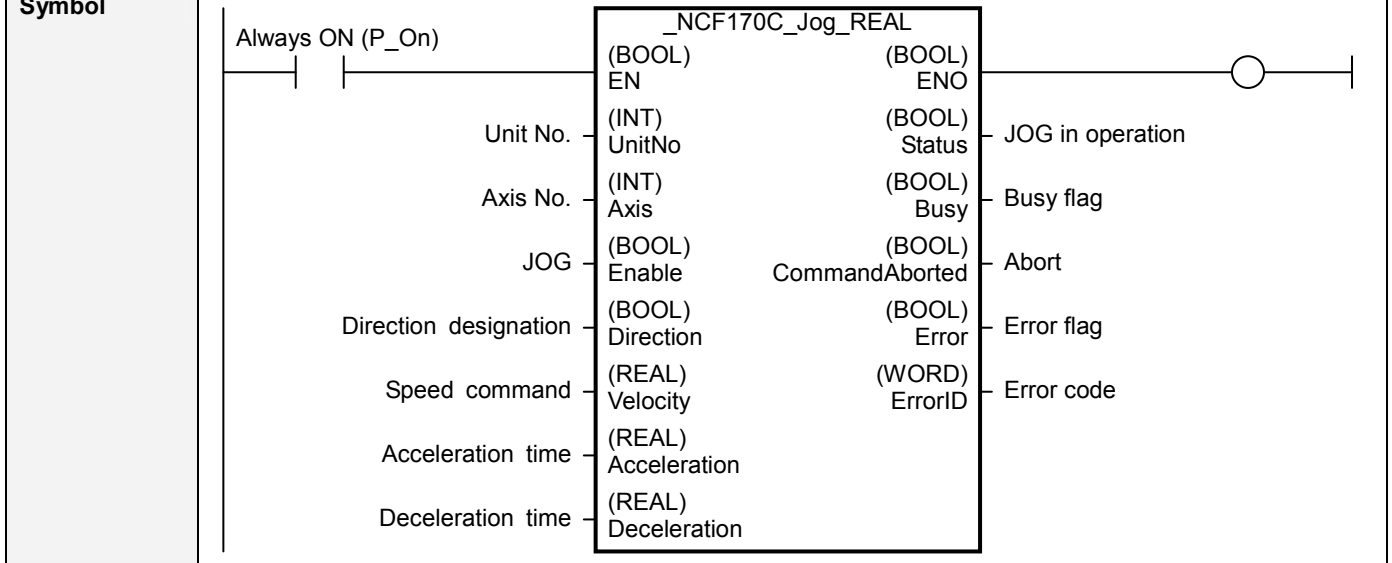| NCF 170C	Jogging (REAL) _NCF170C_Jog_REAL

Basic function	Executes jogging operation. (Acceleration/Deceleration time setting, Busy attachment)
Symbol	

Always ON (P_On)

```
                          _NCF170C_Jog_REAL
                     (BOOL)              (BOOL)
                     EN                  ENO
         Unit No. ── (INT)               (BOOL)
                     UnitNo              Status  ── JOG in operation
         Axis No. ── (INT)               (BOOL)
                     Axis                Busy    ── Busy flag
             JOG ── (BOOL)               (BOOL)
                     Enable              CommandAborted ── Abort
  Direction designation ── (BOOL)        (BOOL)
                     Direction           Error   ── Error flag
   Speed command ── (REAL)               (WORD)
                     Velocity            ErrorID ── Error code
 Acceleration time ── (REAL)
                     Acceleration
 Deceleration time ── (REAL)
                     Deceleration
```

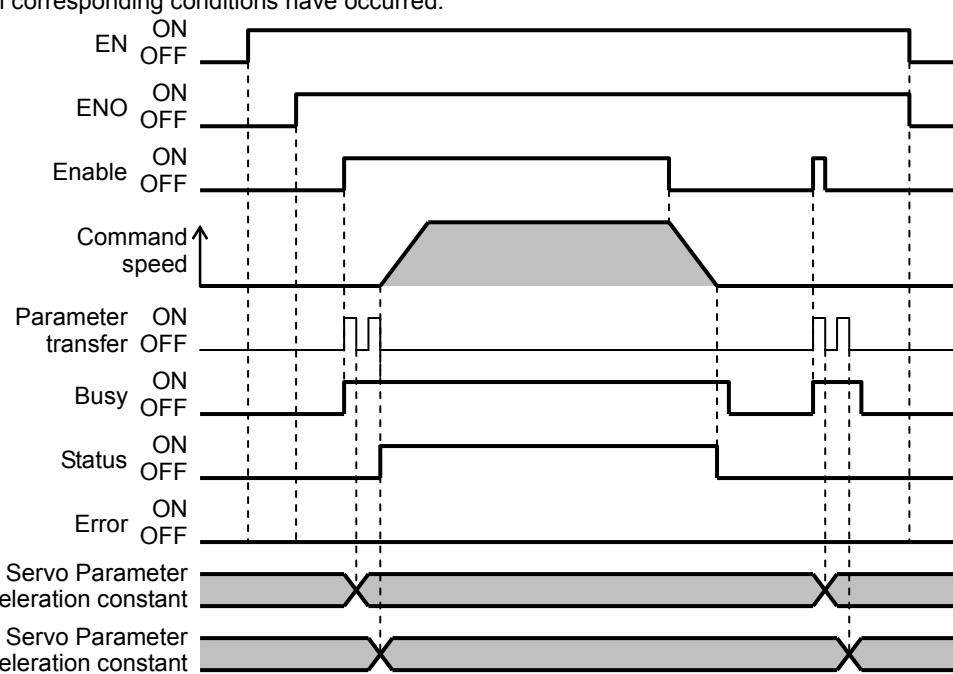| File name	Lib\FBL\omronlib\PositionController\NCF_NCF170C_Jog_REAL10.cxf
Applicable models	Position Control Unit	CJ1W-NCF71, CS1W-NCF71
	CPU Unit	CS1*-CPU**H Unit Version 3.0 or later CJ1*-CPU**H Unit Version 3.0 or later CJ1M-CPU** Unit Version 3.0 or later CP1H
	CX-Programmer	Version 5.0 or later
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.

Function Block Memory Allocation [NewPLC1]

FB Instance Area	Start Address	End Address	Size	
No Retain	H512	H1407	896	OK
Retain	H1408	H1535	128	Cancel
Timers	T3072	T4095	1024	Edit
Counters	C3072	C4095	1024	Default

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.

Function Block Memory Allocation [NewPLC1]

FB Instance Area	Start Address	End Address	Size	
No Retain	D32020	D32767	748	OK
Retain	H1408	H1535	128	Cancel
Timers	T3072	T4095	1024	Edit
Counters	C3072	C4095	1024	Default
				Advanced

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

Function description	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) truns OFF. 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 *Restrictions Other* 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. Changing the Speed command (Velocity) while the JOG (Enable) is ON will change the actual operation speed. JOG in operation (Status) will turn ON during jogging by this FB. The Busy flag (Busy) will be set when the JOG (Enable) is turned ON. The Busy flag (Busy) will be reset when either Jogging stops, or any of Abort (CommandAborted) or Error flag (Error) is turned ON. 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. 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. 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.

Kind of FB definition	Always execution type.
	  Connect the EN input to the Always ON Flag (P_On).
	  The same instance cannot be used in two or more places

EN input condition	・Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

Restrictions Other	・Changing the Speed command (Velocity) while the JOG (Enable) is ON will change the actual operation speed. However, the speed will not be changed if the Speed command (Velocity) is less than -2.147483e+009 or exceeds +2.147483e+009.

・Changing the Speed command (Velocity) while the JOG (Enable) is ON will change the actual operation speed. However, the speed will not be changed if the Speed command (Velocity) is less than -2.147483e+009 or exceeds +2.147483e+009.

  Ex.1) When changing the Speed command value +1000.0(+1000) to +2.147483e+009 during the operation: The speed command value for the Position Control Unit is changed to +2.147483e+009(+2147483000). Some Position Control Units may cause an error.

  Ex.2) When changing the Speed command value +1000.0(+1000) to +2.147484e+009 during the operation: The Speed command value for the Position Control Unit remains +1000.0(+1000) without any change.

・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 (1 to 65535). In this case, the specified acceleration/deceleration time may be altered.
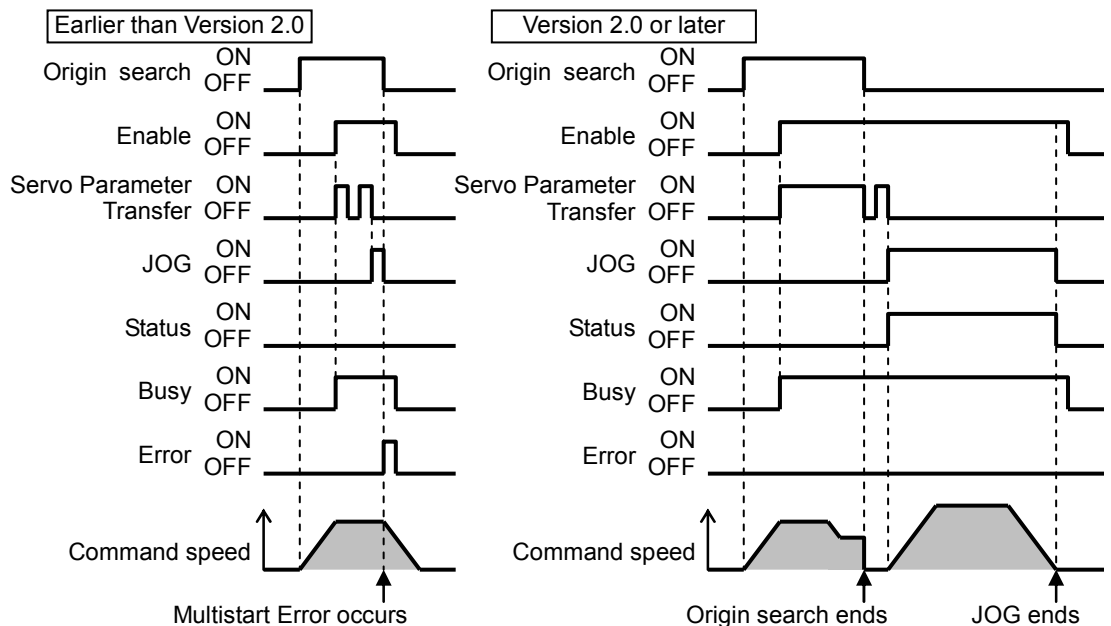
(Reference) Acceleration/Deceleration constant setting range of Servo Drive

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

Earlier than Version 2.0 / Version 2.0 or later timing charts: Origin search, Enable, Servo Parameter Transfer, JOG, Status, Busy, Error, Command speed. Multistart Error occurs / Origin search ends / JOG ends.

・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.

Application example	Turning the Bit A ON from OFF will operate the Servomotor (axis1) connected to the Position Control Unit with a unit number 0 using the JOG command.

Unit No.: 0

| CPU | NCF |

Servomotor
Axis 1

Sample

_NCF170C_Jog_REAL

Always ON (P_On)

	(BOOL) EN	(BOOL) ENO	
Unit No. &0	(INT) UnitNo	(BOOL) Status	*JOG in operation* Bit B
Axis No. &1	(INT) Axis	(BOOL) Busy	*Busy flag* Bit C
JOG Bit A	(BOOL) Enable	(BOOL) CommandAborted	*Abort* Bit D
Direction designation Bit F	(BOOL) Direction	(BOOL) Error	*Error flag* Bit E
Speed command +10000.0	(REAL) Velocity	(WORD) ErrorID	*Error code* D0
Acceleration time +1000.0	(REAL) Acceleration		
Deceleration time +2000.0	(REAL) Deceleration		

Related manuals	Position Control Units OPERATION MANUAL (W426-E1) 5-3 Transferring Servo Parameters 10-2 Jogging 12-4 Error Codes

■**Variable Tables**
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 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 ⬇: Stops jogging
Direction designation	Direction	BOOL	0(OFF)		Specify the direction designation. 1 (ON): Reverse rotation direction 0 (OFF): Forward rotation direction
Speed command	Velocity	REAL	+0.0	+0.0 to +2.147483e+009	Specify the target speed. Unit: Command units/s Changing the value while the JOG (Enable) is ON will change the actual operating speed.
Acceleration time	Acceleration	REAL	+0.0	+0.0 to +65535.0	Specify the acceleration time for the speed specified in "Speed command (Velocity)". Unit: ms
Deceleration time	Deceleration	REAL	+0.0	+0.0 to +65535.0	Specify the deceleration time for the speed specified in "Speed command (Velocity)". Unit: ms

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB operating normally 0 (OFF): FB not operating normally ・FB not started ・Input variable out of the range ・FB ended with error ・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 It will be aborted when any of the following conditions is met during operation ・The JOG bit has been reset by other FB during jogging. ・The JOG bit has been set by other FB during a deceleration stop of jogging. ・Stopped with Decleration Stop or Emergency Stop. ・Executed Servo Unlock, Deviation Counter Reset on an operating axis. ・Attempted to execute FB while Servo Unlock, Deceleration Stop, Emergency Stop or Deviation Counter Reset Bit is ON. ・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 *Related Manuals* for details on errors. A code of #0000 will be returned if any of the following conditions is satisfied. ・Input variable is out of range. ・The common parameters of the Position Control Units are out of range. ・Not established communications with a specified axis. ・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.