

WWW.SCHMALZ.COM

**Note**

This document were originally written in German and have been translated into English.  
Store in a safe place for future reference.

Subject to technical changes without notice. No responsibility is taken for printing or other types of errors.

**Published by**

© J. Schmalz GmbH, 03.2020

This document is protected by copyright. J. Schmalz GmbH retains the rights established thereby. Reproduction of the contents, in full or in part, is only permitted within the limits of the legal provisions of copyright law. Any modifications to or abridgments of the document are prohibited without explicit written agreement from J. Schmalz GmbH.

**Contact**

J. Schmalz GmbH  
Johannes-Schmalz-Str. 1  
72293 Glatten, Germany

Tel. +49 (0) 7443 2403-0  
Fax +49 (0) 7443 2403-259  
schmalz@schmalz.de  
www.schmalz.com

Contact information for Schmalz companies and trade partners worldwide can be found at

 [www.schmalz.com/salesnetwork](http://www.schmalz.com/salesnetwork)

# Table of contents

1	Function block “FB_SCTSi_ETH_ISDU” .....	4
1.1	Brief description .....	4
1.2	Image of function block.....	4
1.3	Parameter - Input .....	5
1.4	Parameter - Output .....	5
1.5	Additional information .....	6
1.5.1	EtherCat.....	6
1.5.2	Profinet.....	6
2	Appendix .....	7
2.1	List of abbreviations .....	7
2.2	Note.....	7
2.3	Extended Error Code (ISDU Errors) .....	7

# 1 Function block "FB\_SCTSi\_ETH\_ISDU"

## 1.1 Brief description

This function block is used to set IO-Link parameters (ISDU) of an IO-Link master of a SCTSi Ethernet, to read or write.

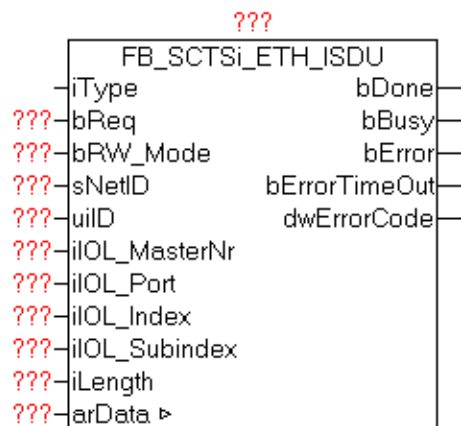
### Systems:

- Beckhoff TwinCAT 2 – EtherCat
- Beckhoff TwinCAT 2 – Profinet

Please refer to the respective parameter lists for the documents of the corresponding products.

## 1.2 Image of function block

Example of function block:



### 1.3 Parameter - Input

name	data type	description
iType	INT	Select the system: 0 = EtherCat 1 = Profinet
bReq	BOOL	Execute the read or write process
brW_Mode	BOOL	Select the mode: 0 = Read 1 = Write
sNetId	STRING	Specification of the network identifier (in decimal notation, Example: '5.31.231.105.2.1')
uiID	UINT	Address of the desired ID
iIOL_MasterNr	INT	Number of the desired IO-Link master: 1 = IO-Link Master 1 2 = IO-Link Master 2
iIOL_Port	INT	Number of the desired port of the IO-Link master: 1 = Port 1 2 = Port 2 3 = Port 3 4 = Port 4
iIOL_Index	INT	Index of the object to be used
iIOL_Subindex	INT	Subindex of the object to be used
iLength	INT	Number of data to be used in bytes (only necessary when writing)
arData	ARRAY [0..231] OF BYTE	Address (pointer) to the data buffer: Read -> read data available Write -> enter data to be written

### 1.4 Parameter - Output

name	data type	description
bDone	BOOL	Record was read or transferred
bBusy	BOOL	Is active during the processing of the process until a feedback occurs
bError	BOOL	Will be activated if an error has occurred
bErrorTimeOut	BOOL	Will be activated if an error has occurred
dwErrorCode	DWORD	Returns the ADS error code of the last executed command or the ISDU error code in case of an error

## 1.5 Additional information

In order to perform the required functions, library blocks were used. For the block described here to work, the PLC library "TcEtherCAT.Lib" must be integrated into the project. Furthermore, the function module "FB\_PARA\_RW\_ETH" from Schmalz must be included.

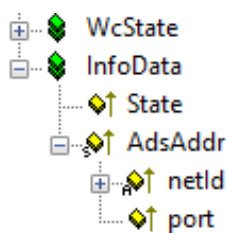
The error code for ISDU errors refers to the error codes in the document "IOL-Interface-Spec\_10002\_V112\_Jul13".

So that data can be read from the object directory of an EtherCAT slave, the slave must have a mailbox and support the "CANopen over EtherCAT" (CoE) protocol.

### 1.5.1 EtherCat

The necessary network identifier can be found in the System Manager. Select the desired device and enter the values under "netId" in sNetID and "port" in uiID.

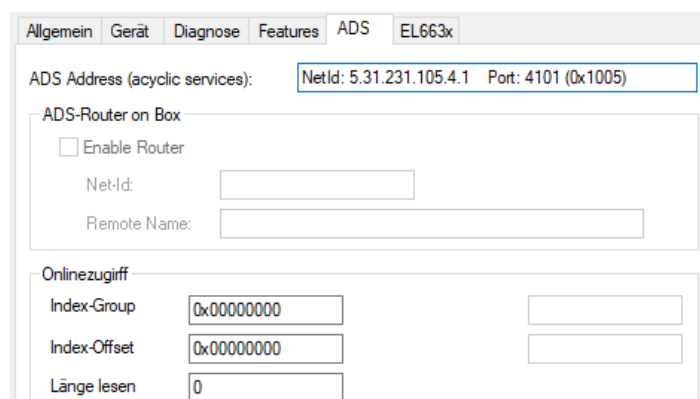
Example EtherCat – network ID:



### 1.5.2 Profinet

The Profinet also shows the necessary network ID to the System Manager. Select the desired device, change to the tab "ADS" and enter the values "NetId" in sNetID and "Port" in uiID.

Example Profinet – network ID:



Algemein	Gerät	Diagnose	Features	ADS	EL663x
ADS Address (acyclic services): NetId: 5.31.231.105.4.1 Port: 4101 (0x1005)					
ADS-Router on Box <input type="checkbox"/> Enable Router Net-Id: <input type="text"/> Remote Name: <input type="text"/>					
Onlinezugriff Index-Group: <input type="text" value="0x00000000"/> Index-Offset: <input type="text" value="0x00000000"/> Länge lesen: <input type="text" value="0"/>					

## 2 Appendix

### 2.1 List of abbreviations

abbreviation	description
FB	Function block
EPC	Energy- and Processcontrol
CM	Condition Monitoring
EM	Energy Monitoring
PM	Predictive Maintenance

### 2.2 Note

- The byte order of the product is represented as big endian.

### 2.3 Extended Error Code (ISDU Errors)

See also „IOL-Interface-Spec\_10002\_V112\_Jul13“.

Extended Error Code	Ereignis
0x8000	Device application error – no details
0x8011	Index not available
0x8012	Subindex not available
0x8020	Service temporarily not available
0x8021	Service temporarily not available – local control
0x8022	Service temporarily not available – Device control
0x8023	Access denied
0x8030	Parameter value out of range
0x8031	Parameter value above limit
0x8032	Parameter value below limit
0x8033	Parameter length overrun
0x8034	Parameter length underrun
0x8035	Function not available
0x8036	Function temporarily unavailable
0x8040	Invalid parameter set
0x8041	Inconsistent parameter set
0x8082	Application not ready
0x8100	Vendor specific
0x8101 to 0x81FF	Vendor specific

## At your service worldwide



● **Headquarters**  
Hauptsitz

Schmalz Germany – Glatten

● **Sales and production companies**  
Vertriebs- und Produktionsgesellschaften

Schmalz China – Shanghai  
Schmalz India – Pune  
Schmalz Japan – Yokohama  
Schmalz USA – Raleigh (NC)

● **Sales companies**  
Vertriebsgesellschaften

Schmalz Australia – Melbourne  
Schmalz Benelux – Hengelo (NL)  
Schmalz Canada – Mississauga  
Schmalz Finland – Vantaa  
Schmalz France – Champs-sur-Marne  
Schmalz Italia – Novara  
Schmalz Mexiko – Querétaro

Schmalz Poland – Suchy Las (Poznan)  
Schmalz Russia – Moskow  
Schmalz South Korea – Anyang  
Schmalz Spain – Erandio (Vizcaya)  
Schmalz Switzerland – Nürensdorf  
Schmalz Turkey – Istanbul

• **Sales partners**  
Vertriebspartner

You can find the Schmalz sales partner in your country at:  
**WWW.SCHMALZ.COM/SALESNETWORK**

Den Schmalz Vertriebspartner in Ihrem Land finden Sie auf:  
**WWW.SCHMALZ.COM/VERTRIEBSNETZ**

**J. Schmalz GmbH**  
Johannes-Schmalz-Str. 1  
72293 Glatten, Germany  
T: +49 7443 2403-0  
schmalz@schmalz.de  
WWW.SCHMALZ.COM

Version 01 | 03.2020