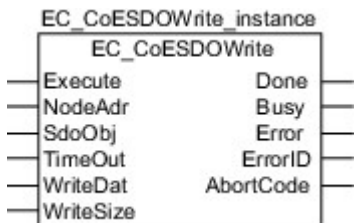# EC_CoESDOWrite

The EC_CoESDOWrite instruction writes a value to a CoE (CAN Application Protocol over EtherCAT) object of a specified slave on the EtherCAT network.

| Instruction | Name | FB/<br>FUN | Graphic expression | ST expression |
|---|---|---|---|---|
| EC_CoESDOWrite | Write EtherCAT CoE SDO | FB | EC_CoESDOWrite_instance<br>EC_CoESDOWrite<br>— Execute      Done —<br>— NodeAdr      Busy —<br>— SdoObj       Error —<br>— TimeOut     ErrorID —<br>— WriteDat   AbortCode —<br>— WriteSize | EC_CoESDOWrite_instance(Execute, NodeAdr, SdoObj, TimeOut, WriteDat, WriteSize, Done, Busy, Error, ErrorID, AbortCode); |

## Variables

|  | Meaning | I/O | Description | Valid range | Unit | Default |
|---|---|---|---|---|---|---|
| NodeAdr | Slave node address | Input | Node address of the slave to access | 1 to 512 *1 | --- | --- |
| SdoObj | SDO parameter | | SDO parameter | --- | | |
| TimeOut | Timeout time | | 0: 2.0 s<br>1 to 65535: 0.1 to 6553.5 s | Depends on data type. | 0.1 s | 20<br>(2.0 s) |
| WriteDat | Write data | | Write data | | --- | --- |
| WriteSize | Write data size | | Write data size *2 | 1 to 2048 | Bytes | |
| AbortCode | Abort code | Output | Response code for SDO access specified by CoE | Depends on data type. | --- | --- |

|  |  |  | 0: Normal end |  |  |  |

*1 The range is 1 to 256 for the NX502 CPU Unit.The range is 1 to 192 for the NX102 CPU Unit, NX1P2 CPU Unit, and NJ-series CPU Unit.

*2 The write data size may be less than 1 byte, e.g., if the write data is BOOL or a BOOL array. If it is less than 1 byte, set the value of WriteSize to 1.

| | Boolean | Bit strings | | | | Integers | | | | | | | | Real numbers | | Times, durations, dates, and text strings | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BOOL | BYTE | WORD | DWORD | LWORD | USINT | UINT | UDINT | ULINT | SINT | INT | DINT | LINT | REAL | LREAL | TIME | DATE | TOD | DT | STRING |
| NodeAdr | | | | | | | OK | | | | | | | | | | | | | |
| SdoObj | Refer to EC_CoESDOWrite for details on the structure _sSDO_ACCESS. | | | | | | | | | | | | | | | | | | | |
| TimeOut | | | | | | | OK | | | | | | | | | | | | | |
| WriteDat | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK | OK |
| | An enumeration, array, array element, structure member, or union member can also be specified. | | | | | | | | | | | | | | | | | | | |
| WriteSize | | | | | | | OK | | | | | | | | | | | | | |
| AbortCode | | | | OK | | | | | | | | | | | | | | | | |

## Function

The EC_CoESDOWrite instruction writes data to the CoE object of the node specified with slave node address NodeAdr.

The content of WriteDat is written to the object. The size of data to write is specified with WriteSize.

The SDO parameter is specified with SdoObj.

The data type of SdoObj is structure _sSDO_ACCESS. The specifications are as follows:

| Name | | Meaning | Description | Data type | Valid range | Unit | Default |
|---|---|---|---|---|---|---|---|
| SdoObj | | SDO parameter | SDO parameter | _sSDO_ACCESS | --- | --- | --- |
| | Index | Index | Index number in the object dictionary defined in CoE | UINT | 1 to 65535 | --- | --- |
| | Subindex | Subindex | Subindex number in the object dictionary defined in CoE | USINT | Depends on data type. | | |
| | IsCompleteAccess | Complete access | Specification of complete access of SDO<br>TRUE: Access data for all subindexes<br>FALSE: Access data for the specified subindex | BOOL | | | |

After the write is completed, the instruction waits for a response for the period of time specified with TimeOut.

The response is stored in AbortCode.

AbortCode is 0 for a normal response. A value is stored in AbortCode only when the value of ErrorID is 16#1804 (SDO abort response).

The value and meaning of AbortCode depend on the slave. Refer to the manual for the slave.

The following figure shows a timing chart. A value is stored in AbortCode when Busy changes to FALSE after the completion of instruction processing.
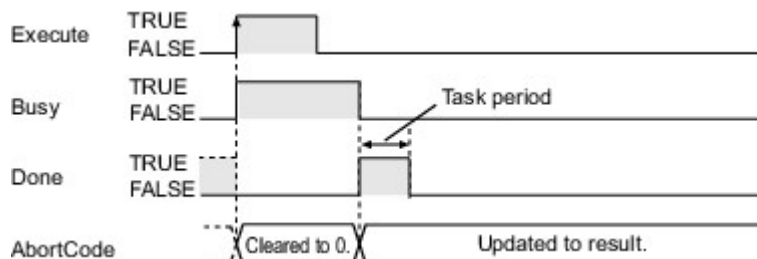
## Related System-defined Variables

| Name | Meaning | Data type | Description |
|---|---|---|---|
| _EC_MBXSlavTbl[i]<br><br>"i" is the node address. | Message Communications Enabled Slave Table | BOOL | This variable indicates whether communications are possible for each slave.<br>TRUE: Communications are possible.<br>FALSE: Communications are not possible. |

## Additional Information

- Refer to the NJ/NX-series CPU Unit Built-in EtherCAT Port User's Manual (Cat. No. W505) or NY-series IPC Machine Controller Industrial Panel PC / Industrial Box PC Built-in EtherCAT Port User's Manual (Cat.No. W562) for details on EtherCAT communications.

- Refer to SDO Abort Codes for the SDO abort codes.

## Precautions for Correct Use

- Always use a variable for the input parameter to pass to WriteDat. A building error will occur if a constant is passed.

- Execution of this instruction is continued until completed even if the value of Execute changes to FALSE or the execution time exceeds the task period. The value of Done changes to TRUE when processing is completed. Use this to confirm normal completion of the execution.

- Refer to Using this Section for a timing chart for Execute, Done, Busy, and Error.

- This instruction can be used only for the NJ/NX-series and NY-series EtherCAT ports.

- You can execute a maximum of 32 of the following instructions at the same time: EC_CoESDOWrite, EC_CoESDORead, EC_StartMon, EC_StopMon, EC_SaveMon, EC_CopyMon, EC_DisconnectSlave, EC_ConnectSlave, EC_ChangeEnableSetting, EC_GetMasterStatistics, EC_ClearMasterStatistics, EC_GetSlaveStatistics, EC_ClearSlaveStatistics, IOL_ReadObj, and IOL_WriteObj.

- An error will occur in the following cases. Error will change to TRUE.

a.   The EtherCAT master is not in a state that allows message communications.

b.   The slave specified with NodeAdr does not exist.

c.   The slave specified with NodeAdr is not in a state that allows communications.

d.   The slave returns an error response.

e.   More than 32 of the following instructions were executed at the same time: EC_CoESDOWrite, EC_CoESDORead, EC_StartMon, EC_StopMon, EC_Save Mon, EC_CopyMon, EC_DisconnectSlave, EC_ConnectSlave, EC_ChangeEnableSetting, EC_GetMasterStatistics, EC_ClearMasterStatistics, EC_GetSlave Statistics, EC_ClearSlaveStatistics, IOL_ReadObj, and IOL_WriteObj.