Application Note

eCOCKPIT

Using the WagoAppEtherNetIP_Adapter library with a CompactLogix™ Controller

A500930

Version 1.0.0

WAGO Kontakttechnik GmbH & Co. KG

Hansastraße 27
D-32423 Minden

Tel.: +49 (0) 571/8 87 – 0
Fax: +49 (0) 571/8 87 – 1 69

E-Mail: info@wago.com

Web: http://www.wago.com

Technical Support

Tel.: +49 (0) 571/8 87 – 5 55
Fax: +49 (0) 571/8 87 – 85 55

E-Mail: support@wago.com

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Notes about this Documentation

Copyright

Number Notation

Table 1: Number Notation

Number code	Example	Note
Decimal	100	Normal notation
Hexadecimal	0x64	C notation
Binary	'100' '0110.0100'	In quotation marks, nibble separated with dots (.)

Font Conventions

Table 2: Font Conventions

Font type	Indicates
italic	Names of paths and data files are marked in italic-type. e.g.: *C:\Programme\WAGO-I/O-CHECK*
Menu	Menu items are marked in bold letters. e.g.: **Save**
>	A greater-than sign between two names means the selection of a menu item from a menu. e.g.: **File** > **New**
Input	Designation of input or optional fields are marked in bold letters, e.g.: **Start of measurement range**
“Value”	Input or selective values are marked in inverted commas. e.g.: Enter the value “4 mA” under **Start of measurement range**.
[Button]	Pushbuttons in dialog boxes are marked with bold letters in square brackets. e.g.: **[Input]**
[Key]	Keys are marked with bold letters in square brackets. e.g.: **[F5]**

Symbols

DANGER

Personal Injury!
Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.

DANGER

Personal Injury Caused by Electric Current!
Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Personal Injury!
Indicates a moderate-risk, potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Personal Injury!
Indicates a low-risk, potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Damage to Property!
Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

NOTICE

Damage to Property Caused by Electrostatic Discharge (ESD)!
Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

Note

Important Note!
Indicates a potential malfunction which, if not avoided, however, will not result in damage to property.

Information

Additional Information:
Refers to additional information which is not an integral part of this documentation (e.g., the Internet).

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The use of the product described in this document is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the appropriate current standards.

Moreover, the persons cited here must also be familiar with all of the products cited in this document, along with the operating instructions. They must also be capable of correctly predicting any hazards which may not arise until the products are combined.

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The sample applications described in this documentation represent concepts, that is, technically feasible application. Whether these concepts can actually be implemented depends on various boundary conditions. For example, different versions of the hardware or software components can require different handling than that described here. Therefore, the descriptions contained in this documentation do not form the basis for assertion of a certain product characteristic.

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WAGO Kontakttechnik GmbH & Co. KG is not liable for any actual implementation of the concepts.

Table of Contents

1 Used material

1.1 Libraries

Library	Description	Version*
WagoAppEtherNetIP_Adapter		1.0.0.1
WagoSysEtherNetIP_Adapter		1.0.0.1

*this version was used for the creation of this application note.

1.2 Devices

Provider	Quantity	Description	Order number	Version*
WAGO	1	PFC200	750-8206	02.05.23(08)
Allen-Bradley	1	1769-L32E CompactLogix5332E Controller	-	20.11

*this version was used for the creation of this application note.

1.3 Tools

Description	Order number	Version*
WAGO e!COCKPIT	2759-101	R4
Rockwell RSLogix 5000	-	V20.00.00 (CPR 9 SR 5)

*this version was used for the creation of this application note.

2 Description

The purpose of this document is to provide a step-by-step example of interfacing the WAGO e!COCKPIT application library “WagoAppEtherNetIP_Adapter” with an Allen Bradley 1769-L32 CompactLogix™ Controller using EtherNet/IP protocol. In this example, the 1769-L32 controller functions as an EtherNet/IP scanner and uses Control and Information Protocol (CIP) to communicate with a WAGO controller PFC200 or PFC100.

3 Solution

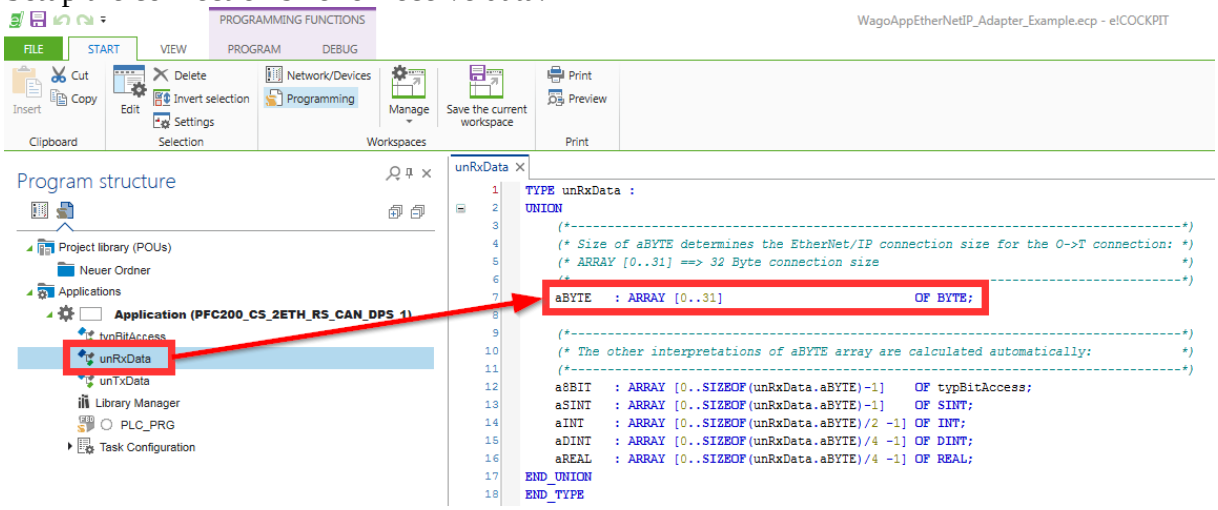
There are three general steps for setting up this system:

1. Create e!COCKPIT project that utilizes the WagoAppEtherNetIP_Adapter function block.
2. Install WagoAppEtherNetIP_Adapter EDS file to RSLogix5000™
3. Add WagoAppEtherNetIP_Adapter to your RSLogix5000™ project.

3.1 e!COCKPIT project

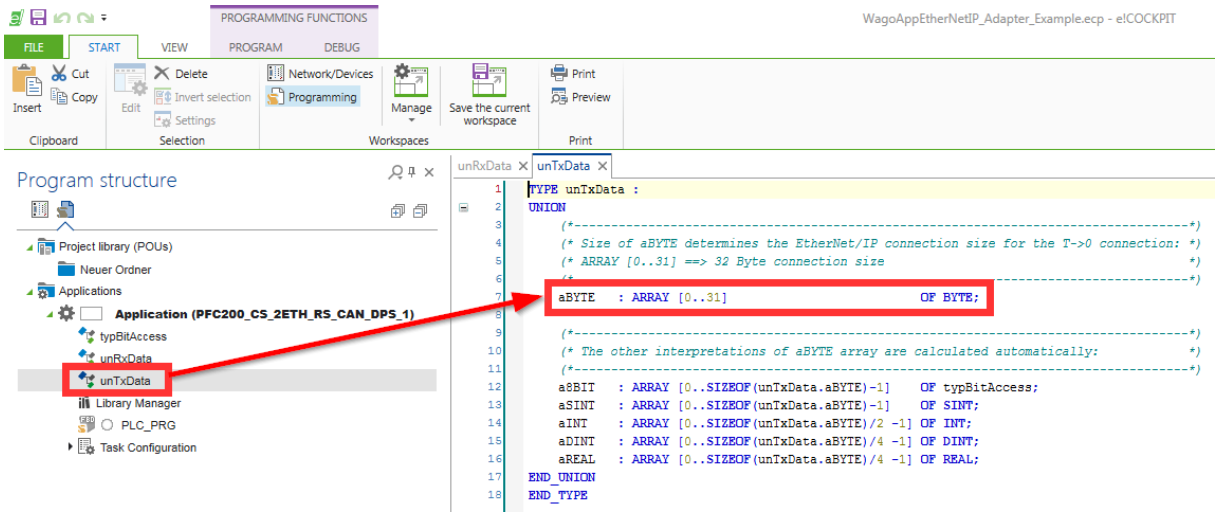
The attached e!COCKPIT project includes an ready to use example. Only some minor modifications are necessary:

1. Setup the connection size for receive data:



The size of the array “aBYTE” within the UNION “unRxData” determines the size of the connection. The maximum size is 500 Byte!

Setup the connection size for receive data:



The size of the array “aBYTE” within the UNION “unTxData” determines the size of the connection. The maximum size is 500 Byte!

2. Download the project to the WAGO controller and start the PLC.

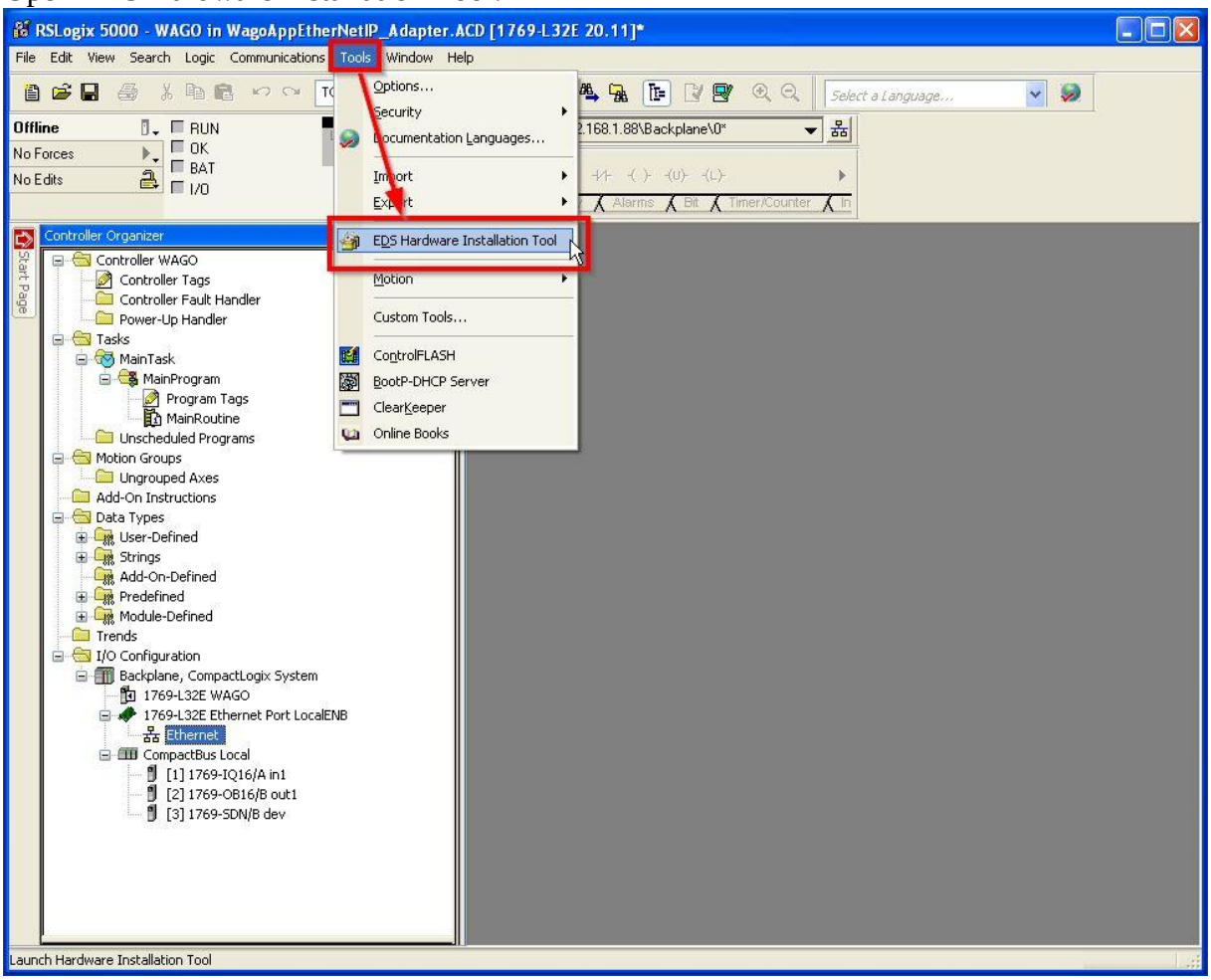
3. Enable the function block by setting “xOpen” to TRUE. Once the scanner has connected one of the outputs “xExclusiveOwnerIsConnected”, “xListenOnlyIsConnected” or “xInputsOnlyIsConnected” indicates the status.

3.2 Install WagoAppEtherNetIP_Adapter EDS file to RSLogix5000™

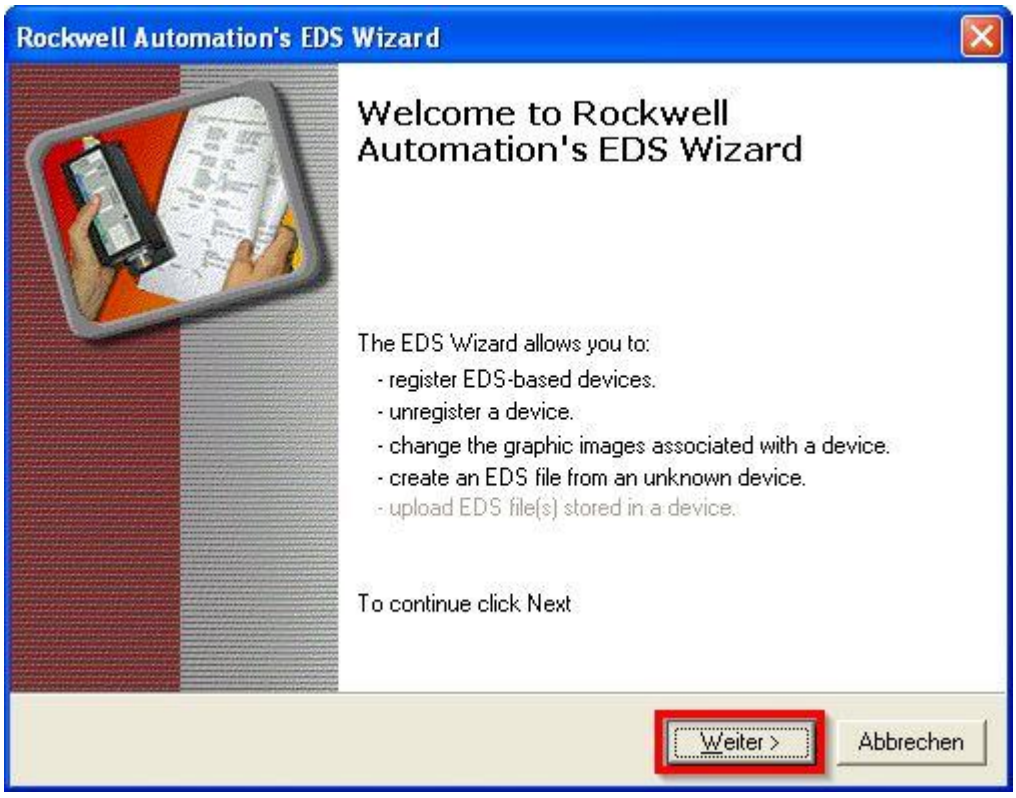
The EDS file “WagoAppEtherNetIP_Adapter.eds” is included in the attached ZIP archive.

Perform the following steps to install the EDS file to RSLogix5000™:

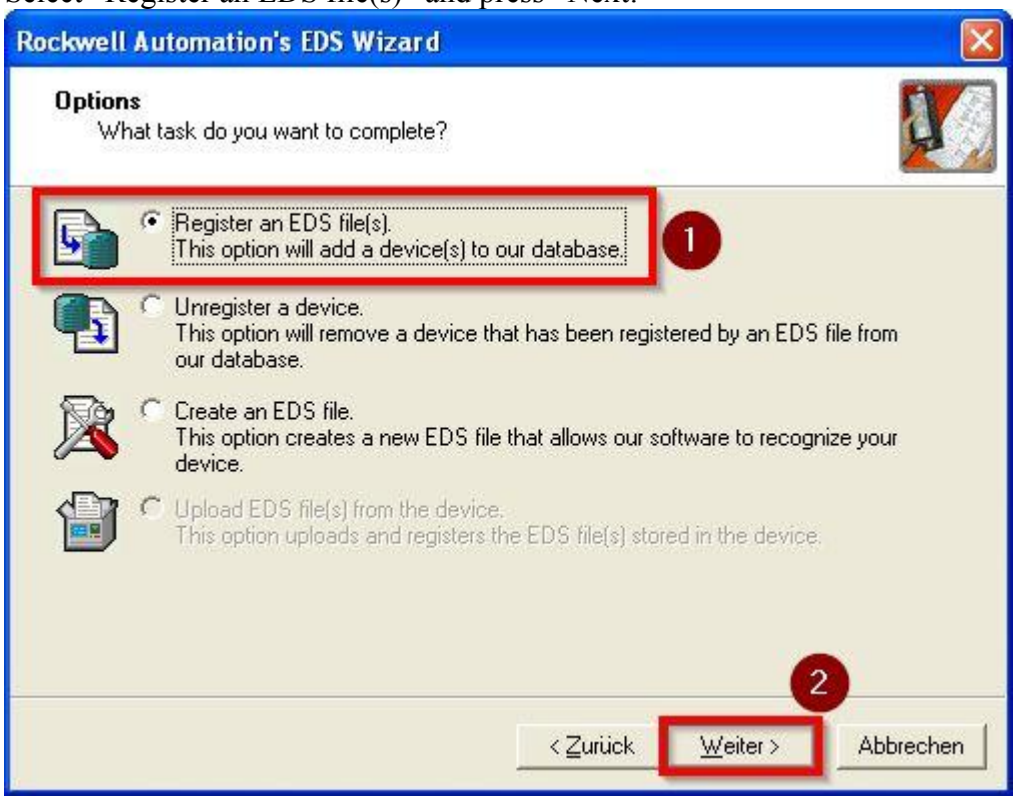
1. Open EDS Hardware Installation Tool:



2. Press “Next” to start the EDS Wizard:

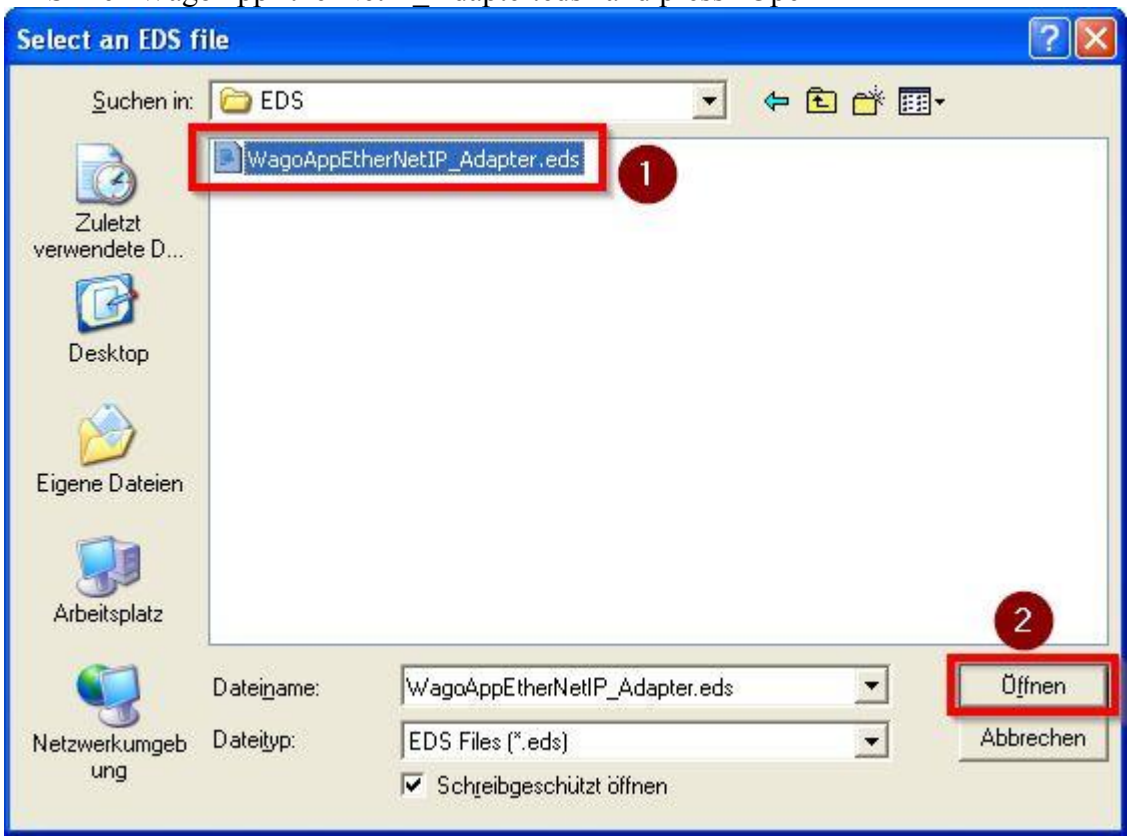


3. Select “Register an EDS file(s)” and press “Next:”



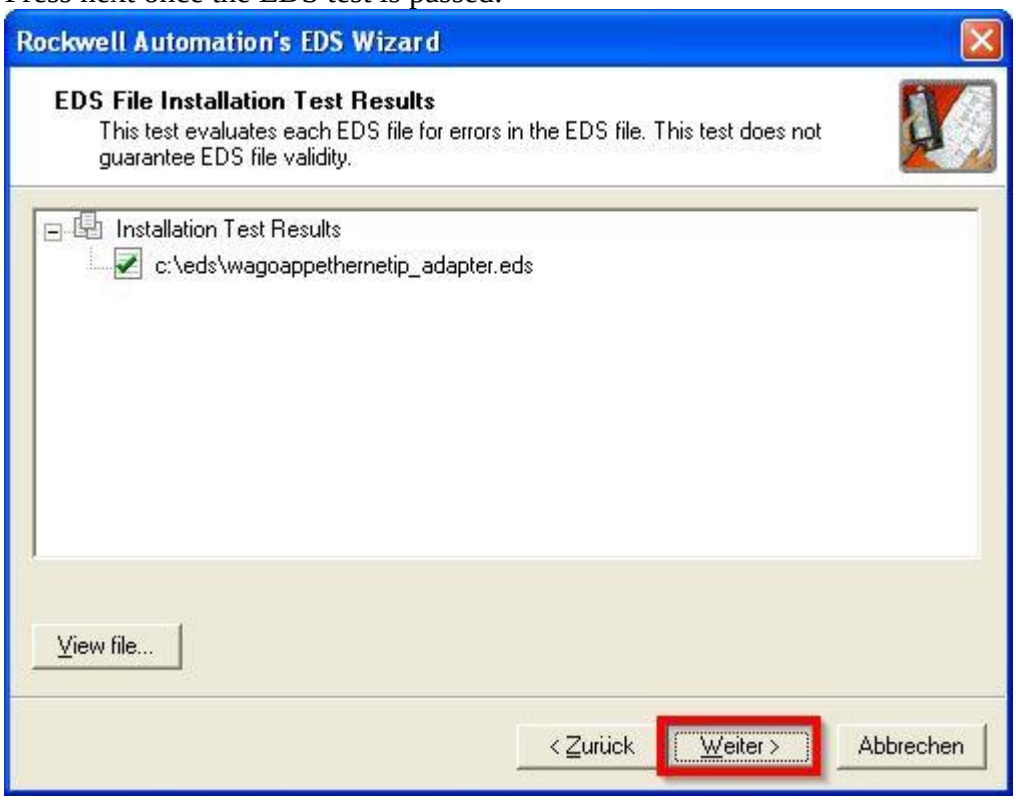
4. Select “Register a single file” and press “Browse”:

5. Browse to the location where you have extracted the attached archive , select the EDS file “WagoAppEtherNetIP_Adapter.eds” and press “Open”



6. Start the registration by pressing “Next”:

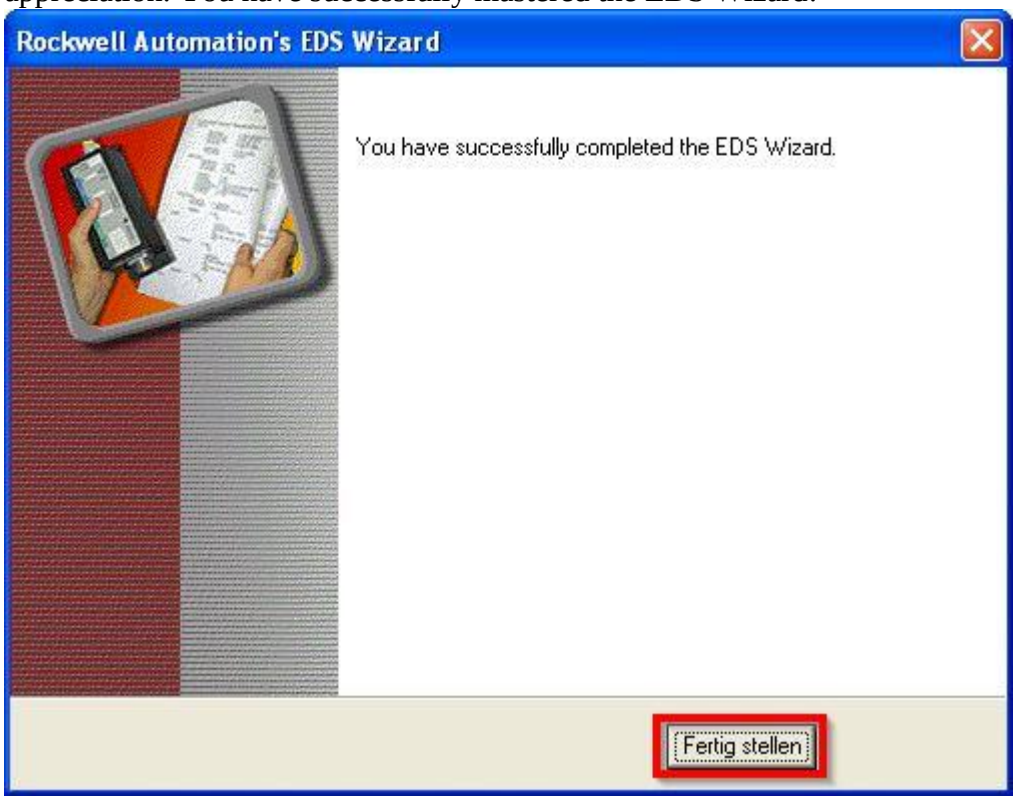
7. Press next once the EDS test is passed:



8. Skip the “Change Graphic Image” dialog by pressing “Next”. Alternatively you can add your own fancy icon ☺:

9. Study the „Final Task Summary“ carefully and press “Next” if you are really sure that the listed tasks should be executed:

10. Congratulations! If you see this dialog you have successfully completed the EDS Wizard! Take a break to enjoy the fruits of your labor and soak up these words of appreciation. You have successfully mastered the EDS Wizard!

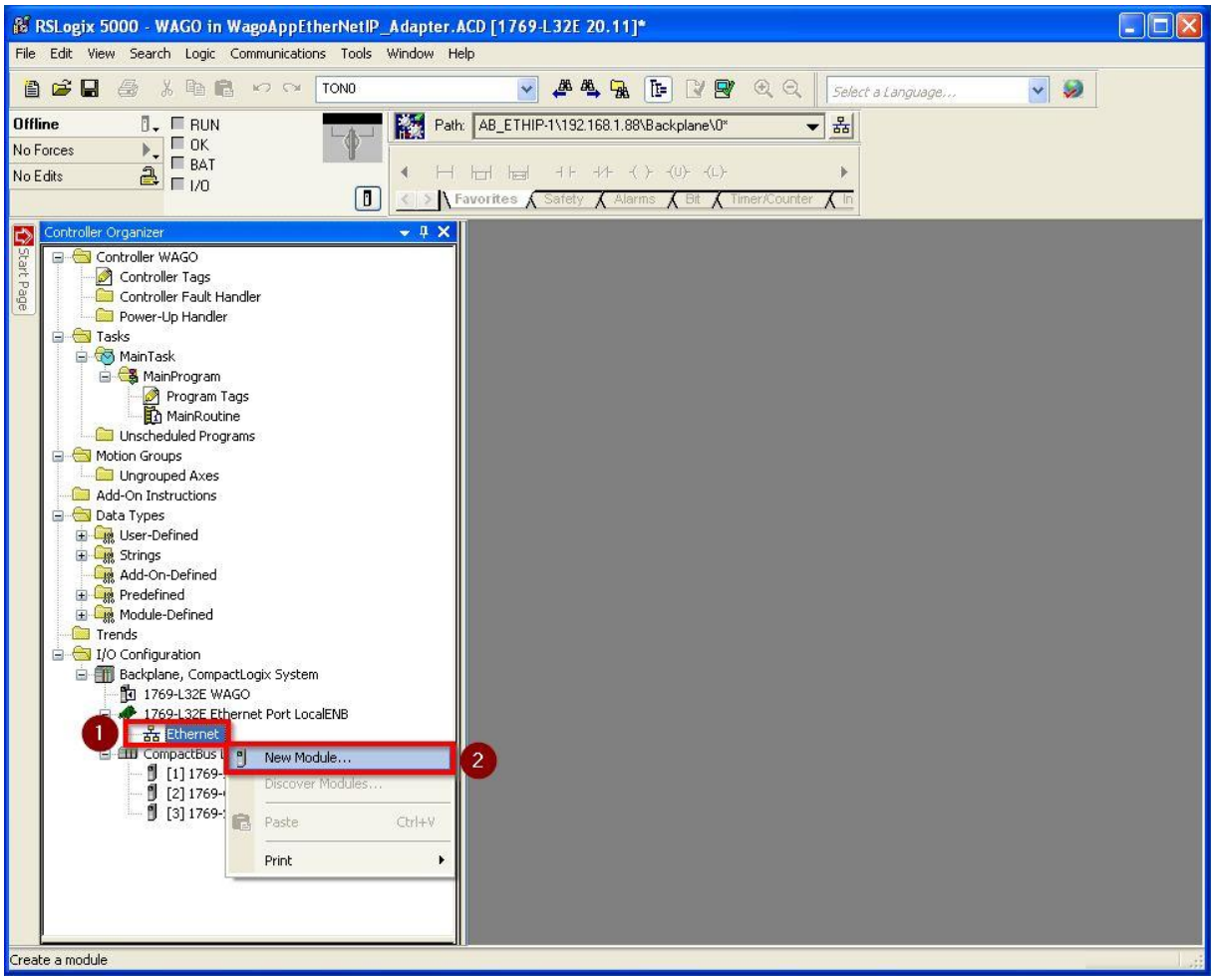


3.3 Add WagoAppEtherNetIP_Adapter to your RSLogix5000™ project

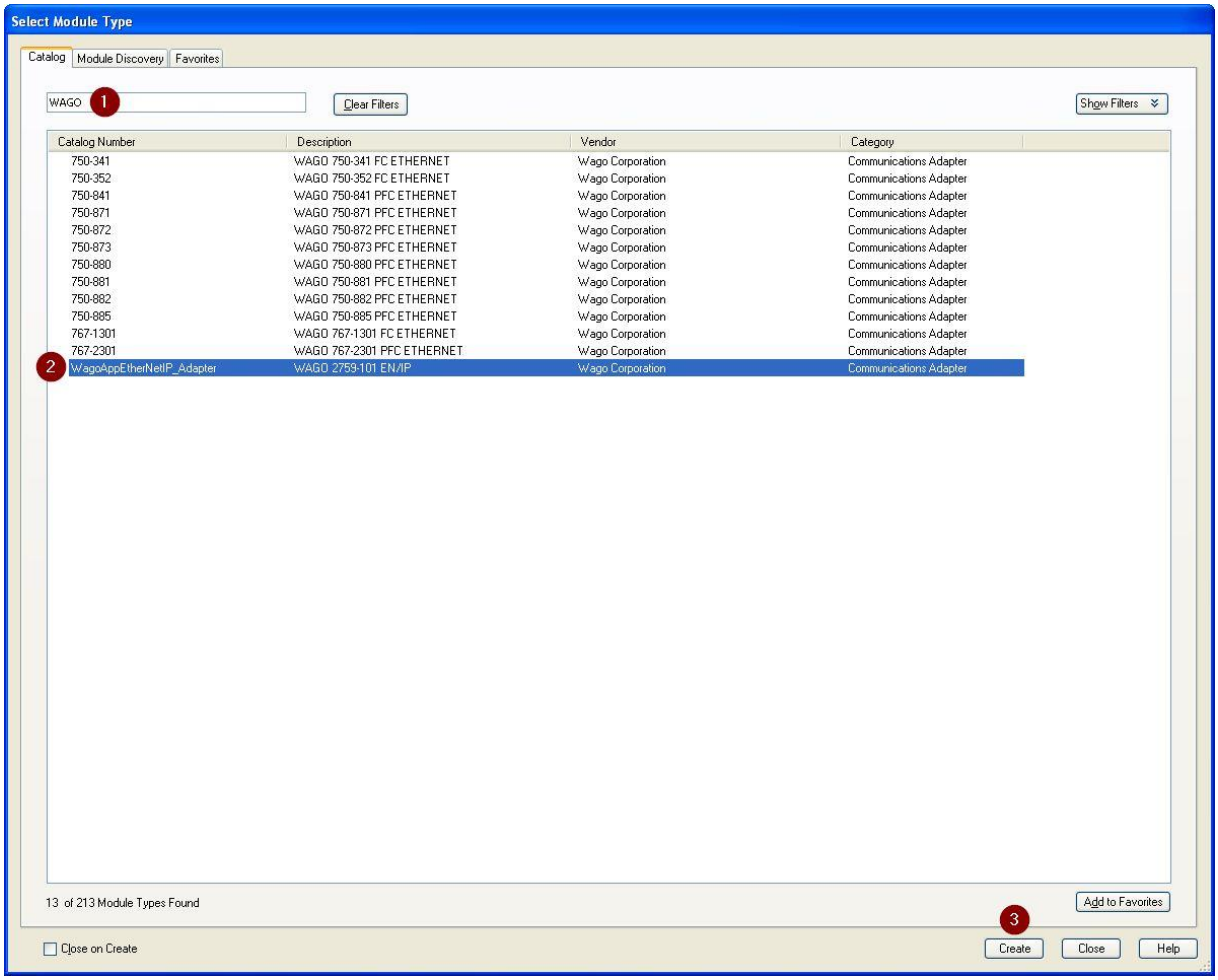
It is assumed that you have successfully setup an RSLogix5000™ project which includes the configuration for your CompactLogix™ controller and its EtherNet/IP scanner.

Perform the following steps to add and configure the WagoEtherNetIP_Adapter to your RSLogix5000™ project.

1. Open the context menue of your Ethernet interface by clicking with the right mouse button (1) and press „New Module…“ (2)

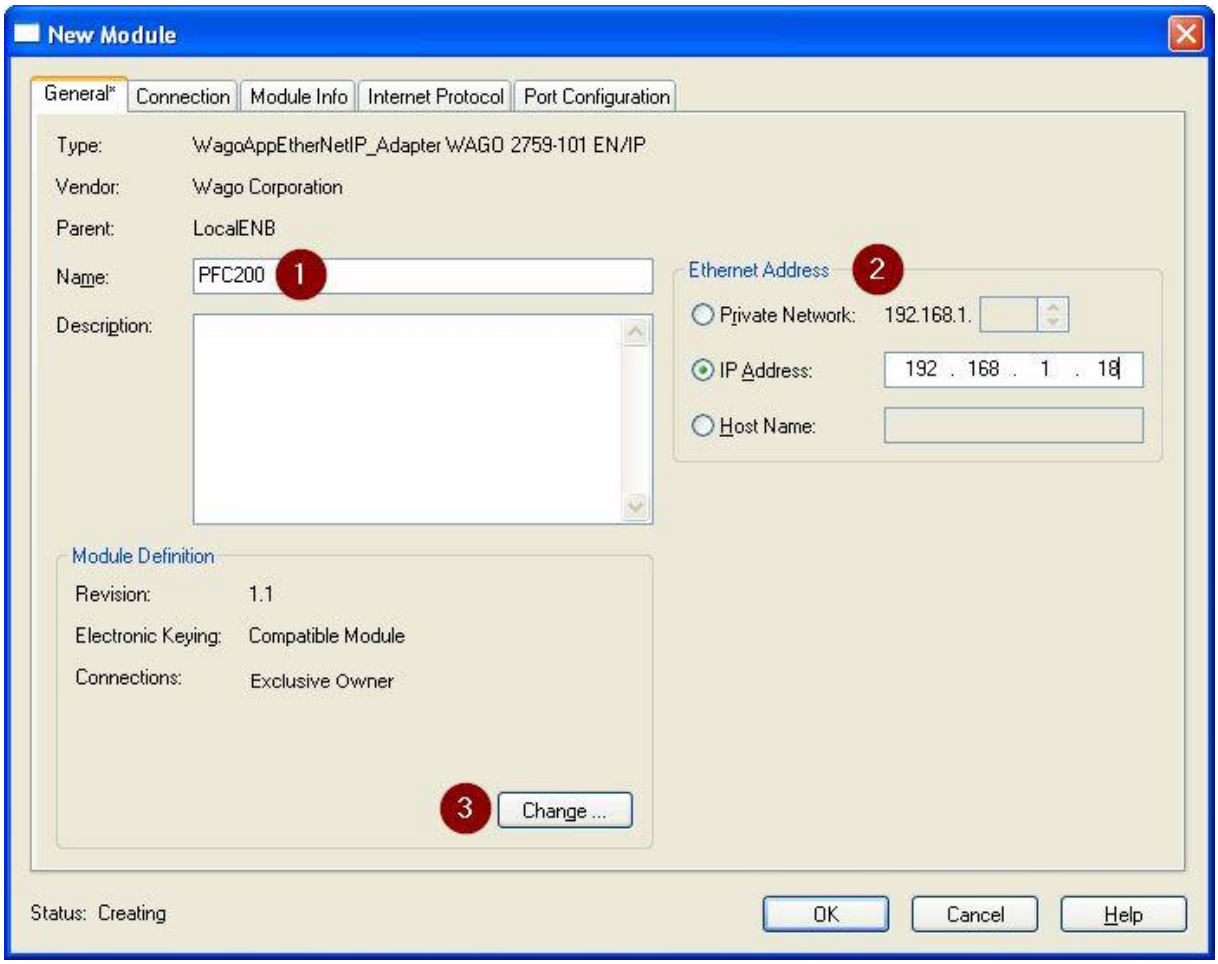


2. Select module:
   1. Apply filter with keyword “WAGO” to the catalog
   2. Select “WagoEtherNetIP_Adapter”
   3. Press “Create” to open the “New Module” dialog.

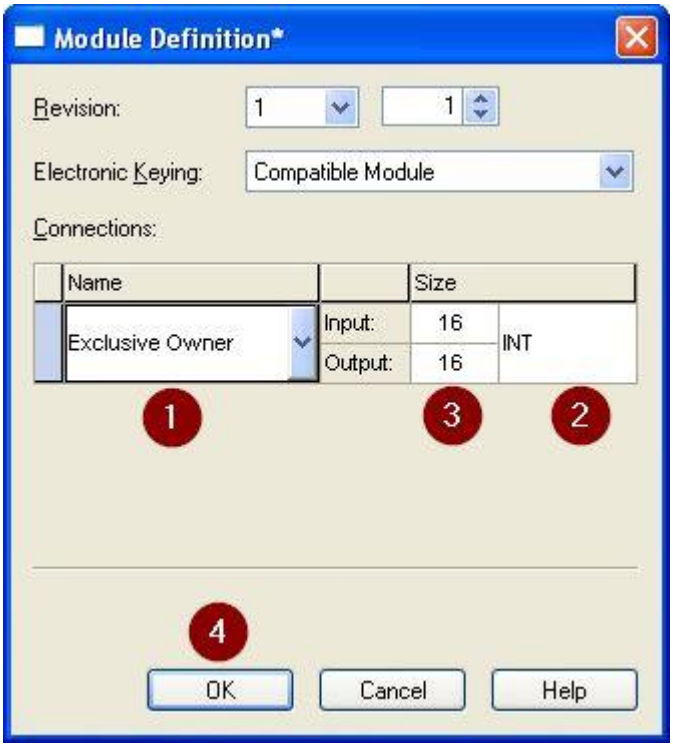


3. Configure the new module:

    1. Enter a name for the module
    2. Enter the IP address of the WAGO controller that runs the e!COCKPIT project
    3. Press the button “Change...” to open the” Module Definition” dialog



4. Setup the “Module Definition”



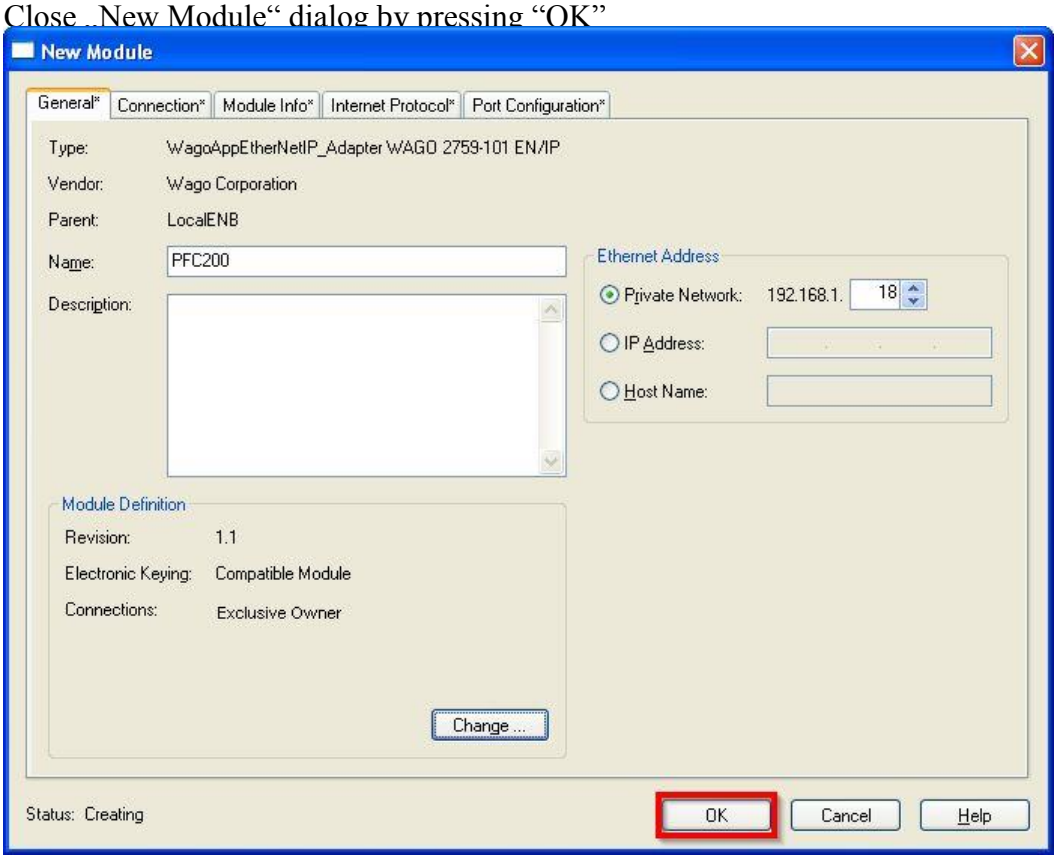
1. Select the connection type:
   - ✓ Exclusive Owner
   - ✓ Input Only
   - ✓ Listen Only
2. Select the data format:
   - ✓ SINT (8 Bit)
   - ✓ INT (16 Bit)
   - ✓ DINT (32 Bit)
   - ✓ REAL (32 Bit)
3. Configure the connection size. The unit of these numbers depends on the selected data format. Some examples:

   16 INT → Connection size will be 32 Byte
   32 SINT → Connection size will be 32 Byte
   8 DINT → Connection size will be 32 Byte
   8 REAL → Connection size will be 32 Byte

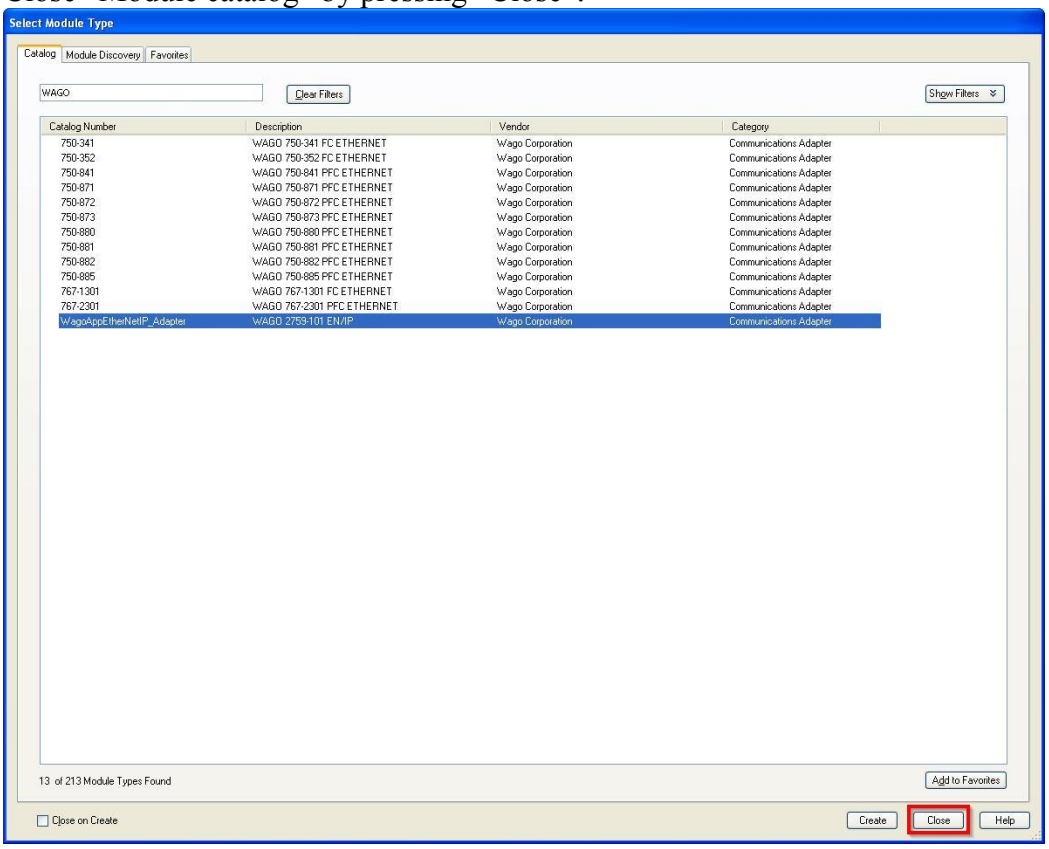
   For each of these examples you have to setup a connection size of 32 Byte within your e!COCKPIT project!

4. Press “OK” to close the dialog

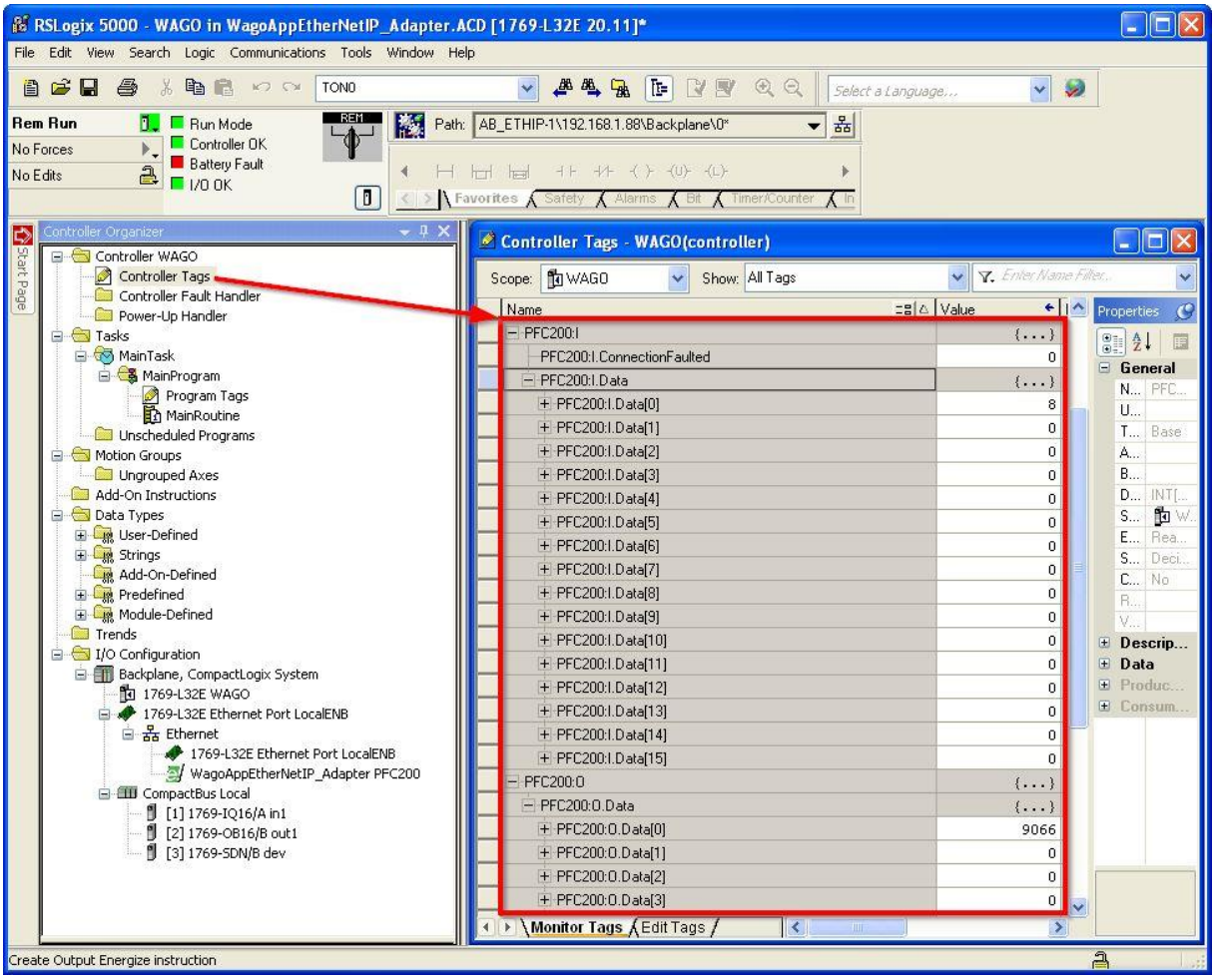
5. Close „New Module“ dialog by pressing “OK”



6. Close “Module catalog” by pressing “Close”:



7. Now you can download and start the RSLogix5000™ project. The corresponding “Controller Tags” should have been created automatically and you can now monitor the in- and output data of the WagoEtherNetIP_Adapter:

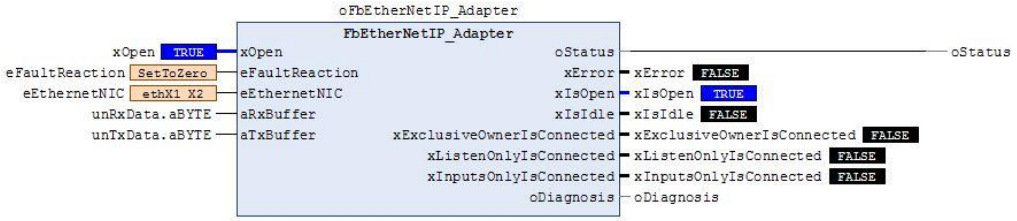


4 Troubleshooting

4.1 CompactLogix™ Controller does not connect to the WAGO Adapter

Once you see the yellow triangle above the WAGO module in you RSLOGIX project the connection is not established. The following point may be of help in order to find the reason for this issue:

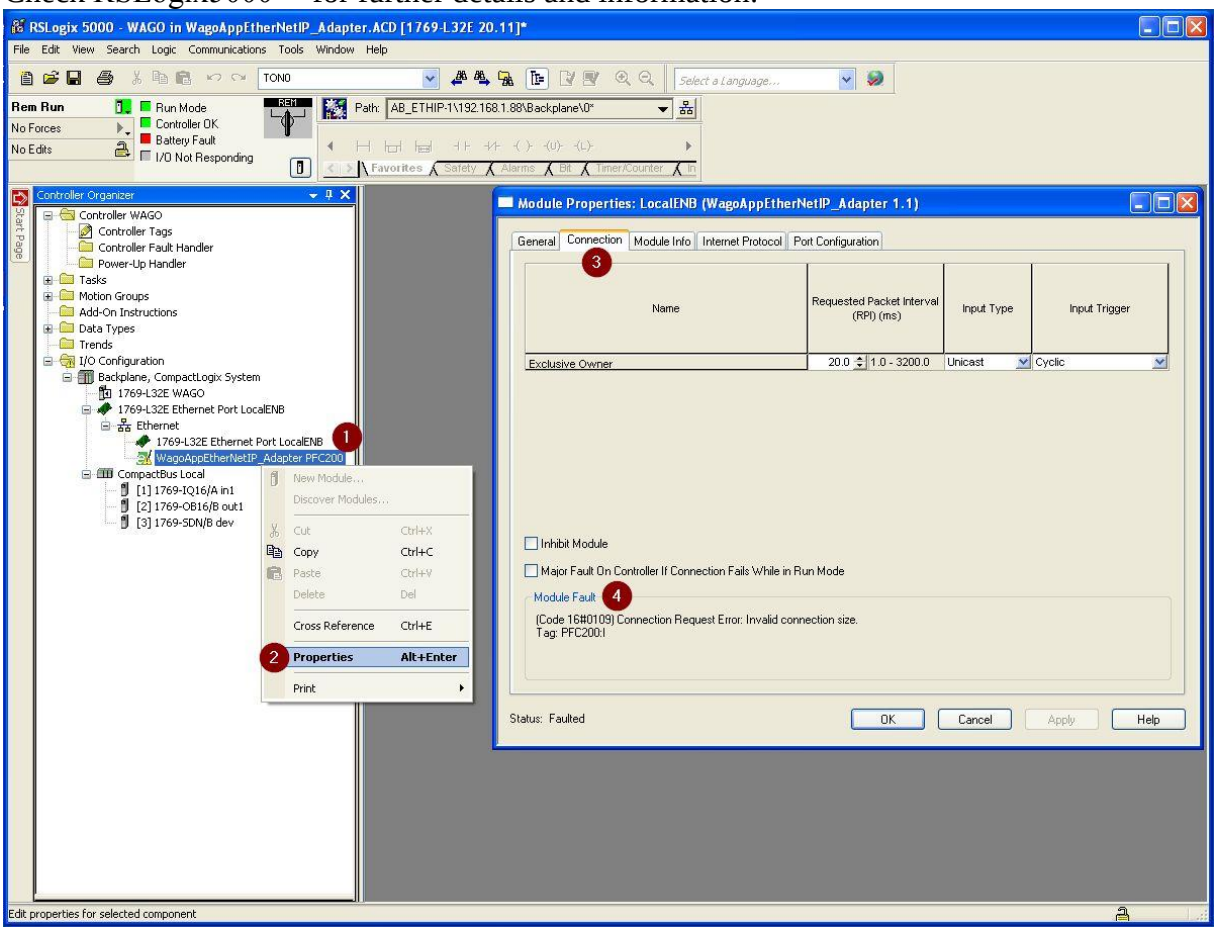
1. Make sure the function block is properly started within your e!COCKPIT project. xOpen and xIsOpen should be TRUE:



2. Make sure the connection size configurations in e!COCKPIT and RSLogix5000™ are equal!

3. Make sure the e!COCKPIT task where the function block is called has an call interval that is a least as high as the required RPI.

4. Check RSLogix5000™ for further details and information:



WAGO Kontakttechnik GmbH & Co. KG
Postfach 2880 • D-32385 Minden
Hansastraße 27 • D-32423 Minden
Telefon: +49 (0) 571/8 87 – 0
Telefax: +49 (0) 571/8 87 – 1 69
E-Mail: info@wago.com
Internet: http://www.wago.com