

| | |
|--------------------|---|
| NCF 205 | Read Present Position (DINT) _NCF205_ReadActualPosition_DINT |
|--------------------|---|

| Basic function | Reads the present position of an axis. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|----------|--|------------------|----------------------|-------------|------|-----------|----------|-------|--------|--------|-------|-------|----------|--------|--------|-------|------|----------|-------------------|--------|--------|--|--|---------|--|------------------|---------------|-------------|------|-----------|--------|--------|-----|--------|-------|-------|-----|--------|-------|-------|------|----------|-------|-------|------|
| Symbol | <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"></td> <td style="width:30%;">_NCF205_ReadActualPosition_DINT</td> <td style="width:30%;"></td> </tr> <tr> <td></td> <td>(BOOL)</td> <td>(BOOL)</td> </tr> <tr> <td></td> <td>EN</td> <td>ENO</td> </tr> <tr> <td>Unit No.</td> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>UnitNo</td> <td></td> <td>Done</td> </tr> <tr> <td>Axis No.</td> <td>(INT)</td> <td>(BOOL)</td> </tr> <tr> <td>Axis</td> <td></td> <td>Error</td> </tr> <tr> <td>Output enable bit</td> <td>(BOOL)</td> <td>(WORD)</td> </tr> <tr> <td>Enable</td> <td></td> <td>ErrorID</td> </tr> <tr> <td></td> <td></td> <td>(DINT)</td> </tr> <tr> <td></td> <td></td> <td>Position</td> </tr> </table> </div> | | _NCF205_ReadActualPosition_DINT | | | (BOOL) | (BOOL) | | EN | ENO | Unit No. | (INT) | (BOOL) | UnitNo | | Done | Axis No. | (INT) | (BOOL) | Axis | | Error | Output enable bit | (BOOL) | (WORD) | Enable | | ErrorID | | | (DINT) | | | Position | | | | | | | | | | | | | | | |
| | _NCF205_ReadActualPosition_DINT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (BOOL) | (BOOL) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EN | ENO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit No. | (INT) | (BOOL) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UnitNo | | Done | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Axis No. | (INT) | (BOOL) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Axis | | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Output enable bit | (BOOL) | (WORD) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enable | | ErrorID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (DINT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Position | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| File name | Lib\FBL\omronlib\PositionController\NCF_NCF205_ReadActualPosition_DINT12.cxf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Applicable models | <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">Position Control Unit</td> <td>CJ1W-NCF71, CS1W-NCF71</td> </tr> <tr> <td>CPU Unit</td> <td>CS1*-CPU**H Unit Version 3.0 or later CJ1*-CPU**H Unit Version 3.0 or later CJ1M-CPU** Unit Version 3.0 or later CP1H</td> </tr> <tr> <td>CX-Programmer</td> <td>Version 5.0 or later</td> </tr> </table> | Position Control Unit | CJ1W-NCF71, CS1W-NCF71 | CPU Unit | CS1*-CPU**H Unit Version 3.0 or later CJ1*-CPU**H Unit Version 3.0 or later CJ1M-CPU** Unit Version 3.0 or later CP1H | CX-Programmer | Version 5.0 or later | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Position Control Unit | CJ1W-NCF71, CS1W-NCF71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CPU Unit | CS1*-CPU**H Unit Version 3.0 or later CJ1*-CPU**H Unit Version 3.0 or later CJ1M-CPU** Unit Version 3.0 or later CP1H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CX-Programmer | Version 5.0 or later | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Languages in function block definitions | Ladder programming | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conditions for usage | <p>The following conditions for usage should be the Position Control Unit version 1.2 or earlier. (It will not be required in the Position Control Unit version 1.3 or later)</p> <p>■CX-Programmer Setting</p> <p>The function blocks related to the Position Control Units will not operate if the area H512 or higher (default setting) is specified as the Non Retain Area through the Function block memory allocation. Make sure to change the memory area to unused area (DM or EM, for example) from the CX-Programmer. To change this value, click PLC/Function Block Memory/Function Block Memory Allocation from the Menu Bar.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> <table style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4">Function Block Memory Allocation [NewPLC1]</th> </tr> <tr> <th>FB Instance Area</th> <th>Start Address</th> <th>End Address</th> <th>Size</th> </tr> <tr> <td>No Retain</td> <td>H512</td> <td>H1407</td> <td>896</td> </tr> <tr> <td>Retain</td> <td>H1408</td> <td>H1535</td> <td>128</td> </tr> <tr> <td>Timers</td> <td>T3072</td> <td>T4095</td> <td>1024</td> </tr> <tr> <td>Counters</td> <td>C3072</td> <td>C4095</td> <td>1024</td> </tr> </table> </div> <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Specify unused area. The required size varies depending on the used FB and the number of FBs. If an area being used in the ladder program is specified or sufficient free space cannot be found, the CX-Programmer will display a compile error.</p> </div> <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> <table style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4">Function Block Memory Allocation [NewPLC1]</th> </tr> <tr> <th>FB Instance Area</th> <th>Start Address</th> <th>End Address</th> <th>Size</th> </tr> <tr> <td>No Retain</td> <td>D32020</td> <td>D32767</td> <td>748</td> </tr> <tr> <td>Retain</td> <td>H1408</td> <td>H1535</td> <td>128</td> </tr> <tr> <td>Timers</td> <td>T3072</td> <td>T4095</td> <td>1024</td> </tr> <tr> <td>Counters</td> <td>C3072</td> <td>C4095</td> <td>1024</td> </tr> </table> </div> <p>For example, to use the memory area from D32020 to D32767 (748 words), specify the addresses as shown in the left.</p> | Function Block Memory Allocation [NewPLC1] | | | | FB Instance Area | Start Address | End Address | Size | No Retain | H512 | H1407 | 896 | Retain | H1408 | H1535 | 128 | Timers | T3072 | T4095 | 1024 | Counters | C3072 | C4095 | 1024 | Function Block Memory Allocation [NewPLC1] | | | | FB Instance Area | Start Address | End Address | Size | No Retain | D32020 | D32767 | 748 | Retain | H1408 | H1535 | 128 | Timers | T3072 | T4095 | 1024 | Counters | C3072 | C4095 | 1024 |
| Function Block Memory Allocation [NewPLC1] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB Instance Area | Start Address | End Address | Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No Retain | H512 | H1407 | 896 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Retain | H1408 | H1535 | 128 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Timers | T3072 | T4095 | 1024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Counters | C3072 | C4095 | 1024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Function Block Memory Allocation [NewPLC1] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FB Instance Area | Start Address | End Address | Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No Retain | D32020 | D32767 | 748 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Retain | H1408 | H1535 | 128 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Timers | T3072 | T4095 | 1024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Counters | C3072 | C4095 | 1024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Function description | <p>The present position of the axis of the specified Unit No. (UnitNo) and Axis No. (Axis) is continuously updated in the "Present position (Position)" while the Output enable bit (Enable) is ON. When the Output enable bit (Enable) turns OFF, the "Present position (Position)" is cleared to all zeros.</p> <p>The Normal end (Done) turns ON when the present position data is valid.</p> <p>The Error flag (error) will be turned ON and the Error code (ErrorID) will be output if an error occurs for the FB. (They will not be turned ON when axis errors occurs.)</p> <p>This status will be reset then the Output enable bit (Enable) turns OFF.</p> <p>These status(Done/Error/ErrorID) will be reset then the Output enable bit (Enable) turns OFF.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|------------------------------|---|
| | |
| Kind of FB definition | <p>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.</p> |
| EN input condition | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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. <p>Note: For calculation of bit addresses, these bits are referenced in this FB in the first execution of each instance, and when changing "Unit No. (UnitNo)", "Axis No. (Axis)" of the input variable and set "Output Enable Bit (Enable)".</p> |
| Application example | <p>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.</p> |
| Related manuals | <p>Position Control Units OPERATION MANUAL (W426-E1) 12-4 Error Codes</p> |

■ Variable Tables

Input Variables

| Name | Variable name | Data type | Default | Range | Description |
|-------------------|---------------|-----------|---------|-----------|--|
| EN | EN | BOOL | | | 1 (ON): FB started 0 (OFF): FB not started |
| Unit No. | UnitNo | INT | &0 | &0 to &15 | Specify the unit number. |
| Axis No. | Axis | INT | &1 | &1 to &16 | Specify the axis number. |
| 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 <ul style="list-style-type: none"> •FB not started •Input variable out of the range •FB ended with error •Common Parameters could not be read |
| 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 style="list-style-type: none"> •Input variable is out of range. •The common parameters of the Position Control Units are out of range. •Not established communications with a specified axis. |
| Present position | Position | DINT | | 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.