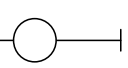
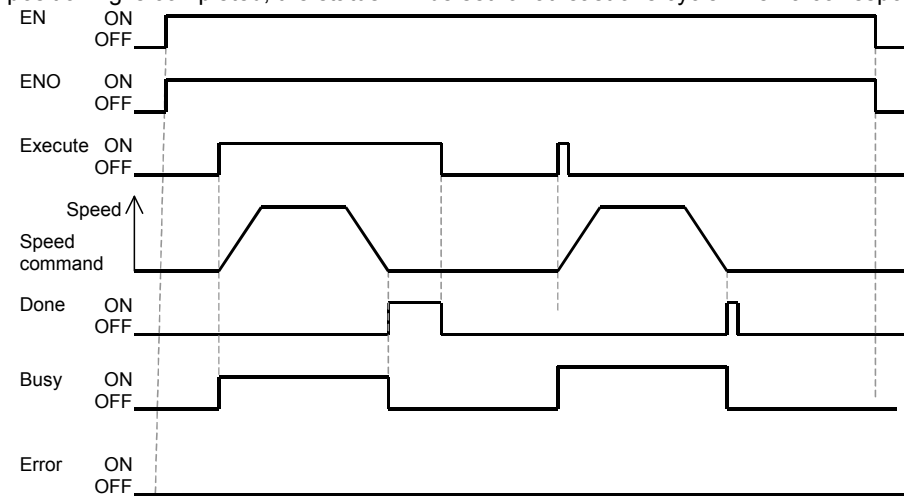


Position Controller

CP1H-(XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)

FB name	Function name	Function description
_NCCP1H010_MoveAbsolute_REAL	Move Absolute (REAL)	Executes positioning using absolute movement.
_NCCP1H011_MoveAbsolute_DINT	Move Absolute (DINT)	Executes positioning using absolute movement.
_NCCP1H020_MoveRelative_REAL	Move Relative (REAL)	Executes positioning using relative movement.
_NCCP1H021_MoveRelative_DINT	Move Relative (DINT)	Executes positioning using relative movement.
_NCCP1H030_MoveVelocity_REAL	Speed Control (REAL)	Controls speed.
_NCCP1H031_MoveVelocity_DINT	Speed Control (DINT)	Controls speed.
_NCCP1H050_Home_REAL	Origin Search (REAL)	Executes origin search to define an origin.
_NCCP1H051_Home_DINT	Origin Search (DINT)	Executes origin search to define an origin.
_NCCP1H061_Stop_REAL	Deceleration Stop (REAL)	Decelerates an operating axis to a stop.
_NCCP1H062_Stop_DINT	Deceleration Stop (DINT)	Decelerates an operating axis to a stop.
_NCCP1H110_MoveInterrupt_REAL	Interrupt Feeding(REAL)	Moves the axis for a specified distance after an interrupt input turns ON.
_NCCP1H111_MoveInterrupt_DINT	Interrupt Feeding(DINT)	Moves the axis for a specified distance after an interrupt input turns ON.
_NCCP1H120_MoveSequence	Sequential Positioning	Performs positioning sequentially.
_NCCP1H130_MoveTimeAbsolute_REAL	Time-specified Move Absolute(REAL)	Positioning is performed with absolute movement in a specified time period.
_NCCP1H131_MoveTimeAbsolute_DINT	Time-specified Move Absolute(DINT)	Positioning is performed with absolute movement in a specified time period.
_NCCP1H140_MoveTimeRelative_REAL	Time-specified Move Relative(REAL)	Positioning is performed with relative movement in a specified time period.
_NCCP1H141_MoveTimeRelative_DINT	Time-specified Move Relative(DINT)	Positioning is performed with relative movement in a specified time period.
_NCCP1H200_ReadStatus	Read Status	Reads the output status.
_NCCP1H204_ReadActualPosition_REAL	Read Present Position(REAL)	Reads the present position of the specified axis.
_NCCP1H205_ReadActualPosition_DINT	Read Present Position(DINT)	Reads the present position of the specified axis.
_NCCP1H610_SetPosition_REAL	Present Position Change(REAL)	Changes the present position to the specified position data.
_NCCP1H611_SetPosition_DINT	Present Position Change(DINT)	Changes the present position to the specified position data.

NCCP1H 010	Move Absolute (REAL): _NCCP1H010_MoveAbsolute_REAL
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Basic function	Executes positioning with the absolute movement.				
Symbol	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Start</p> <p>Position command</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Deceleration rate</p> <p>Pulse output method</p> </div> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> <p style="text-align: center;">_NCCP1H010_MoveAbsolute_REAL</p> <p>(BOOL) EN</p> <p>(INT) Axis</p> <p>(BOOL) Execute</p> <p>(REAL) Position</p> <p>(REAL) Velocity</p> <p>(REAL) Acceleration</p> <p>(REAL) Deceleration</p> <p>(INT) OutPulseSelect</p> </div> <div style="margin-left: 20px;"> <p>(BOOL) ENO</p> <p>(BOOL) Done</p> <p>(BOOL) Busy</p> <p>(BOOL) Error</p> <p>(WORD) ErrorID</p> <p>Positioning completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code</p> <p>(May be omitted)</p> </div> </div> 				
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H 010_MoveAbsolute_REAL10.cxf				
Applicable models	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Position), Speed command (Velocity), Acceleration rate (Acceleration), and Deceleration rate (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> 				
FB precautions	<ul style="list-style-type: none"> When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. 				
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 				

<p>Application example</p>	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with absolute movement.</p>
<p>Related manuals</p>	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts absolute movement
Position command	Position	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specifies the target position. Unit: Pulses
Speed command	Velocity	REAL	+1.0	+1.0 to +100000.0	Specifies the target speed. Unit: Hz
Acceleration rate	Acceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Deceleration rate	Deceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

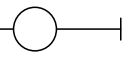
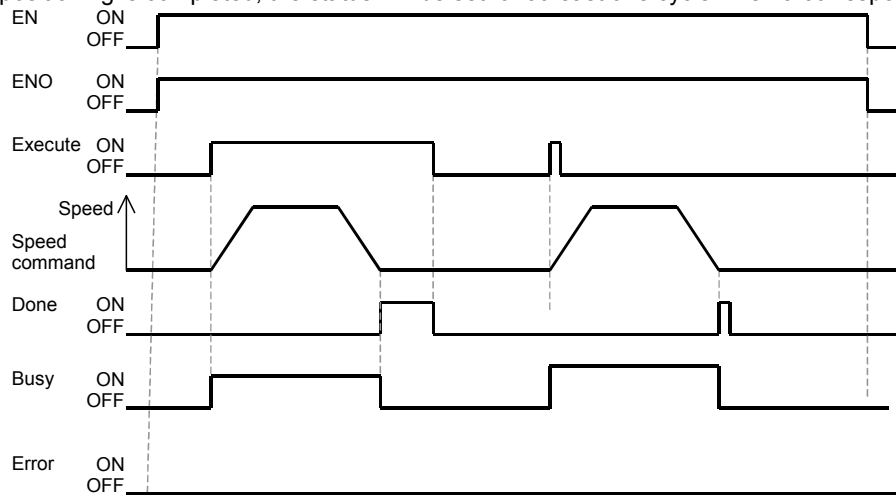
Version	Date	Contents
1.00	2005.9.	Original production

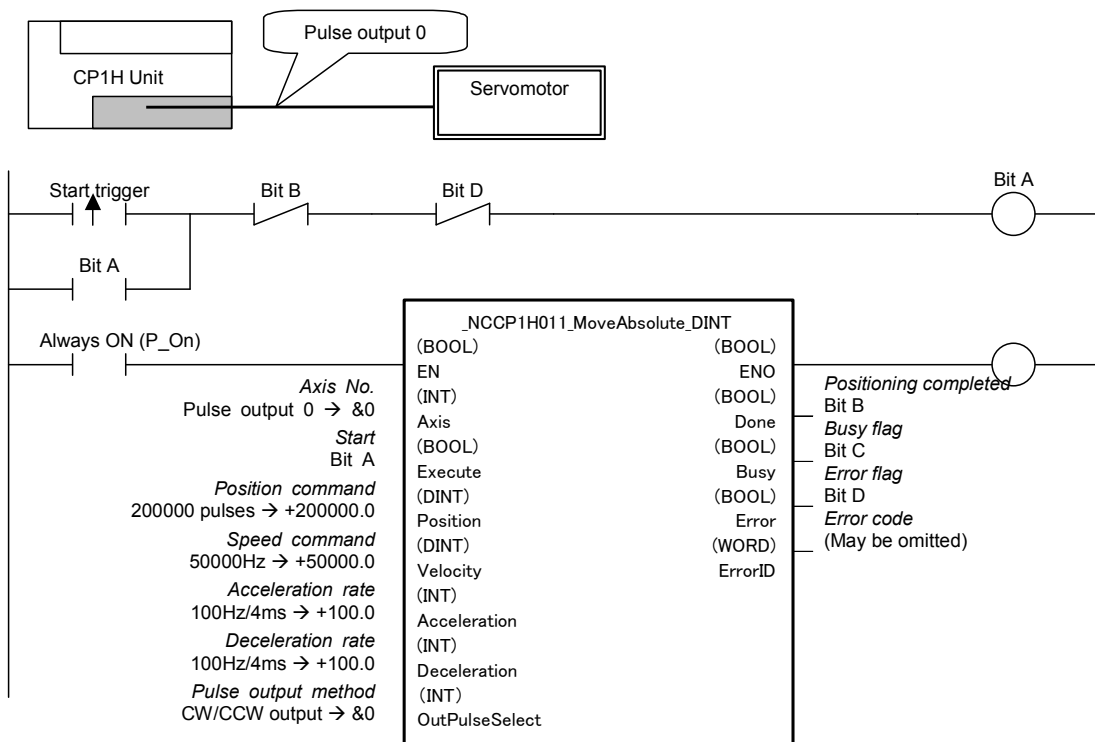
■ Note

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.

NCCP1H011	Move Absolute (DINT): _NCCP1H011_MoveAbsolute_DINT
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Basic function	Executes positioning with the absolute movement.																																
Symbol	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Start</p> <p>Position command</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Deceleration rate</p> <p>Pulse output method</p> </div> <div style="flex: 2; border: 1px solid black; padding: 5px; margin: 0 10px;"> <p style="text-align: center;">_NCCP1H011_MoveAbsolute_DINT</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">(BOOL)</td> <td style="width: 50%;">(BOOL)</td> </tr> <tr> <td>EN</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>Axis</td> <td>Done</td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>Execute</td> <td>Busy</td> </tr> <tr> <td>(DINT)</td> <td>(BOOL)</td> </tr> <tr> <td>Position</td> <td>Error</td> </tr> <tr> <td>(DINT)</td> <td>(WORD)</td> </tr> <tr> <td>Velocity</td> <td>ErrorID</td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>Acceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>Deceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>OutPulseSelect</td> <td></td> </tr> </table> </div> <div style="flex: 1; text-align: right;">  <p>Positioning completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code (May be omitted)</p> </div> </div>	(BOOL)	(BOOL)	EN	ENO	(INT)	(BOOL)	Axis	Done	(BOOL)	(BOOL)	Execute	Busy	(DINT)	(BOOL)	Position	Error	(DINT)	(WORD)	Velocity	ErrorID	(INT)		Acceleration		(INT)		Deceleration		(INT)		OutPulseSelect	
(BOOL)	(BOOL)																																
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(INT)																																	
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File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H011_MoveAbsolute_DINT10.cxf																																
Applicable models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher																												
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)																																
CX-Programmer	Version 6.1 or higher																																
Conditions for usage	None																																
Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Position), Speed command (Velocity), Acceleration rate (Acceleration), and Deceleration rate (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> 																																
FB precautions	<ul style="list-style-type: none"> When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. 																																
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																

<p>Application example</p>	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with absolute movement.</p>  <table border="1" data-bbox="734 537 1133 985"> <thead> <tr> <th colspan="3">_NCCP1H011_MoveAbsolute_DINT</th> </tr> </thead> <tbody> <tr> <td>(BOOL)</td> <td>EN</td> <td>(BOOL) ENO</td> </tr> <tr> <td>(INT)</td> <td>Axis</td> <td>(BOOL) Done</td> </tr> <tr> <td>(BOOL)</td> <td>Execute</td> <td>(BOOL) Busy</td> </tr> <tr> <td>(DINT)</td> <td>Position</td> <td>(BOOL) Error flag</td> </tr> <tr> <td>(DINT)</td> <td>Velocity</td> <td>(BOOL) Bit D</td> </tr> <tr> <td>(INT)</td> <td>Acceleration</td> <td>Error</td> </tr> <tr> <td>(INT)</td> <td>Deceleration</td> <td>(WORD) Error code</td> </tr> <tr> <td>(INT)</td> <td>Deceleration</td> <td>(May be omitted)</td> </tr> <tr> <td>(INT)</td> <td>OutPulseSelect</td> <td></td> </tr> </tbody> </table> <p> <i>Axis No.</i> Pulse output 0 → &0 <i>Start</i> Bit A <i>Position command</i> 200000 pulses → +200000.0 <i>Speed command</i> 50000Hz → +50000.0 <i>Acceleration rate</i> 100Hz/4ms → +100.0 <i>Deceleration rate</i> 100Hz/4ms → +100.0 <i>Pulse output method</i> CW/CCW output → &0 </p>	_NCCP1H011_MoveAbsolute_DINT			(BOOL)	EN	(BOOL) ENO	(INT)	Axis	(BOOL) Done	(BOOL)	Execute	(BOOL) Busy	(DINT)	Position	(BOOL) Error flag	(DINT)	Velocity	(BOOL) Bit D	(INT)	Acceleration	Error	(INT)	Deceleration	(WORD) Error code	(INT)	Deceleration	(May be omitted)	(INT)	OutPulseSelect	
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(INT)	OutPulseSelect																														
<p>Related manuals</p>	<p> SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes) </p>																														

■ Variable Table Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts absolute movement
Position command	Position	DINT	+0	-2,147,483,648 to +2,147,483,647	Specifies the target position. Unit: Pulses
Speed command	Velocity	DINT	&1	&1 to &100000	Specifies the target speed. Unit: Hz
Acceleration rate	Acceleration	INT	&1	&1 to &65535	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Deceleration rate	Deceleration	INT	&1	&1 to &65535	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H020	Move Relative (REAL): _NCCP1H020_MoveRelative_REAL
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Basic function	Executes positioning with the relative movement.				
Symbol	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;"> <p>Always ON (P_On)</p> <hr/> <p>Axis No.</p> <p>Start</p> <p>Position command</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Deceleration rate</p> <p>Pulse output method</p> </td> <td style="width: 35%; border: 1px solid black; padding: 5px; vertical-align: top;"> <p style="text-align: center;">_NCCP1H020_MoveRelative_REAL</p> <p>(BOOL) EN</p> <p>(INT) Axis</p> <p>(BOOL) Execute</p> <p>(REAL) Distance</p> <p>(REAL) Velocity</p> <p>(REAL) Acceleration</p> <p>(REAL) Deceleration</p> <p>(INT) OutPulseSelect</p> </td> <td style="width: 35%; vertical-align: top;"> <p>(BOOL) ENO</p> <p>(BOOL) Done</p> <p>(BOOL) Busy</p> <p>(BOOL) Error</p> <p>(WORD) ErrorID</p> <p>Positioning completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code</p> <p>(May be omitted)</p> </td> </tr> </table>	<p>Always ON (P_On)</p> <hr/> <p>Axis No.</p> <p>Start</p> <p>Position command</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Deceleration rate</p> <p>Pulse output method</p>	<p style="text-align: center;">_NCCP1H020_MoveRelative_REAL</p> <p>(BOOL) EN</p> <p>(INT) Axis</p> <p>(BOOL) Execute</p> <p>(REAL) Distance</p> <p>(REAL) Velocity</p> <p>(REAL) Acceleration</p> <p>(REAL) Deceleration</p> <p>(INT) OutPulseSelect</p>	<p>(BOOL) ENO</p> <p>(BOOL) Done</p> <p>(BOOL) Busy</p> <p>(BOOL) Error</p> <p>(WORD) ErrorID</p> <p>Positioning completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code</p> <p>(May be omitted)</p>	
<p>Always ON (P_On)</p> <hr/> <p>Axis No.</p> <p>Start</p> <p>Position command</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Deceleration rate</p> <p>Pulse output method</p>	<p style="text-align: center;">_NCCP1H020_MoveRelative_REAL</p> <p>(BOOL) EN</p> <p>(INT) Axis</p> <p>(BOOL) Execute</p> <p>(REAL) Distance</p> <p>(REAL) Velocity</p> <p>(REAL) Acceleration</p> <p>(REAL) Deceleration</p> <p>(INT) OutPulseSelect</p>	<p>(BOOL) ENO</p> <p>(BOOL) Done</p> <p>(BOOL) Busy</p> <p>(BOOL) Error</p> <p>(WORD) ErrorID</p> <p>Positioning completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code</p> <p>(May be omitted)</p>			
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H020_MoveRelative_REAL10.cxf				
Applicable models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Position), Speed command (Velocity), Acceleration rate (Acceleration), and Deceleration rate (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method).</p> <p>The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs.</p> <p>These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p>				

<p>FB precautions</p>	<ul style="list-style-type: none"> • CW output is taken as + direction and CCW output is taken as – direction. • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • If Start (Execute) is turned ON with no origin defined, the present value of output pulse counts will be cleared to 0 and the next positioning operation is started with the present value of 0. (See the diagram below.) 																																		
<p>EN input condition</p>	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_On). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																		
<p>Application example</p>	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with relative movement.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td colspan="2" style="text-align: center;">_NCCP1H020_MoveRelative_REAL</td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>EN</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>Axis</td> <td>Done</td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>Execute</td> <td>Busy</td> </tr> <tr> <td>(REAL)</td> <td>(BOOL)</td> </tr> <tr> <td>Distance</td> <td>Error flag</td> </tr> <tr> <td>(REAL)</td> <td>Error</td> </tr> <tr> <td>Velocity</td> <td>(WORD)</td> </tr> <tr> <td>(REAL)</td> <td>ErrorID</td> </tr> <tr> <td>Acceleration</td> <td></td> </tr> <tr> <td>(REAL)</td> <td></td> </tr> <tr> <td>Deceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>OutPulseSelect</td> <td></td> </tr> </table>	_NCCP1H020_MoveRelative_REAL		(BOOL)	(BOOL)	EN	ENO	(INT)	(BOOL)	Axis	Done	(BOOL)	(BOOL)	Execute	Busy	(REAL)	(BOOL)	Distance	Error flag	(REAL)	Error	Velocity	(WORD)	(REAL)	ErrorID	Acceleration		(REAL)		Deceleration		(INT)		OutPulseSelect	
_NCCP1H020_MoveRelative_REAL																																			
(BOOL)	(BOOL)																																		
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(BOOL)	(BOOL)																																		
Execute	Busy																																		
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(INT)																																			
OutPulseSelect																																			
<p>Related manuals</p>	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>																																		

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts relative movement
Position command	Distance	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specifies the relative travel distance. Unit: Pulses
Speed command	Velocity	REAL	+1.0	+1.0 to +100000.0	Specifies the target speed. Unit: Hz
Acceleration rate	Acceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Deceleration rate	Deceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

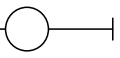
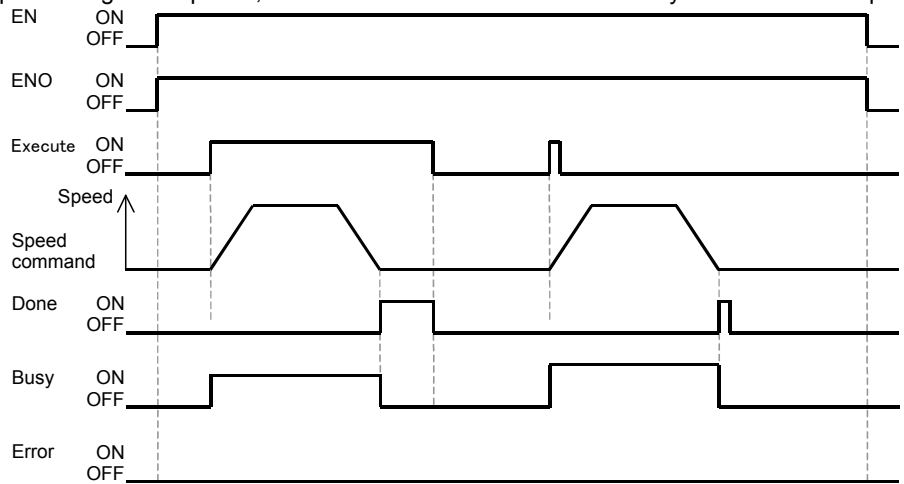
Version	Date	Contents
1.00	2005.9.	Original production

■ 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.

NCCP1H021	Move Relative (DINT): _NCCP1H021_MoveRelative_DINT
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Basic function	Executes positioning with the relative movement.																																
Symbol	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Start</p> <p>Position command</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Deceleration rate</p> <p>Pulse output method</p> </div> <div style="flex: 2; border: 1px solid black; padding: 5px; margin: 0 10px;"> <p style="text-align: center;">_NCCP1H021_MoveRelative_DINT</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">(BOOL)</td> <td style="width: 50%;">(BOOL)</td> </tr> <tr> <td>EN</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>Axis</td> <td>Done</td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>Execute</td> <td>Busy</td> </tr> <tr> <td>(DINT)</td> <td>(BOOL)</td> </tr> <tr> <td>Distance</td> <td>Error</td> </tr> <tr> <td>(DINT)</td> <td>(WORD)</td> </tr> <tr> <td>Velocity</td> <td>ErrorID</td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>Acceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>Deceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>OutPulseSelect</td> <td></td> </tr> </table> </div> <div style="flex: 1; text-align: right; padding-right: 10px;">  <p>Positioning completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code</p> <p>(May be omitted)</p> </div> </div>	(BOOL)	(BOOL)	EN	ENO	(INT)	(BOOL)	Axis	Done	(BOOL)	(BOOL)	Execute	Busy	(DINT)	(BOOL)	Distance	Error	(DINT)	(WORD)	Velocity	ErrorID	(INT)		Acceleration		(INT)		Deceleration		(INT)		OutPulseSelect	
(BOOL)	(BOOL)																																
EN	ENO																																
(INT)	(BOOL)																																
Axis	Done																																
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Execute	Busy																																
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Distance	Error																																
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(INT)																																	
Acceleration																																	
(INT)																																	
Deceleration																																	
(INT)																																	
OutPulseSelect																																	
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H021_MoveRelative_DINT10.cxf																																
Applicable models	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher																												
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)																																
CX-Programmer	Version 6.1 or higher																																
Conditions for usage	None																																
Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Position), Speed command (Velocity), Acceleration rate (Acceleration), and Deceleration rate (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> 																																

<p>FB precautions</p>	<ul style="list-style-type: none"> • CW output is taken as + direction and CCW output is taken as – direction. • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • If Start (Execute) is turned ON with no origin defined, the present value of output pulse counts will be cleared to 0 and the next positioning operation is started with the present value of 0. (See the diagram below.) 																								
<p>EN input condition</p>	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																								
<p>Application example</p>	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with relative movement.</p> <table border="1" data-bbox="742 1131 1133 1579"> <thead> <tr> <th colspan="2">_NCCP1H021_MoveRelative_DINT</th> </tr> </thead> <tbody> <tr> <td>(BOOL)</td> <td>EN</td> </tr> <tr> <td>(BOOL)</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>Done</td> </tr> <tr> <td>(BOOL)</td> <td>Bit B</td> </tr> <tr> <td>(BOOL)</td> <td>Busy flag</td> </tr> <tr> <td>(DINT)</td> <td>Busy</td> </tr> <tr> <td>(BOOL)</td> <td>Error flag</td> </tr> <tr> <td>(DINT)</td> <td>Bit D</td> </tr> <tr> <td>(WORD)</td> <td>Error code</td> </tr> <tr> <td>(WORD)</td> <td>ErrorID</td> </tr> <tr> <td>(INT)</td> <td>Positioning completed</td> </tr> </tbody> </table> <p> <i>Axis No.</i> Pulse output 0 → &0 <i>Start</i> Bit A <i>Position command</i> 200000 pulses → +200000.0 <i>Speed command</i> 50000Hz → +50000.0 <i>Acceleration rate</i> 100Hz/4ms → +100.0 <i>Deceleration rate</i> 100Hz/4ms → +100.0 <i>Pulse output method</i> CW/CCW output → &0 </p>	_NCCP1H021_MoveRelative_DINT		(BOOL)	EN	(BOOL)	ENO	(INT)	Done	(BOOL)	Bit B	(BOOL)	Busy flag	(DINT)	Busy	(BOOL)	Error flag	(DINT)	Bit D	(WORD)	Error code	(WORD)	ErrorID	(INT)	Positioning completed
_NCCP1H021_MoveRelative_DINT																									
(BOOL)	EN																								
(BOOL)	ENO																								
(INT)	Done																								
(BOOL)	Bit B																								
(BOOL)	Busy flag																								
(DINT)	Busy																								
(BOOL)	Error flag																								
(DINT)	Bit D																								
(WORD)	Error code																								
(WORD)	ErrorID																								
(INT)	Positioning completed																								
<p>Related manuals</p>	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>																								

■ Variable Table Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts relative movement
Position command	Distance	DINT	+0	-2,147,483,648 to +2,147,483,647	Specifies the relative travel distance. Unit: Pulses
Speed command	Velocity	DINT	&1	&1 to &100000	Specifies the target speed. Unit: Hz
Acceleration rate	Acceleration	INT	&1	&1 to &65535	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Deceleration rate	Deceleration	INT	&1	&1 to &65535	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	Original production

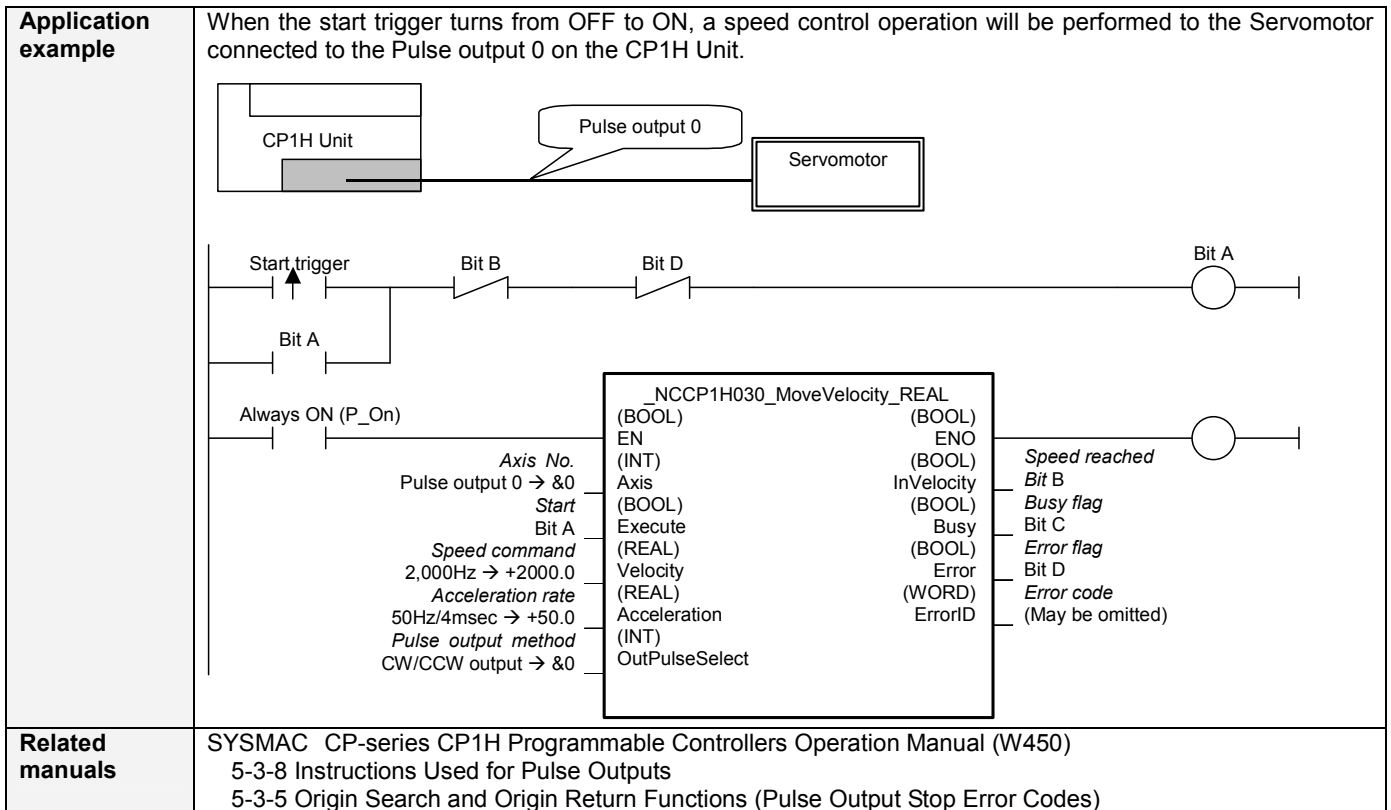
■ Note

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.

NCCP1H030	Speed Control (REAL): _NCCP1H030_MoveVelocity_REAL
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Basic function	Controls the speed.				
Symbol	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 45%;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Start</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Pulse output method</p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p style="text-align: center;">_NCCP1H030_MoveVelocity_REAL</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> (BOOL) EN (INT) Axis (BOOL) Execute (REAL) Velocity (REAL) Acceleration (INT) OutPulseSelect </td> <td style="width: 50%; vertical-align: top;"> (BOOL) ENO (BOOL) InVelocity (BOOL) Busy (BOOL) Error (WORD) ErrorID </td> </tr> </table> </div> <div style="width: 10%; text-align: center;"> </div> </div> <div style="margin-top: 10px;"> <p>Speed reached</p> <p>Busy flag</p> <p>Error flag Error code (May be omitted)</p> </div>	(BOOL) EN (INT) Axis (BOOL) Execute (REAL) Velocity (REAL) Acceleration (INT) OutPulseSelect	(BOOL) ENO (BOOL) InVelocity (BOOL) Busy (BOOL) Error (WORD) ErrorID		
(BOOL) EN (INT) Axis (BOOL) Execute (REAL) Velocity (REAL) Acceleration (INT) OutPulseSelect	(BOOL) ENO (BOOL) InVelocity (BOOL) Busy (BOOL) Error (WORD) ErrorID				
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H030_MoveVelocity_REAL10.cxf				
Applicable models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border-right: 1px solid black;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td style="border-right: 1px solid black;">CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Executes speed control for the output specified with the Axis No. (Axis) using the Speed command (Velocity) when Start (Execute) is turned ON. The Speed reached (InVelocity) will be turned ON once the speed reaches the target speed specified in this FB. If the speed control is interrupted by a deceleration stop caused by another instance or error, the Speed reached (InVelocity) will be reset.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p>				
FB precautions	<ul style="list-style-type: none"> • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • When speed is changed by the other command before the speed reaching, this FB will output an error. • Turning ON the input to the Start (Execute) during speed control will cause multistart, which then leads to speed control with the speed set in Speed command (Velocity). • When already in speed control operation, direction specification (sign of the Speed command (Velocity)) will be ignored and only the speed will be changed. To reverse the direction of the operation, stop the operation once and execute the speed command with the opposite direction specified. 				
EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 				
Restrictions Other	<ul style="list-style-type: none"> • During positioning operation, this FB can not be executed. 				



Related manuals

SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450)
 5-3-8 Instructions Used for Pulse Outputs
 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)

■ Variable Table
 Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		⬆ : Starts speed control
Speed command	Velocity	REAL	+0.0	-100000.0 to +100000.0	Specifies the target speed. Unit: Hz
Acceleration rate	Acceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Speed reached	InVelocity	BOOL		1 (ON) indicates that the speed has reached the target speed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

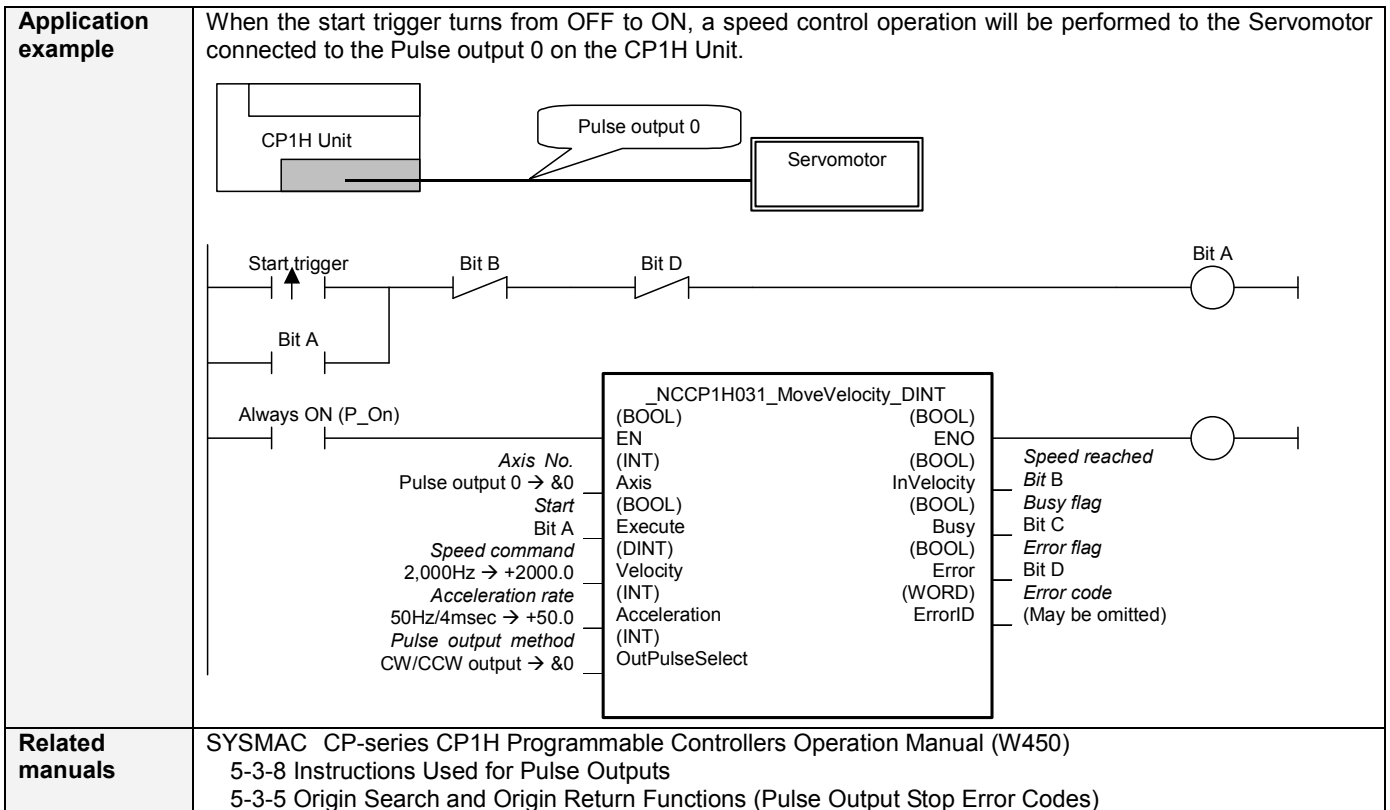
Version	Date	Contents
1.00	2005.9.	Original production

■ 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.

NCCP1H031	Speed Control (DINT): _NCCP1H031_MoveVelocity_DINT
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Basic function	Controls the speed.	
Symbol	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 30%;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Start</p> <p>Speed command</p> <p>Acceleration rate</p> <p>Pulse output method</p> </div> <div style="width: 35%; border: 1px solid black; padding: 5px; text-align: center;"> <p>_NCCP1H031_MoveVelocity_DINT</p> <p>(BOOL) EN (BOOL) ENO</p> <p>(INT) Axis InVelocity (BOOL)</p> <p>(BOOL) Execute Busy (BOOL)</p> <p>(DINT) Velocity Error (WORD)</p> <p>(INT) Acceleration ErrorID</p> <p>OutPulseSelect</p> </div> <div style="width: 30%; text-align: right;"> <p>Speed reached</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code (May be omitted)</p> </div> </div>	
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H031_MoveVelocity_DINT10.cxf	
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher
Conditions for usage	None	
Function description	<p>Executes speed control for the output specified with the Axis No. (Axis) using the Speed command (Velocity) when Start (Execute) is turned ON.</p> <p>The Speed reached (InVelocity) will be turned ON once the speed reaches the target speed specified in this FB. If the speed control is interrupted by a deceleration stop caused by another instance or error, the Speed reached (InVelocity) will be reset.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs.</p> <p>These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p>	
FB precautions	<ul style="list-style-type: none"> • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • When speed is changed by the other command before the speed reaching, this FB will output an error. • Turning ON the input to the Start (Execute) during speed control will cause multistart, which then leads to speed control with the speed set in Speed command (Velocity). • When already in speed control operation, direction specification (sign of the Speed command (Velocity)) will be ignored and only the speed will be changed. To reverse the direction of the operation, stop the operation once and execute the speed command with the opposite direction specified. 	
EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 	
Restrictions Other	<ul style="list-style-type: none"> • During positioning operation, this FB can not be executed. 	



■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts speed control
Speed command	Velocity	DINT	+0	-100000 to +100000	Specifies the target speed. Unit: Hz
Acceleration rate	Acceleration	INT	&1	&1 to &65,535	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0~&1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Speed reached	InVelocity	BOOL		1 (ON) indicates that the speed has reached the target speed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

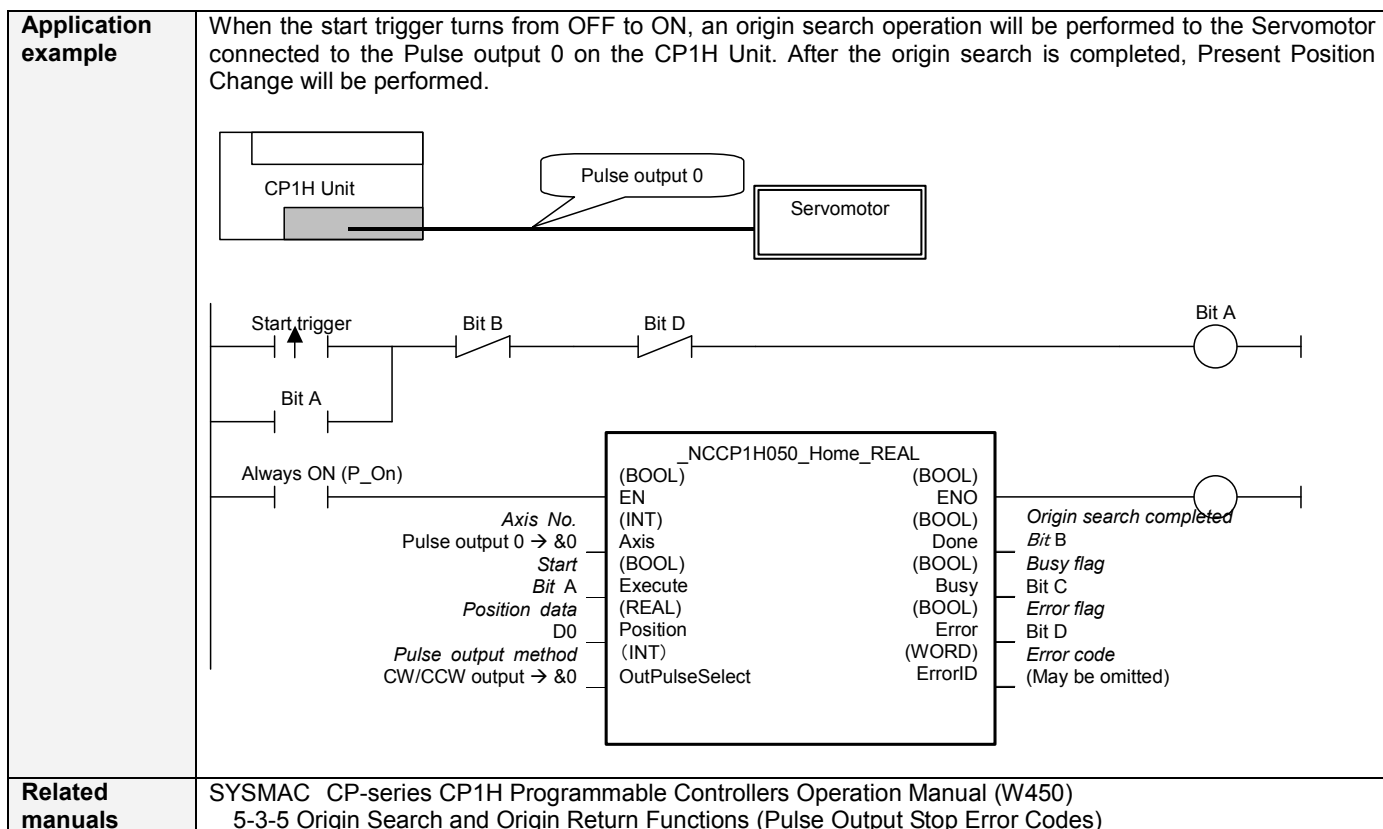
■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H050	Origin Search (REAL): _NCCP1H050_Home_REAL	
Basic function	Executes an origin search to establish the origin.	
Symbol		
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H050_Home_REAL10.cxf	
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher
Conditions for usage	None	
Function description	<p>Executes origin search for the output specified with the Axis No. (Axis), based on the PLC Setup Settings in the CPU Unit when Start (Execute) is turned ON (using the selected Pulse output method). After the origin search is completed, Present Position Change will be performed. The value specified in Position data (Position) will become the present position. Even when 0 is specified in Position data (Position), Present Position Change will be performed. The Origin search completed (Done) will be turned ON when Present Position Change by this FB is completed. When an origin search is interrupted by a deceleration stop or error, the Origin search completed (Done) will not be turned ON.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> <p>■ Reference This FB uses the Origin Search Function of the CPU Unit. For details, refer to the manual listed in the Related manuals below.</p>	
FB precautions	<ul style="list-style-type: none"> When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. 	
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 	
Restrictions Other	<ul style="list-style-type: none"> This FB does not use Acceleration/deceleration curve designation, Origin search high-speed, Origin search proximity speed, Origin search acceleration rate, Origin search deceleration rate, and Origin compensation. To use these, specify them outside of the FB. After the pulse stops, when Present Value Preset is not executed in FB longer than the fixed time, it becomes an error. 	



■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts origin search
Position data	Position	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specify the value to set the present position. Unit: Pulses
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Origin search completed	Done	BOOL		1 (ON) indicates that an origin search has been completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H051	Origin Search (DINT): _NCCP1H051_Home_DINT
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Basic function	Executes an origin search to establish the origin.				
Symbol					
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H051_Home_DINT10.cxf				
Applicable models	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Executes origin search for the output specified with the Axis No. (Axis), based on the PLC Setup Settings in the CPU Unit when Start (Execute) is turned ON (using the selected Pulse output method). After the origin search is completed, Present Position Change will be performed. The value specified in Position data (Position) will become the present position. Even when 0 is specified in Position data (Position), Present Position Change will be performed. The Origin search completed (Done) will be turned ON when Present Position Change by this FB is completed. When an origin search is interrupted by a deceleration stop or error, the Origin search completed (Done) will not be turned ON.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> <p>■ Reference This FB uses the Origin Search Function of the CPU Unit. For details, refer to the manual listed in the Related manuals below.</p>				
FB precautions	<ul style="list-style-type: none"> When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. 				
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 				
Restrictions Other	<ul style="list-style-type: none"> This FB does not use Acceleration/deceleration curve designation, Origin search high-speed, Origin search proximity speed, Origin search acceleration rate, Origin search deceleration rate, and Origin compensation. To use these, specify them outside of the FB. After the pulse stops, when Present Value Preset is not executed in FB longer than the fixed time, it becomes an error. 				

Application example

When the start trigger turns from OFF to ON, an origin search operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit. After the origin search is completed, Present Position Change will be performed.

Related manuals

SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450)
5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts origin search
Position data	Position	DINT	+0	-2,147,483,648 to +2,147,483,647	Specify the value to set the present position. Unit: Pulses
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Origin search completed	Done	BOOL		1 (ON) indicates that an origin search has been completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H061	Deceleration Stop (REAL): _NCCP1H061_Stop_REAL
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Basic function	Stopped an operating axis with deceleration.
Symbol	

File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H061_Stop_REAL10.cxf	
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher

Conditions for usage	None
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Function description	<p>Executes deceleration stop on the axis of the specified Axis No. (Axis) when Start (Execute) is turned ON (using the selected Pulse output method). The Deceleration stop completed (Done) will be turned ON when a deceleration stop by this FB is completed. If the deceleration stop is interrupted by a Multistart caused by another instance or error, the Deceleration stop completed (Done) will not be turned ON.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p>
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FB precautions	<ul style="list-style-type: none"> When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. If Start (Execute) is turned ON with no origin defined, the present value of output pulse counts will be cleared to 0 and output pulses for deceleration will be counted. (In low speed, output pulse counts may not be cleared to 0.)
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EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF.
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Restrictions Other	<ul style="list-style-type: none"> This FB does not have the function to prohibit axis operations. If another Move command is executed during execution of this FB, the command executed later will be given priority.
Application example	<p>When the start trigger turns from OFF to ON, the pulse output will be stopped from the Pulse output 0 on the CP1H Unit.</p>
Related manuals	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts deceleration stop
Deceleration rate	Deceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Deceleration stop completed	Done	BOOL		1 (ON) indicates that a deceleration stop has been completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

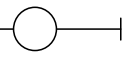
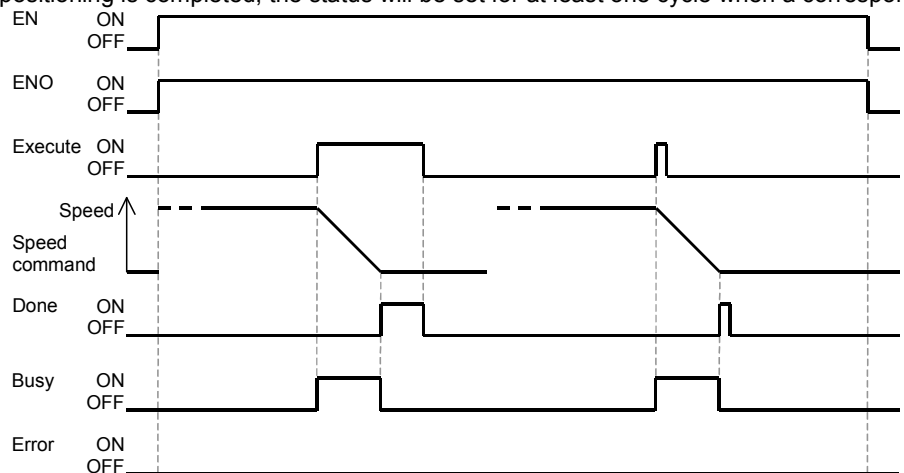
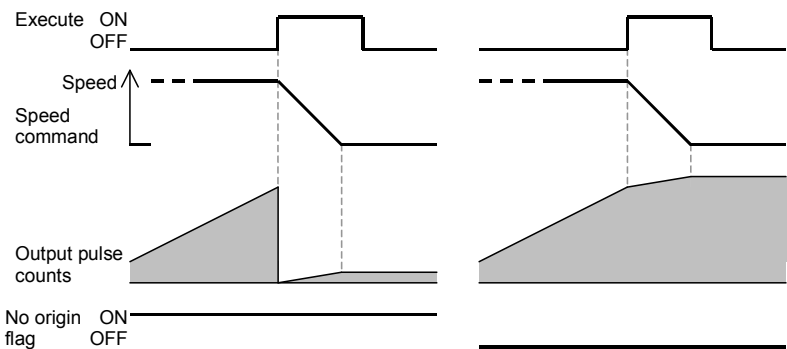
■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H062	Deceleration Stop (DINT): _NCCP1H062_Stop_DINT
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Basic function	Stopped an operating axis with deceleration.				
Symbol	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Start</p> <p>Deceleration rate</p> <p>Pulse output method</p> </div> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> <p style="text-align: center;">_NCCP1H062_Stop_DINT</p> <p>(BOOL) EN</p> <p>(INT) Axis</p> <p>(BOOL) Execute</p> <p>(INT) Deceleration</p> <p>(INT) OutPulseSelect</p> </div> <div style="margin-right: 20px;"> <p>(BOOL) ENO</p> <p>(BOOL) Done</p> <p>(BOOL) Busy</p> <p>(BOOL) Error</p> <p>(WORD) ErrorID</p> </div> <div style="text-align: center;">  <p>Deceleration stop completed</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code (May be omitted)</p> </div> </div>				
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H062_Stop_DINT10.cxf				
Applicable models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border-right: 1px solid black; padding: 2px 5px;">CPU Unit</td> <td style="padding: 2px 5px;">CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px 5px;">CX-Programmer</td> <td style="padding: 2px 5px;">Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Executes deceleration stop on the axis of the specified Axis No. (Axis) when Start (Execute) is turned ON (using the selected Pulse output method). The Deceleration stop completed (Done) will be turned ON when a deceleration stop by this FB is completed. If the deceleration stop is interrupted by a Multistart caused by another instance or error, the Deceleration stop completed (Done) will not be turned ON.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> 				
FB precautions	<ul style="list-style-type: none"> • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • If Start (Execute) is turned ON with no origin defined, the present value of output pulse counts will be cleared to 0 and output pulses for deceleration will be counted. (In low speed, output pulse counts may not be cleared to 0.) 				
EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 				

Restrictions Other	<ul style="list-style-type: none"> This FB does not have the function to prohibit axis operations. If another Move command is executed during execution of this FB, the command executed later will be given priority. 												
Application example	<p>When the start trigger turns from OFF to ON, the pulse output will be stopped from the Pulse output 0 on the CP1H Unit.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">_NCCP1H062_Stop_DINT</p> <table border="0" style="width: 100%; font-size: small;"> <tr> <td>(BOOL) EN</td> <td>(BOOL) ENO</td> </tr> <tr> <td>(INT) Axis</td> <td>(BOOL) Done</td> </tr> <tr> <td>(BOOL) Execute</td> <td>(BOOL) Busy</td> </tr> <tr> <td>(INT) Deceleration</td> <td>(BOOL) Error flag</td> </tr> <tr> <td>(INT) OutPulseSelect</td> <td>(WORD) Error</td> </tr> <tr> <td></td> <td>(WORD) ErrorID</td> </tr> </table> </div> <p> <i>Axis No.</i> Pulse output 0 → &0 <i>Start</i> Bit A <i>Deceleration rate</i> 100Hz/4ms → +100 <i>Pulse output method</i> CW/CCW output → &0 </p>	(BOOL) EN	(BOOL) ENO	(INT) Axis	(BOOL) Done	(BOOL) Execute	(BOOL) Busy	(INT) Deceleration	(BOOL) Error flag	(INT) OutPulseSelect	(WORD) Error		(WORD) ErrorID
(BOOL) EN	(BOOL) ENO												
(INT) Axis	(BOOL) Done												
(BOOL) Execute	(BOOL) Busy												
(INT) Deceleration	(BOOL) Error flag												
(INT) OutPulseSelect	(WORD) Error												
	(WORD) ErrorID												
Related manuals	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>												

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts deceleration stop
Deceleration rate	Deceleration	INT	&1	&1 to +65535	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON) : FB operating normally 0 (OFF): FB not operating normally
Deceleration stop completed	Done	BOOL		1 (ON) indicates that a deceleration stop has been completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H110	Interrupt Feeding (REAL): _NCCP1H110_MoveInterrupt_REAL
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Basic function	Moves the axis for a specified distance when an interrupt input turns ON.																																												
Symbol	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Always ON (P_On)</p> <p style="text-align: center;">Axis No.</p> <p style="text-align: center;">Start</p> <p style="text-align: center;">Interrupt input selection</p> <p style="text-align: center;">Interrupt position</p> <p style="text-align: center;">Interrupt feed distance</p> <p style="text-align: center;">Speed command 1</p> <p style="text-align: center;">Speed command 2</p> <p style="text-align: center;">Acceleration rate</p> <p style="text-align: center;">Deceleration rate</p> <p style="text-align: center;">Pulse output method</p> </div> <div style="flex: 2; border: 1px solid black; padding: 5px; margin: 0 10px;"> <p style="text-align: center; margin: 0;">_NCCP1H110_MoveInterrupt_REAL</p> <table style="width: 100%; border-collapse: collapse; font-size: small;"> <tr> <td style="width: 50%;">(BOOL)</td> <td style="width: 50%;">(BOOL)</td> </tr> <tr> <td>EN</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>Axis</td> <td>Done</td> </tr> <tr> <td>(BOOL)</td> <td>(INT)</td> </tr> <tr> <td>Execute</td> <td>Status</td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>InterruptSelect</td> <td>Busy</td> </tr> <tr> <td>(DINT)</td> <td>(BOOL)</td> </tr> <tr> <td>InterruptPosition</td> <td>Error</td> </tr> <tr> <td>(REAL)</td> <td>(WORD)</td> </tr> <tr> <td>Distance</td> <td>Error code</td> </tr> <tr> <td>(REAL)</td> <td>ErrorID</td> </tr> <tr> <td>Velocity_1</td> <td>(May be omitted)</td> </tr> <tr> <td>(REAL)</td> <td></td> </tr> <tr> <td>Velocity_2</td> <td></td> </tr> <tr> <td>(REAL)</td> <td></td> </tr> <tr> <td>Acceleration</td> <td></td> </tr> <tr> <td>(REAL)</td> <td></td> </tr> <tr> <td>Deceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>OutPulseSelect</td> <td></td> </tr> </table> </div> <div style="flex: 1; text-align: right; padding-right: 10px;"> <p>Positioning completed</p> <p>Status</p> <p>Busy flag</p> <p>Error flag</p> <p>Error code</p> <p>(May be omitted)</p> </div> </div>	(BOOL)	(BOOL)	EN	ENO	(INT)	(BOOL)	Axis	Done	(BOOL)	(INT)	Execute	Status	(BOOL)	(BOOL)	InterruptSelect	Busy	(DINT)	(BOOL)	InterruptPosition	Error	(REAL)	(WORD)	Distance	Error code	(REAL)	ErrorID	Velocity_1	(May be omitted)	(REAL)		Velocity_2		(REAL)		Acceleration		(REAL)		Deceleration		(INT)		OutPulseSelect	
(BOOL)	(BOOL)																																												
EN	ENO																																												
(INT)	(BOOL)																																												
Axis	Done																																												
(BOOL)	(INT)																																												
Execute	Status																																												
(BOOL)	(BOOL)																																												
InterruptSelect	Busy																																												
(DINT)	(BOOL)																																												
InterruptPosition	Error																																												
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Distance	Error code																																												
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Velocity_1	(May be omitted)																																												
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Acceleration																																													
(REAL)																																													
Deceleration																																													
(INT)																																													
OutPulseSelect																																													

File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H110_MoveInterrupt_REAL_10.cxf
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Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
CX-Programmer	Version 6.1 or higher	

Conditions for usage	None
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Function description

Starts operating on the axis of the specified Axis No. (Axis) with the specified Speed command_1 (Velocity_1) and Acceleration rate (Acceleration) when the Start (Execute) is turned ON. When the Interrupt input selection (InterruptSelect) turns on during the positioning operation, an interrupt feeding will be performed (the axis is moved from the Interrupt position (InterruptPosition) for the Interrupt feed distance (Distance) with the specified Speed command (Velocity_2), Acceleration rate (Acceleration), and Deceleration rate (Deceleration) using the selected Pulse output method).

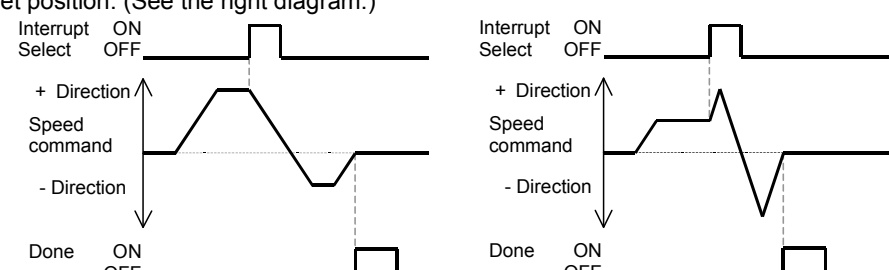
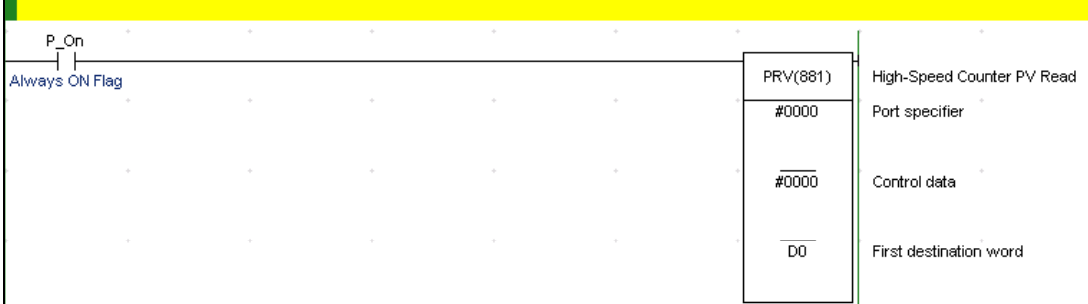
The Positioning completed (Done) is turned ON when the interrupt feeding operation for this FB is completed (i.e., when the axis finishes traveling for the Interrupt feed distance).

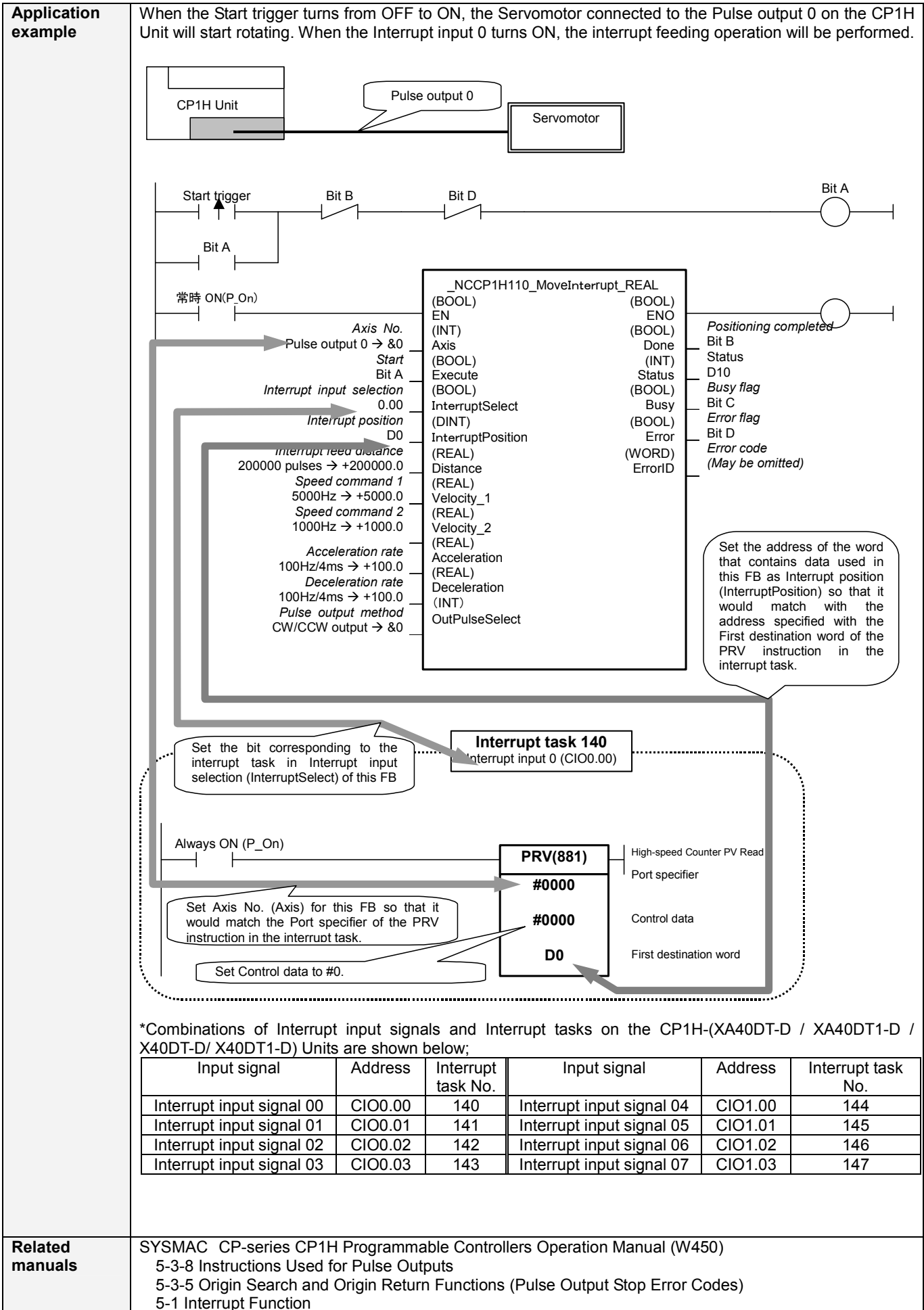
The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs.

These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.

The diagram shows the following signal behavior:

- EN**: Always ON (P_On) signal, constant high.
- ENO**: Output Enable, constant high.
- Execute**: Start signal, pulses ON to initiate positioning.
- Interrupt Select**: Signal that triggers interrupt feeding during the positioning process.
- Speed command**: Shows a ramp up to Velocity_1, followed by a period of interrupt feeding at Velocity_2, and then a ramp down to zero.
- Done**: Positioning completed signal, turns ON at the end of the interrupt feeding period.
- Busy**: Busy flag, turns ON during the entire positioning operation.
- Error**: Error flag, turns ON if an error occurs during the operation.
- Status**: Output status, showing a sequence of bits (&0, &1, &2) during the interrupt feeding period.

<p>FB precautions</p>	<ul style="list-style-type: none"> • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • Even when a sufficient deceleration interval cannot be secured, the axis will decelerate with the specified deceleration rate, which will cause the axis to pass the target position. In this case, the axis will reverse the direction to return to the target position. (See the left diagram.) • When the Speed command 2 (Velocity_2) is greater than the Speed command 1 (Velocity_1) and a sufficient deceleration interval cannot be secured, the axis accelerating to reach the Speed command 2 (Velocity_2) will pass the target position. In this case, the axis will reverse the direction to return to the target position. (See the right diagram.) 
<p>EN input condition</p>	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF.
<p>Restrictions Other</p>	<ul style="list-style-type: none"> • If the calculation result for an interrupt feeding operation exceeds the valid command range (-2.147483e+009 to +2.147483e+009), the operation will not be executed and the axis will decelerate to a stop. • An error will occur when an axis is stopped by other operations or a deceleration stop due to a command out of the valid command range. • All the input variables will be read when the Start (Execute) turns ON and they cannot be changed until the process is completed. <p>• Interrupt tasks must be set when using this FB.</p> <ul style="list-style-type: none"> • Use the ladder program shown below for interrupt tasks (Ex: for when [&0: Pulse output 0] is specified for the Pulse output method (OutPulseSelect)). <div data-bbox="391 1030 1484 1400" style="border: 1px solid black; padding: 5px;"> <p>[Program Name : InterruptProgram]</p> <p>[Section Name : Section1]</p>  </div> <ul style="list-style-type: none"> • The Axis No. (Axis) of this FB and the Port specifier of the PRV instruction must match with each other. • The address of the word that contains data used as Interrupt position (InterruptPosition) for this FB and the address specified by the First destination word for the PRV instruction in the interrupt task must match with each other. • Set #0000 (hexadecimal) in the Control data of the PRV instruction in the interrupt task. • Set the bit corresponding to the interrupt task set for the Interrupt input selection (InterruptSelect) of this FB (on CP1H Unit, the built-in input (bit 00 of CIO 0) controls the interrupt task No. 140. For details, refer to the manual listed in the Related manuals below). • Connect the PRV instruction in the interrupt task to the Always ON Flag (P_On). • Specify the Port specifier and Control data for the PRV instruction with constants. They cannot be specified with variables. • Specify the First destination word for the PRV instruction with a word address. It cannot be specified with constants. • Specify the Interrupt position (InterruptPosition) for this FB with a word address. Do not specify it with constants. • Make sure to hold the interrupt input signal at least for one cycle until the FB recognizes it. • When this FB is used, an origin will be determined and the Pulse output PV will be cleared.



■ Variable Table Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts interrupt feeding operation
Interrupt input selection	InterruptSelect	BOOL	0(OFF)		Specify a bit corresponding to the interrupt task to be used.
Interrupt position	InterruptPosition	DINT	+0		Specify the same address as the first destination address set for the PRV instruction in the interrupt task.
Interrupt feed distance	Distance	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specify a distance that the axis travels after an interrupt input. Unit: pulse The sign indicates the direction of an operation. (+: CW, -: CCW)
Speed command 1	Velocity_1	REAL	+1.0	-100000.0 to -1.0 +1.0 to +100000.0	Specify the target speed before an interrupt feeding operation starts. Unit: Hz The sign indicates the direction of the operation. (+: CW, -: CCW)
Speed command 2	Velocity_2	REAL	+1.0	+1.0 to +100000.0	Specify the speed for an interrupt feeding operation. Unit: Hz
Acceleration rate	Acceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Deceleration rate	Deceleration	REAL	+1.0	+1.0 to +65535.0	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Status	Status	INT		0: Start (Execute) = OFF or Positioning completed (Done) = 1 1: Waiting for interrupt input 2: Interrupt feeding operation in progress
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis. No. is out of the range, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H111 **Interrupt Feeding (DINT): _NCCP1H111_MoveInterrupt_DINT**

Basic function	Moves the axis for a specified distance when an interrupt input turns ON.
Symbol	

File name Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H111_MoveInterrupt_DINT_10.cxf

Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher

Conditions for usage None

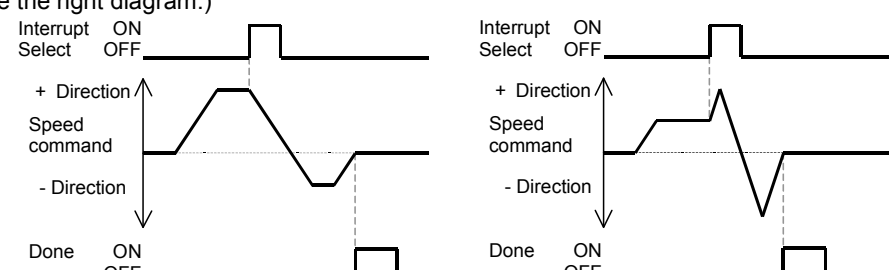
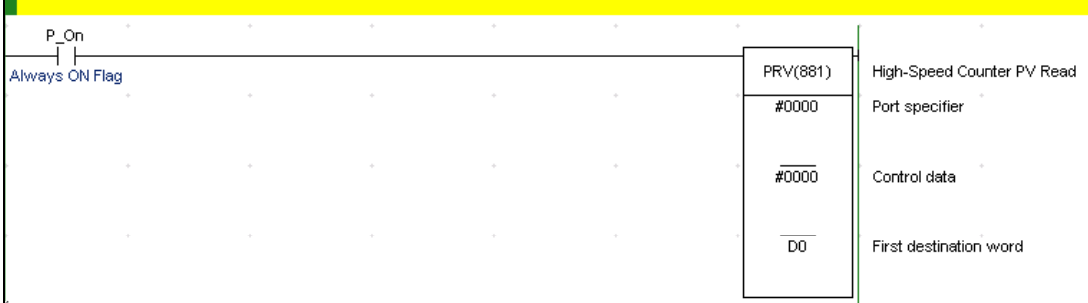
Function description

Starts operating on the axis of the specified Axis No. (Axis) with the specified Speed command_1 (Velocity_1) and Acceleration rate (Acceleration) when the Start (Execute) is turned ON. When the Interrupt input selection (InterruptSelect) turns on during the positioning operation, an interrupt feeding will be performed (the axis is moved from the Interrupt position (InterruptPosition) for the Interrupt feed distance (Distance) with the specified Speed command (Velocity_2), Acceleration rate (Acceleration), and Deceleration rate (Deceleration) using the selected Pulse output method).

The Positioning completed (Done) is turned ON when the interrupt feeding operation for this FB is completed (i.e., when the axis finishes traveling for the Interrupt feed distance).

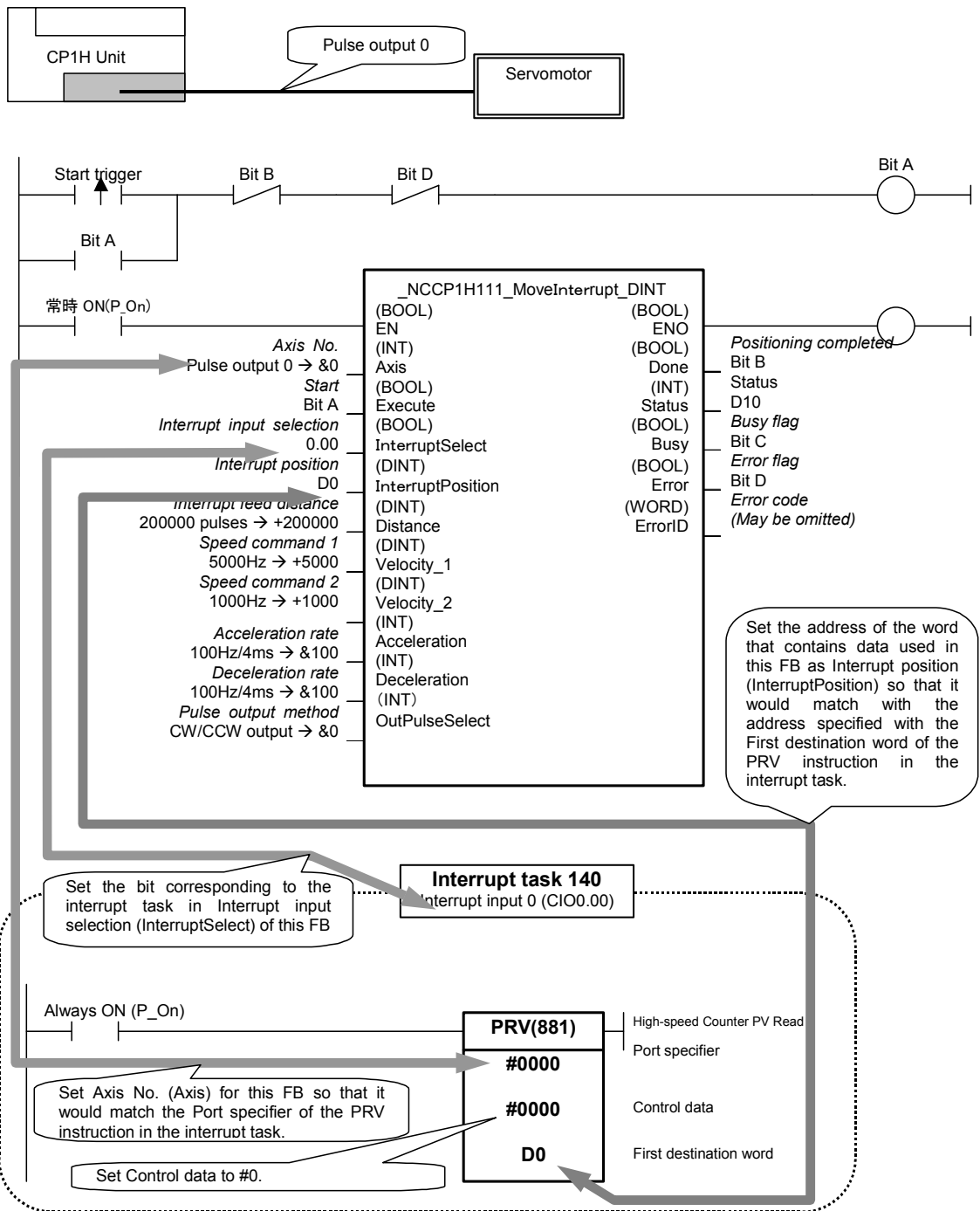
The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs.

These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.

<p>FB precautions</p>	<ul style="list-style-type: none"> • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • Even when a sufficient deceleration interval cannot be secured, the axis will decelerate with the specified deceleration rate, which will cause the axis to pass the target position. In this case, the axis will reverse the direction to return to the target position. (See the left diagram.) • When the Speed command 2 (Velocity_2) is greater than the Speed command 1 (Velocity_1) and a sufficient deceleration interval cannot be secured, the axis accelerating to reach the Speed command 2 (Velocity_2) will pass the target position. In this case, the axis will reverse the direction to return to the target position. (See the right diagram.) 
<p>EN input condition</p>	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF.
<p>Restrictions Other</p>	<ul style="list-style-type: none"> • If the calculation result for an interrupt feeding operation exceeds the valid command range (-2,147,483,648 to +2,147,483,647), the operation will not be executed and the axis will decelerate to a stop. • An error will occur when an axis is stopped by other operations or a deceleration stop due to a command out of the valid command range. • All the input variables will be read when the Start (Execute) turns ON and they cannot be changed until the process is completed. <p>• Interrupt tasks must be set when using this FB.</p> <ul style="list-style-type: none"> • Use the ladder program shown below for interrupt tasks (Ex: for when [∅: Pulse output 0] is specified for the Pulse output method (OutPulseSelect)). <div data-bbox="391 1008 1484 1377" style="border: 1px solid black; padding: 5px;"> <p>[Program Name : InterruptProgram]</p> <p>[Section Name : Section1]</p>  </div> <ul style="list-style-type: none"> • The Axis No. (Axis) of this FB and the Port specifier of the PRV instruction must match with each other. • The address of the word that contains data used as Interrupt position (InterruptPosition) for this FB and the address specified by the First destination word for the PRV instruction in the interrupt task must match with each other. • Set #0000 (hexadecimal) in the Control data of the PRV instruction in the interrupt task. • Set the bit corresponding to the interrupt task set for the Interrupt input selection (InterruptSelect) of this FB (on CP1H Unit, the built-in input (bit 00 of CIO 0) controls the interrupt task No. 140. For details, refer to the manual listed in the Related manuals below). • Connect the PRV instruction in the interrupt task to the Always ON Flag (P_On). • Specify the Port specifier and Control data for the PRV instruction with constants. They cannot be specified with variables. • Specify the First destination word for the PRV instruction with a word address. It cannot be specified with constants. • Specify the Interrupt position (InterruptPosition) for this FB with a word address. Do not specify it with constants. • Make sure to hold the interrupt input signal at least for one cycle until the FB recognizes it. • When this FB is used, an origin will be determined and the Pulse output PV will be cleared.

Application example

When the Start trigger turns from OFF to ON, the Servomotor connected to the Pulse output 0 on the CP1H Unit will start rotating. When the Interrupt input 0 turns ON, the interrupt feeding operation will be performed.



*Combinations of Interrupt input signals and Interrupt tasks on the CP1H-(XA40DT-D / XA40DT1-D / X40DT-D/ X40DT1-D) Units are shown below;

Input signal	Address	Interrupt task No.	Input signal	Address	Interrupt task No.
Interrupt input signal 00	CIO0.00	140	Interrupt input signal 04	CIO1.00	144
Interrupt input signal 01	CIO0.01	141	Interrupt input signal 05	CIO1.01	145
Interrupt input signal 02	CIO0.02	142	Interrupt input signal 06	CIO1.02	146
Interrupt input signal 03	CIO0.03	143	Interrupt input signal 07	CIO1.03	147

Related manuals

SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450)
 5-3-8 Instructions Used for Pulse Outputs
 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)
 5-1 Interrupt Function

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts interrupt feeding operation
Interrupt input selection	InterruptSelect	BOOL	0(OFF)		Specify a bit corresponding to the interrupt task to be used.
Interrupt position	InterruptPosition	DINT	+0		Specify the same address as the first destination address set for the PRV instruction in the interrupt task.
Interrupt feed distance	Distance	DINT	+0	-2,147,483,648 to +2,147,483,647	Specify a distance that the axis travels after an interrupt input. Unit: pulse The sign indicates the direction of an operation. (+: CW, -: CCW)
Speed command 1	Velocity_1	DINT	+1	-100000 to -1 +1 to +100000	Specify the target speed before an interrupt feeding operation starts. Unit: Hz The sign indicates the direction of the operation. (+: CW, -: CCW)
Speed command 2	Velocity_2	DINT	+1	+1 to +100000	Specify the speed for an interrupt feeding operation. Unit: Hz
Acceleration rate	Acceleration	INT	+1	&1 to &65535	Specifies the acceleration rate. Unit: Hz/4ms (Increase (Hz) in frequency per Pulse control period (4ms))
Deceleration rate	Deceleration	INT	+1	&1 to &65535	Specifies the deceleration rate. Unit: Hz/4ms (Decrease (Hz) in frequency per Pulse control period (4ms))
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Status	Status	INT		0: Start (Execute) = OFF or Positioning completed (Done) = 1 1: Waiting for interrupt input 2: Interrupt feeding operation in progress
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis. No. is out of the range, #0000 will be output.

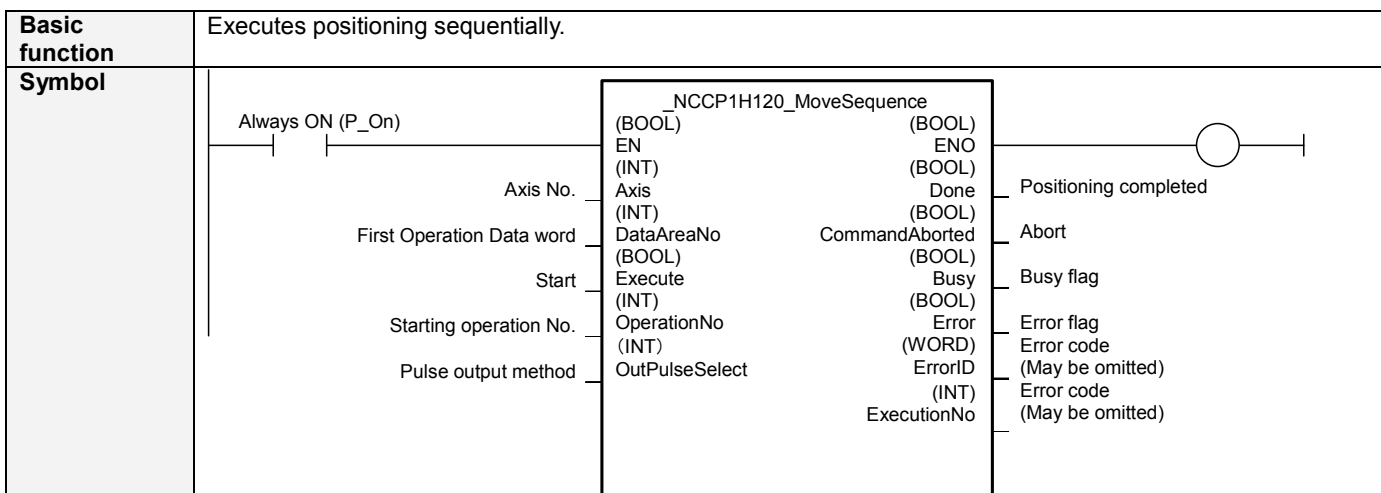
■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H120	Sequential Positioning: _NCCP1H120_MoveSequence
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File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H120_MoveSequence10.cxf
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Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher

Conditions for usage	None
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Function description

When Start (Execute) turns ON, positioning will be consecutively performed on the output specified with the Axis No. (Axis) using Operation Data (Position command, Speed command, Acceleration rate, Deceleration rate, and Operation ABS/INC modes) in DM Area starting from the First operation data word (DataAreaNo). Positioning can be started from any Operation No. by specifying Starting operation No. (OperationNo). Sequential positioning will be continued reading Operation Data in DM Area from the number set in First Operation Data word (DataAreaNo) until Operation mode (word n, bit 00 to 03) becomes 0 Hex (Single positioning mode).

The Positioning completed (Done) will turn ON when positioning by this FB is completed. It will not turn ON when another instance causes a deceleration stop, or when an error interrupts an operation.

The Operation No. in execution (ExecutionNo) reflects the Operation No. currently being executed.

When an operation is stopped with a deceleration stop, Abort (CommandAborted) will turn ON.

The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. They will not be set with an error for other FBs or other instances. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.

FB precautions	<ul style="list-style-type: none"> • Executing another FB or instance during execution of this FB will cause the multiple start function. In operations using the multiple start function, this FB does not detect interruptions, which may allow this FB's processing to interrupt processing of another FB or instance. To cancel this FB's processing, do so by stopping the operation with a deceleration stop and confirming that Abort (CommandAborted) is ON. For details, refer to the manual listed in Related manual below. • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them.
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EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																																																																																															
Restrictions Other	<ul style="list-style-type: none"> ■ Operation Data Setting • Set Operation Data in the DM Area. • 7 consecutive words of the DM Area are used as one Operation Data containing Position command, Speed command, Acceleration rate, Deceleration rate, and Operation ABS/INC modes. • An operation will be stopped with deceleration when an error occurs. • When Operation mode (word n, bit 00 to 03) is set to 1 Hex (Sequential positioning mode), the next Operation Data will be always read ahead. If Operation Data read ahead contains invalid settings, the sequential operation will be stopped during an operation for the first or second Operation Data before the Operation Data that contains the invalid settings. (Ex: If an operation is stopped when executing Operation Data 8, Operation Data 9 or 10 may contain invalid settings.) • Designating target frequencies that cause a sudden speed change in sequential positioning may cause an error because a sufficient acceleration or deceleration interval cannot be secured. However, for this case, the deceleration stop will not be performed. <table border="1" data-bbox="363 600 1460 1433"> <thead> <tr> <th>Operation Data</th> <th>Word</th> <th colspan="2">Name</th> <th colspan="2">Setting range</th> </tr> </thead> <tbody> <tr> <td rowspan="10">1</td> <td rowspan="4">n</td> <td>Bit 00 to 03</td> <td>Operation mode</td> <td>0 (Hex)</td> <td>Single positioning mode</td> </tr> <tr> <td></td> <td></td> <td>1 (Hex)</td> <td>Sequential position mode</td> </tr> <tr> <td>Bit 04 to 07</td> <td>ABS/INC mode</td> <td>0 (Hex)</td> <td>Relative pulse output</td> </tr> <tr> <td></td> <td></td> <td>1 (Hex)</td> <td>Absolute pulse output</td> </tr> <tr> <td></td> <td>Bit 08 to 15</td> <td colspan="2">(Not used)</td> <td>Fixed at 00 (Hex)</td> </tr> <tr> <td>n+1</td> <td colspan="2">Acceleration rate</td> <td colspan="2">1 to 65,535Hz (0001 to FFFF Hex)</td> </tr> <tr> <td>n+2</td> <td colspan="2">Deceleration rate</td> <td colspan="2">1 to 65,535Hz (0001 to FFFF Hex)</td> </tr> <tr> <td>n+3</td> <td colspan="2">Target frequency (lower word)</td> <td colspan="2">1 to 100,000Hz</td> </tr> <tr> <td>n+4</td> <td colspan="2">Target frequency (upper word)</td> <td colspan="2">(00000001 to 000186A0 Hex)</td> </tr> <tr> <td>n+5</td> <td colspan="2">Position command (lower word)</td> <td colspan="2" rowspan="2">Absolute: -2,147,483,648 to +2,147,483,647 (80000000 to 7FFFFFFF Hex) Relative: -2,147,483,647 to +2,147,483,647 (80000001 to 7FFFFFFF Hex) (+: CW, -: CCW)</td> </tr> <tr> <td>n+6</td> <td colspan="2">Position command (upper word)</td> </tr> <tr> <td rowspan="6">2</td> <td>n+7</td> <td colspan="2">Operation, ABS/INC modes</td> <td colspan="2" rowspan="6">Same as Operation Data 1.</td> </tr> <tr> <td>n+8</td> <td colspan="2">Acceleration rate</td> </tr> <tr> <td>n+9</td> <td colspan="2">Deceleration rate</td> </tr> <tr> <td>n+10</td> <td colspan="2">Target frequency (lower word)</td> </tr> <tr> <td>n+11</td> <td colspan="2">Target frequency (upper word)</td> </tr> <tr> <td>n+12</td> <td colspan="2">Position command (lower word)</td> </tr> <tr> <td>n+13</td> <td colspan="2">Position command (upper word)</td> </tr> <tr> <td colspan="6" style="text-align: center;">:</td> </tr> <tr> <td rowspan="7">64</td> <td>n+441</td> <td colspan="2">Operation, ABS/INC modes</td> <td colspan="2" rowspan="7">Same as Operation Data 1. Note that, however, Single positioning mode is used regardless of the Operation mode setting.</td> </tr> <tr> <td>n+442</td> <td colspan="2">Acceleration rate</td> </tr> <tr> <td>n+443</td> <td colspan="2">Deceleration rate</td> </tr> <tr> <td>n+444</td> <td colspan="2">Target frequency (lower word)</td> </tr> <tr> <td>n+445</td> <td colspan="2">Target frequency (upper word)</td> </tr> <tr> <td>n+446</td> <td colspan="2">Position command (lower word)</td> </tr> <tr> <td>n+447</td> <td colspan="2">Position command (upper word)</td> </tr> </tbody> </table>	Operation Data	Word	Name		Setting range		1	n	Bit 00 to 03	Operation mode	0 (Hex)	Single positioning mode			1 (Hex)	Sequential position mode	Bit 04 to 07	ABS/INC mode	0 (Hex)	Relative pulse output			1 (Hex)	Absolute pulse output		Bit 08 to 15	(Not used)		Fixed at 00 (Hex)	n+1	Acceleration rate		1 to 65,535Hz (0001 to FFFF Hex)		n+2	Deceleration rate		1 to 65,535Hz (0001 to FFFF Hex)		n+3	Target frequency (lower word)		1 to 100,000Hz		n+4	Target frequency (upper word)		(00000001 to 000186A0 Hex)		n+5	Position command (lower word)		Absolute: -2,147,483,648 to +2,147,483,647 (80000000 to 7FFFFFFF Hex) Relative: -2,147,483,647 to +2,147,483,647 (80000001 to 7FFFFFFF Hex) (+: CW, -: CCW)		n+6	Position command (upper word)		2	n+7	Operation, ABS/INC modes		Same as Operation Data 1.		n+8	Acceleration rate		n+9	Deceleration rate		n+10	Target frequency (lower word)		n+11	Target frequency (upper word)		n+12	Position command (lower word)		n+13	Position command (upper word)		:						64	n+441	Operation, ABS/INC modes		Same as Operation Data 1. Note that, however, Single positioning mode is used regardless of the Operation mode setting.		n+442	Acceleration rate		n+443	Deceleration rate		n+444	Target frequency (lower word)		n+445	Target frequency (upper word)		n+446	Position command (lower word)		n+447	Position command (upper word)	
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	n+447	Position command (upper word)																																																																																																														

Application example

The Operation Data should be set based on Operation Data Setting in Restrictions Other above. When the Start trigger turns from OFF to ON, the Servomotor connected to the Pulse output 0 on the CP1H Unit will start operating based on the specified Operation Data.

Related manuals

SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450)
 5-3-8 Instructions Used for Pulse Outputs
 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
First Operation Data word	DataAreaNo	INT	&0	&0 to &32767	Specify the first address of the words in the DM Area containing Operation Data
Start	Execute	BOOL	0(OFF)		↑ : Starts sequential positioning
Starting operation No.	OperationNo	INT	&1	&1 to &64	Specify the Operation Data No. based on which sequential positioning is started.
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that sequential positioning is completed
Abort	CommandAborted	BOOL		1 (ON): Aborted
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis No. is out of the range, #0000 will be output.
Operation No. in execution	ExecutionNo	INT		&0: Start (Execute) = 0 or Positioning completed (Done) = 1 &1 to &64: Indicates the Operation Data No. currently being executed.

■ **Revision History**

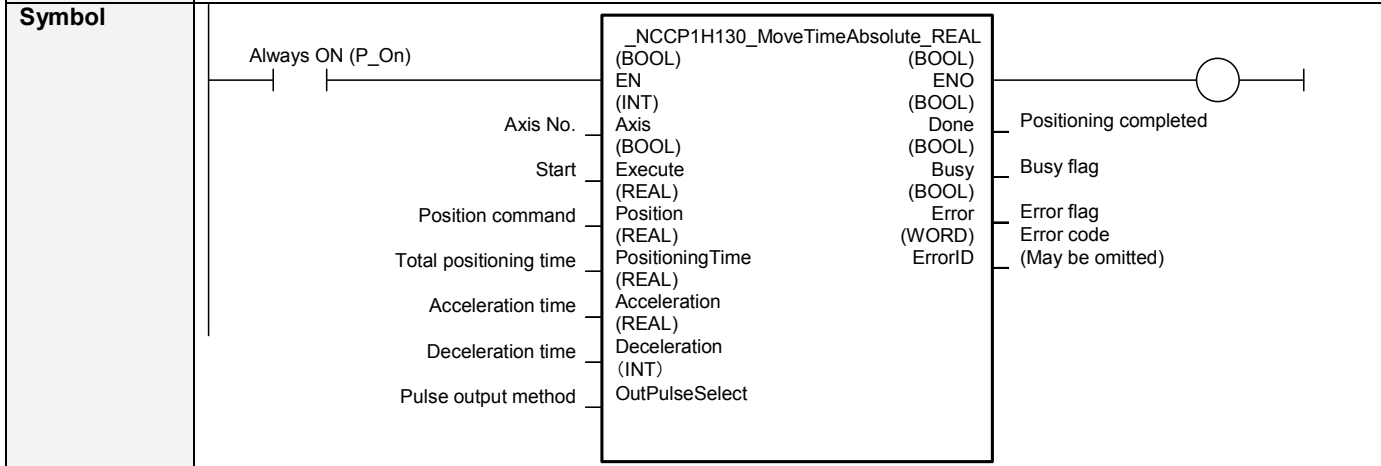
Version	Date	Contents
1.00	2005.9.	Original production

■ **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.

NCCP1H 130	Time-specified Move Absolute (REAL): _NCCP1H130_MoveTimeAbsolute_REAL
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Basic function	Executes positioning with the absolute movement in the specified time period.
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File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H130_MoveTimeAbsolute_REAL10.cxf
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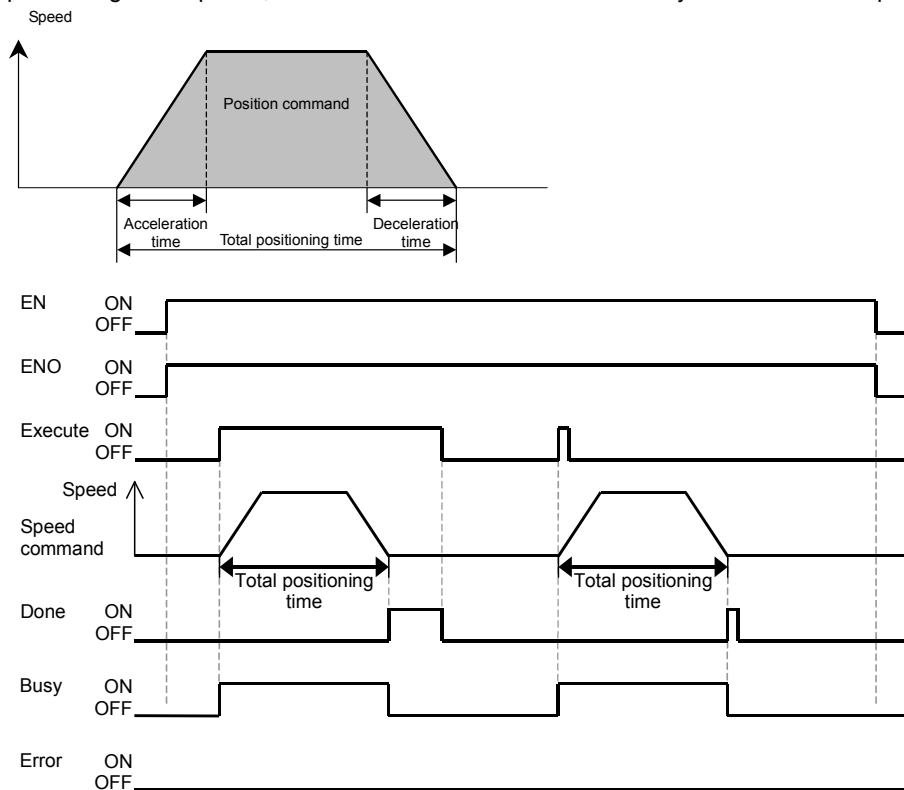
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher

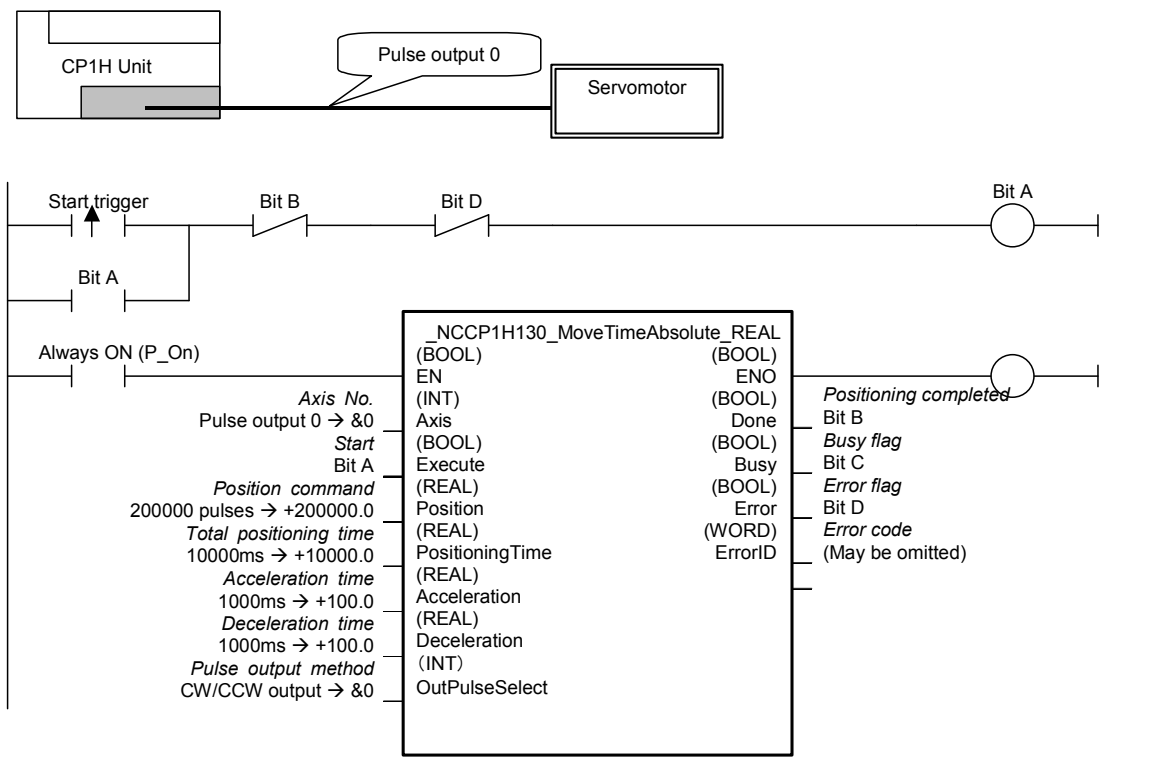
Conditions for usage	None
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Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Position), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). Speed command values are automatically determined based on Position command (Position), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p>
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The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs.

These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.



FB precautions	<ul style="list-style-type: none"> When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. Set the Total positioning time (PositioningTime) for Acceleration time (Acceleration) and Deceleration time (Deceleration), so that the sum of the Acceleration time (Acceleration) and Deceleration time (Deceleration) would not exceed the Total positioning time (PositioningTime). 																																						
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																						
Restrictions Other	<ul style="list-style-type: none"> On CP1H Unit, Acceleration and Deceleration rates are refreshed every 4ms. For this reason, there may be some variations in the actual Acceleration and Deceleration times depending on the settings of the input variables for this FB. In low-speed operations (such as when a long Total positioning time (PositioningTime) is set for a small Position command (Position)), setting a long Acceleration time (Acceleration) and Deceleration time (Deceleration) may cause some variations in the actual Total positioning time. An execution of this FB during an axis operation (i.e., the Multiple start function using this FB) will cause some variations in the actual Total positioning time. Executions of another FB or instance during an execution of this FB (i.e., the Multiple start function using another FB or instance) will cause some variations in the actual Total positioning time (that is, positioning operation will not be performed in the specified time period). However, the Positioning completed (Done) will be output at completion of a positioning operation. 																																						
Application example	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with absolute movement in a specified time period.</p>  <table border="1" data-bbox="734 1064 1133 1512"> <tr> <td>_NCCP1H130_MoveTimeAbsolute_REAL</td> <td></td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>EN</td> <td>ENO</td> </tr> <tr> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>Axis</td> <td>Done</td> </tr> <tr> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td>Start</td> <td>Busy flag</td> </tr> <tr> <td>Bit A</td> <td>Bit C</td> </tr> <tr> <td>Execute</td> <td>(BOOL)</td> </tr> <tr> <td>(REAL)</td> <td>Error flag</td> </tr> <tr> <td>Position</td> <td>Error</td> </tr> <tr> <td>(REAL)</td> <td>(WORD)</td> </tr> <tr> <td>PositioningTime</td> <td>Error code</td> </tr> <tr> <td>(REAL)</td> <td>ErrorID</td> </tr> <tr> <td>Acceleration</td> <td>(May be omitted)</td> </tr> <tr> <td>(REAL)</td> <td></td> </tr> <tr> <td>Deceleration</td> <td></td> </tr> <tr> <td>(INT)</td> <td></td> </tr> <tr> <td>OutPulseSelect</td> <td></td> </tr> </table> <p> <i>Axis No.</i> Pulse output 0 → &0 <i>Start</i> Bit A <i>Execute</i> Position command 200000 pulses → +200000.0 <i>Total positioning time</i> 10000ms → +10000.0 <i>Acceleration time</i> 1000ms → +100.0 <i>Deceleration time</i> 1000ms → +100.0 <i>Pulse output method</i> CW/CCW output → &0 </p>	_NCCP1H130_MoveTimeAbsolute_REAL		(BOOL)	(BOOL)	EN	ENO	(INT)	(BOOL)	Axis	Done	(BOOL)	(BOOL)	Start	Busy flag	Bit A	Bit C	Execute	(BOOL)	(REAL)	Error flag	Position	Error	(REAL)	(WORD)	PositioningTime	Error code	(REAL)	ErrorID	Acceleration	(May be omitted)	(REAL)		Deceleration		(INT)		OutPulseSelect	
_NCCP1H130_MoveTimeAbsolute_REAL																																							
(BOOL)	(BOOL)																																						
EN	ENO																																						
(INT)	(BOOL)																																						
Axis	Done																																						
(BOOL)	(BOOL)																																						
Start	Busy flag																																						
Bit A	Bit C																																						
Execute	(BOOL)																																						
(REAL)	Error flag																																						
Position	Error																																						
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PositioningTime	Error code																																						
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(REAL)																																							
Deceleration																																							
(INT)																																							
OutPulseSelect																																							
Related manuals	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>																																						

■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		▲ : Starts absolute movement
Position command	Position	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specifies the target position. Unit: Pulses
Total positioning time	PositioningTime	REAL	+1.0	+1.0 to +65535.0	Specify a positioning time. Unit: ms
Acceleration time	Acceleration	REAL	+1.0	+1.0 to +65535.0	Specify an acceleration time. Unit: ms
Deceleration time	Deceleration	REAL	+1.0	+1.0 to +65535.0	Specify a deceleration time. Unit: ms
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis. No. is out of the range or the positioning is not performed in the specified time, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	Original production

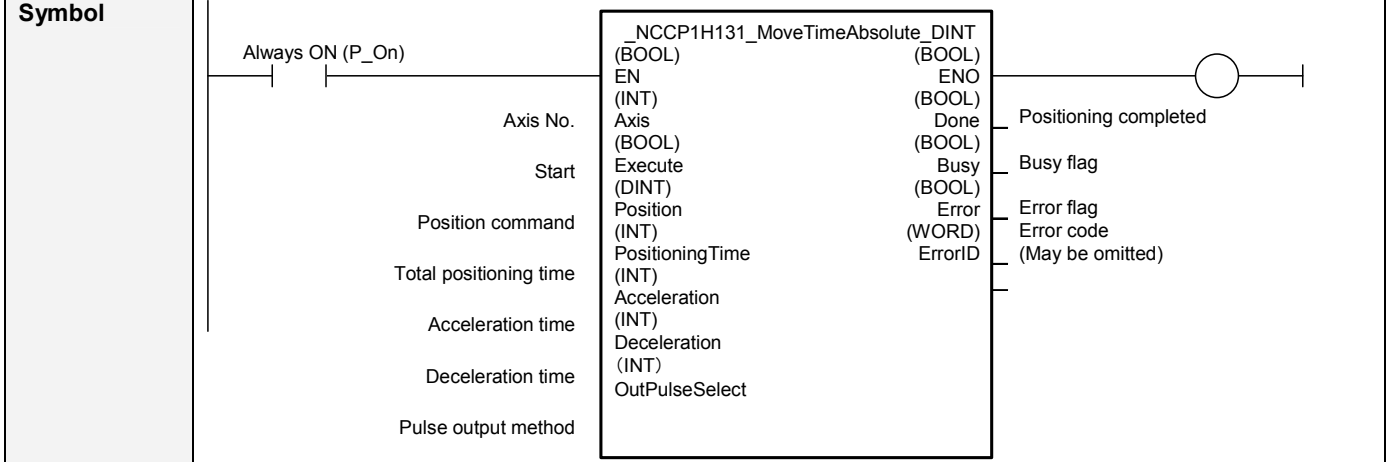
■ Note

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.

NCCP1H 0131	Time-specified Move Absolute (DINT): _NCCP1H131_MoveTimeAbsolute_DINT
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Basic function	Executes positioning with the absolute movement in the specified time period.
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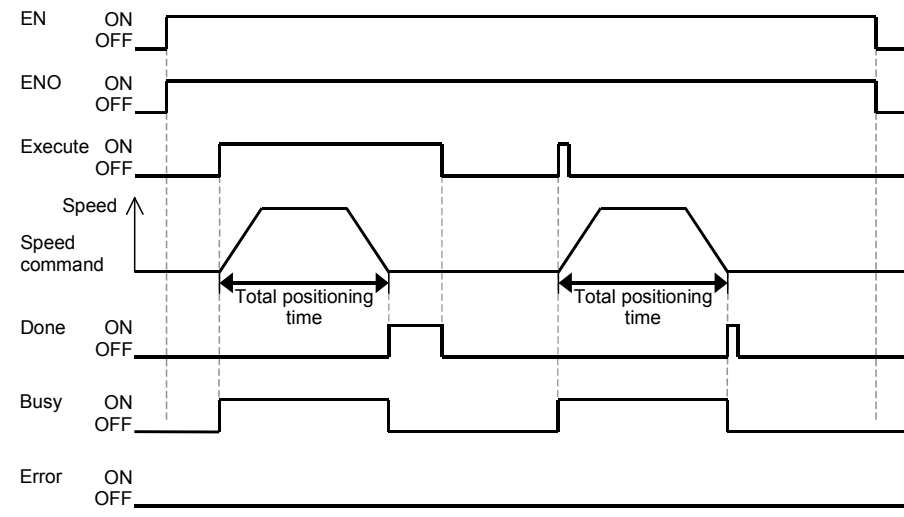
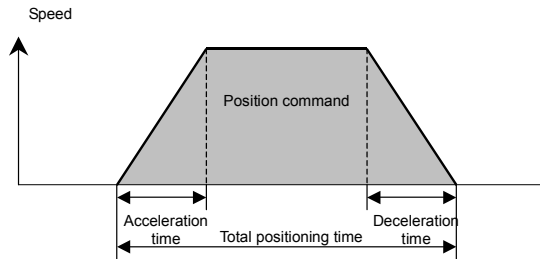
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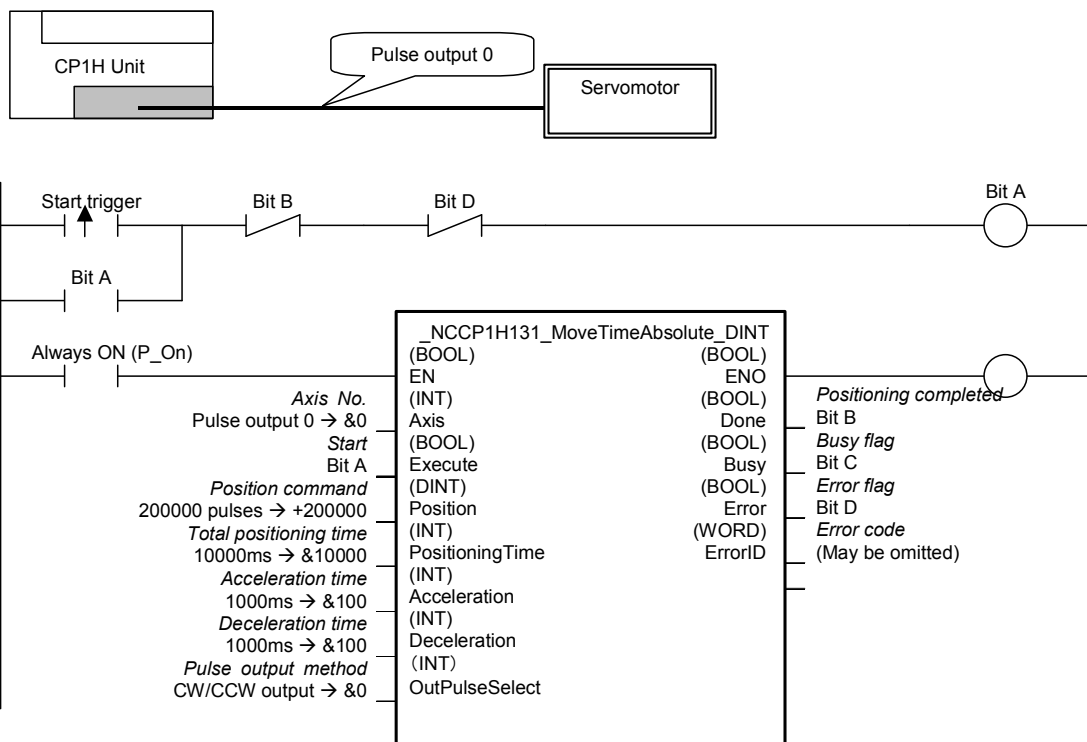
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
CX-Programmer	Version 6.1 or higher	

Conditions for usage	None
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Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Position), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). Speed command values are automatically determined based on Position command (Position), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p>
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The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.



FB precautions	<ul style="list-style-type: none"> • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • Set the Total positioning time (PositioningTime) for Acceleration time (Acceleration) and Deceleration time (Deceleration), so that the sum of the Acceleration time (Acceleration) and Deceleration time (Deceleration) would not exceed the Total positioning time (PositioningTime). 																																																												
EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																																												
Restrictions Other	<ul style="list-style-type: none"> • On CP1H Unit, Acceleration and Deceleration rates are refreshed every 4ms. For this reason, there may be some variations in the actual Acceleration and Deceleration times depending on the settings of the input variables for this FB. • In low-speed operations (such as when a long Total positioning time (PositioningTime) is set for a small Position command (Position)), setting a long Acceleration time (Acceleration) and Deceleration time (Deceleration) may cause some variations in the actual Total positioning time. • An execution of this FB during an axis operation (i.e., the Multiple start function using this FB) will cause some variations in the actual Total positioning time. • Executions of another FB or instance during an execution of this FB (i.e., the Multiple start function using another FB or instance) will cause some variations in the actual Total positioning time (that is, positioning operation will not be performed in the specified time period). However, the Positioning completed (Done) will be output at completion of a positioning operation. 																																																												
Application example	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with absolute movement in a specified time period.</p>  <table border="1" data-bbox="734 1064 1133 1512"> <tr> <td>Axis No.</td> <td>EN</td> <td>ENO</td> <td>Positioning completed</td> </tr> <tr> <td>Pulse output 0 → &0</td> <td>(BOOL)</td> <td>(BOOL)</td> <td>Bit B</td> </tr> <tr> <td>Start</td> <td>(INT)</td> <td>Done</td> <td>Busy flag</td> </tr> <tr> <td>Bit A</td> <td>(BOOL)</td> <td>Busy</td> <td>Bit C</td> </tr> <tr> <td>Execute</td> <td>(DINT)</td> <td>Error</td> <td>Error flag</td> </tr> <tr> <td>Position command</td> <td>(INT)</td> <td>Error</td> <td>Bit D</td> </tr> <tr> <td>200000 pulses → +200000</td> <td>PositioningTime</td> <td>(WORD)</td> <td>Error code</td> </tr> <tr> <td>Total positioning time</td> <td>Acceleration</td> <td>ErrorID</td> <td>(May be omitted)</td> </tr> <tr> <td>10000ms → &10000</td> <td>(INT)</td> <td></td> <td></td> </tr> <tr> <td>Acceleration time</td> <td>Deceleration</td> <td></td> <td></td> </tr> <tr> <td>1000ms → &100</td> <td>(INT)</td> <td></td> <td></td> </tr> <tr> <td>Deceleration time</td> <td>OutPulseSelect</td> <td></td> <td></td> </tr> <tr> <td>1000ms → &100</td> <td>(INT)</td> <td></td> <td></td> </tr> <tr> <td>Pulse output method</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CW/CCW output → &0</td> <td></td> <td></td> <td></td> </tr> </table>	Axis No.	EN	ENO	Positioning completed	Pulse output 0 → &0	(BOOL)	(BOOL)	Bit B	Start	(INT)	Done	Busy flag	Bit A	(BOOL)	Busy	Bit C	Execute	(DINT)	Error	Error flag	Position command	(INT)	Error	Bit D	200000 pulses → +200000	PositioningTime	(WORD)	Error code	Total positioning time	Acceleration	ErrorID	(May be omitted)	10000ms → &10000	(INT)			Acceleration time	Deceleration			1000ms → &100	(INT)			Deceleration time	OutPulseSelect			1000ms → &100	(INT)			Pulse output method				CW/CCW output → &0			
Axis No.	EN	ENO	Positioning completed																																																										
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■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts absolute movement
Position command	Position	DINT	+0	-2,147,483,648 to +2,147,483,647	Specifies the target position. Unit: Pulses
Total positioning time	PositioningTime	INT	&1	&1 to &65535	Specify a positioning time. Unit: ms
Acceleration time	Acceleration	INT	&1	&1 to &65535	Specify an acceleration time. Unit: ms
Deceleration time	Deceleration	INT	&1	&1 to &65535	Specify a deceleration time. Unit: ms
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis. No. is out of the range or the positioning is not performed in the specified time, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	Original production

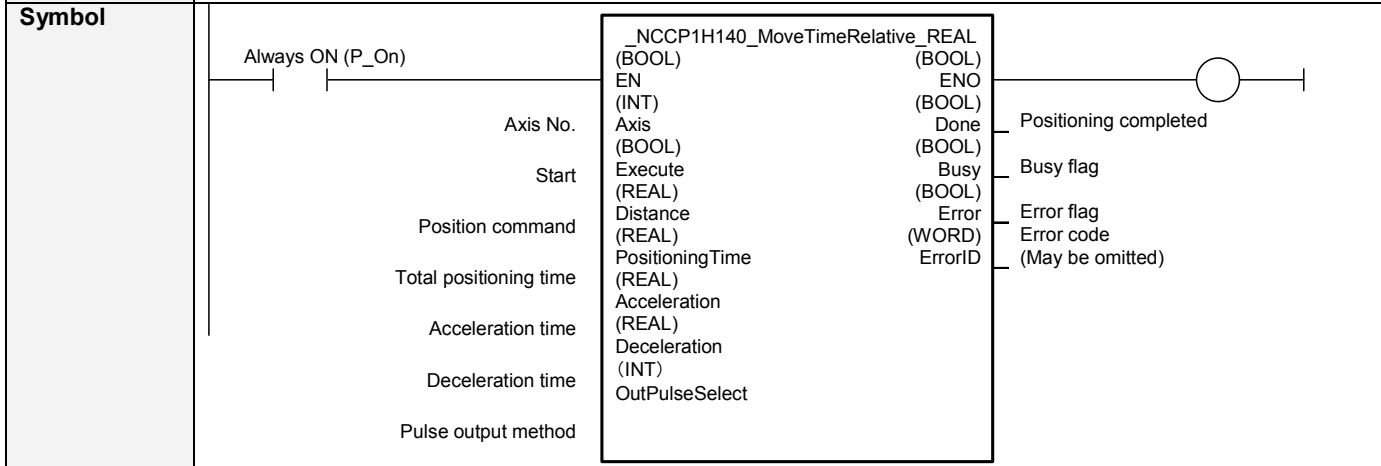
■ Note

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.

NCCP1H 140	Time-specified Move Relative (REAL): _NCCP1H140_MoveTimeRelative_REAL
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Basic function	Executes positioning with the relative movement in the specified time period.
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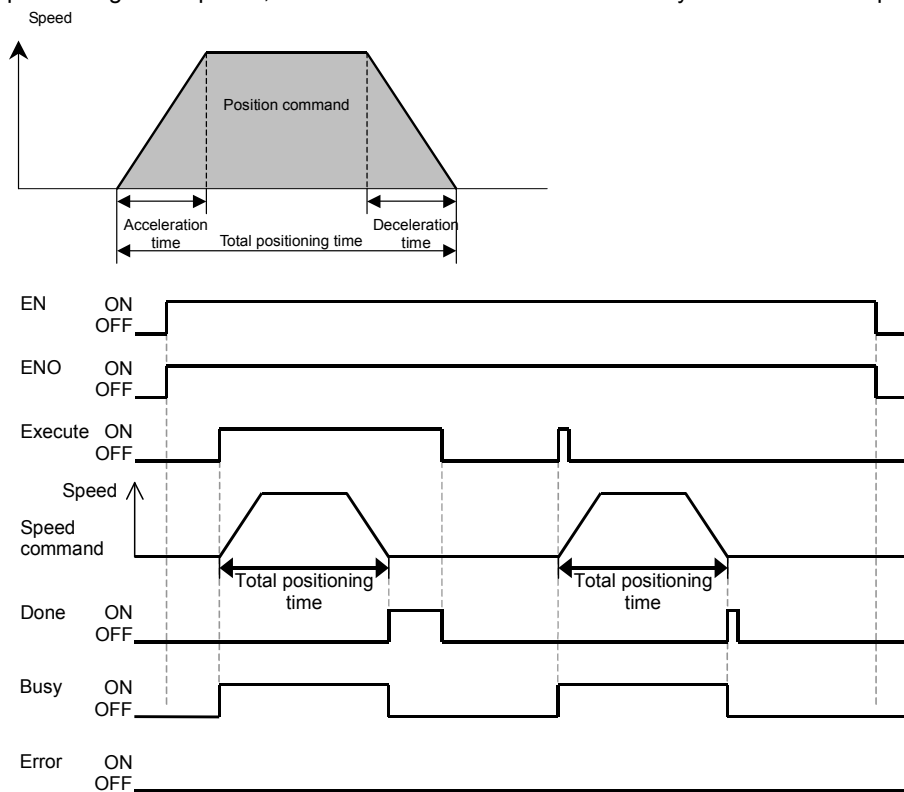
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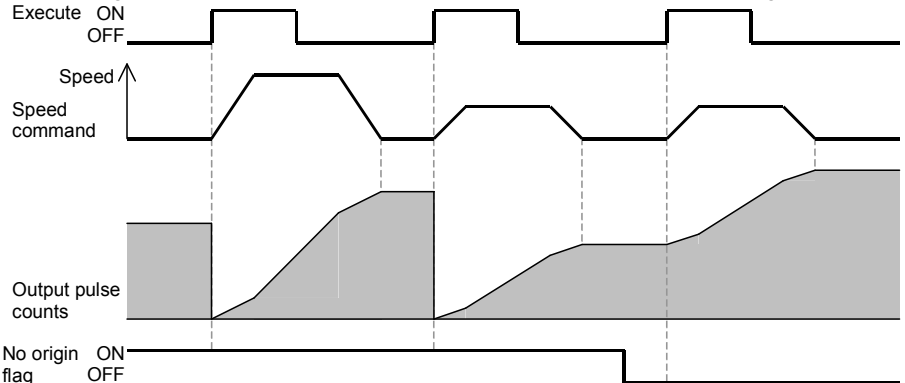
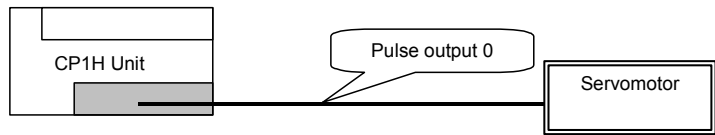
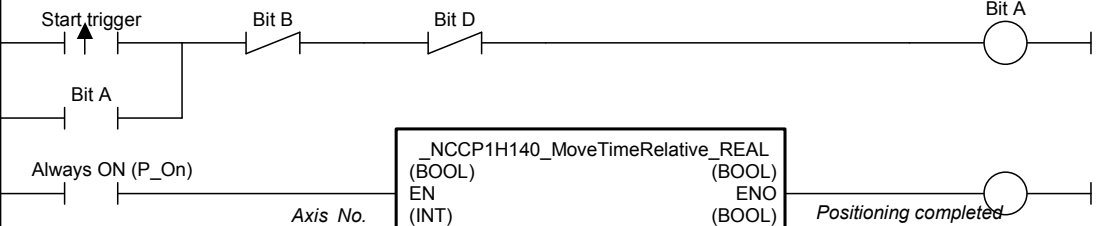
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher

Conditions for usage	None
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Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Distance), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). Speed command values are automatically determined based on Position command (Distance), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p>
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The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.



<p>FB precautions</p>	<ul style="list-style-type: none"> • CW output is taken as + direction and CCW output is taken as – direction. • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • Set the Total positioning time (PositioningTime) for Acceleration time (Acceleration) and Deceleration time (Deceleration) that the sum of the Acceleration time (Acceleration) and Deceleration time (Deceleration) would not exceed the Total positioning time (PositioningTime). • If Start (Execute) is turned ON with no origin defined, the present value of output pulse counts will be cleared to 0 and a positioning operation is started with the present value of 0. (See the diagram below.) 																																																																																																
<p>EN input condition</p>	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																																																																																
<p>Restrictions Other</p>	<ul style="list-style-type: none"> • On CP1H Unit, Acceleration and Deceleration rates are refreshed every 4ms. For this reason, there may be some variations in the actual Acceleration and Deceleration times depending on the settings of the input variables for this FB. • In low-speed operations (such as when a long Total positioning time (PositioningTime) is set for a small Position command (Position)), setting a long Acceleration time (Acceleration) and Deceleration time (Deceleration) may cause some variations in the actual Total positioning time. • An execution of this FB during an axis operation (i.e., the Multiple start function using this FB) will cause some variations in the actual Total positioning time. • Executions of another FB or instance during an execution of this FB (i.e., the Multiple start function using another FB or instance) will cause some variations in the actual Total positioning time (that is, positioning operation will not be performed in the specified time period). However, the Positioning completed (Done) will be output at completion of a positioning operation. 																																																																																																
<p>Application example</p>	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with relative movement in a specified time period.</p>   <table border="1" data-bbox="742 1545 1133 1982"> <tr> <td>Axis No.</td> <td>Axis</td> <td>Start</td> <td>Execute</td> <td>PositioningTime</td> <td>Acceleration</td> <td>Deceleration</td> <td>OutPulseSelect</td> </tr> <tr> <td>Pulse output 0 → &0</td> <td></td> <td>Bit A</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Position command</td> <td>Distance</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>200000 pulses → +200000.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total positioning time</td> <td>PositioningTime</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1000ms → +10000.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Acceleration time</td> <td>Acceleration</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1000ms → +100.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Deceleration time</td> <td>Deceleration</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1000ms → +100.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pulse output method</td> <td>OutPulseSelect</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CW/CCW output → &0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Axis No.	Axis	Start	Execute	PositioningTime	Acceleration	Deceleration	OutPulseSelect	Pulse output 0 → &0		Bit A						Position command	Distance							200000 pulses → +200000.0								Total positioning time	PositioningTime							1000ms → +10000.0								Acceleration time	Acceleration							1000ms → +100.0								Deceleration time	Deceleration							1000ms → +100.0								Pulse output method	OutPulseSelect							CW/CCW output → &0							
Axis No.	Axis	Start	Execute	PositioningTime	Acceleration	Deceleration	OutPulseSelect																																																																																										
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■ Variable Table

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		▲ : Starts relative movement
Position command	Distance	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specifies the relative travel distance. Unit: Pulses
Total positioning time	PositioningTime	REAL	+1.0	+1.0 to +65535.0	Specify a positioning time. Unit: ms
Acceleration time	Acceleration	REAL	+1.0	+1.0 to +65535.0	Specify an acceleration time. Unit: ms
Deceleration time	Deceleration	REAL	+1.0	+1.0 to +65535.0	Specify a deceleration time. Unit: ms
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis. No. is out of the range or the positioning is not performed in the specified time, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	Original production

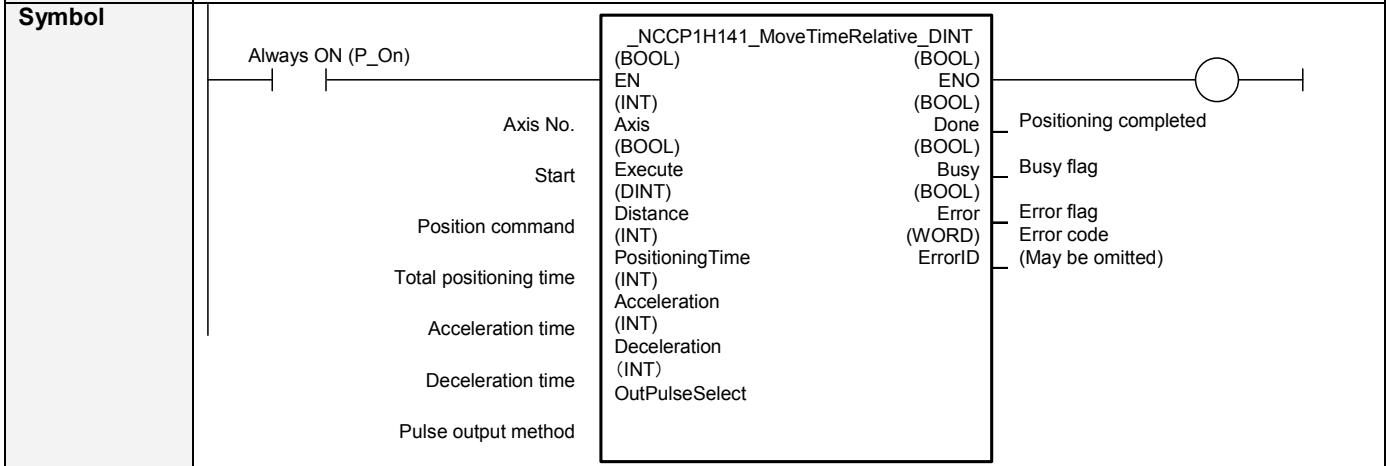
■ Note

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.

NCCP1H 141	Time-specified Move Relative (DINT): _NCCP1H141_MoveTimeRelative_DINT
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Basic function	Executes positioning with the relative movement in the specified time period.
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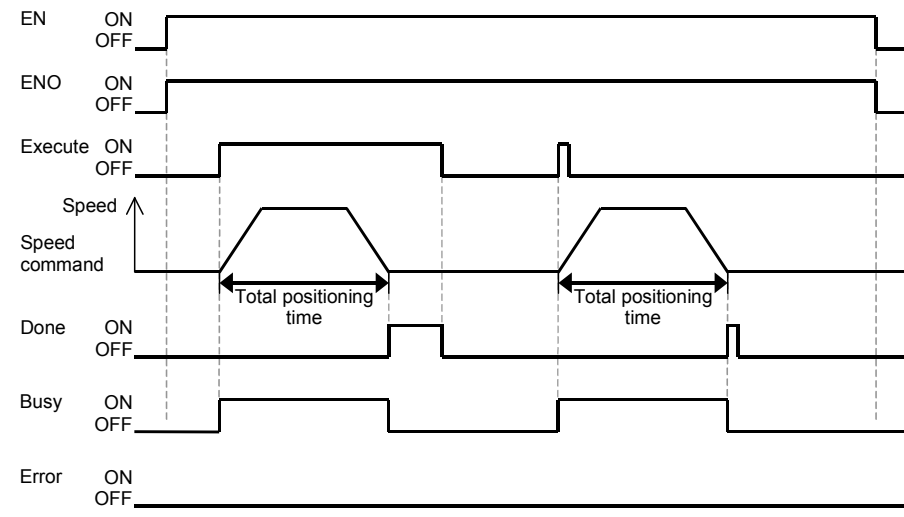
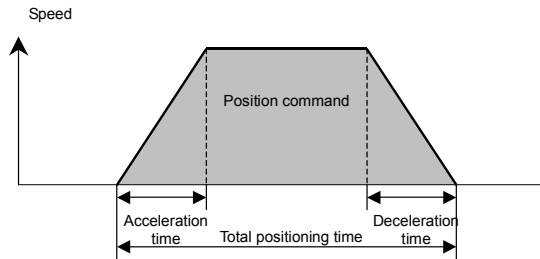
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H141_MoveTimeRelative_DINT10.cxf
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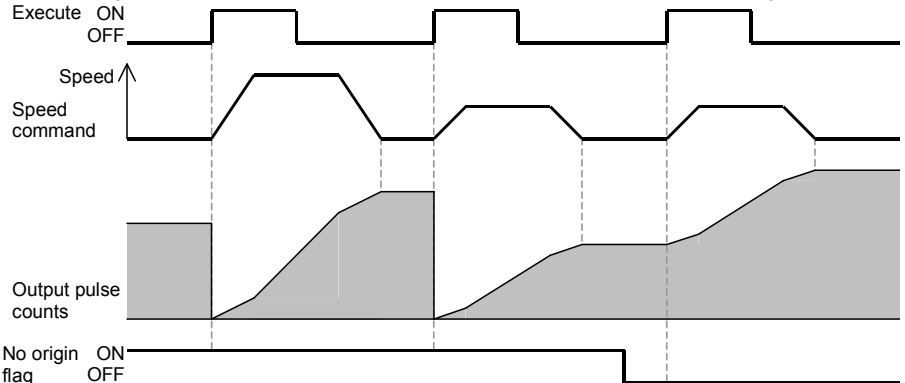
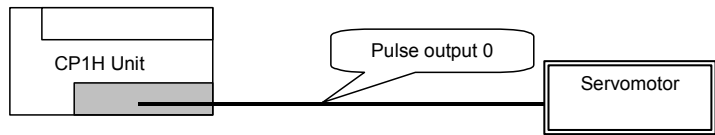
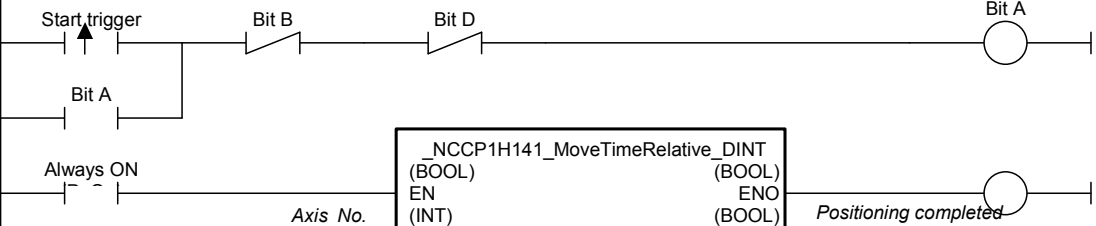
Applicable models	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)
	CX-Programmer	Version 6.1 or higher

Conditions for usage	None
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Function description	<p>Executes positioning on the axis of the specified Axis No. (Axis) with the specified Position command (Distance), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration) when Start (Execute) is turned ON (using the selected Pulse output method). Speed command values are automatically determined based on Position command (Distance), Total positioning time (PositioningTime), Acceleration time (Acceleration), and Deceleration time (Deceleration). The Positioning completed (Done) is turned ON when positioning by this FB is completed (i.e., target position reached).</p>
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The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.



<p>FB precautions</p>	<ul style="list-style-type: none"> • CW output is taken as + direction and CCW output is taken as – direction. • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • Set the Total positioning time (PositioningTime) for Acceleration time (Acceleration) and Deceleration time (Deceleration) that the sum of the Acceleration time (Acceleration) and Deceleration time (Deceleration) would not exceed the Total positioning time (PositioningTime). • If Start (Execute) is turned ON with no origin defined, the present value of output pulse counts will be cleared to 0 and a positioning operation is started with the present value of 0. (See the diagram below.) 																																								
<p>EN input condition</p>	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 																																								
<p>Restrictions Other</p>	<ul style="list-style-type: none"> • On CP1H Unit, Acceleration and Deceleration rates are refreshed every 4ms. For this reason, there may be some variations in the actual Acceleration and Deceleration times depending on the settings of the input variables for this FB. • In low-speed operations (such as when a long Total positioning time (PositioningTime) is set for a small Position command (Position)), setting a long Acceleration time (Acceleration) and Deceleration time (Deceleration) may cause some variations in the actual Total positioning time. • An execution of this FB during an axis operation (i.e., the Multiple start function using this FB) will cause some variations in the actual Total positioning time. • Executions of another FB or instance during an execution of this FB (i.e., the Multiple start function using another FB or instance) will cause some variations in the actual Total positioning time (that is, positioning operation will not be performed in the specified time period). However, the Positioning completed (Done) will be output at completion of a positioning operation. 																																								
<p>Application example</p>	<p>When the start trigger turns from OFF to ON, a positioning operation will be performed to the Servomotor connected to the Pulse output 0 on the CP1H Unit with relative movement in a specified time period.</p>   <table border="1" data-bbox="742 1545 1133 1993"> <tr> <td>Axis No.</td> <td>EN</td> <td>(BOOL)</td> <td>ENO</td> <td>(BOOL)</td> </tr> <tr> <td>Pulse output 0 → &0</td> <td>Axis</td> <td>(INT)</td> <td>Done</td> <td>(BOOL)</td> </tr> <tr> <td>Start Bit A</td> <td>Execute</td> <td>(BOOL)</td> <td>Busy</td> <td>(BOOL)</td> </tr> <tr> <td>Position command 200000 pulses → +200000</td> <td>Distance</td> <td>(DINT)</td> <td>Error flag</td> <td>(BOOL)</td> </tr> <tr> <td>Total positioning time 10000ms → &10000</td> <td>PositioningTime</td> <td>(INT)</td> <td>Error</td> <td>(WORD)</td> </tr> <tr> <td>Acceleration time 1000ms → &100</td> <td>Acceleration</td> <td>(INT)</td> <td>ErrorID</td> <td>(INT)</td> </tr> <tr> <td>Deceleration time 1000ms → &100</td> <td>Deceleration</td> <td>(INT)</td> <td></td> <td></td> </tr> <tr> <td>Pulse output method CW/CCW output → &0</td> <td>OutPulseSelect</td> <td>(INT)</td> <td></td> <td></td> </tr> </table>	Axis No.	EN	(BOOL)	ENO	(BOOL)	Pulse output 0 → &0	Axis	(INT)	Done	(BOOL)	Start Bit A	Execute	(BOOL)	Busy	(BOOL)	Position command 200000 pulses → +200000	Distance	(DINT)	Error flag	(BOOL)	Total positioning time 10000ms → &10000	PositioningTime	(INT)	Error	(WORD)	Acceleration time 1000ms → &100	Acceleration	(INT)	ErrorID	(INT)	Deceleration time 1000ms → &100	Deceleration	(INT)			Pulse output method CW/CCW output → &0	OutPulseSelect	(INT)		
Axis No.	EN	(BOOL)	ENO	(BOOL)																																					
Pulse output 0 → &0	Axis	(INT)	Done	(BOOL)																																					
Start Bit A	Execute	(BOOL)	Busy	(BOOL)																																					
Position command 200000 pulses → +200000	Distance	(DINT)	Error flag	(BOOL)																																					
Total positioning time 10000ms → &10000	PositioningTime	(INT)	Error	(WORD)																																					
Acceleration time 1000ms → &100	Acceleration	(INT)	ErrorID	(INT)																																					
Deceleration time 1000ms → &100	Deceleration	(INT)																																							
Pulse output method CW/CCW output → &0	OutPulseSelect	(INT)																																							
<p>Related manuals</p>	<p>SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)</p>																																								

■ Variable Table

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Starts relative movement
Position command	Distance	DINT	+0	-2,147,483,648 to +2,147,483,647	Specifies the relative travel distance. Unit: Pulses
Total positioning time	PositioningTime	INT	&1	&1 to &65535	Specify a positioning time. Unit: ms
Acceleration time	Acceleration	INT	&1	&1 to &65535	Specify an acceleration time. Unit: ms
Deceleration time	Deceleration	INT	&1	&1 to &65535	Specify a deceleration time. Unit: ms
Pulse output method	OutPulseSelect	INT	&0	&0 to &1	&0: CW/CCW output &1: Pulse + direction output

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON) : FB operating normally 0(OFF): FB not operating normally
Positioning completed	Done	BOOL		1 (ON) indicates that positioning is completed.
Busy flag	Busy	BOOL		1 (ON) indicates that the FB is in progress.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Axis. No. is out of the range or the positioning is not performed in the specified time, #0000 will be output.

■ Revision History

Version	Date	Contents
1.00	2005.9.	Original production

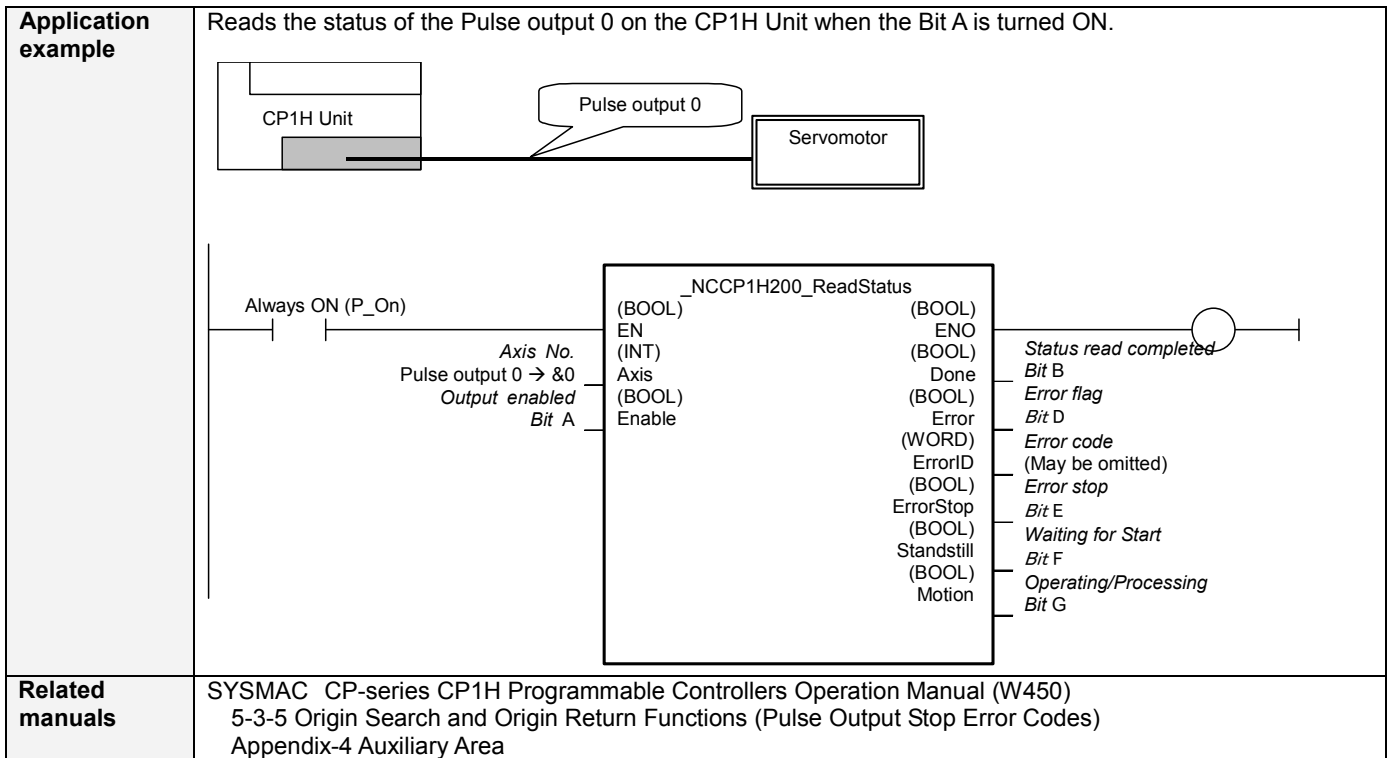
■ Note

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.

NCCP1H 200	Status Read: _NCCP1H200_ReadStatus
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Basic function	Reads the status of an axis.												
Symbol	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Always ON (P_On)</p> <p>Axis No.</p> <p>Output enabled</p> </div> <div style="border: 1px solid black; padding: 5px; width: 60%;"> <p style="text-align: center;">_NCCP1H200_ReadStatus</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> (BOOL) EN (INT) Axis (BOOL) Enable </td> <td style="width: 50%; vertical-align: top;"> (BOOL) ENO (BOOL) Done (BOOL) Error Error ErrorID (BOOL) ErrorStop (BOOL) Standstill (BOOL) Motion </td> </tr> </table> </div> <div style="margin-left: 20px;"> <p>Status read completed</p> <p>Error flag Error code (May be omitted)</p> <p>Error stop</p> <p>Waiting for Start</p> <p>Operating/Processing</p> </div> </div>	(BOOL) EN (INT) Axis (BOOL) Enable	(BOOL) ENO (BOOL) Done (BOOL) Error Error ErrorID (BOOL) ErrorStop (BOOL) Standstill (BOOL) Motion										
(BOOL) EN (INT) Axis (BOOL) Enable	(BOOL) ENO (BOOL) Done (BOOL) Error Error ErrorID (BOOL) ErrorStop (BOOL) Standstill (BOOL) Motion												
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H200_ReadStatus10.cxf												
Applicable models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border-right: 1px solid black; padding: 2px;">CPU Unit</td> <td style="padding: 2px;">CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Unit version 1.0 or higher</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">CX-Programmer</td> <td style="padding: 2px;">Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	Unit version 1.0 or higher		CX-Programmer	Version 6.1 or higher						
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)												
Unit version 1.0 or higher													
CX-Programmer	Version 6.1 or higher												
Conditions for usage	None												
Function description	<p>Reads the status of the output specified with the Axis No. (Axis) continuously as long as the Output enabled (Enable) is ON. When the Output enabled (Enable) is turned OFF, the status will be reset. The Status read completed (Done) is turned ON while valid status is being read and output.</p> <p>The Error flag (Error) will be turned ON and the Error code (ErrorID) will be output if an error occurs for this FB. Strictly speaking, they are respectively turned ON or output only when Axis No. (Axis) is set out of range. They are output by this FB, combining the states of the Status Bits in the Bit Area of the applicable CPU Unit. These statuses will be reset when Output enabled (Enable) turns OFF.</p> <div style="margin-top: 10px;"> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;">Output variable name</th> <th style="width: 45%;">Status</th> <th style="width: 40%;">Output condition</th> </tr> </thead> <tbody> <tr> <td>ErrorStop</td> <td>Stopping due to error</td> <td>Pulse Output Stopped Error Flag being ON</td> </tr> <tr> <td>StandStill</td> <td>Waiting for Start command</td> <td>Pulse Output In-progress Flag being OFF</td> </tr> <tr> <td>Motion</td> <td>Operating or processing command</td> <td>Pulse Output In-progress Flag being ON</td> </tr> </tbody> </table>	Output variable name	Status	Output condition	ErrorStop	Stopping due to error	Pulse Output Stopped Error Flag being ON	StandStill	Waiting for Start command	Pulse Output In-progress Flag being OFF	Motion	Operating or processing command	Pulse Output In-progress Flag being ON
Output variable name	Status	Output condition											
ErrorStop	Stopping due to error	Pulse Output Stopped Error Flag being ON											
StandStill	Waiting for Start command	Pulse Output In-progress Flag being OFF											
Motion	Operating or processing command	Pulse Output In-progress Flag being ON											
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 												



■ Variable Table
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Output enabled	Enable	BOOL	0(OFF)		1 (ON): Output enabled 0 (OFF): Output reset

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Status read completed	Done	BOOL		1 (ON) indicates that valid status is being read and output.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.
Error stop	ErrorStop	BOOL		1 (ON) indicates that the operation is being stopped with an error.
Waiting for Start	Standstill	BOOL		1 (ON) indicates that the CPU Unit is waiting for a start command.
Operating/Processing	Motion	BOOL		1 (ON) indicates that internal processing (for Pulse Output In-progress Flag, etc.) of the CPU Unit is in progress.

■ Revision History

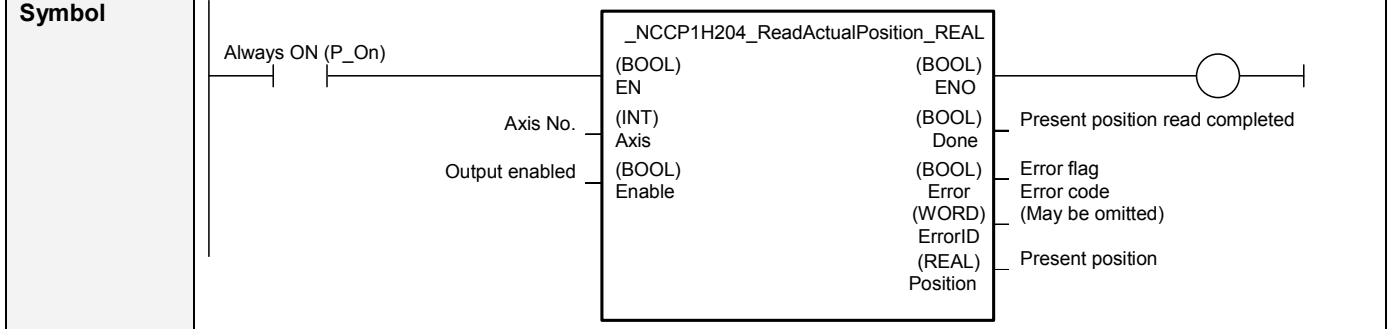
Version	Date	Contents
1.00	2005.9.	Original production

■ 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.

NCCP1H 204	Present Position Read (REAL): _NCCP1H204_ReadActualPosition_REAL
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Basic function	Reads the present position of an axis.
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File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H204_ReadActualPosition_REAL10.cxf
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Applicable models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border-right: 1px solid black;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td style="border-right: 1px solid black;">CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				

Conditions for usage	None
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Function description	<p>Reads the status of the output specified with the Axis No. (Axis) continuously as long as the Output enabled (Enable) is ON. When the Output enabled (Enable) is turned OFF, the Present position (Position) will be cleared to 0.</p> <p>The Present position read completed (Done) is turned ON while valid present position is being read and output.</p> <p>The Error flag (Error) will be turned ON and the Error code (ErrorID) will be output if an error occurs for this FB. Strictly speaking, they are respectively turned ON or output only when Axis No. (Axis) is set out of range. They are output by this FB, combining the states of the Status Bits in the Bit Area of the applicable CPU Unit. These statuses will be reset when Output enabled (Enable) turns OFF.</p> <div style="text-align: center; margin-top: 20px;"> </div>
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EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF.
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Application example

Reads the present position of the Pulse output 0 on the CP1H Unit when the Bit A is turned ON and outputs it to D0.

Related manuals

SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450)
 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)
 Appendix-4 Auxiliary Area

■ Variable Table
 Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Output enabled	Enable	BOOL	0(OFF)		1 (ON): Output enabled 0 (OFF): Output reset

【OUTPUT】(出力変数)

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Present position read completed	Done	BOOL		Turns ON when present position read is completed normally.
Error flag	Error	BOOL		Turns ON when present position read is ended with an error.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.
Present position	Position	REAL	-2.147484e+009 to +2.147484e+009	Outputs the present position of the specified axis.

■ Revision History

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H 205	Present Position Read (DINT): _NCCP1H205_ReadActualPosition_DINT
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Basic function	Reads the present position of an axis.						
Symbol							
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H205_ReadActualPosition_DINT10.cxf						
Applicable models	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td></td> <td>Unit version 1.0 or higher</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)		Unit version 1.0 or higher	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)						
	Unit version 1.0 or higher						
CX-Programmer	Version 6.1 or higher						
Conditions for usage	None						
Function description	<p>Reads the status of the output specified with the Axis No. (Axis) continuously as long as the Output enabled (Enable) is ON. When the Output enabled (Enable) is turned OFF, the Present position (Position) will be cleared to 0.</p> <p>The Present position read completed (Done) is turned ON while valid present position is being read and output.</p> <p>The Error flag (Error) will be turned ON and the Error code (ErrorID) will be output if an error occurs for this FB. Strictly speaking, they are respectively turned ON or output only when Axis No. (Axis) is set out of range. They are output by this FB, combining the states of the Status Bits in the Bit Area of the applicable CPU Unit. These statuses will be reset when Output enabled (Enable) turns OFF.</p>						
EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 						
Application example	<p>Reads the present position of the Pulse output 0 on the CP1H Unit when the Bit A is turned ON and outputs it to D0.</p> 						

Related manuals	SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes) Appendix-4 Auxiliary Area
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■ **Variable Table**
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Output enabled	Enable	BOOL	0(OFF)		1 (ON): Output enabled 0 (OFF): Output reset

【OUTPUT】(出力変数)

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Present position read completed	Done	BOOL		Turns ON when present position read is completed normally.
Error flag	Error	BOOL		Turns ON when present position read is ended with an error.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis. No. is out of the range, #0000 will be output.
Present position	Position	DINT	-2,147,483,648 to +2,147,483,647	Outputs the present position of the specified axis.

■ **Revision History**

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H 610	Present Position Change (REAL): _NCCP1H610_SetPosition_REAL
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Basic function	Changes the present position.				
Symbol					
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H610_SetPosition_REAL10.cxf				
Applicable models	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Changes the present position of the output specified with the Axis No. (Axis) to the value set in Position data (Position) when Start (Execute) is turned ON.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> <p>■ Reference This FB uses the Present Position Change Function of the CPU Unit. For details, refer to the manual listed in the Related manuals below.</p>				
EN input condition	<ul style="list-style-type: none"> Connect the EN input to the Always ON Flag (P_ON). If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 				
Application example	<p>When the start trigger turns from OFF to ON, a present position of the Pulse output 0 on the CP1H Unit will be changed.</p>				

Related manuals	SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)
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■ **Variable Table**
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		▲ : Executes Present Position Change
Position data	Position	REAL	+0.0	-2.147483e+009 to +2.147483e+009	Specify the value to set the present position. Unit: Pulses

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Present position change completed	Done	BOOL		Turns ON when Present Position Change is completed normally.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis No. is out of the range, #0000 will be output.

■ **Revision History**

Version	Date	Contents
1.00	2005.9.	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.

NCCP1H611	Present Position Change (DINT): _NCCP1H611_SetPosition_DINT
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Basic function	Changes the present position.				
Symbol					
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CP1H)_NCCP1H611_SetPosition_DINT10.cxf				
Applicable models	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">CPU Unit</td> <td>CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 6.1 or higher</td> </tr> </table>	CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)	CX-Programmer	Version 6.1 or higher
CPU Unit	CP1H- (XA40DT-D / XA40DT1-D / X40DT-D / X40DT1-D)				
CX-Programmer	Version 6.1 or higher				
Conditions for usage	None				
Function description	<p>Changes the present position of the output specified with the Axis No. (Axis) to the value set in Position data (Position) when Start (Execute) is turned ON.</p> <p>The Error flag (Error) will be turned ON and Error code (ErrorID) will be output when an error related to this FB occurs. These statuses will be reset when Start (Execute) is turned OFF. If Start (Execute) was turned OFF before positioning is completed, the status will be set for at least one cycle when a corresponding condition occurs.</p> <p>■ Reference This FB uses the Present Position Change Function of the CPU Unit. For details, refer to the manual listed in the Related manuals below.</p>				
EN input condition	<ul style="list-style-type: none"> • Connect the EN input to the Always ON Flag (P_ON). • If a different type of bit is connected to EN, the FB outputs will be maintained when the connected bit is turned OFF. 				
Application example	<p>When the start trigger turns from OFF to ON, a present position of the Pulse output 0 on the CP1H Unit will be changed.</p>				

Related manuals	SYSMAC CP-series CP1H Programmable Controllers Operation Manual (W450) 5-3-8 Instructions Used for Pulse Outputs 5-3-5 Origin Search and Origin Return Functions (Pulse Output Stop Error Codes)
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■ **Variable Table**
Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): Starts FB 0 (OFF): Does not start FB
Axis No.	Axis	INT	&0	&0 to &3	&0: Pulse output 0 &1: Pulse output 1 &2: Pulse output 2 &3: Pulse output 3
Start	Execute	BOOL	0(OFF)		↑ : Executes Present Position Change
Position data	Position	DINT	&0	-2,147,483,648 to +2,147,483,647	Specify the value to set the present position. Unit: Pulses

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1(ON): FB operating normally 0(OFF): FB not operating normally
Present position change completed	Done	BOOL		Turns ON when Present Position Change is completed normally.
Error flag	Error	BOOL		1 (ON) indicates that an error has occurred in the FB.
Error code (May be omitted)	ErrorID	WORD		The error code of the error occurred in the FB will be output. For details of the errors, refer to the sections of the manual listed in the Related manuals above. When Unit No. or Axis No. is out of the range, #0000 will be output.

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