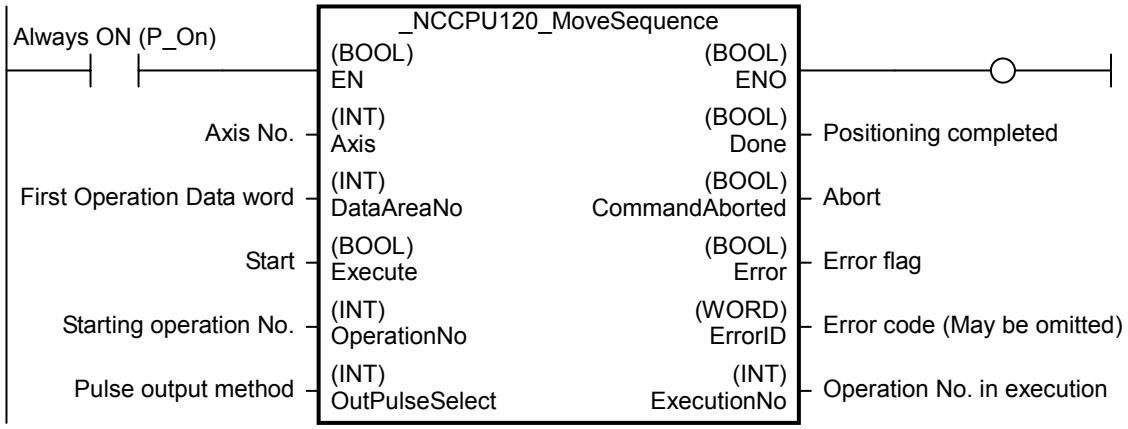
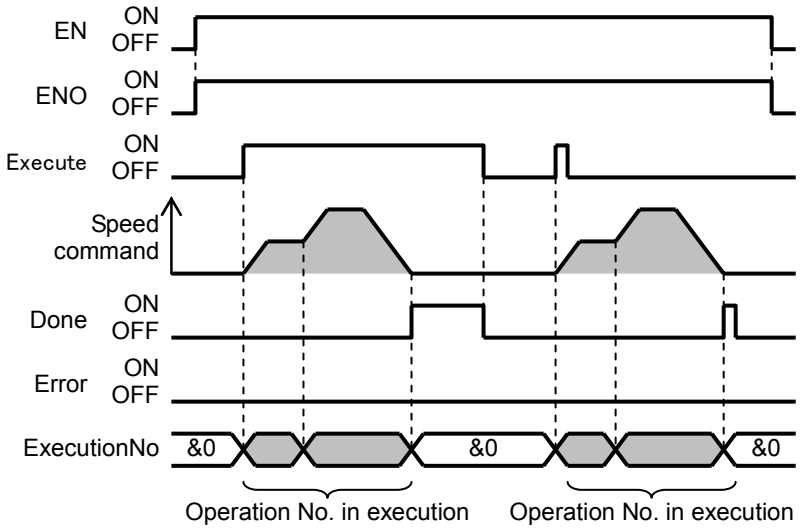
NCCPU2x 120	Sequential Positioning: _NCCPU120_MoveSequence

Basic function	Performs positioning sequentially.	
Symbol		
File name	Lib\FBL\omronlib\PositionController\NC-CPU(CJ1MCPU2x)_NCCPU120_MoveSequence11.cxf	
Applicable models	CPU Unit	CJ1M-CPU21/22/23 Unit version 3.0 or higher CP1L-***DT-* CP1L-***DT1-*
	CX-Programmer	Version 5.0 or higher
Conditions for usage	None	
Function description	When Start (Execute) turns ON, positioning will be consecutively performed on the output specified with the Axis No. (Axis) using Operation Data (Operation modes, ABS/INC modes, Acceleration rate, Deceleration rate, Target frequency, and Position command in DM Area starting from the First operation data word (DataAreaNo). The number of starting operation data should be selected 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 or an emergency stop, Abort (CommandAborted) will turn ON. When an error flag in the unit is detected, the Error flag (Error) will be turned ON if the operation data is invalid due to some errors such as commands out of range. 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, Positioning completed (Done)/ Abort (CommandAborted)/ Error flag (Error)/ Error code (ErrorID), 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. 	
Kind of FB definition	Connect Always ON type Connect the EN input to the Always ON Flag (P_ON). The same instance cannot be used in two or more places.	

FB precautions	• 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 manuals' in the following page. • To cancel this FB's processing, use INI(880) instruction or ACC(888) instruction (discrete). Using Deceleration stop FB of FBL (_NCCPU061_Stop_REAL/_NCCPU062_Stop_DINT) may not stop an axis as the deceleration stop command is multiply-started due to this FB. When using ACC(888) instruction (discrete) to stop an axis, execute ACC(888) instruction (discrete) until an axis stops completely. Refer to 'Application example'. • When using the Pulse output 0 and 1 simultaneously, use the same Pulse output method for them. • Do not execute the following FB for a same axis while executing this FB. The processing of the following FB does not operate normally as it is multiply-started due to this FB. _NCCPU010_MoveAbsolute_REAL _NCCPU011_MoveAbsolute_DINT _NCCPU020_MoveRelative_REAL _NCCPU021_MoveRelative_DINT _NCCPU110_MoveInterrupt_REAL _NCCPU061_Stop_REAL _NCCPU062_Stop_DINT _NCCPU111_MoveInterrupt_DINT _NCCPU120_MoveSequence _NCCPU130_MoveTimeAbsolute_REAL _NCCPU131_MoveTimeAbsolute_DINT _NCCPU140_MoveTimeRelative_REAL _NCCPU141_MoveTimeRelative_DINT
EN input condition	• 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

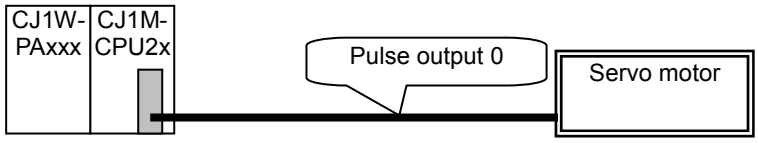
■ Operation Data Setting

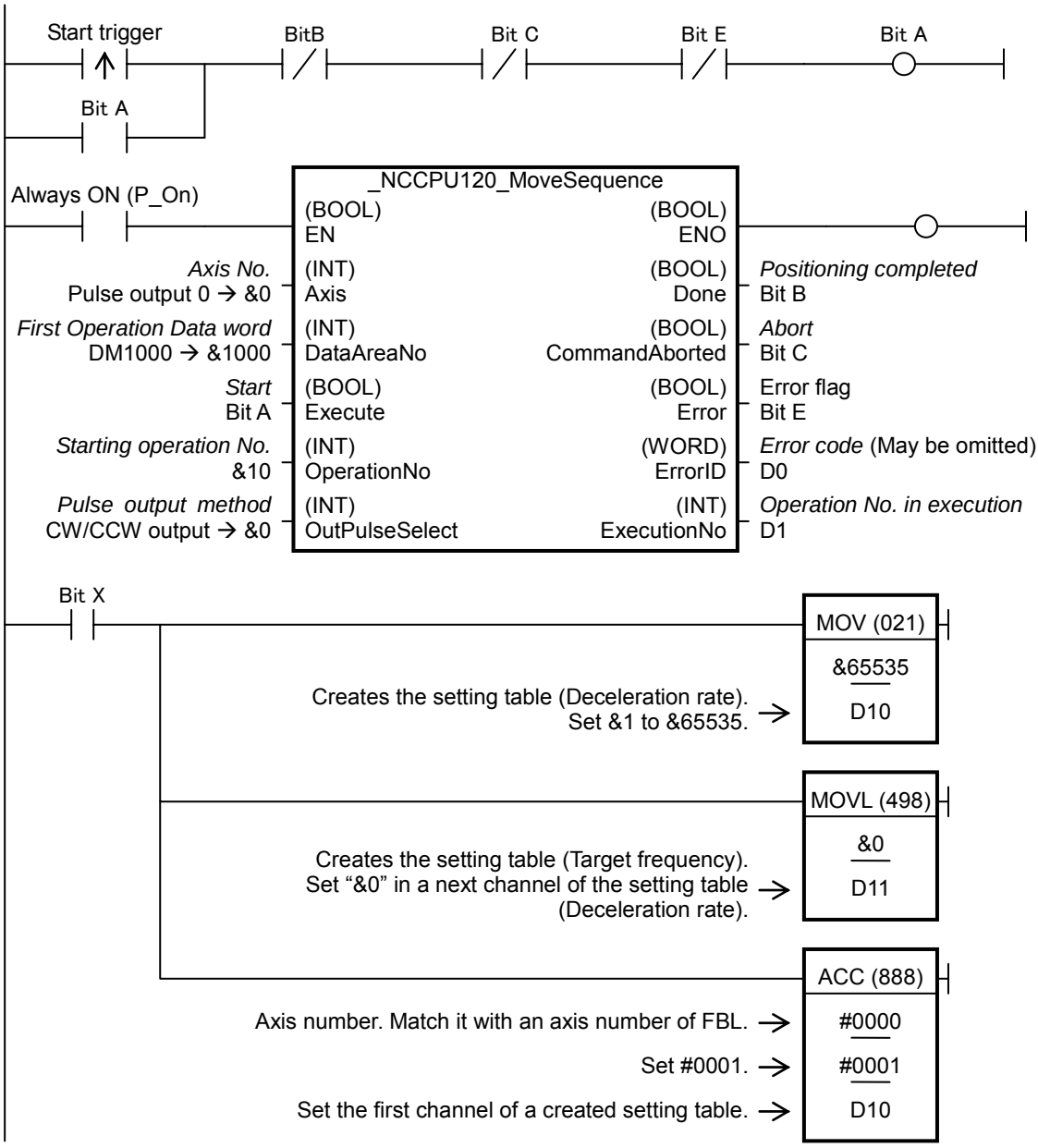
- Set Operation Data in the DM Area.
- This FB cannot be executed when an origin is not established. Even when using only Relative Movement, it cannot be executed without establishing an origin.
- This FB cannot be started when the pulse output specified in “Axis No.” outputs pulse.
- An operation data will cause an error if the target position is out of the following range, -2,147,483,648 to +2,147,483,647.
- 7 consecutive words of the DM Area are used as one Operation Data containing Operation modes, ABS/INC modes, Acceleration rate, Deceleration rate, Target frequency, and Position command.
- When the Sequential position mode is selected, the following operation data is referred. When Operation modes, ABS/INC modes or Position command causes an error, the operation will stop at one data before the invalid one. When Acceleration rate, Deceleration rate or Target frequency causes an error, the operation will stop at an invalid data.
  Ex.1: When the setting value in the Operation Data 8 is valid with the Sequential position mode, and the Operation mode in the Operation Data 9 contains an invalid data, an operation will stop at the Operation data 8.
  Ex.2: When the setting value in the Operation Data 8 is valid with the Sequential position mode, and the Target frequency in the Operation Data 9 contains an invalid data, an operation will stop at the Operation data 9.
- If a constant speed cannot be maintained in sequential positioning, an error will occur.
- An operation will be stopped with deceleration when an error, such as Limit input, occurs.

Operation Data	Word	Name		Setting range	
1	n+000	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+001	Acceleration rate		1 to 65,535Hz (0001 to FFFF Hex)	
	n+002	Deceleration rate		1 to 65,535Hz (0001 to FFFF Hex)	
	n+003	Target frequency (lower word)		1 to 100,000Hz (00000001 to 000186A0 Hex)	
	n+004	Target frequency (upper word)			
	n+005	Position command (lower word)		Absolute: -2,147,483,648 to +2,147,483,647 (80000000 to 7FFFFFFF Hex) Relative: -2,147,483,648 to +2,147,483,647 (80000001 to 7FFFFFFF Hex) (+: CW, -: CCW)	
	n+006	Position command (upper word)			
2	n+007	Operation, ABS/INC modes		Same as Operation Data 1.	
	n+008	Acceleration rate			
	n+009	Deceleration rate			
	n+010	Target frequency (lower word)			
	n+011	Target frequency (upper word)			
	n+012	Position command (lower word)			
	n+013	Position command (upper word)			
:					
64	n+441	Operation, ABS/INC modes		Same as Operation Data 1. Note that, however, Single positioning mode is used even if the Sequential position mode is set in the Operation mode. (Selecting the Sequential position mode does not cause an error, though.)	
	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)			

Application example

Set the operation data referring to settings of Operation Data in 'Restrictions Other'.
When the Start trigger turns from OFF to ON, the Servomotor connected to the Pulse output 0 on the CJ1M CPU Unit will start operating based on the specified Operation Data.
When an operation is to be stopped intentionally with an Emergency stop switch, Bit X is turned ON.





Operation data (example)

CH No.	Data	Description	
DM01000	#0001	Sequential position mode/ Relative pulse output	Operation data 01
DM01001	&100	Acceleration rate	
DM01002	&100	Deceleration rate	
DM01003, DM01004	&1000	Target frequency (lower /upper word)	
DM01005, DM01006	+3000	Position command (lower/upper word)	
DM01007	#0001	Sequential position mode/ Relative pulse output	Operation data 02
DM01008	&1000	Acceleration rate	
DM01009	&1000	Deceleration rate	
DM01010, DM01011	&5000	Target frequency (lower /upper word)	
DM01012, DM01013	+10000	Position command (lower/upper word)	
DM01014	#0001	Sequential position mode/ Relative pulse output	Operation data 03
DM01015	&1000	Acceleration rate	
DM01016	&1000	Deceleration rate	
DM01017, DM01018	&10000	Target frequency (lower /upper word)	
DM01019, DM01020	-20000	Position command (lower/upper word)	
DM01021	#0001	Sequential position mode/ Relative pulse output	Operation data 04
DM01022	&1000	Acceleration rate	
DM01023	&1000	Deceleration rate	
DM01024, DM01025	&3000	Target frequency (lower /upper word)	
DM01026, DM01027	-5000	Position command (lower/upper word)	
DM01028	#0010	Single position mode/ Absolute pulse output	Operation data 05
DM01029	&10	Acceleration rate	
DM01030	&10	Deceleration rate	
DM01031, DM01032	&3000	Target frequency (lower /upper word)	
DM01033, DM01034	+1000	Position command (lower/upper word)	

Related manuals

- CJ1M CPU Units Operation Manual (W395)
  5-7 PULSE OUTPUT: PLS2(887)
  6-3-3 Origin Search Error Processing (Pulse Output Stop Error Codes)
- SYSMAC CP Series CP1L CPU Unit Operation Manual (W462)

■ **Variable Tables**

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, &1	&0: Pulse output 0 &1: Pulse output 1
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
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 the specified 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
1.10	2006.12.	Improvement of positioning accuracy at high-speed operation However, cannot execute when an origin is not established
1.00	2005.2.	Original production

Note

This manual is a reference that explains the function block functions.
It does not explain the operational limitations of Units, components, or combinations of Units and components. Always read and understand the Operation Manuals for the system's Units and other components before using them.