

# **EMGZ491 and EMGZ492**

## **PLC Examples**

Quick Start Guide for PROFINET, EtherNet/IP and EtherCAT

Program version 2.1

Document date 3. Oktober 2019

Autor

Thomas Ziörjen

# Contents

<b>Simatic PROFINET</b> .....	<b>1</b>
Setting up the project.....	1
Using of the example program.....	1
Adaptation of the module address.....	2
Screenshot for the EMGZ491.....	4
Screenshot for the EMGZ492.....	5
<b>RSLogix 5000 EtherNet/IP</b> .....	<b>6</b>
Setting up the project.....	6
Using of the example program.....	10
<b>TwinCAT 3 - EtherCAT</b> .....	<b>13</b>
Setting up the project.....	13
Using of the example program.....	14
Show cycle data.....	14
Change parameters.....	15

# Simatic PROFINET

## Setting up the project

- Copy the project to the PC on which the Simatic development software is installed.
- Open the example project EMGZ49x\_PN\_Vy\_y (x stands for the utilized device, y stands for the example program version).
- Give the EMGZ491 or EMGZ492 the device name **emgz491** or **emgz492** and an IP-address that suits your network.
- Check if the EMGZ491 or EMGZ492 has got the assigned IP-address by open the web interface with the web browser.

## Using of the example program

- Check the module hardware configuration and change it if it doesn't match.
- Open the following variable tables:
  - EMGZ491\_Read\_Data or EMGZ492\_Read\_Data
  - EMGZ491\_Write\_Input\_Par or EMGZ492\_Write\_Input\_CH\_A and EMGZ492\_Write\_Input\_CH\_B
  - EMGZ491\_Write\_Output\_Par or EMGZ492\_Write\_Output\_Par
  - EMGZ491\_Calibrate or EMGZ492\_Calibrate
- Arrange the windows similar to the shown screenshot for the particular device.
- Follow the numbers ascending on the screenshot.

## Adaptation of the module address

By default, the example programs use the addresses shown in the below dialogs. Make sure that they are set accordingly.

The address for slot 0 gives access to the EMGZ49x output parameters.

The address for slot 1 gives access to the EMGZ49x configuration parameters as well as to the cycle data.

Make sure that the input addresses for the cyclic data are also set correctly.

### EMGZ491

Steckplatz	Baugruppe	Bestellnummer	E-Adresse	A-Adresse	Diagn...	Ko...
0	emgz491	EMGZ491			2039*	
X1	PROFINET-IO				2042*	
P1 P	Port 1				2041*	
P2 P	Port 2				2040*	
0.1	Identification/Maintena**				2039*	
0.10	Parameter Access Point				2038*	
1	Feedback				2037*	
1.1	Parameter Access Point				2037*	
1.2	Actual Value in Digits ~		256...257			
1.3	Actual Value in Newton ~		258...261			
1.4	Actual Value in Pound (~		262...265			
1.5	Actual Value in configu**		266...269			
1.6	Status		0			

Drücken Sie F1, um Hilfe zu erhalten.

Module address for slot 0

Module address for slot 1

Addresses of the cyclic data

## EMGZ492

The screenshot displays the HW Config interface for a SIMATIC 300 station. The rack configuration shows a CPU 315-2PN/DP with modules for MPI/DP, PN-IO, and two ports. The EMGZ492 module is connected to the Ethernet(1) PROFINET-IO-System (100).

The detailed configuration for the EMGZ492 module is as follows:

Steckplatz	Baugruppe	B...	E-Adresse	A...	Diagnos...	Kommentar
0	emgz492	EMG		2028*		
X1	PROFINET-IO			2031*		
P1 R	Port 1			2030*		
P2 R	Port 2			2029*		
0.1	Identification/Maintena**			2028*		
0.10	Parameter Access Point			2027*		
1	Feedback			2026*		
1.1	Parameter Access Point			2026*		
1.2	Actual Value A in Digit**		270..271			
1.3	Actual Value A in Newto**		272..275			
1.4	Actual Value A in Pound**		276..279			
1.5	Actual Value A in confi**		280..283			
1.6	Actual Value B in Digit**		284..285			
1.7	Actual Value B in Newto**		286..289			
1.8	Actual Value B in Pound**		290..293			
1.9	Actual Value B in confi**		294..297			
1.10	Actual Value A+B in con**		298..301			
1.11	Actual Value A+B in c**		302..305			
1.12	Actual Value A+B/2 in**		306..309			
1.13	Status		16			

Callouts in the image point to the following addresses:

- Module address for slot 0: 2028\*
- Module address for slot 1: 2026\*
- Addresses of the cyclic data: 270..305

# Screenshot for the EMGZ491

**1** Select the window EMGZ491\_Read\_Data and start the cyclic read process.

**2** Click the send button to transfer changed data to the EMGZ491. Make previously sure the correct window is selected.

**3** Cyclic force values and parameters will be live updated when they are changing.

**4** Change a parameter as needed.

**5** To write a parameter to the EMGZ491 the according flag must be set to **true**, and the send button **2** must be clicked. Make sure only one write flag is set at the time.

**6** To set the offset the flag must be set to **true**, and the send button **2** must be clicked. Make sure only one write flag is set at the time.

**7** To calibrate the EMGZ491 enter the **weight in mN**, set the flag **true**, and click the send button **2**. Make sure only one write flag is set at the time.

Operand	Symbol	Symbolkommentar	Anzeigeformat	Statuswert	Steuwert
1	WRITE_PARAMETERS				
2	Slot 1				
3	DB4.DBB 0	"WRITE_PARAM"	DEZ	0	0
4	DB4.DBX 1.0	"WRITE_PARAM"	DEZ	false	false
5	DB4.DBW 2	"WRITE_PARAM"	DEZ	-55	-55
6	DB4.DBX 4.0	"WRITE_PARAM"	DEZ	false	false
7	DB4.DBW 6	"WRITE_PARAM"	DEZ	2111	2111
8	DB4.DBX 8.0	"WRITE_PARAM"	DEZ	false	false
9	DB4.DBD 10	"WRITE_PARAM"	DEZ	L#123000	L#123000
10	DB4.DBX 14.0	"WRITE_PARAM"	DEZ	false	false
11	DB4.DBB 15	"WRITE_PARAM"	DEZ	0	0
12	DB4.DBX 16.0	"WRITE_PARAM"	DEZ	true	true
13	DB4.DBW 18	"WRITE_PARAM"	DEZ	10	10
14	DB4.DBX 20.0	"WRITE_PARAM"	DEZ	false	false

Operand	Symbol	Symbolkommentar	Anzeigeformat	Statuswert	Steuwert
1	EMGZ491				
2	DB1.DBD 0	"FMS_ACYCLIC_DB".ADDRESS_SLOT0	HEX	DW#16#000007F1	DW#16#000007F1
3	DB1.DBD 4	"FMS_ACYCLIC_DB".ADDRESS_SLOT1	HEX	DW#16#000007F0	DW#16#000007F0
4	PARAMETERS EMGZ491				
5	Slot 0				
6	DB1.DBD 22	"FMS_ACYCLIC_DB".TENSION_MAX_OUTPUT	DEZ	L#1000000	L#1000000
7	DB1.DBB 26	"FMS_ACYCLIC_DB".OUTPUT_FILTER_ON	DEZ	1	1
8	DB1.DBW 28	"FMS_ACYCLIC_DB".CUTOFF_FREQU_OUTPUT	DEZ	100	100
9	Slot 1				
10	DB1.DBB 8	"FMS_ACYCLIC_DB".UNIT	DEZ	0	0
11	DB1.DBW 10	"FMS_ACYCLIC_DB".OFFSET	DEZ	-1311	-1311
12	DB1.DBW 12	"FMS_ACYCLIC_DB".GAIN	DEZ	902	902
13	DB1.DBD 14	"FMS_ACYCLIC_DB".SYSTEM_FORCE	DEZ	L#1000000	L#1000000
14	DB1.DBB 18	"FMS_ACYCLIC_DB".ACTUAL_VALUE_FILTER_ON	DEZ	1	1
15	DB1.DBW 18	"FMS_ACYCLIC_DB".ACTUAL_VALUE_FILTER_ON	DEZ	330	330
16	DB1.DBW 18	"FMS_ACYCLIC_DB".ACTUAL_VALUE_FILTER_ON	DEZ	1341	1341
17	DB1.DBW 18	"FMS_ACYCLIC_DB".ACTUAL_VALUE_FILTER_ON	DEZ	L#201078	L#201078
18	DB1.DBW 18	"FMS_ACYCLIC_DB".ACTUAL_VALUE_FILTER_ON	DEZ	L#45204	L#45204
19	DB1.DBW 18	"FMS_ACYCLIC_DB".ACTUAL_VALUE_FILTER_ON	DEZ	L#201078	L#201078
20	DB3.DBB 1	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
21	DB3.DBB 2	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
22	DB3.DBB 3	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
23	DB3.DBB 4	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
24	DB3.DBB 5	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
25	DB3.DBB 6	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
26	DB3.DBB 7	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
27	DB3.DBB 8	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
28	DB3.DBB 9	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
29	DB3.DBB 10	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
30	DB3.DBB 11	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
31	DB3.DBB 12	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
32	DB3.DBB 13	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
33	DB3.DBB 14	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
34	DB3.DBB 15	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
35	DB3.DBB 16	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
36	DB3.DBB 17	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
37	DB3.DBB 18	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
38	DB3.DBB 19	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
39	DB3.DBB 20	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
40	DB3.DBB 21	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
41	DB3.DBB 22	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
42	DB3.DBB 23	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
43	DB3.DBB 24	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
44	DB3.DBB 25	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
45	DB3.DBB 26	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
46	DB3.DBB 27	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
47	DB3.DBB 28	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
48	DB3.DBB 29	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
49	DB3.DBB 30	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
50	DB3.DBB 31	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
51	DB3.DBB 32	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
52	DB3.DBB 33	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
53	DB3.DBB 34	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
54	DB3.DBB 35	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
55	DB3.DBB 36	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
56	DB3.DBB 37	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
57	DB3.DBB 38	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
58	DB3.DBB 39	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
59	DB3.DBB 40	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
60	DB3.DBB 41	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
61	DB3.DBB 42	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
62	DB3.DBB 43	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
63	DB3.DBB 44	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
64	DB3.DBB 45	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
65	DB3.DBB 46	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
66	DB3.DBB 47	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
67	DB3.DBB 48	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
68	DB3.DBB 49	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
69	DB3.DBB 50	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
70	DB3.DBB 51	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
71	DB3.DBB 52	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
72	DB3.DBB 53	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
73	DB3.DBB 54	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
74	DB3.DBB 55	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
75	DB3.DBB 56	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
76	DB3.DBB 57	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
77	DB3.DBB 58	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
78	DB3.DBB 59	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
79	DB3.DBB 60	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
80	DB3.DBB 61	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
81	DB3.DBB 62	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
82	DB3.DBB 63	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
83	DB3.DBB 64	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
84	DB3.DBB 65	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
85	DB3.DBB 66	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
86	DB3.DBB 67	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
87	DB3.DBB 68	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
88	DB3.DBB 69	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
89	DB3.DBB 70	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
90	DB3.DBB 71	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
91	DB3.DBB 72	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
92	DB3.DBB 73	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
93	DB3.DBB 74	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
94	DB3.DBB 75	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
95	DB3.DBB 76	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
96	DB3.DBB 77	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
97	DB3.DBB 78	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
98	DB3.DBB 79	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
99	DB3.DBB 80	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
100	DB3.DBB 81	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
101	DB3.DBB 82	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
102	DB3.DBB 83	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
103	DB3.DBB 84	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
104	DB3.DBB 85	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
105	DB3.DBB 86	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
106	DB3.DBB 87	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
107	DB3.DBB 88	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
108	DB3.DBB 89	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
109	DB3.DBB 90	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
110	DB3.DBB 91	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
111	DB3.DBB 92	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
112	DB3.DBB 93	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
113	DB3.DBB 94	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
114	DB3.DBB 95	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
115	DB3.DBB 96	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
116	DB3.DBB 97	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
117	DB3.DBB 98	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
118	DB3.DBB 99	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0
119	DB3.DBB 100	"FMS_ACYCLIC_DB".STATUS_OUTPUT_OVERFLOW	DEZ	0	0

Operand	Symbol	Symbolkommentar	Anzeigeformat	Statuswert	Steuwert
1	OUTPUT_PARAMETERS EMGZ491				
2	Slot 0				
3	DB4.DBD 28	"WRITE_PARAM".TENSION_MAX_OUTPUT	DEZ	L#1000000	L#1000000
4	DB4.DBX 32.0	"WRITE_PARAM".WRITE_TENSION_MAX_OUTPUT	DEZ	false	false
5	DB4.DBB 33	"WRITE_PARAM".OUTPUT_FILTER_ON	DEZ	1	1
6	DB4.DBX 34.0	"WRITE_PARAM".WRITE_OUTPUT_FILTER_ON	DEZ	false	false
7	DB4.DBW 36	"WRITE_PARAM".CUTOFF_FREQU_OUTPUT	DEZ	100	100
8	DB4.DBX 38.0	"WRITE_PARAM".WRITE_CUTOFF_FREQU_OUTP	DEZ	false	false
9					

Operand	Symbol	Symbolkommentar	Anzeigeformat	Statuswert	Steuwert
1	LOAD CELLS ADJUSTMENT EMGZ491				
2	Sensor A				
3	DB4.DBX 20.1	"WRITE_PARAM".OFFSET_ADJUST	DEZ	false	false
4	DB4.DBD 22	"WRITE_PARAM".CALIBRATION_WEIGHT	DEZ	L#1000000	L#1000000
5	DB4.DBX 26.0	"WRITE_PARAM".WRITE_CAL_WEIGHT	DEZ	false	false
6					

# Screenshot for the EMGZ492

**1** Select the window EMGZ492\_Read\_Data and start the cyclic read process.

**2** Click the send button to transfer changed data to the EMGZ492. Make previously sure the correct window is selected.

**3** Cyclic force values and parameters will be live updated when they are changing.

**4** Change a parameter as needed.

**5** To write a parameter to the EMGZ492 the according flag must be set to **true**, and the send button **2** must be clicked. Make sure only one write flag is set at the time.

**6** To set the offset the flag must be set to **true**, and the send button **2** must be clicked. Make sure only one write flag is set at the time.

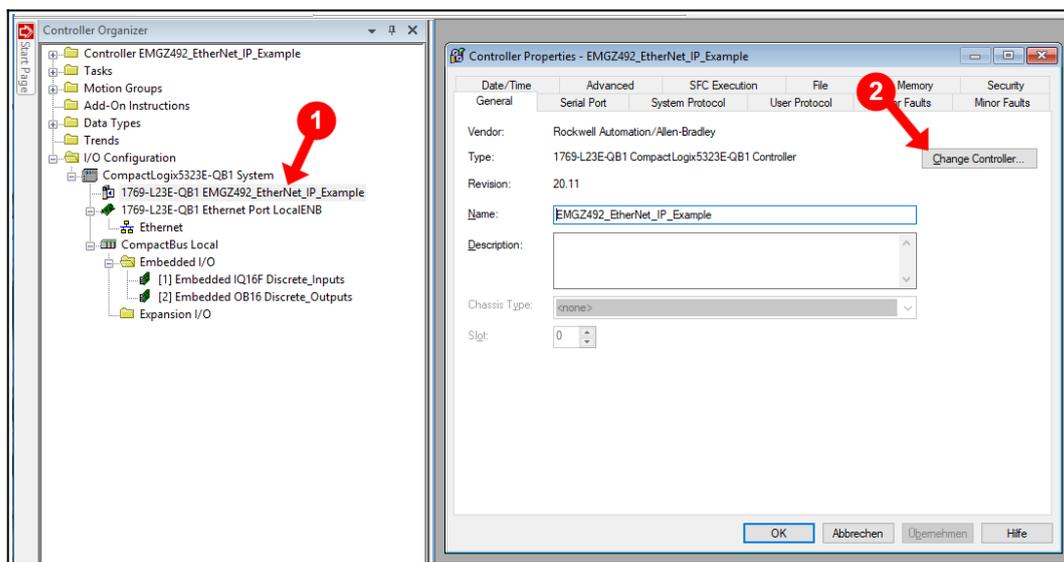
**7** To calibrate the EMGZ492 enter the **weight** in mN, set the flag **true**, and click the send button **2**. Make sure only one write flag is set at the time.

Operand	Symbol	Symbolkommentar	Anzeigeformat	Statuswert	Steuwert
1	WRITE_PARAMETER	EMGZ492			
2	DB4.DBB 0	"WRITE_PARAMETER"WRITE_OFFSET_A	DEZ		0
3	DB4.DBX 1.0	"WRITE_PARAMETER"WRITE_OFFSET_B	DEZ		false
4	DB4.DBW 2	"WRITE_PARAMETER"WRITE_GAIN_A	DEZ		-223
5	DB4.DBB 4.0	"WRITE_PARAMETER"WRITE_GAIN_B	DEZ		false
6	DB4.DBW 6	"WRITE_PARAMETER"WRITE_NOMINAL_FORCE_A	DEZ		1000
7	DB4.DBB 8.0	"WRITE_PARAMETER"WRITE_NOMINAL_FORCE_B	DEZ		false
8	DB4.DBD 10	"WRITE_PARAMETER"WRITE_FILTER_ON_A	DEZ		L#2000000
9	DB4.DBB 14.0	"WRITE_PARAMETER"WRITE_FILTER_ON_B	DEZ		false
10	DB4.DBW 15	"WRITE_PARAMETER"WRITE_CUTOFF_FREQU_A	DEZ		1
11	DB4.DBB 16.0	"WRITE_PARAMETER"WRITE_CUTOFF_FREQU_B	DEZ		false
12	DB4.DBW 18	"WRITE_PARAMETER"WRITE_ACT_VAL_CONF_UNIT_A	DEZ		10
13	DB4.DBB 20.0	"WRITE_PARAMETER"WRITE_ACT_VAL_CONF_UNIT_B	DEZ		false

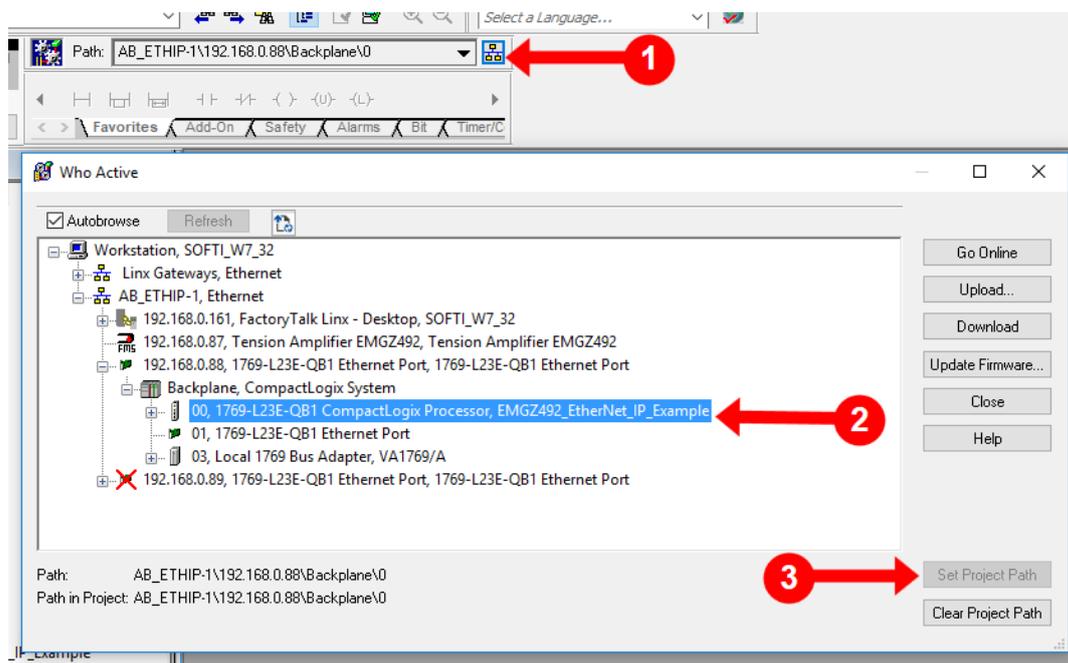
# RSLogix 5000 EtherNet/IP

## Setting up the project

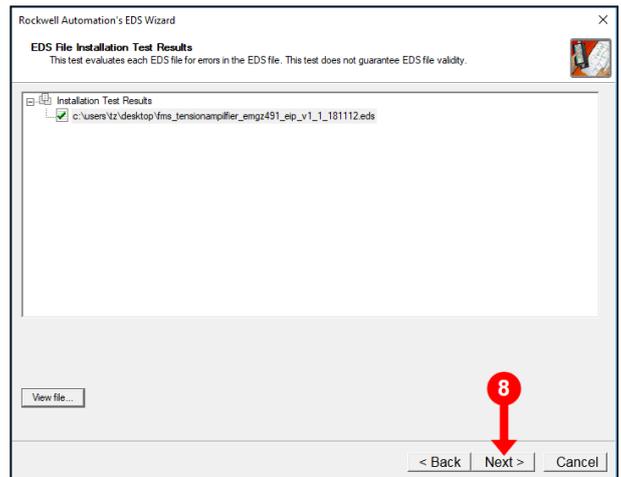
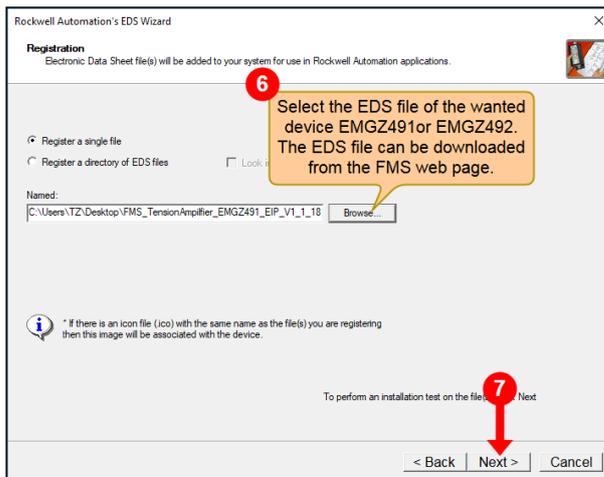
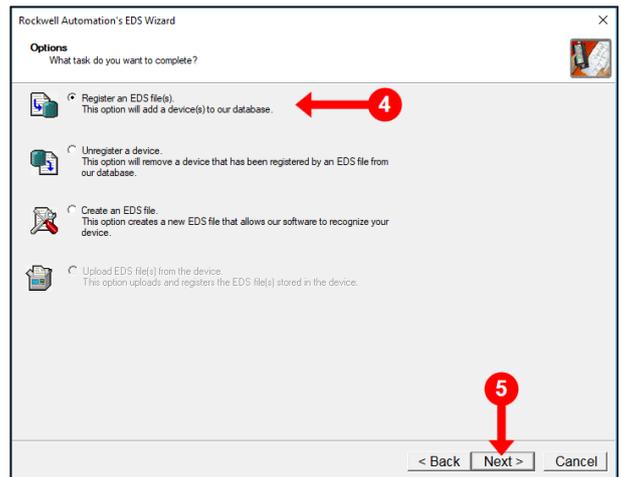
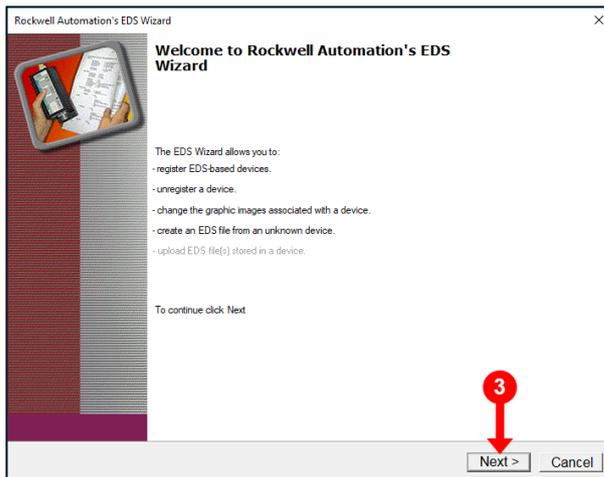
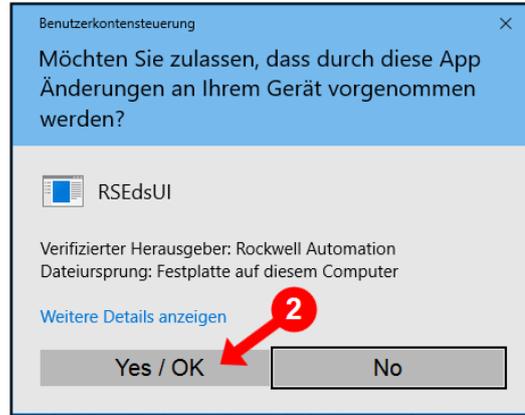
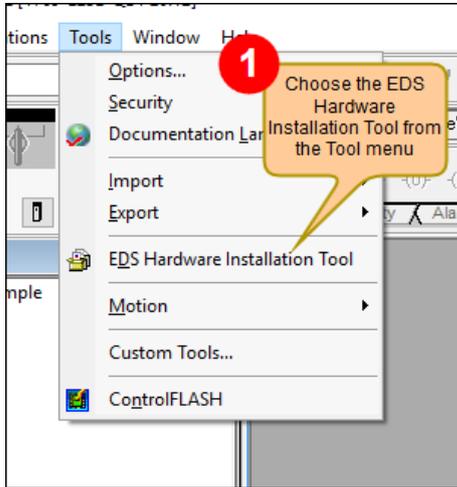
- Copy the project to the PC on which the RSLogix 5000 development software is installed.
- Open the example project EMGZ49x\_EIP\_Vy\_y (x stands for the utilized device, y stands for the example program version).
- Change the controller that it matches your utilized controller.

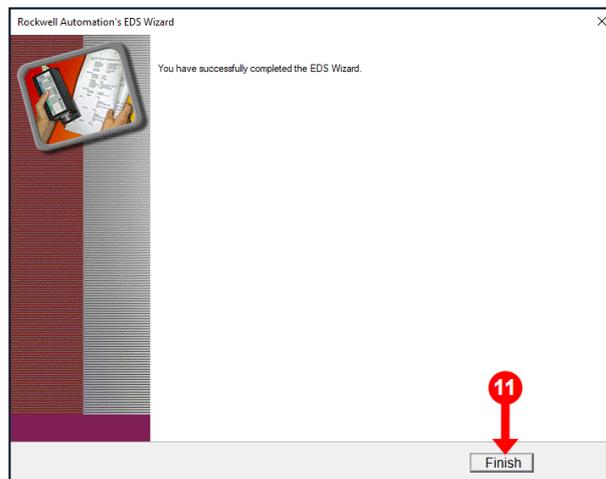
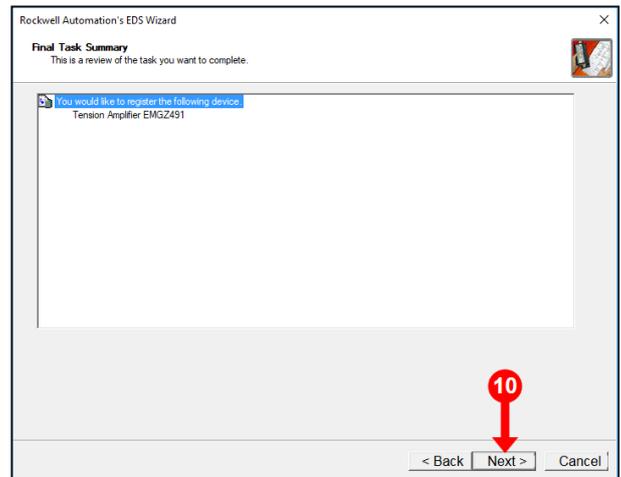
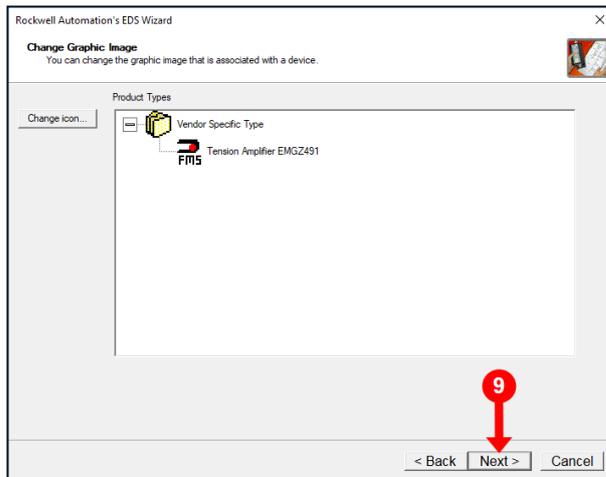


- Change the Path to the controller that you would like to use for the example program. If you have difficulty to change the path, use the Allen Bradley documentation for a further description.

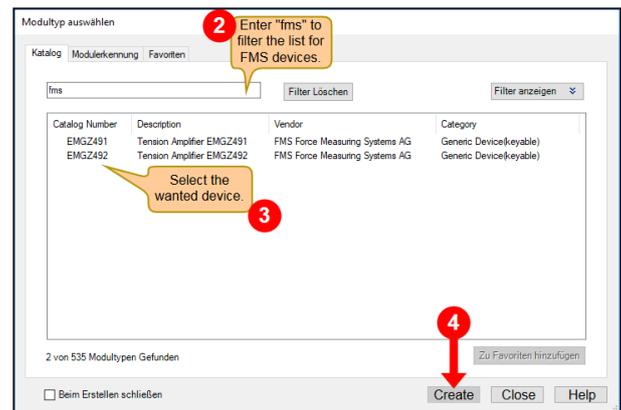
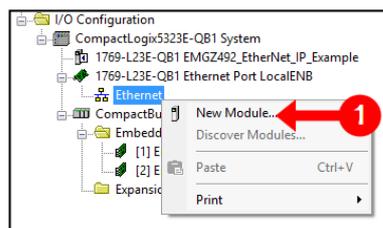


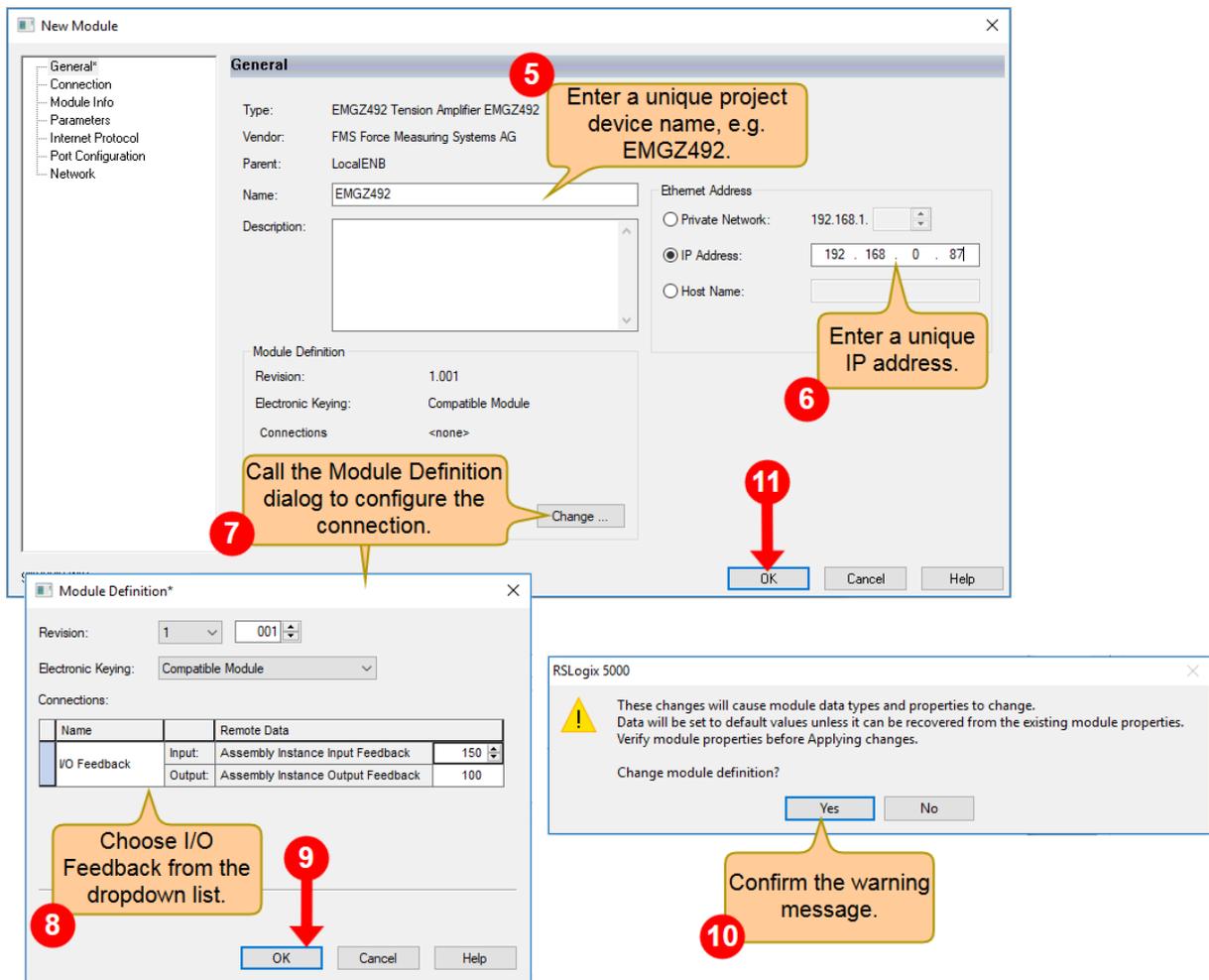
- To add the EMGZ491 or EMGZ492 to the project using the appropriate EDS file. Follow the steps on the below screenshots. After choosing the tool, there might appear a warning dialog to inform you about possible changes in the device configuration. Click on OK to accept changes. **2**





- Add the wanted device EMGZ491 or EMGZ492 to the project. Follow the steps on the below screenshots.





After point **11** the origin dialog "Select Module Type" shows up again. It can be closed by now. The device is now displaying in the Controller Organizer tree under the item Ethernet.

## Using of the example program

- Establish a connection with the PLC.

**1** Click on the dropdown list and choose "Go Online".

**2** Every time a change has been made on the project, it must be downloaded to the PLC.

**3** Confirm the download.

Download offline project 'EMGZ492\_EtherNet\_IP\_Example' to the controller.

Connected Controller:  
 Name: EMGZ492\_EtherNet\_IP\_Example  
 Type: 1769-L23E-QB1 CompactLogix5323E-QB1 Controller  
 Path: AB\_ETHIP-1\192.168.0.88\Backplane\0  
 Serial Number: C00FC460  
 Security: No Protection

The controller is in Remote Run mode. The mode will be changed to Remote Program prior to download.

DANGER: Unexpected hazardous motion of machinery may occur. Some devices maintain independent configuration settings that are not downloaded to the device during the download of the controller.

(Some devices, 3rd party products) may require you to bring the controller into run mode. Failure to load proper configuration could result in misaligned data and unexpected equipment operation.

**4**

**5** After a successful download, the controller goes online. The controller status must look like that.

Rem Run	<input checked="" type="checkbox"/>	Run Mode	<input checked="" type="checkbox"/>
No Forces	<input type="checkbox"/>	Controller OK	<input checked="" type="checkbox"/>
No Edits	<input type="checkbox"/>	Battery OK	<input checked="" type="checkbox"/>
		I/O OK	<input checked="" type="checkbox"/>

- Open the Module Properties dialog.

**1** Double click on the wanted FMS device.

**2** Choose the parameter item.

**3** Cyclic data are shown here.

**4** To see the acyclic data scroll down. The acyclic data are the configuration parameter of the device.

ID	Name	Value	Units
9217	Actual Value A in Digits (ADC)	11479	
9218	Actual Value A in Newton (N)	1000598	
9219	Actual Value A in Pound (lb)	224943	
9220	Actual Value A in configured Unit	1000598	
9221	Actual Value B in Digits (ADC)	11433	
9222	Actual Value B in Newton (N)	1000598	
9223	Actual Value B in Pound (lb)	224943	
9224	Actual Value B in configured Unit	1000598	
9225	Actual Value A+B in configured unit	2001196	
9226	Actual Value  A-B  in configured unit	84	
9227	Actual Value (A+B)/2 in configured unit	1000640	
9228	Status	00000000	
10241	Unit	0	
10242	Offset - A	-5	

The table above shows the parameters for the EMGZ492 module. The values for 'Actual Value A' and 'Actual Value B' are highlighted in red in the original image, indicating they are cyclic data. The 'Status' parameter is also highlighted in red. The 'Unit' and 'Offset - A' parameters are also highlighted in red. The 'Actual Value A+B in configured unit' parameter is also highlighted in red. The 'Actual Value |A-B| in configured unit' parameter is also highlighted in red. The 'Actual Value (A+B)/2 in configured unit' parameter is also highlighted in red.

Status: Running

Buttons: OK, Cancel, Apply, Help

Information: The values displayed here are read directly from the module. These values are not stored in the controller and are not sent to the module when a connection is established. Click Set to write updated values to the module.

- To change device configuration parameters scroll down the parameter list box until the desired parameter is visible.

Module Properties: LocalENB (EMGZ492 1.001)

Parameters

Group: <All Parameters>

ID	Name	Value	Units
10241	Unit		0
10242	Offset - A		-5
10243	Gain - A		1036
10244	System Force - A		1000000
10245	Low Pass Filter Actual Value Active - A		1
10246	Cutoff Frequency Low Pass Filter Actual Value - A		100
10247	Offset Adjust - A		
10248	Calibration - A		
10249	Offset - B		-19
10250	Gain - B		1039
10251	System Force - B		1000000
10252	Low Pass Filter Actual Value Active - B		1
10253	Cutoff Frequency Low Pass Filter Actual Value - B		100

Set

The values displayed here are read directly from the module. These values are not stored in the controller and are not sent to the module when a connection is established. Click Set to write updated values to the module.

Module Properties: LocalENB (EMGZ492 1.001)

Parameters

Group: <All Parameters>

ID	Name	Value	Units
10247	Offset Adjust - A		
10248	Calibration - A		
10249	Offset - B		-19
10250	Gain - B		1039
10251	System Force - B		1000000
10252	Low Pass Filter Actual Value Active - B		1
10253	Cutoff Frequency Low Pass Filter Actual Value - B		100
10254	Offset Adjust - B		
10255	Calibration - B		
10273	Output Value		3
10274	Scale Analog Output		1000000
10275	Low Pass Filter Analog Output Active		1
10276	Cutoff Frequency Low Pass Filter Analog Output		100

Insert Factory Defaults

Set

The values displayed here are read directly from the module. These values are not stored in the controller and are not sent to the module when a connection is established. Click Set to write updated values to the module.

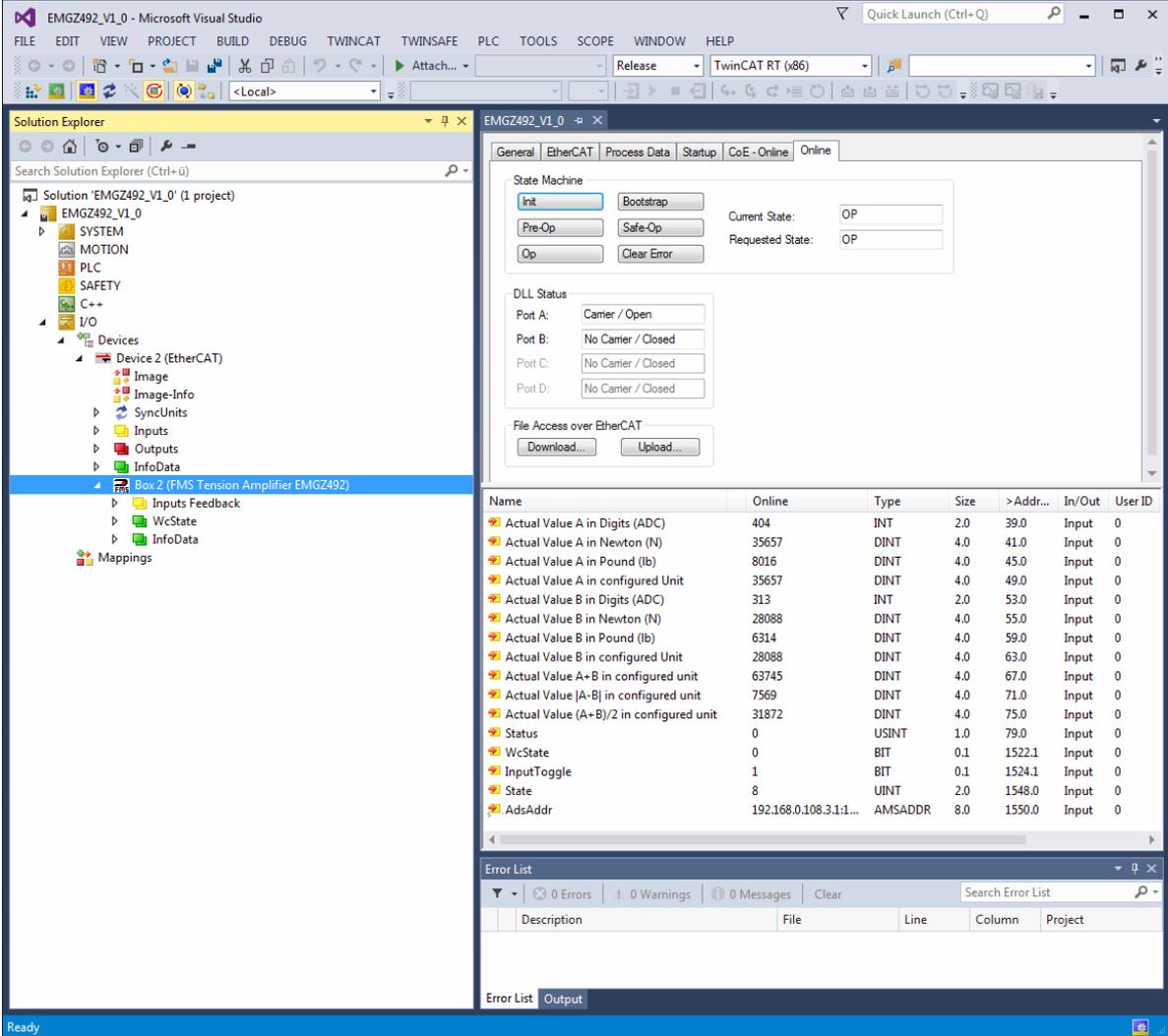
# TwinCAT 3 - EtherCAT

The example projects for the EMGZ491 or EMGZ492 contains the appropriate device integrated into the project. It shows the live data from the cyclic data and explains how parameters can be changed. It does not show and use any programming code as that is part of the EtherCAT developer, and we can not give support in that area too.

## Setting up the project

- Copy the project to the PC on which the TwinCAT 3 development software is installed.
- Open the example project EMGZ49x\_ECAt\_Vy\_y (x stands for the utilized device, y stands for the example program version).

The screen should now show the project similar to the following picture.

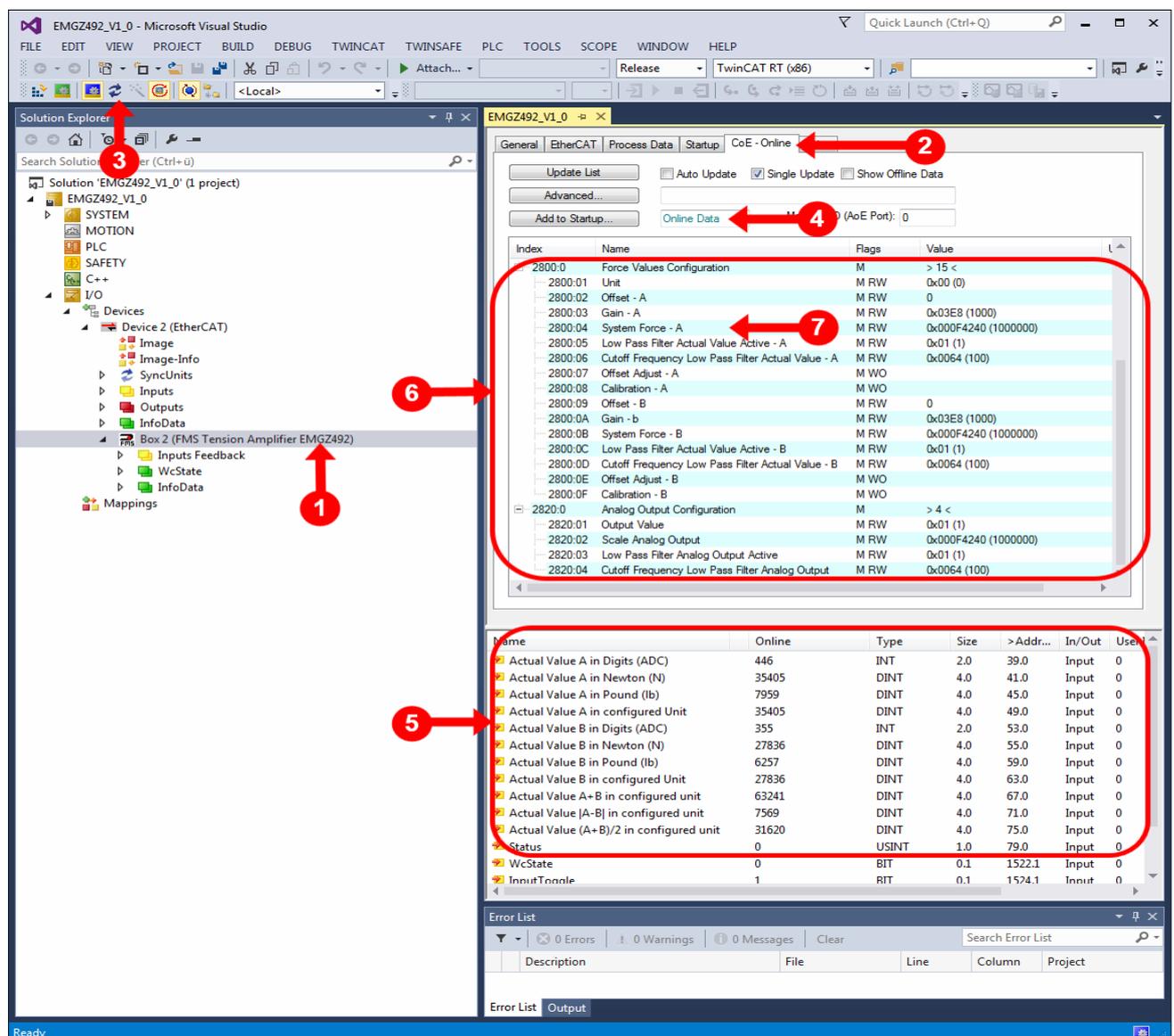


Name	Online	Type	Size	>Addr...	In/Out	User ID
Actual Value A in Digits (ADC)	404	INT	2.0	39.0	Input	0
Actual Value A in Newton (N)	35657	DINT	4.0	41.0	Input	0
Actual Value A in Pound (lb)	8016	DINT	4.0	45.0	Input	0
Actual Value A in configured Unit	35657	DINT	4.0	49.0	Input	0
Actual Value B in Digits (ADC)	313	INT	2.0	53.0	Input	0
Actual Value B in Newton (N)	28088	DINT	4.0	55.0	Input	0
Actual Value B in Pound (lb)	6314	DINT	4.0	59.0	Input	0
Actual Value B in configured Unit	28088	DINT	4.0	63.0	Input	0
Actual Value A+B in configured unit	63745	DINT	4.0	67.0	Input	0
Actual Value  A-B  in configured unit	7569	DINT	4.0	71.0	Input	0
Actual Value (A+B)/2 in configured unit	31872	DINT	4.0	75.0	Input	0
Status	0	USINT	1.0	79.0	Input	0
WcState	0	BIT	0.1	1522.1	Input	0
InputToggle	1	BIT	0.1	1524.1	Input	0
State	8	UINT	2.0	1548.0	Input	0
AdsAddr	192.168.0.108.3.1.1...	AMSADDR	8.0	1550.0	Input	0

## Using of the example program

### Show cycle data

1. Double click on the appropriate device EMGZ491 or EMGZ492 from the Solution Explorer tree.
2. Select the CoE- Online tab.
3. Click on the Reload Devices button.
4. The status must now show Online Data. If that is not the case, then check if the loaded project corresponds with the device EMGZ491 or EMGZ492. Is the device connected to the PC properly or powered up at all. If all seems correct, consult the TwinCAT documentation what the problem might be.
5. The cycle data will be shown here.



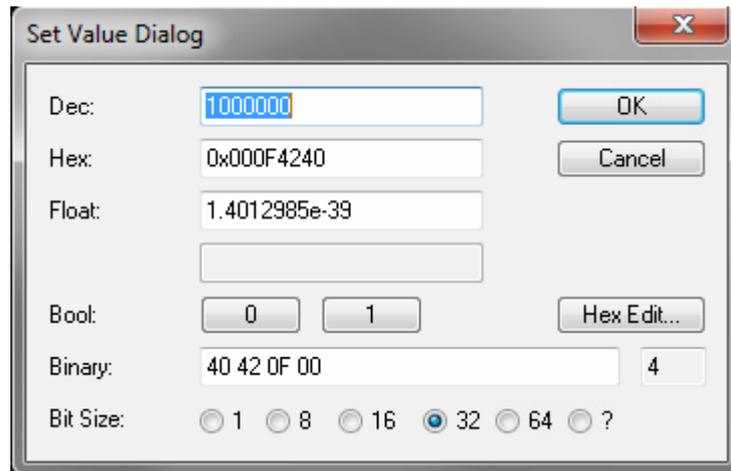
The screenshot shows the TwinCAT 3 interface in Microsoft Visual Studio. The Solution Explorer on the left shows the project structure with 'Box 2 (FMS Tension Amplifier EMGZ492)' selected. The main window displays the 'CoE - Online' tab, which is highlighted with a red circle and arrow labeled '2'. The 'Online Data' button is also highlighted with a red circle and arrow labeled '4'. The 'Force Values Configuration' table is highlighted with a red circle and arrow labeled '6', and the 'Analog Output Configuration' table is highlighted with a red circle and arrow labeled '7'. The 'Actual Value' table is highlighted with a red circle and arrow labeled '5'. The 'Error List' at the bottom shows 0 errors and 0 warnings.

Index	Name	Flags	Value
2800:0	Force Values Configuration	M	> 15 <
2800:01	Unit	M RW	0x00 (0)
2800:02	Offset - A	M RW	0
2800:03	Gain - A	M RW	0x03E8 (1000)
2800:04	System Force - A	M RW	0x000F4240 (1000000)
2800:05	Low Pass Filter Actual Value Active - A	M RW	0x01 (1)
2800:06	Cutoff Frequency Low Pass Filter Actual Value - A	M RW	0x0064 (100)
2800:07	Offset Adjust - A	M WO	
2800:08	Calibration - A	M WO	
2800:09	Offset - B	M RW	0
2800:0A	Gain - b	M RW	0x03E8 (1000)
2800:0B	System Force - B	M RW	0x000F4240 (1000000)
2800:0C	Low Pass Filter Actual Value Active - B	M RW	0x01 (1)
2800:0D	Cutoff Frequency Low Pass Filter Actual Value - B	M RW	0x0064 (100)
2800:0E	Offset Adjust - B	M WO	
2800:0F	Calibration - B	M WO	
2820:0	Analog Output Configuration	M	> 4 <
2820:01	Output Value	M RW	0x01 (1)
2820:02	Scale Analog Output	M RW	0x000F4240 (1000000)
2820:03	Low Pass Filter Analog Output Active	M RW	0x01 (1)
2820:04	Cutoff Frequency Low Pass Filter Analog Output	M RW	0x0064 (100)

Name	Online	Type	Size	> Addr...	In/Out	Use
Actual Value A in Digits (ADC)	446	INT	2.0	39.0	Input	0
Actual Value A in Newton (N)	35405	DINT	4.0	41.0	Input	0
Actual Value A in Pound (lb)	7959	DINT	4.0	45.0	Input	0
Actual Value A in configured Unit	35405	DINT	4.0	49.0	Input	0
Actual Value B in Digits (ADC)	355	INT	2.0	53.0	Input	0
Actual Value B in Newton (N)	27836	DINT	4.0	55.0	Input	0
Actual Value B in Pound (lb)	6257	DINT	4.0	59.0	Input	0
Actual Value B in configured Unit	27836	DINT	4.0	63.0	Input	0
Actual Value A+B in configured unit	63241	DINT	4.0	67.0	Input	0
Actual Value [A-B] in configured unit	7569	DINT	4.0	71.0	Input	0
Actual Value (A+B)/2 in configured unit	31620	DINT	4.0	75.0	Input	0
Status	0	USINT	1.0	79.0	Input	0
WcState	0	BIT	0.1	1522.1	Input	0
InputTenable	1	RIT	0.1	1574.1	Input	0

## Change parameters

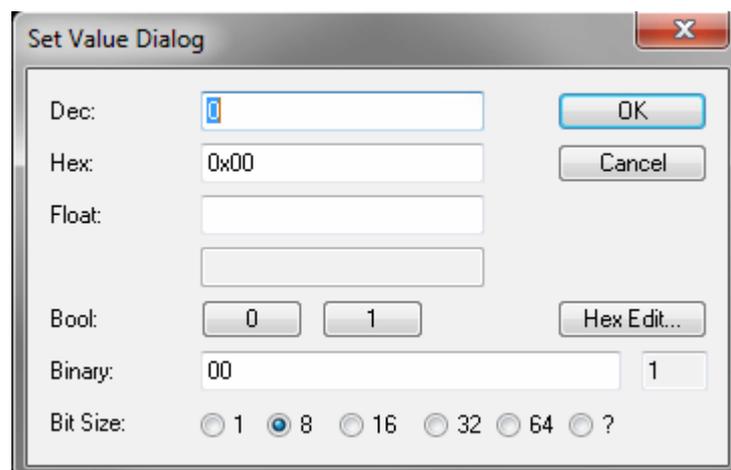
- The parameters can be changed here. Open the tree index 2800 and 2820. After that, all parameters will be visible.
- As an example double click on System Force. That opens the window Set Value Dialog. Enter a new value in the entry field Dec, e.g., 2000000 (that is interpreted as 2000.000N) and click on OK. A new system force has been set.



What the value ranges of the individual parameters are and how they will be interpreted can be seen in the manuals.

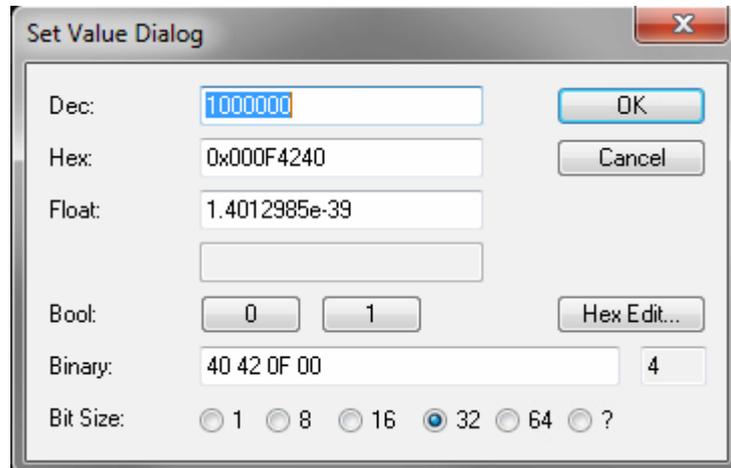
### Example to adjust the offset

Double click on the parameter Offset Adjust. In the Set Value Dialog click on button 0 and OK. Be sure that the load call sensor is not loaded.



**Example to calibrate with a defined weight**

Double click on the parameter Calibration. In the Set Value Dialog enter the value of the loaded weight into the entry field Dec, e.g., 250000 (that is interpreted as 250.000N) and click on OK. That calculates the gain and saves it.



**Caution: All weight values must independent from the configured unite be entered in Newton (N).**