

TECH NOTE :: DSE with EtherCAT

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Status: HBM: Public

Brief instruction

This is an instruction for using the EtherCAT protocol for communication between DSE and a PLC. In this example it is shown which steps are necessary to establish this connection using the TwinCAT software by Beckhoff.

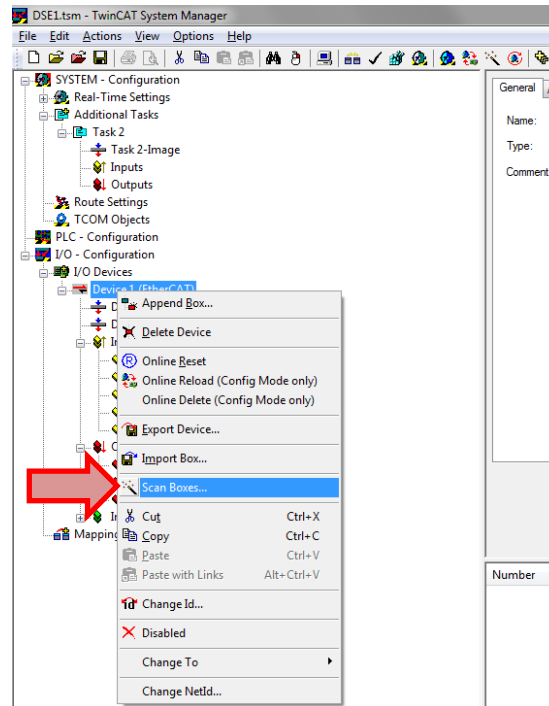
Note: For this example the software TwinCAT 2.11 is used.



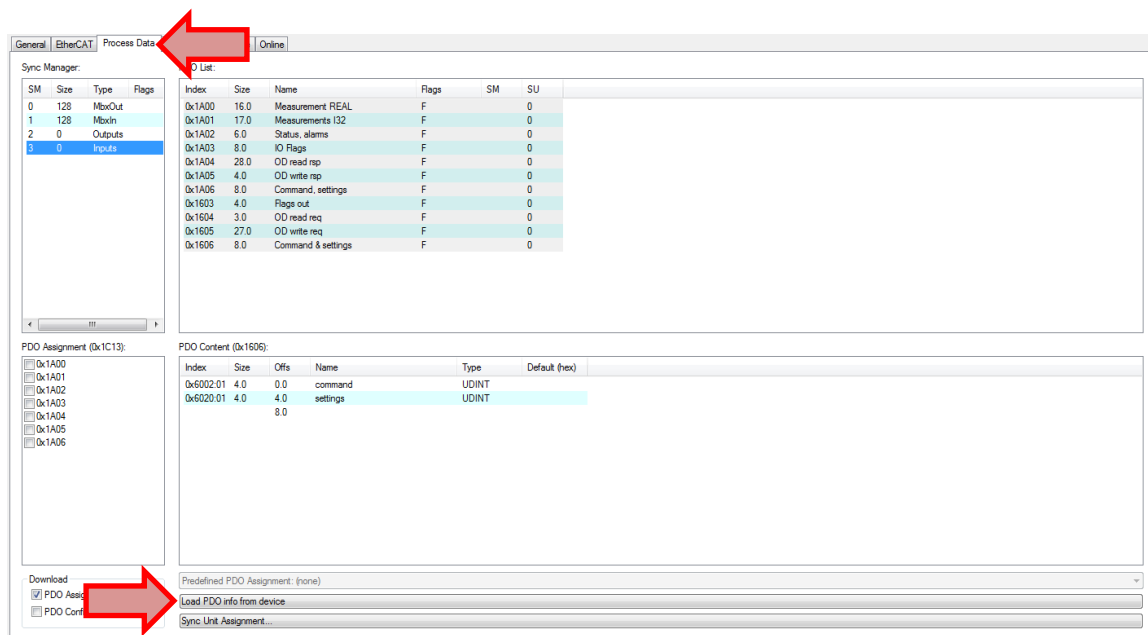
Carry out

The EtherCAT protocol must be activated in DSE.

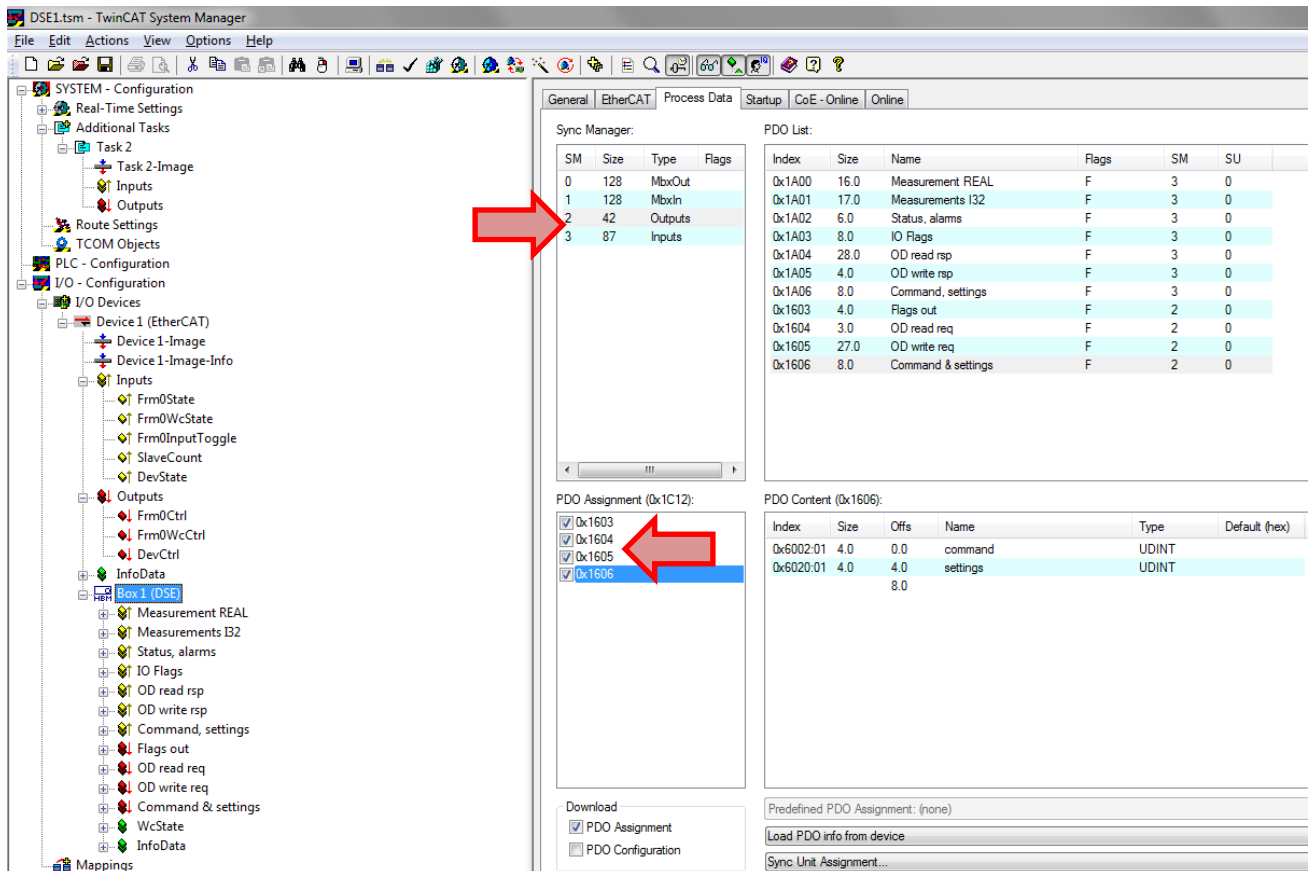
- Open the TwinCAT software
- Create a new project
- Add the EtherCAT master and after that, scan for boxes



- Add the DSE
- Double click DSE
- In the tab 'Process Data' select the 'Load PDO info from device' button



- In the 'Sync Manager' select 'Inputs' and after that 'Outputs'
- Add the signals that should be transmitted in the 'PDO Assignment'



Sync Manager:

SM	Size	Type	Flags
0	128	MbxOut	
1	128	MbxIn	
2	42	Outputs	
3	87	Inputs	

PDO List:

Index	Size	Name	Flags	SM	SU
0x1A00	16.0	Measurement REAL	F	3	0
0x1A01	17.0	Measurements I32	F	3	0
0x1A02	6.0	Status, alarms	F	3	0
0x1A03	8.0	IO Flags	F	3	0
0x1A04	28.0	OD read rsp	F	3	0
0x1A05	4.0	OD write rsp	F	3	0
0x1A06	8.0	Command, settings	F	3	0
0x1603	4.0	Flags out	F	2	0
0x1604	3.0	OD read req	F	2	0
0x1605	27.0	OD write req	F	2	0
0x1606	8.0	Command & settings	F	2	0

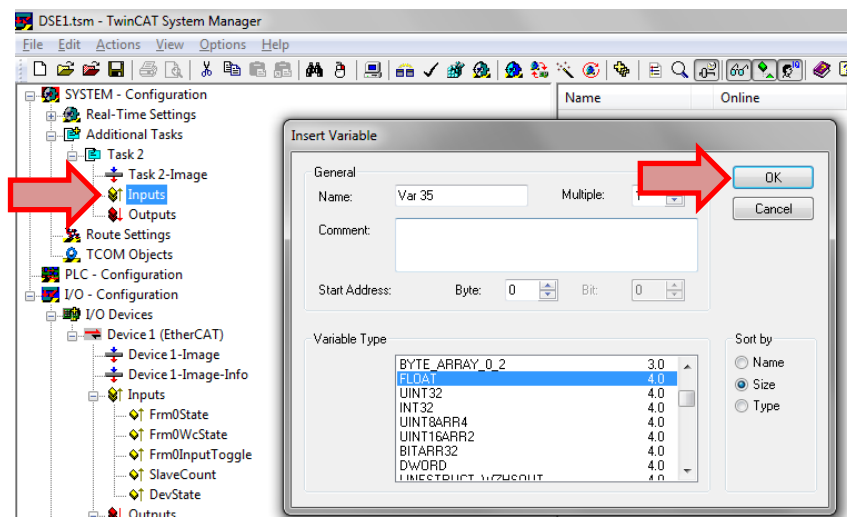
PDO Assignment (0x1C12):

Index	Size	Name	Type	Default (hex)
0x1602.01	4.0	0.0 command	UDINT	
0x1602.01	4.0	4.0 settings	UDINT	
		8.0		

PDO Content (0x1606):

Index	Size	Offs	Name	Type	Default (hex)
0x1602.01	4.0	0.0	command	UDINT	
0x1602.01	4.0	4.0	settings	UDINT	
		8.0			

- At 'Task' right click on 'Inputs' and add a new variable



Insert Variable

General

Name: Var 35 Multiple: ☐

Comment:

Start Address: Byte: 0 Bit: 0

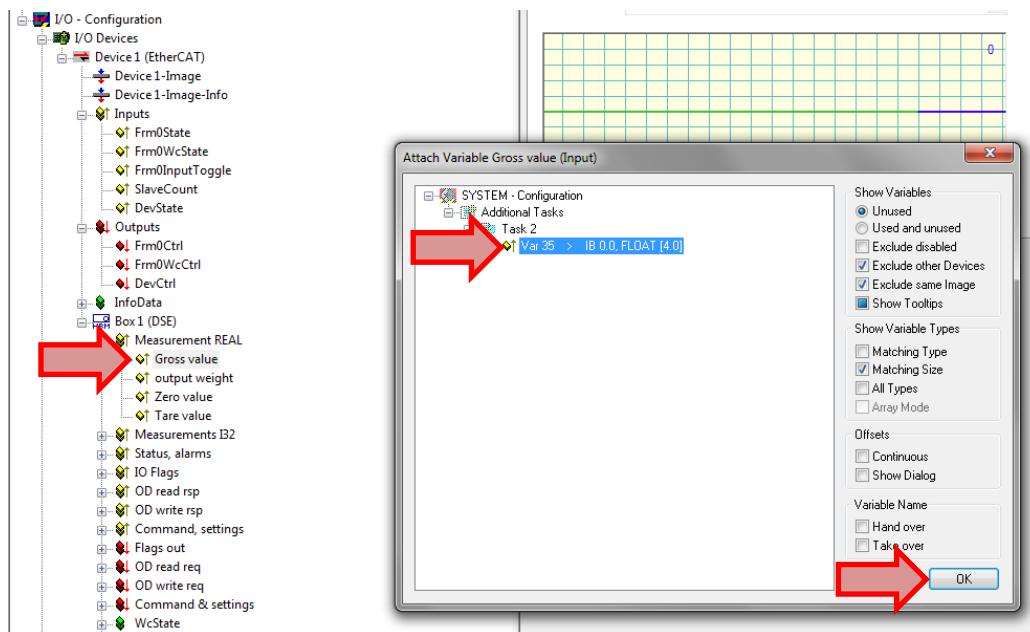
Variable Type

Variable Type	Size
BYTE_ARRAY_0_2	3.0
FLOAT	4.0
UINT32	4.0
INT32	4.0
UINT8ARR4	4.0
UINT16ARR2	4.0
BITARR32	4.0
DWORD	4.0
TIME_TSTRUCT_122000000	4.0

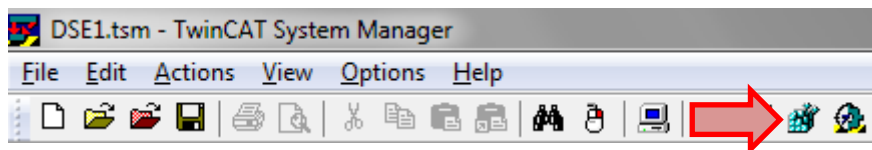
Sort by: ☐ Name ☒ Size ☐ Type

OK Cancel

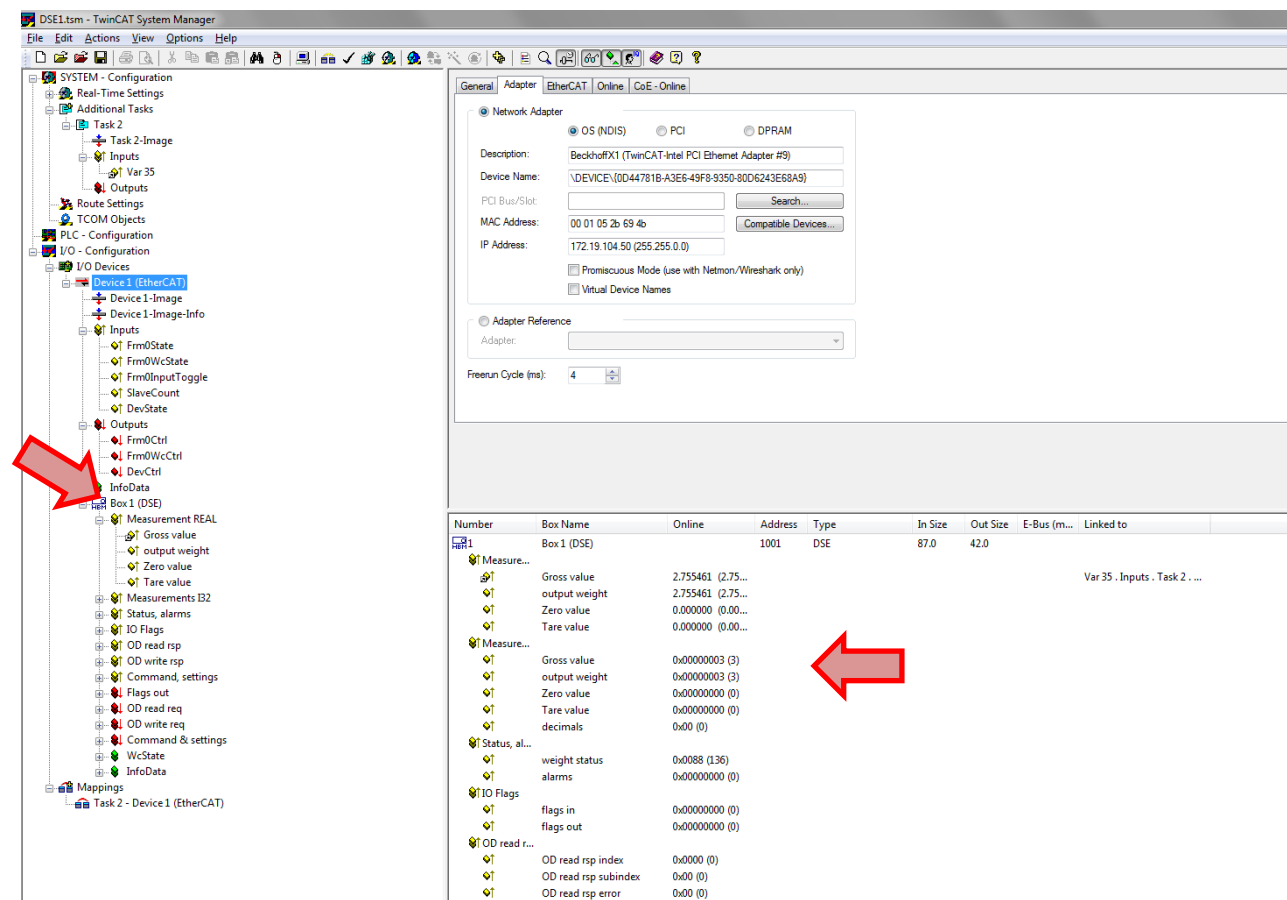
- In the left menu at 'Box 1 (DSE)' double click a random variable/signal
- Assign it to the task variable



- Apply the configuration and set the cpu mode to 'run'



- Now all channels are available with live values



Number	Box Name	Online	Address	Type	In Size	Out Size	E-Bus (m...	Linked to
1	Box 1 (DSE)		1001	DSE	87.0	42.0		
	Measure...							
	Gross value	2.755461 (2.75...						Var 35 . Inputs . Task 2
	output weight	2.755461 (2.75...						
	Zero value	0.000000 (0.00...						
	Tare value	0.000000 (0.00...						
	Measure...							
	Gross value	0x00000003 (3)						
	output weight	0x00000003 (3)						
	Zero value	0x00000000 (0)						
	Tare value	0x00000000 (0)						
	decimals	0x00 (0)						
	Status, al...							
	weight status	0x0088 (136)						
	alarms	0x00000000 (0)						
	IO Flags							
	flags in	0x00000000 (0)						
	flags out	0x00000000 (0)						
	OD read r...							
	OD read rsp index	0x0000 (0)						
	OD read rsp subindex	0x00 (0)						
	OD read rsp error	0x00 (0)						

Disclaimer

These examples are for illustrative purposes only. They cannot be used as the basis for any warranty or liability claims.