DATA PANEL
POWERED BY MURRELEKTRONIK

Quickstart Guide xDB -5-200

Prerequisites:

- IFM control / display control
- CODESYS 3.5 with necessary packages
- DATA PANEL xtremeDB (DP-34044-5-200) module + accessories
- DC 12 / 24 V supply

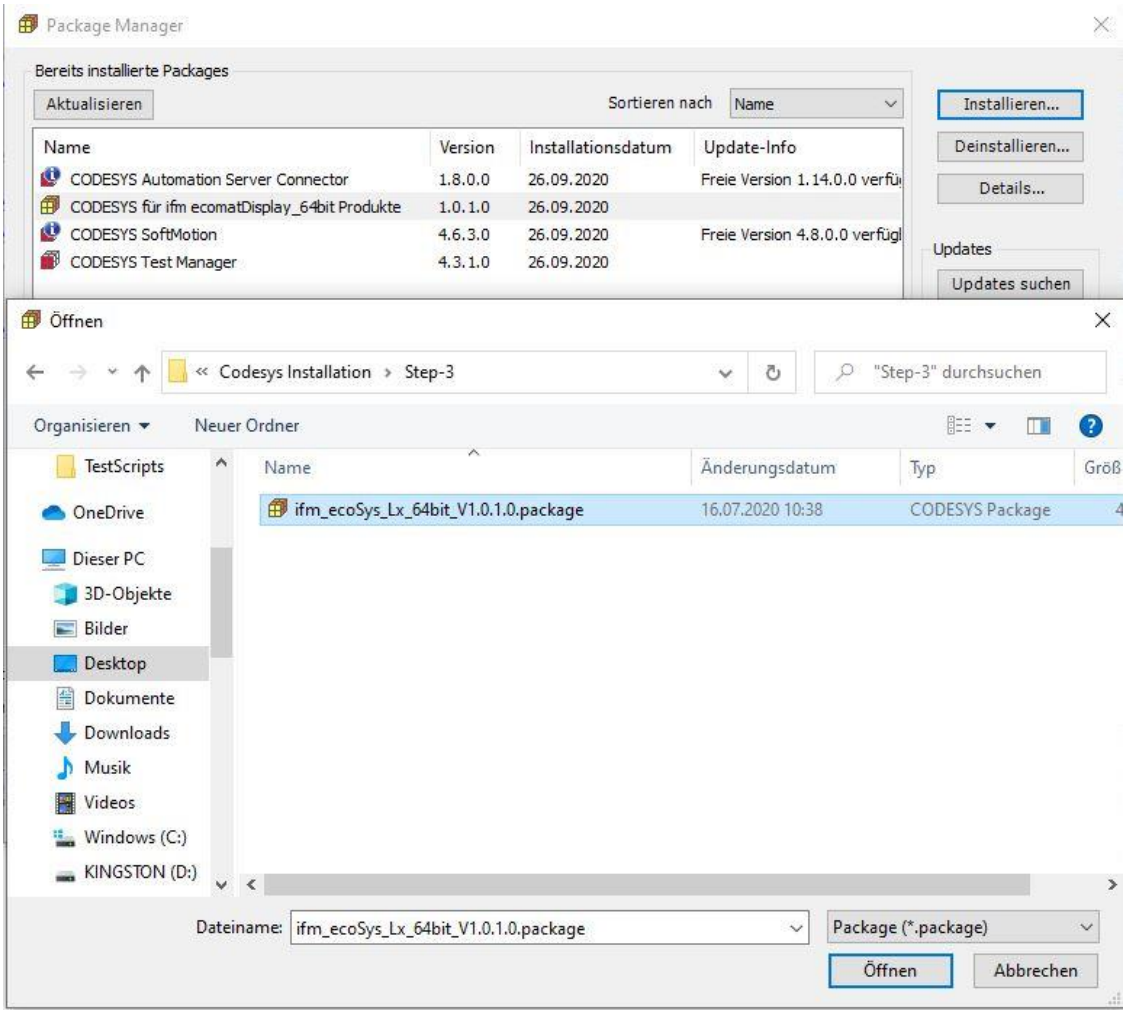
CODESYS PREPARE

Prepare CODESYS

Depending on the type of controller you are working with, the corresponding packages must be installed in CODESYS.

The packages for the respective controller are supplied or you can obtain them from the manufacturer's website or the CODESYS Store. A login may be required for the download.

- Open CODESYS
- In the taskbar at the top via "**Tools -> Package Manager... "** open the package manager
- Right click on **"Install..."** and install the corresponding package
- In the following example the integration of an ifm display control is described



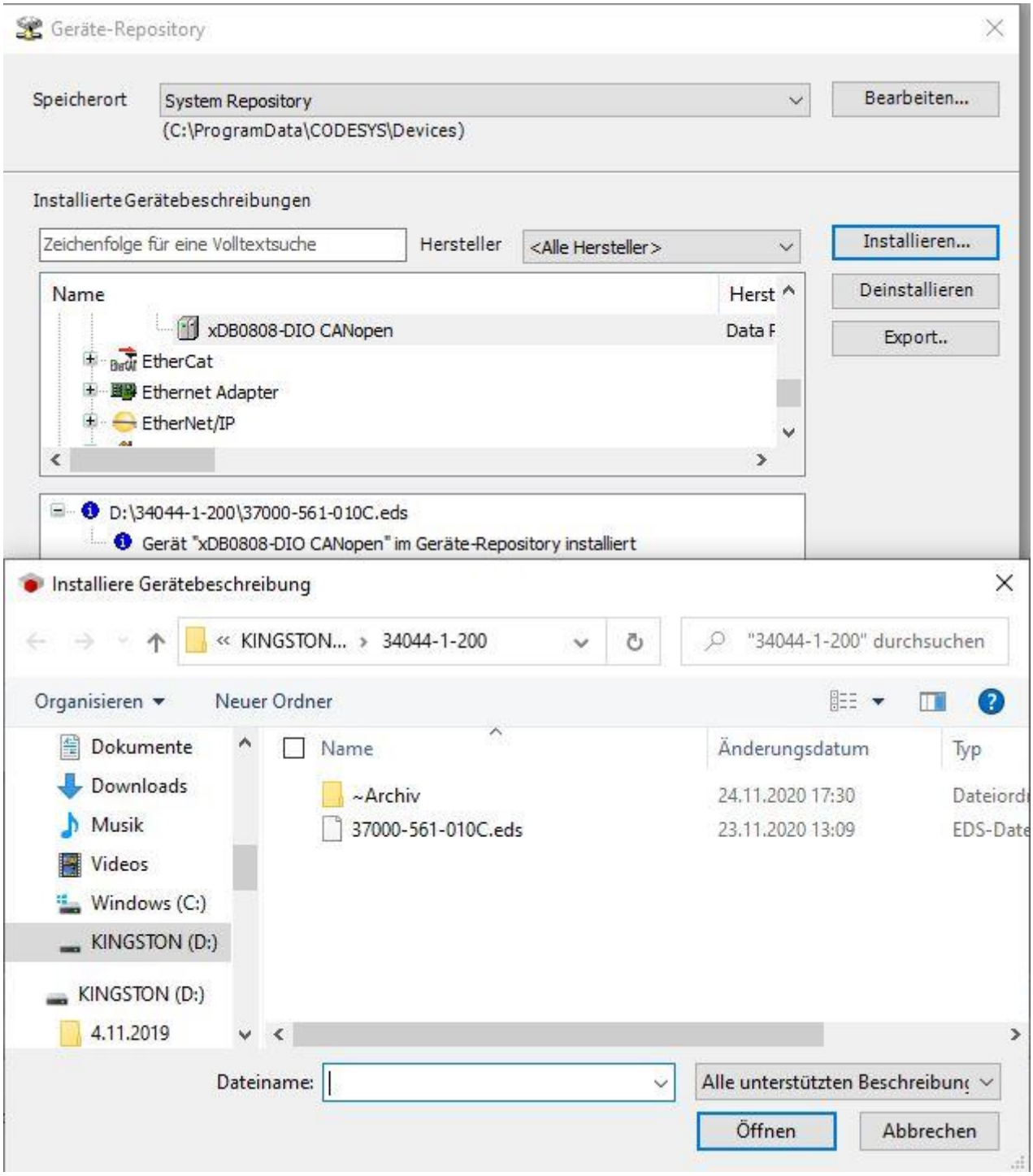
- Double-click or "Open" to install the package (this may take a moment)
- If the installation was successful, a corresponding message appears

CODESYS PREPARE

Install EDS device file

- Open the device repository via **"Tools->Device Repository" in the** taskbar at the top.
- A new device can be installed via the **"Install..."** button
- **Double-click** on the desired file, alternatively select and **open** the ***.eds file** manually. The device appears in the list of added devices

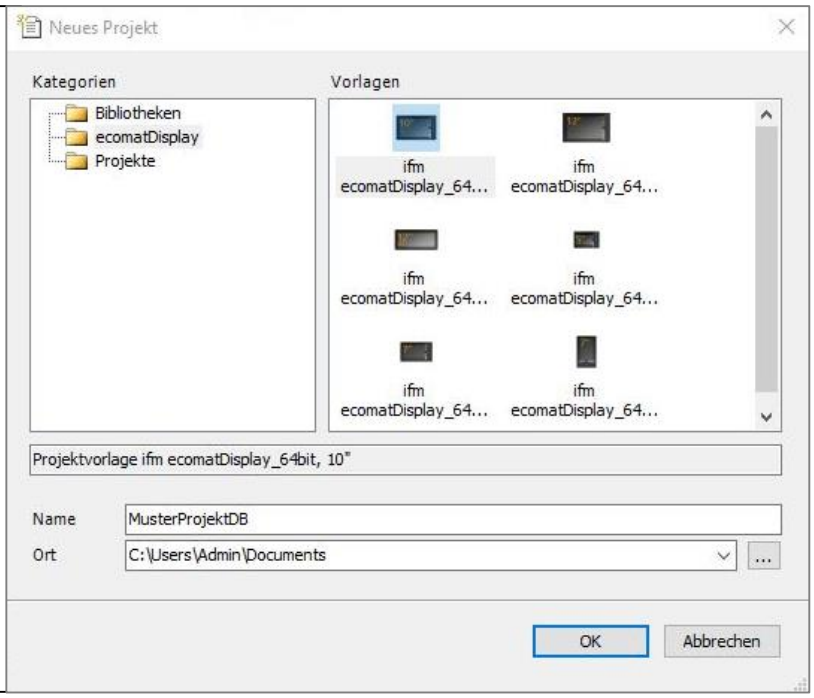
The permalink below always leads to the latest firmware and *.eds file:
https://drive.google.com/file/d/13cXGUYYZOG3lUt_rOJ86NG2fMGVgUtkJ/view



CODESYS PREPARE

CODESYS project

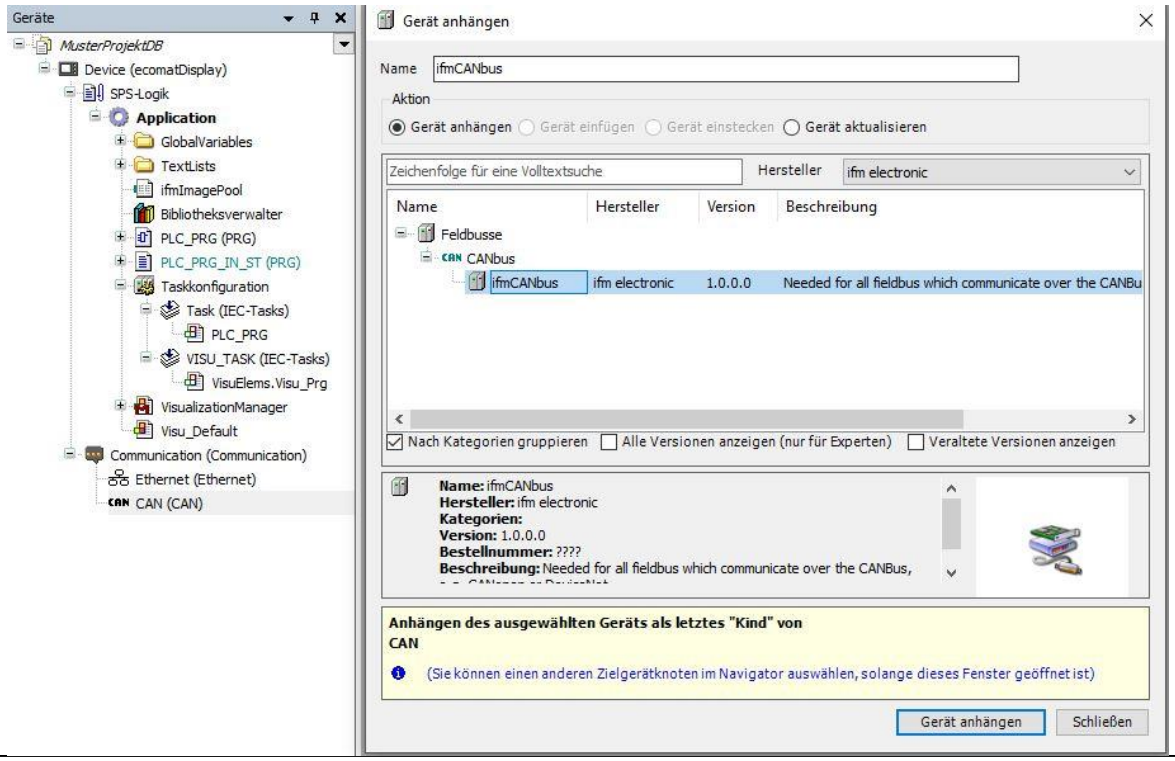
- Open CODESYS
- Create a new project via **File -> New** project
- Select the corresponding control via the library and confirm with **OK.** The action may take some time.



CAN communication

- Open the "Communication" node and right-click on "CAN -> Attach device".
- Select "ifm" under the manufacturer and append the "ifmCANbus
- Close window

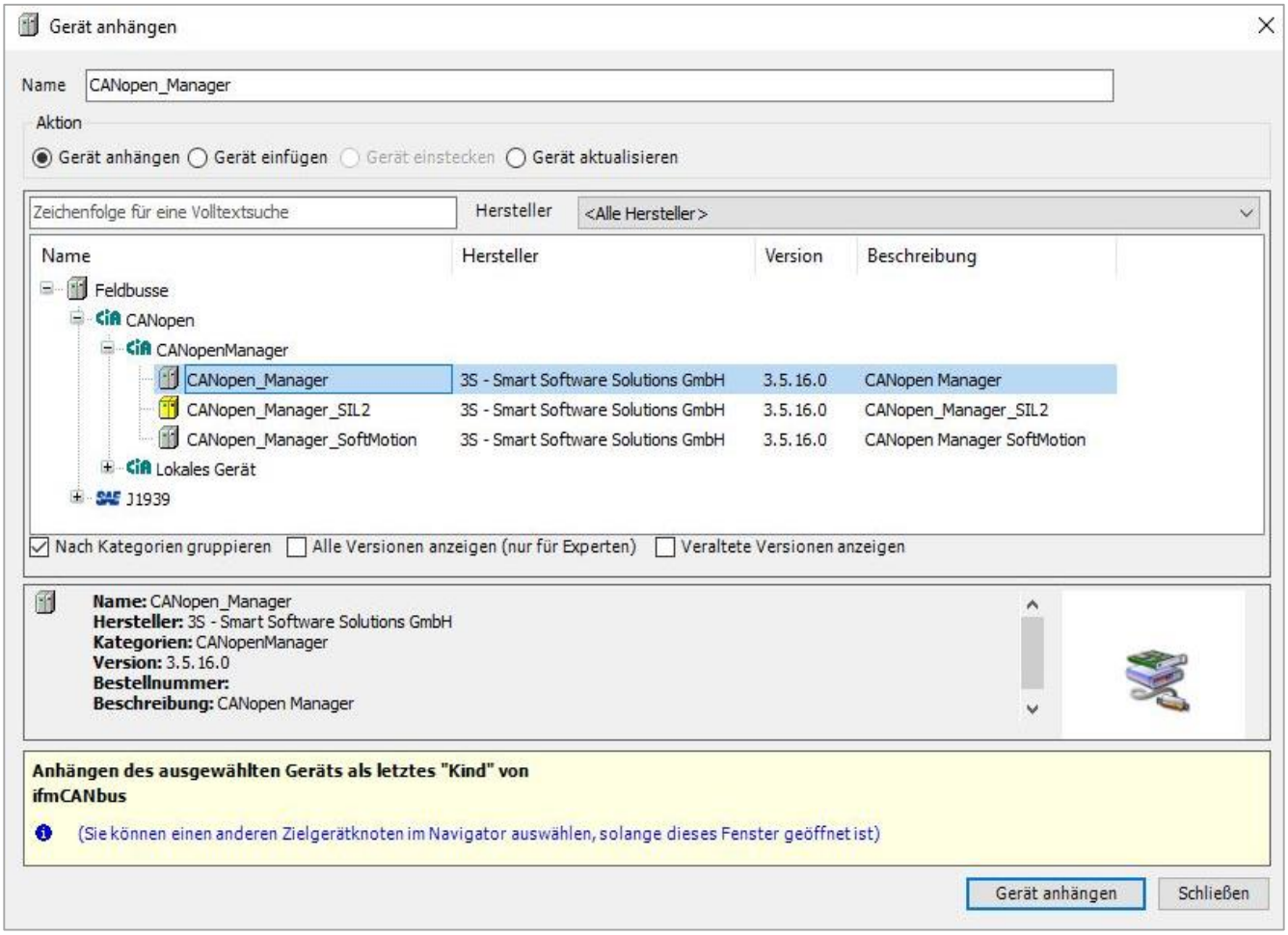
The controller must be CANopen capable. If you want to work with SAE J1939, you can find a CODESYS function block for our modules under the following links:
V2.3: https://www.data-panel.eu/media/archive/CODESYS-23-Demo-DP-34044-x-000.zip
V3.5: https://www.data-panel.eu/media/archive/CODESYS-35-Demo-DP-34044-x-000.zip



CODESYS PREPARE

CANopen Manager

- Right click on the just inserted **"ifmCANbus -> Attach device".**
- Change manufacturer filter to **<all manufacturers>.**
- Select the device via **"CANopen -> CANopenManager -> CANopenManager"** and attach it.



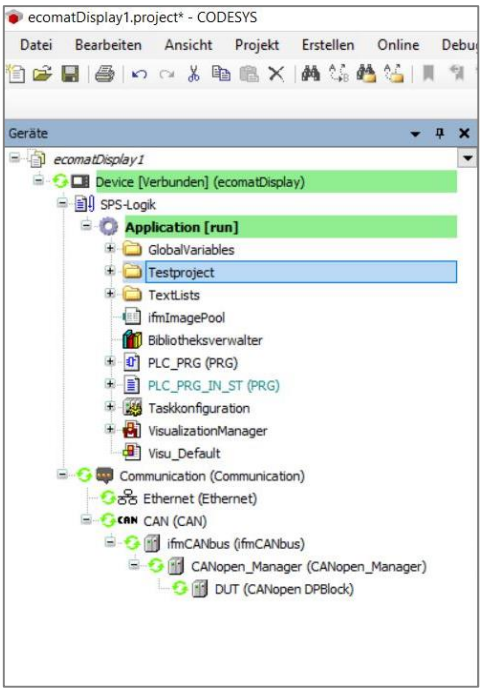
CODESYS PREPARE

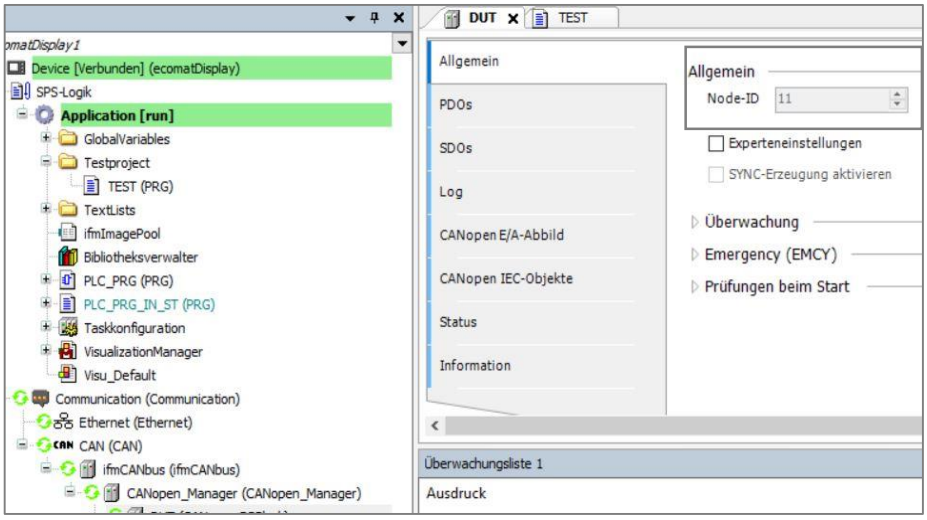
STEP 1

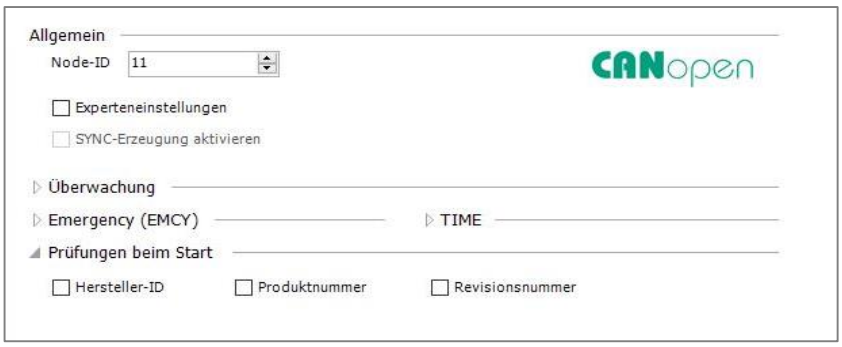
- Append a new device to the CANopen_Manager (right click -> Append device)
- Select the correct module based on the *.eds file and close it

STEP 2

- Open the configuration of the new device and set the node ID.
- Then go online, no errors should be displayed in CODESYS and the **COM LED** on the module should be permanently green.







Node ID	Jumper Config1 A (Pin2) -> B (Pin8)	Jumper Config2 A (Pin3) -> B (Pin9)	Jumper Config3 A (Pin4) -> B (Pin10)	Jumper Config4 A (Pin5) -> B (Pin11)
1				
2	X			
3		X		
4	X	X		
8	X	X	X	
9				X
...				
16	X	X	X	X

ADDRESS

- The module has the base node ID 1 preset
- The offset set by means of wire jumpers on the module is added to the base node ID. If the node ID 2 is set in CODESYS, the offset 1 must therefore be jumpered on the module.

VENDOR ID

For the first series modules, the vendor ID was not stored in the firmware. In this case please either update the firmware of the module or deactivate the check of the vendor ID.

OUTPUT DO - GLOBAL

This module does not need to be configured, all outputs are designed as DO output

This module does not need to be configured

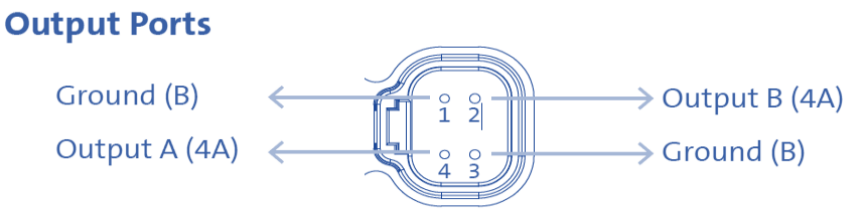
The CANopen I/O image can be used to declare and activate the variables for ports 1 to 4.

Either the entire integer variable **Output_1** can be used for this, alternatively the individual **bits** can also be declared.

Find | Filter Show all | Add FB for IO

Variable	Mapping	Channel	Address	Type	Current Value
		Output_1	%QB0	USINT	1
D5_DO_P1A		Bit0	%QX0.0	BOOL	TRUE
D5_DO_P1B		Bit1	%QX0.1	BOOL	FALSE
		Bit2	%QX0.2	BOOL	FALSE
		Bit3	%QX0.3	BOOL	FALSE
		Bit4	%QX0.4	BOOL	FALSE
		Bit5	%QX0.5	BOOL	FALSE
		Bit6	%QX0.6	BOOL	FALSE
		Bit7	%QX0.7	BOOL	FALSE
		Output_2	%QB1	USINT	0

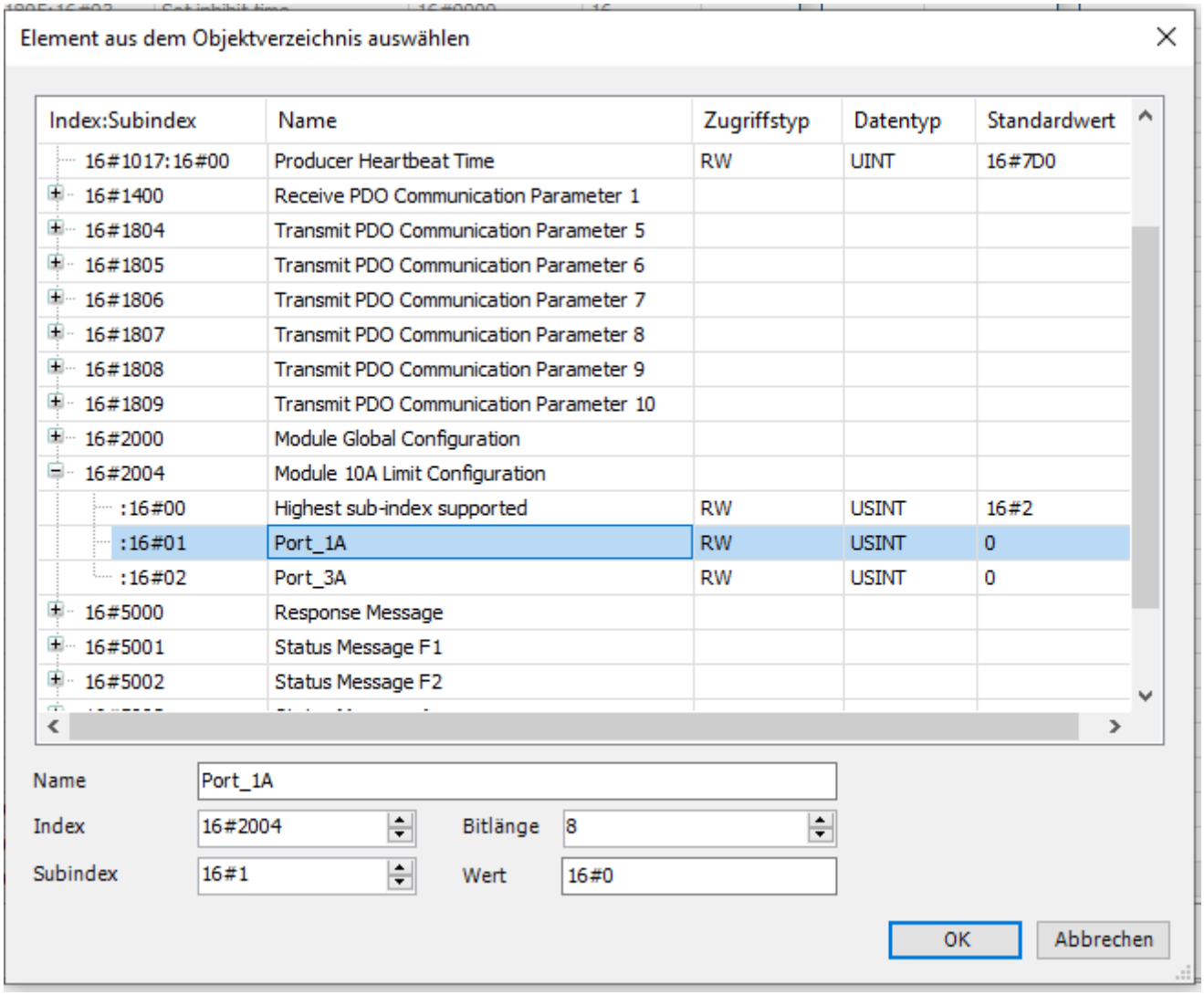
Go online with the controller and download the program. Force the variable **D1OutputB0** to "True". Alternatively, store a value in the **Dash1Output2** variable.



Port / Signal	Value	Port / Signal	Value
P1A	00 00 00 01	P3A	00 01 00 00
P1B	00 00 00 10	P3B	00 10 00 00
P2A	00 00 01 00	P4A	01 00 00 00
P2B	00 00 10 010	P4B	10 00 00 00

OUTPUT DO PORT 10A

With the outputs **1A** and **3A** actuators up to a current of 10A can be supplied. For this purpose, a value between 0-100 (0 - 10.0 A in 100 mA steps) can be stored in the index **2004:1**. If, for example, "**40**" is stored, the output current is set to max. 4.0 A.



DIAGNOSIS PORT 1A & B AMP FEEDBACK

For each individual signal pin (A or B), the current currently present can be read back.

To use the function, it is necessary to activate the diagnosis via SDO To do this, write "**10**" to index **5003:0** (default value), then the current present can be read back via the channel.

56	16#180B:16#01	Set and enable COB-ID	16#000003C1	32	☐	☐	0
57	16#2000:16#03	Output_Mode	16#00	8	☐	☐	0
58	16#2001:16#01	OUTMODE_1	16#10	8	☐	☐	0
59	16#2001:16#03	OUTMODE_3	16#11	8	☐	☐	0
60	16#2004:16#01	Port_1A	16#55	8	☐	☐	0
61	16#5003:16#00	Highest sub-index supported	16#10	8	☐	☐	0

If no value is displayed, the index 1807 / 1808 :5 must be written with "C0" to switch on the cyclic exchange of the signals.

If a constant load is used, the applied current is governed by Ohm's law. When using PWMi, the control behavior of the output can additionally be influenced by the proportional and integral component (see p. 12).

DIAGNOSIS PORT 1A & B AMP FEEDBACK

If now e.g. the channel Output_1 - Bit0 (Below declared as variable D5_DO_P1A) is switched on, the applied current on the channel Output_1 - Bit0 (Below declared as variable D5_DO_P1A _FB) can be read back.

If no value is displayed, the index 1807 / 1808 :5 must be written with "C0" to switch on the cyclic exchange of the signals.

	Output_1	%QB58	USINT	
D5_DO_P1A	Bit0	%QX58.0	BOOL	5410
	Bit1	%QX58.1	BOOL	
	Bit2	%QX58.2	BOOL	
	Bit3	%QX58.3	BOOL	
	Bit4	%QX58.4	BOOL	
	Bit5	%QX58.5	BOOL	
	Bit6	%QX58.6	BOOL	
	Bit7	%QX58.7	BOOL	
	Output_2	%QB59	USINT	
	d1-d8	%IB200	USINT	
	d9-d16	%IB201	USINT	
	Active_Fault_Code	%IB202	USINT	
	Configuration_ID	%IB203	USINT	
	d1-d8_Message	%IB204	USINT	
	d9-d16_Message	%IB205	USINT	
	Status_Output1-2	%IB206	USINT	
	Status_Output3-4	%IB207	USINT	
	Status_Output5-6	%IB208	USINT	
	Status_Output7-8	%IB209	USINT	
	Power	%IB210	USINT	
	Save_Counter	%IB211	USINT	
	VBAT	%IW106	UINT	
	TEMP	%IW107	UINT	
	CNFG1	%IW108	UINT	
	CNFG2	%IW109	UINT	
D5_DO_P1A_FB	Port_1A	%IB220	USINT	5390
	Port_1B	%IB221	USINT	

DIAGNOSIS PORT 1 PIN A & B STATUS / FEHLER

The status of the individual outputs can be queried by activating index **5001**. Subsequently, the status of the outputs on **port 1 and 2** can be queried via the variable **Status_Output 1-2**. If an output is activated, the first bit (**DP_DO_P1A_OK**) is set. If an error occurs at the output, the second bit (**D5_DO_P1A_FLT**) is set.

If no value is displayed, the index 1805:5 must be written with "C0". This SDO takes care of the cyclic exchange of the data.

34	16#1809:16#01	Set and enable COB-ID	16#000002EA	32	☐
35	16#5001:16#00	Highest sub-index suppo...	16#8	8	☐
36	16#1805:16#05	Event Timer	16#C0	16	☐

		Output_1	%QB58	USINT	
D5_DO_P1A		Bit0	%QX58.0	BOOL	TRUE
		Bit1	%QX58.1	BOOL	FALSE
		Bit2	%QX58.2	BOOL	FALSE
		Bit3	%QX58.3	BOOL	FALSE
		Bit4	%QX58.4	BOOL	FALSE
		Bit5	%QX58.5	BOOL	FALSE
		Bit6	%QX58.6	BOOL	FALSE
		Bit7	%QX58.7	BOOL	FALSE
		Output_2	%QB59	USINT	
		d1-d8	%IB200	USINT	
		d9-d16	%IB201	USINT	
		Active_Fault_Code	%IB202	USINT	
		Configuration_ID	%IB203	USINT	
		d1-d8_Message	%IB204	USINT	
		d9-d16_Message	%IB205	USINT	
		Status_Output1-2	%IB206	USINT	
D5_DO_P1A_OK		Bit0	%IX206.0	BOOL	TRUE
D5_DO_P1A_FLT		Bit1	%IX206.1	BOOL	FALSE
		Bit2	%IX206.2	BOOL	FALSE
		Bit3	%IX206.3	BOOL	FALSE
		Bit4	%IX206.4	BOOL	FALSE
		Bit5	%IX206.5	BOOL	FALSE
		Bit6	%IX206.6	BOOL	FALSE
		Bit7	%IX206.7	BOOL	FALSE

DIAGNOSIS TEMP & VOLTAGE

Further diagnostic data like e.g. the temperature of the module or the bus voltage may be read out. For this the index **5002** should be activated.

Afterwards the voltage or the module temperature can be read back in the variable **VBAT or TEMP.**

The voltage is displayed decimally with a resolution of 0.1 V.

The temperature has the resolution -100 °F to 300 °F which is displayed in 0-4000 bit (factor 10). For the display of the temperature in °C, this value must still be converted from Fahrenheit to Celsius. e.g. ((1815 / 10) - 100) = 81.5 °F - 32 × 5/9 = 27.5 °C

If no value is displayed, the index 1806:5 must be written with "C0". This SDO takes care of the cyclic exchange of the data

37	16#5002:16#00	Highest sub-index supported	16#5	8	
38	16#1806:16#05	Event Timer	16#C0	16	

		Power	%IB80	USINT	20
		Save_Counter	%IB81	USINT	0
D5VBAT		VBAT	%IW41	UINT	241
D5Temp		TEMP	%IW42	UINT	1815
		CNFG1	%IW43	UINT	3
		CNFG2	%IW44	UINT	6
		Port_1A	%IW45	UINT	0
		Port_1B	%IW46	UINT	0
		Port_2A	%IW47	UINT	0
		Port_2B	%IW48	UINT	0
		Port_3A	%IW49	UINT	0
		Port_3B	%IW50	UINT	0
		Port_4A	%IW51	UINT	0

DIAGNOSIS AUSGANGSSPANNUNG P1

In addition, the status of the output voltage supply can be queried. Index **5001** must be activated for this purpose. Subsequently, the status of the supply circuit **P1** can be queried in the variable Power.

Bit 1 / 2 = P 1

If no value is displayed, the index 1805:5 must be written with "C0". This SDO takes care of the cyclic exchange of the signals.

The -5 has only one output power supply P1

34	16#1809:16#01	Set and enable COB-ID	16#000002EA	32	☐
35	16#5001:16#00	Highest sub-index suppo...	16#8	8	☐
36	16#1805:16#05	Event Timer	16#C0	16	☐

D3Power		Power	%IB80	USINT	20
		Bit0	%IX80.0	BOOL	TRUE
		Bit1	%IX80.1	BOOL	FALSE
		Bit2	%IX80.2	BOOL	FALSE
		Bit3	%IX80.3	BOOL	FALSE
		Bit4	%IX80.4	BOOL	FALSE
		Bit5	%IX80.5	BOOL	FALSE
		Bit6	%IX80.6	BOOL	FALSE
		Bit7	%IX80.7	BOOL	FALSE
		Save_Counter	%IB81	USINT	0
D3VBAT		VBAT	%IW41	UINT	241
D3Temp		TEMP	%IW42	UINT	1815
		CNFG1	%IW43	UINT	3

P1

DATA PANEL
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