<br>•The JOG bit has been set by other FB during a deceleration stop of jogging.<br>•Stopped with Declaration Stop or Emergency Stop.<br>•Executed Servo Unlock, Deviation Counter Reset on an operating axis.<br>•Attempted to execute FB while Servo Unlock, Deceleration Stop, Emergency Stop or Deviation Counter Reset Bit is ON.<br>•Detected the Stop Execution Flag is ON. |
| 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>•Input variable is out of range.<br>•The common parameters of the Position Control Units are out of range.<br>•Not established communications with a specified axis.<br>•The Write Servo Parameter Bit is changed by the other FB during writing Servo parameters.   |

### Version History

| Version | Date     | Contents            |
|---------|----------|---------------------|
| 1.00    | 2007.02. | 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.