# NCF Read Present Position (REAL) \_NCF204\_ReadActualPosition\_REAL

<b>Basic function</b>	Reads the present position of an axis.						
Symbol	_NCF204_ReadActualPosition_R						
			EAL				
	Always ON (P_On)	(BOOL)		(BOOL)	$\frown$ I		
		(INT) UnitNo		(BOOL) Done	- Normal end		
		Axis No	(INT) Axis		(BOOL) Error	– Error flag	
	Output	enable bit -	(BOOL) Enable		(WORD) ErrorID	- Error code	
					(REAL) Position	<ul> <li>Present position</li> </ul>	
File name	Lib\FBL\omronlib\Positi	onController		204 ReadA	ctualPosition	REAL12.cxf	
Applicable	Position Control Unit	CJ1W-NCF					
models	CPU Unit	CS1*-CPU*	*H Unit Ver	rsion 3.0 or l			
		CJ1*-CPU*					
		CJ1M-CPU CP1H	•• Unit vers	sion 3.0 or la	ater		
	CX-Programmer	Version 5.0	or later				
Languages in	Ladder programming						
function block							
definitions Conditions for	The following condition	o for upogo o	hould be th	o Donition (	Control Unit vo	raion 1.2 or oarlier	
usage	The following condition: (It will not be required in					rsion 1.2 of earlier.	
uougo	(It will not be required in the Position Control Unit version 1.3 or later) ■CX-Programmer Setting						
	The function blocks related to the Position Control Units will not operate if the area H512 or higher (default						
	setting) is specified as the Non Retain Area through the Function block memory allocation. Make sure to						
	change the memory area to unused area (DM or EM, for example) from the CX-Programmer. To change this value, click <i>PLC/Function Block Memory/Function Block Memory Allocation</i> from the Menu Bar.						
	Function Block Memory Allocation [NewPLC1]						
	ER Instance Area Start Address End Address Size						
	No Retain H512	H140		96	ОК		
	Retain H140 Timers T307			28 024	Cancel		
	Counters C307			024	Edit		
				d area	Default		
	Specify unused area. The required size varies depending on the used FB and the number of FBs.						
	If an area being used in the ladder program is specified or sufficient free						
	Function Bloc Memory Allocation [NewPLot, space cannot be found, the CX-Programmer will display a compile error.						
	FB Instance rea Start Address End Address OK						
	No Retain D320 Retain H140			48 28	Cancel		
	Timers T307	2 T4095	5 10	024	Edit		
	Counters C307	2 C409	5 10	024	Default	For example, to use the memory	
					Advanced	area from D32020 to D32767 (748 words), specify the	
						addresses as shown in the left.	
Function	The present position of	the avis of th		Linit No. (1)	nitNo) and Av	is No. (Axis) is continuously updated	
description						S ON. When the Output enable bit	
	(Enable) turns OFF, the	Present po	sition (Posi	tion)" is clea	red to all zero	S.	
	The Normal end (Done) turns ON when the present position data is valid.						
	The Error flag (error) will be turned ON and the Error code (ErrorID) will be output if an error occurs for the FB.						
	(They will not be turned ON when axis errors occurs.) This status will be reset then the Output enable bit (Enable) turns OFF.						
	These status(Done/Erro					(Enable) turns OFF.	
	These status(Done/Erro	or/ErrorID) wi	II be reset t	hen the Out	put enable bit	: (Enable) turns OFF.	

EN OFF       ENO OFF         ENO OFF       ENO OFF         Enable OFF       Enable OFF         Done OFF       Enable OFF         Brown OFF       Enable OFF         Brown OFF       Enable OFF         Brown OFF       Enable OFF         Brown OFF       Enable OFF         Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         Prestrictions       - Connect the EN input to the Always ON Flag (P_On). The Eard flag (Error) and Error code (Error) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         • The Error flag (Error) and Error code (Error) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         • The Euror flag (Error) and Error code (Error) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         • The string deg of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).         • The string deg of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).         • The couldulut available of FB may not change even if EN is turned ON. In that case, check if any of Unit Erro Reset, Write Data, Read Data and Save Data Bit is left ON.         Application example       Error flag         Other </th <th></th> <th></th>		
END OFF       ON         Enable OFF       ON         Done OFF       OFF         Error OFF       Error OFF         Position OFF       Error OFF         Enable OFF       Error OFF         Enable OFF       Error OFF         Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input       - Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input       - Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input       - Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input       - Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input       - Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         Other       - The Error flag (Error) on the same reason, do not use these bits of the Origot each instance, an when changing "Unit No. (UnitNO, "Asis NO. (Asis)" of the input variable and servomotor connected to the Position Control Unit with unit number 0 is read and stored in D0.         Application example       Unit No. (INT)       E		
Kind of FB Done OFF Done OFF Error OFF Error OFF       Always execution type. Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input condition       Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input condition       - Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input condition       - The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         Other       - The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit withrout alteration.         Other       - The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit withrout alteration.         • The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).         • The output variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error Reset, Write Data, Read Data and Save Data Bit is left ON.         Note:       - The calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, an when changing 'Unit No. (UnitNO.;" 'Axis No. (Axis)" of the input variable and set "Output enable bit (Enable') ENO (Unit No.; (Axis 1)         Application       When turning the Bit A ON from OFF		
Done OFF       Error OFF         Error OFF       Error OFF         Read Present ON       Position OFF         Read Present ON       Position OFF         Connect the EN input to the Always ON Flag (P_On).       The same instance cannot be used in two or more places.         EN input       -Connect the EN input to the Always ON Flag (P_On).         If another bit is connected to EN, the PB outputs will be held when the connected bit turns OFF.         Restrictions       -The Foro flag (Error) and Error code (ErrorD) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         •This FB uses Unit Error Reset, Write Data, Read Data and Save Data Bits of the Position Control Unit (see Note). Therefore, do not turn these bits On or OFF between the period from the rising edge of EN to the vite to utput variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error Reset, Write Data, Read Data and Save Data Bit is left ON.         Note:       For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, an when changing "Unit No. (UnitNo:)", "Axis No. (Axis)" of the input variable and set "Output enable bit (Enable)         Application       When turning the Bit A ON from OFF, the present position of axis 1 of the Servomotor connected to the Position Control Unit with unit number 0 is read and stored in D0.         Image: CPU Intege OF Distion Control Unit No:       Image: CPU Intege OFF.         Image: CPU Int No:       Image: CPU Int No:      <		
Error OFF       Image: Construction of the second of the sec		
Read Present ON       Image: Constant of Provide Constant of Provi		
definition       Connect the EN input to the Always ON Flag (P_On). The same instance cannot be used in two or more places.         EN input condition       - Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.         Restrictions       - Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.         Restrictions       - The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         • This FB uses Unit Error Reset, Write Data, Read Data and Save Data Bits of the Position Control Unit (see Note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of END. For the same reason, do not use these bits for coil outputs (OUT commands).         • The output variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error Reset, Write Data, Read Data and Save Data Bit is left ON.         Note:       For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, an when changing "Unit No. (UnitNO", "Axis No. (Axis)" of the input variable and set "Output enable bit (Enable)"         Application       When turning the Bit A ON from OFF, the present position of axis 1 of the Servomotor connected to the Position Control Unit with unit number 0 is read and stored in D0.         Unit No.       UnitNo.:0       ENO ENO ENO ENO ENO ENO ENO ENO ENO ENO		Read Present ON
EN input condition       -Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.         Restrictions Other       -The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         -This FB uses Unit Error Reset, Write Data, Read Data and Save Data Bits of the Position Control Unit (se Note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).         -The output variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error Reset, Write Data, Read Data and Save Data Bit is left ON.         Note:         For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, an when changing "Unit No. (UnitNo)", "Axis No. (Axis)" of the input variable and set "Output enable bit (Enable)"         Application example       Unit No. (UnitNo)", "Axis No. (Axis)" of the Servomotor connected to the Position Control Unit with unit number 0 is read and stored in D0.         Image: CPU INCF Int No. (Intit No. Unit No. Axis No.		Connect the EN input to the Always ON Flag (P_On).
Restrictions Other       -The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.         • This FB uses Unit Error Reset, Write Data, Read Data and Save Data Bits of the Position Control Unit (see Note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).         • The output variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error Reset, Write Data, Read Data and Save Data Bit is left ON.         Note:         For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, an when changing "Unit No. (UnitNo)", "Axis No. (Axis)" of the input variable and set "Output enable bit (Enable)"         Application example       When turning the Bit A ON from OFF, the present position of axis 1 of the Servomotor connected to the Position Control Unit with unit number 0 is read and stored in D0.         UnitNo::0       UnitNo::0       Sample         Always ON (P_On)       INCF204_ReadActualPosition_R EAL (BOOL)       Normal end Bit B       Bit B         UnitNo:       UnitNo       ENO(D)       Normal end Bit B       Error flag Bit C		<ul> <li>Connect the EN input to the Always ON Flag (P_On).</li> </ul>
Application example       For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, an when changing "Unit No. (UnitNo)", "Axis No. (Axis)" of the input variable and set "Output enable bit (Enable)"         Application example       When turning the Bit A ON from OFF, the present position of axis 1 of the Servomotor connected to the Position Control Unit with unit number 0 is read and stored in D0.         UnitNo::0       UnitNo::0       Servomotor Axis 1         Always ON (P_On)       Init No.       Init No.         Unit No.       Unit No.       Init No.         Unit No.       Init No.       Init No.         Init N	Restrictions	<ul> <li>The Error flag (Error) and Error code (ErrorID) for this FB reflect the status of the Memory Area in the Position Control Unit without alteration.</li> <li>This FB uses Unit Error Reset, Write Data, Read Data and Save Data Bits of the Position Control Unit (see Note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).</li> <li>The output variable of FB may not change even if EN is turned ON. In that case, check if any of Unit Error</li> </ul>
Linit No.:0 CPU NCF UnitNo.:0 Servomotor Axis 1 Sample NCF204_ReadActualPosition_R EAL (BOOL) (BOOL) EN ENO Unit No. Unit No. &0 Axis No. &1 NCF204_ReadActualPosition_R EAL (BOOL) (BOOL) EN ENO Unit No. &0 Axis No. &1 Axis S No. &1 Axis S No. &1 Axis S Error Flag Bit C		For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, and when changing "Unit No. (UnitNo)", "Axis No. (Axis)" of the input variable and set "Output enable bit (Enable)". When turning the Bit A ON from OFF, the present position of axis 1 of the Servomotor connected to the
Always ON (P_On)       NCF204_ReadActualPosition_R EAL         Unit No.       (BOOL)         Unit No.       (INT)         Axis No.       (INT)         &1       Axis		CPU NCF Servomotor
Unit No. &0 -(INT) UnitNo(BOOL) DoneNormal end Bit BAxis No. &1 -(INT) Axis(BOOL) ErrorError flag Bit C		Always ON (P_On)
&1 Axis Error Bit C		Unit No. (INT) (BOOL) Normal end
Bit A Ènable ÈrrorID D100		Output enable bit Bit A(BOOL)(WORD) EnableError codeBit AEnableErrorIDD100
(REAL) Present position Position D0		
Related manuals     Position Control Units OPERATION MANUAL (W426-E1)       12-4 Error Codes		

## Variable Tables

#### Input Variables

input fundance					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started
Unit No.	UnitNo	INT	&0	&0 to &15	Specify the unit number.
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Output enable bit	Enable	BOOL	0(OFF)		Turn ON to enable output.
-					Turn OFF to reset the output.

#### **Output Variables**

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB operating normally
				0 (OFF): FB not operating normally
				•FB not started
				<ul> <li>Input variable out of the range</li> </ul>
				•FB ended with error
				<ul> <li>Common Parameters could not be read</li> </ul>
Normal end	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in the FB.
				Refer to the <i>Related Manuals</i> for details on errors.
				A code of #0000 will be returned if any of the following
				conditions is satisfied.
				<ul> <li>Input variable is out of range.</li> </ul>
				<ul> <li>The common parameters of the Position Control Units are</li> </ul>
				out of range.
				<ul> <li>Not established communications with a specified axis.</li> </ul>
Present position	Position	REAL		The present position of the axis controlled by the Position
				Control Unit.

#### Version History

Version	Date	Contents				
1.00	2004.06.	Original production				
1.10	2005.01.	Limitation about the setting timing with " Unit No. " and " Axis No. " was removed.				
1.20	2007.11.	Limitation on reading "Present position (Position)" was removed.				

### Upgrade Details

Version	Detailed Contents
1.10	In version 1.0x, "Unit No. (UnitNo)" and "Axis No. (Axis)" must be set when EN was ON and "Output enable bit
	(Enable)" was OFF. This means not sometimes working normally when "Unit No. (UnitNo)" and "Axis No. (Axis)" are
	changed simultaneously with ON of "Output enable bit (Enable)".
	In version 1.10, this limitation was removed.
1.20	In the version 1.1x, "Present position (Position)" was not updated when an axis error occurred. Therefore, the
	accurate actual position could not be obtained when an axis was operated while an axis error occurred.
	In the version 1.20, this limitation has been removed.

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.