UC20-SL2000-OLAC-EC / UR20-FBC-EC

Quick Start Guide for connecting EtherCAT with u-create studio

Abstract:
This document is a quick commissioning guideline for the Weidmüller UC20-SL2000-OLAC (Previously UC20-SL2000-AC) with u-create studio connected to a u-remote EtherCAT coupler. It describes how to connect the coupler as an EtherCAT slave device to the controller and how to map variables to the IO-system.

Hardware reference

No.	Component name	Article No.	Hardware / Firmware version
1	UC20-SL-2000-OLAC-EC	2638920000	
2	UR20-FBC-EC	1334910000	/ FW 01.08 or higher
3	UR20-8DI-P-2W	1315180000	-
4	UR20-8DO-P	1315240000	-

Software reference

No.	Software name	Article No.	Software version
1	u-create studio	2660130000	1.18 (or higher)

File reference

No.	Name	Description	Version
1	-	-	-

Contact
Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
32758 Detmold, Germany
www.weidmueller.com

For any further support please contact your local sales representative:
https://www.weidmueller.com/countries

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1 Warning and Disclaimer

Warning
Controls may fail in unsafe operating conditions, causing uncontrolled operation of the controlled devices. Such hazardous events can result in death and / or serious injury and / or property damage. Therefore, there must be safety equipment provided / electrical safety design or other redundant safety features that are independent from the automation system.

Disclaimer
This Application Note / Quick Start Guide / Example Program does not relieve you of the obligation to handle it safely during use, installation, operation and maintenance. Each user is responsible for the correct operation of his control system. By using this Application Note / Quick Start Guide / Example Program prepared by Weidmüller, you accept that Weidmüller cannot be held liable for any damage to property and / or personal injury that may occur because of the use.

Note
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Security notes
In order to protect equipment, systems, machines and networks against cyber threats, it is necessary to implement (and maintain) a complete state-of-the-art industrial security concept. The customer is responsible for preventing unauthorized access to his equipment, systems, machines and networks. Systems, machines and components should only be connected to the corporate network or the Internet if necessary and appropriate safeguards (such as firewalls and network segmentation) have been taken.

2 Components & Connections

2.1 Port assignment

UR20-8DI-P-2W is a remote IO module attached to u-control.
UR20-8DO-P is a remote IO module attached to u-remote coupler.

1.) UC20-SL2000-AC

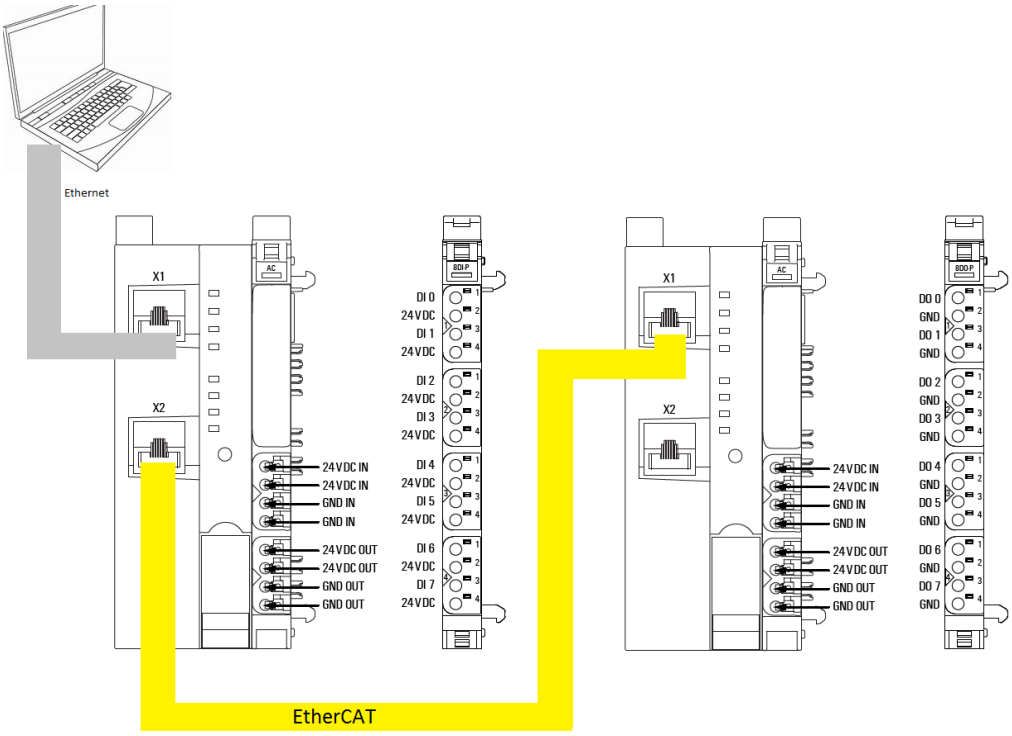
X1:	Ethernet		Default IP: 192.168.101.100 (configure in u-create studio)
X2:	EtherCAT	OUT	(connection to first EtherCAT slave)

2.) UR20-FBC-EC

X1:	EtherCAT	IN	(connection from controller or prior slave)
X2:	EtherCAT	OUT	(connection to next slave)

2.2 Schematic Structure

The application uses an 8DI module at the u-control and an 8DO module at the u-remote, to show how to map variables.



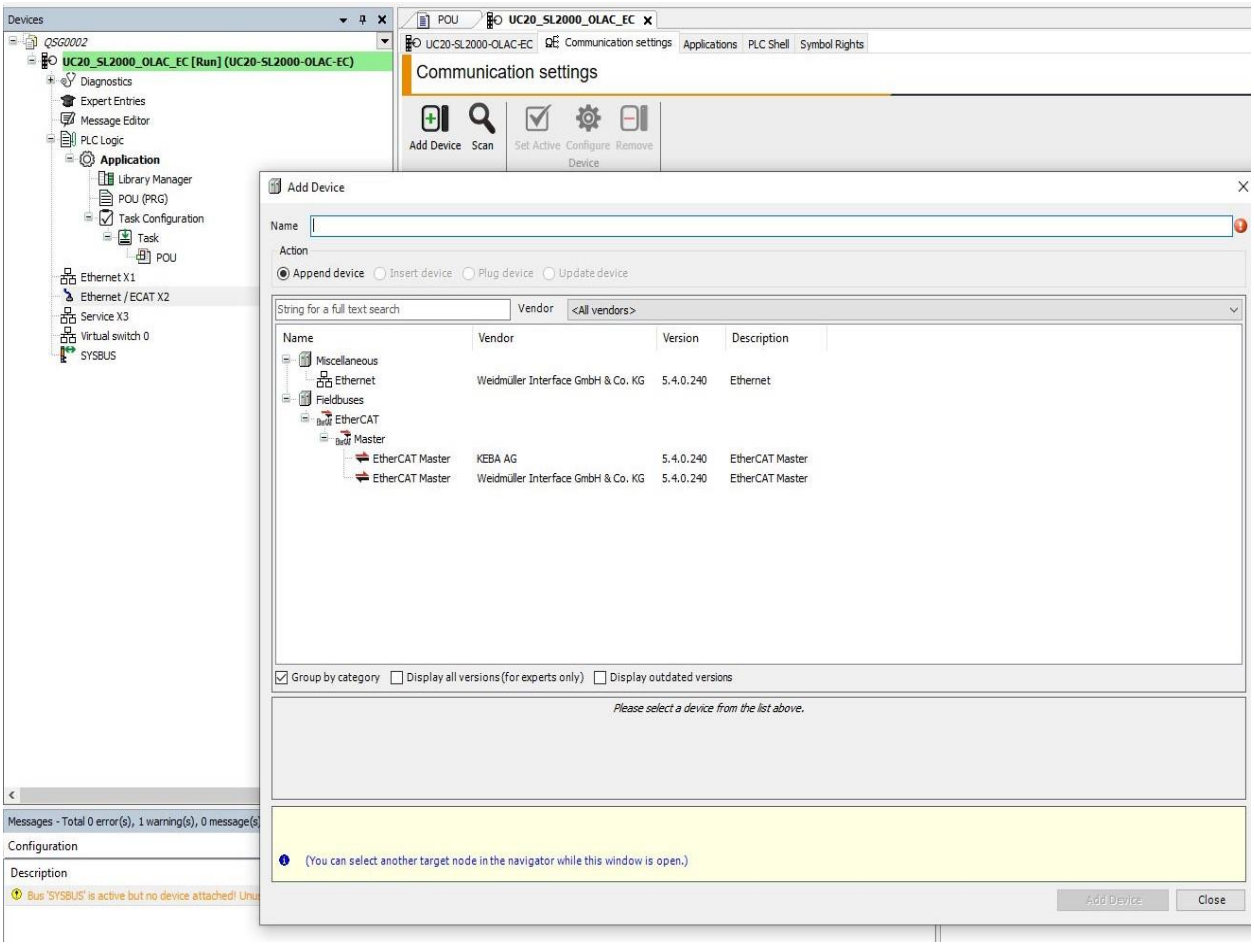
Ethernet Connection: You can access the UC20-SL2000-xx controller via Ethernet. Connect the PC to the controller using a LAN cable and X1 Port.
EtherCAT Connection: Connect the UC20 Controller to the u-remote coupler using a LAN cable. Use the X2 Port from the controller and the X1 Port from the u-remote EC coupler.

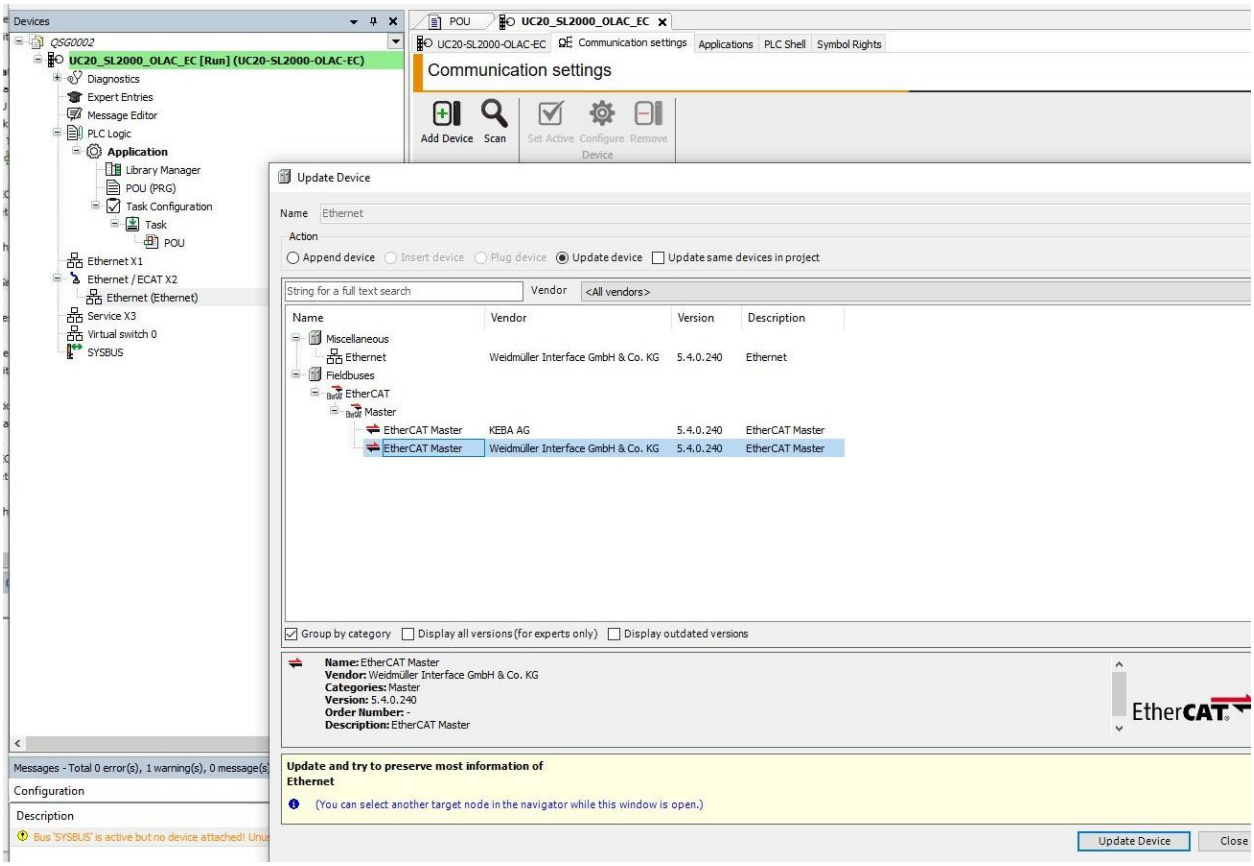
3 u-create studio – Hardware Setup

3.1 Create a new project

To create a new project, follow these steps:

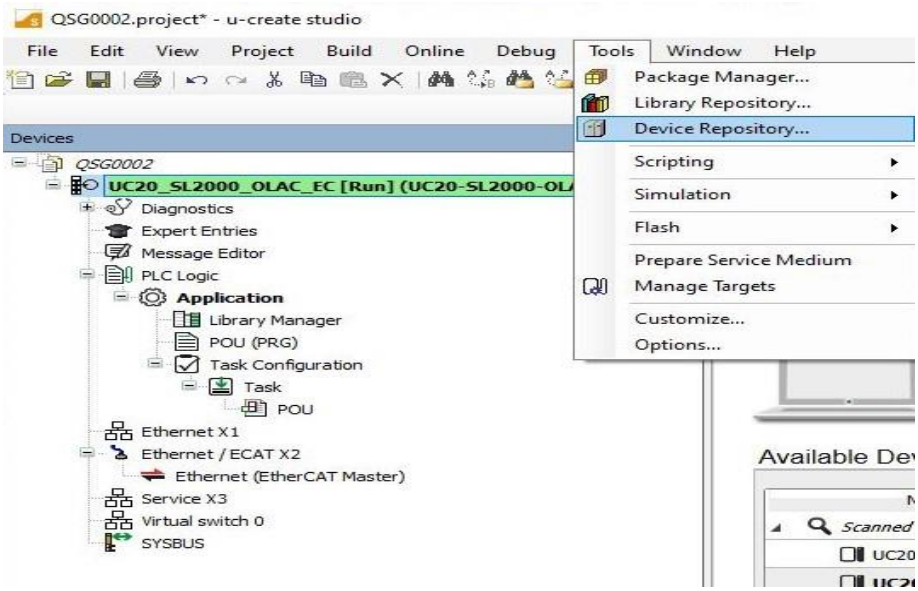
1.) Start u-create studio.
2.) Open File -> New Project (or Strg+N) to create a new project.
3.) Choose Default Project OLAC-EC.
4.) Now check if you are connected to the controller and that it is running.

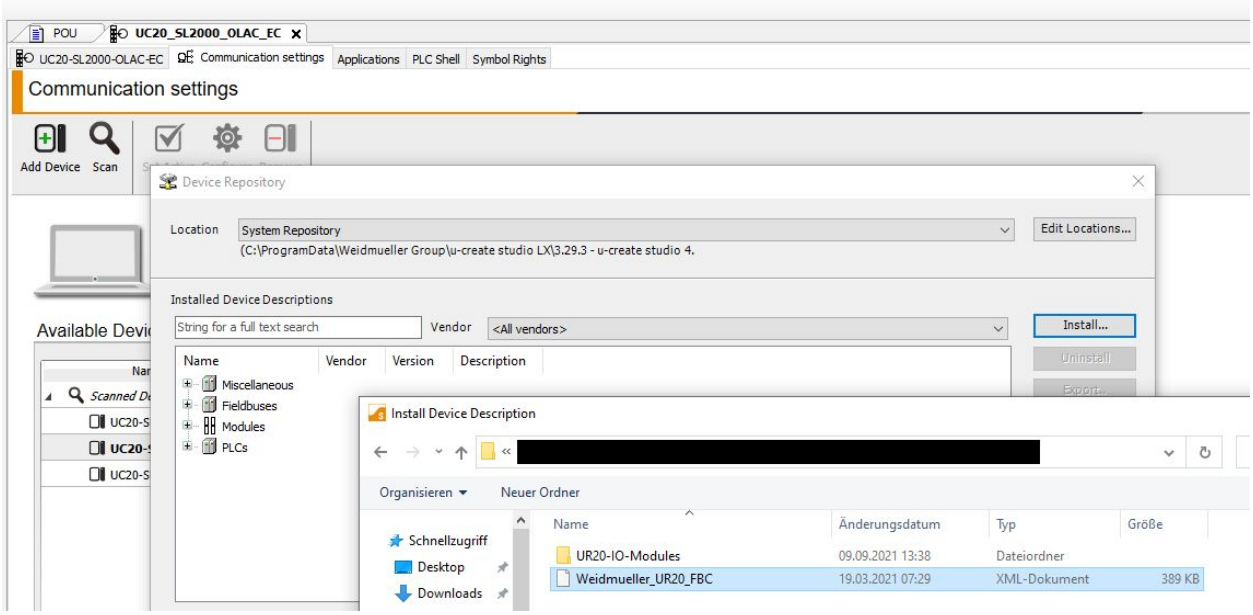


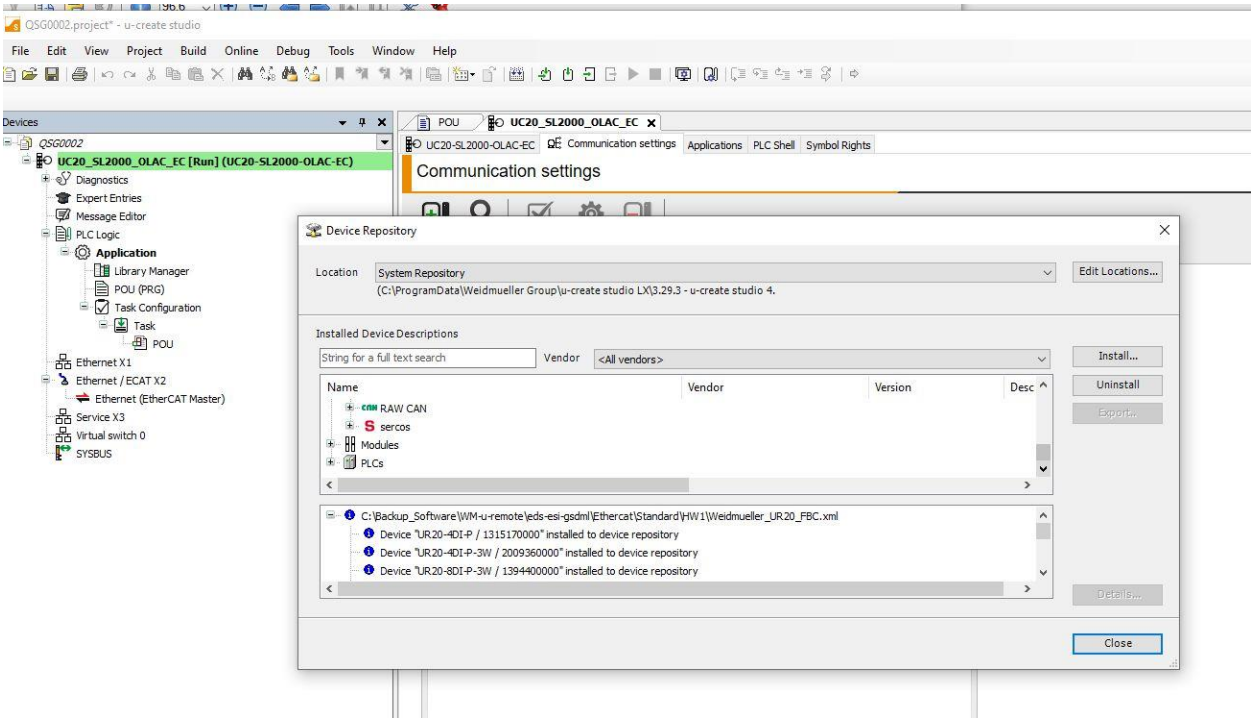


3.2 Install ESI file to the Device Repository

u-create studio comes with integrated devices descriptions for several Weidmüller UR20 “u-remote” products.







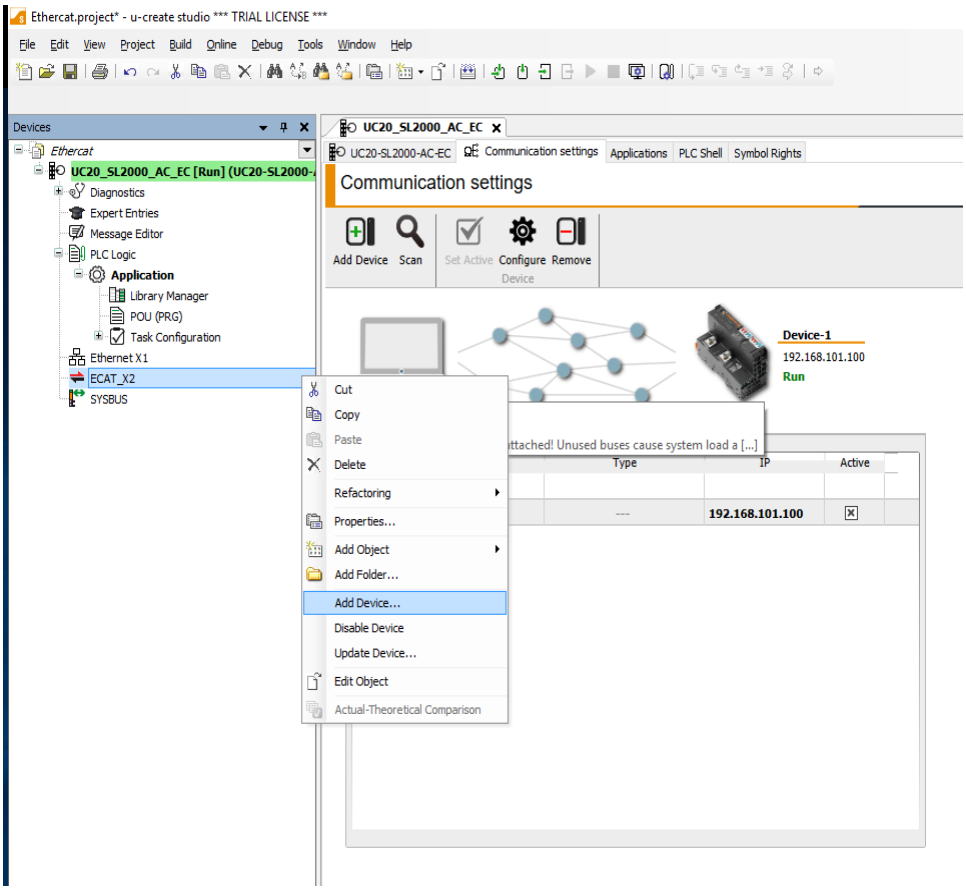
This can also be done with ESI files for 3rd party devices too.

However, it is possible that needed description file is not included, e.g. because of either older u-create studio version or newer u-remote module.
In this case you can download and import necessary ESI-File from the Weidmüller website.

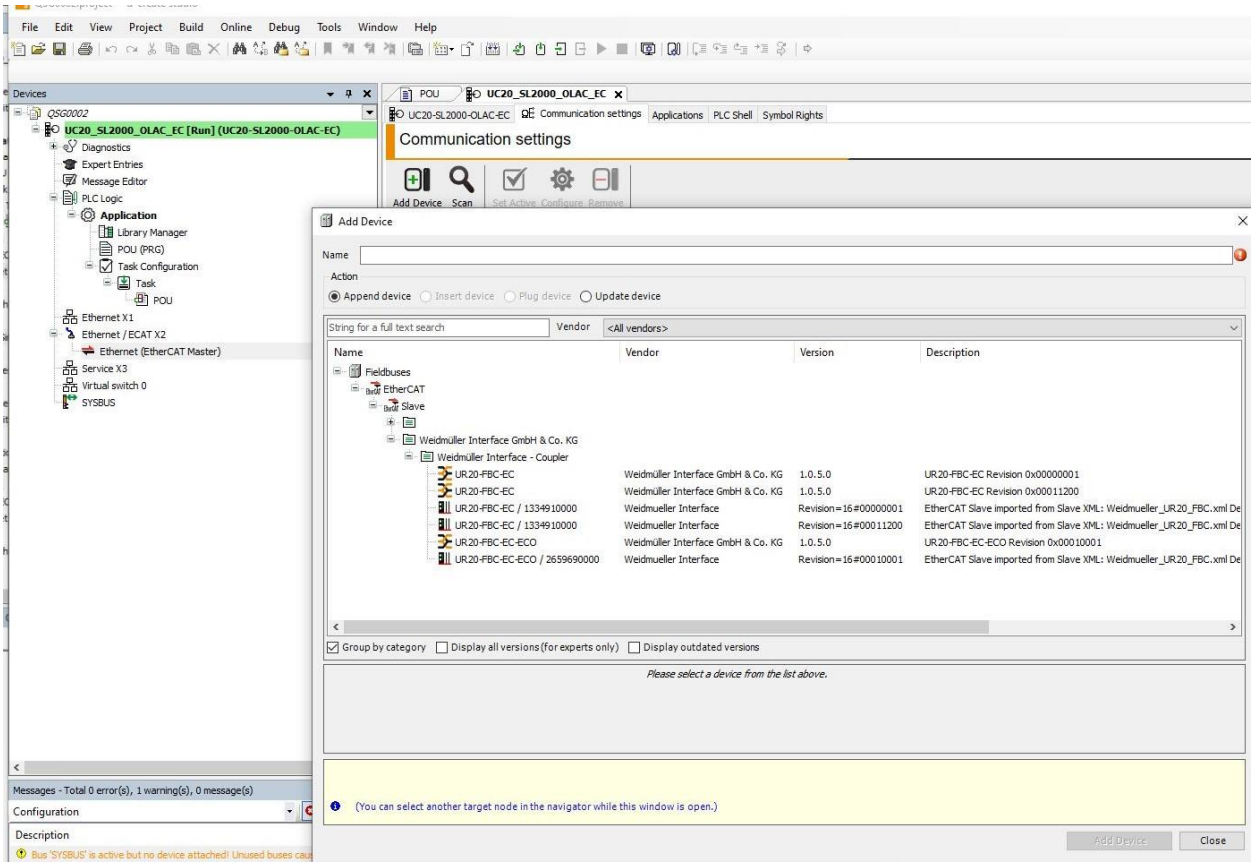
3.3 Connect EtherCAT coupler and module

To connect the coupler and module follow these steps:

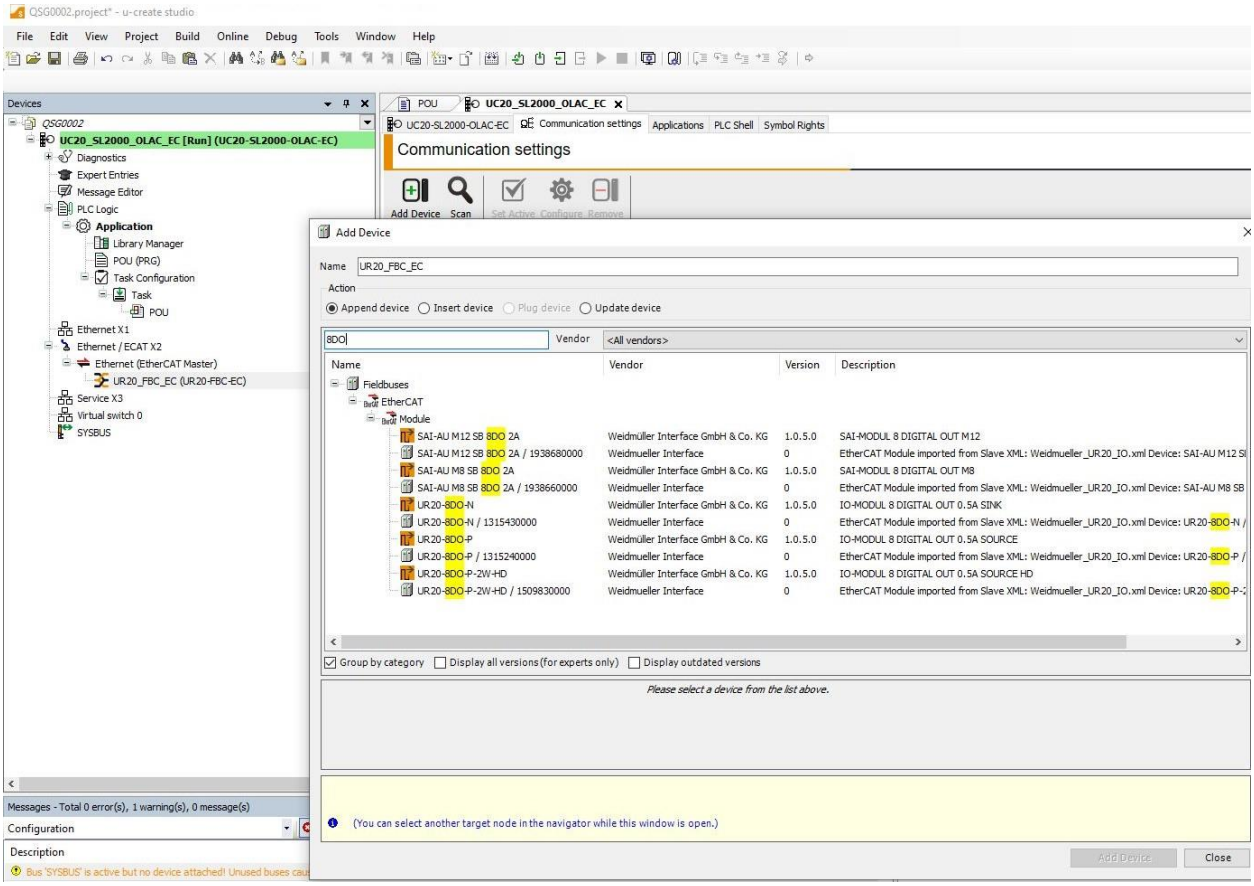
1.) Right click on the ECAT_X2 device and Add device.



2.) Choose the right coupler and add the device.

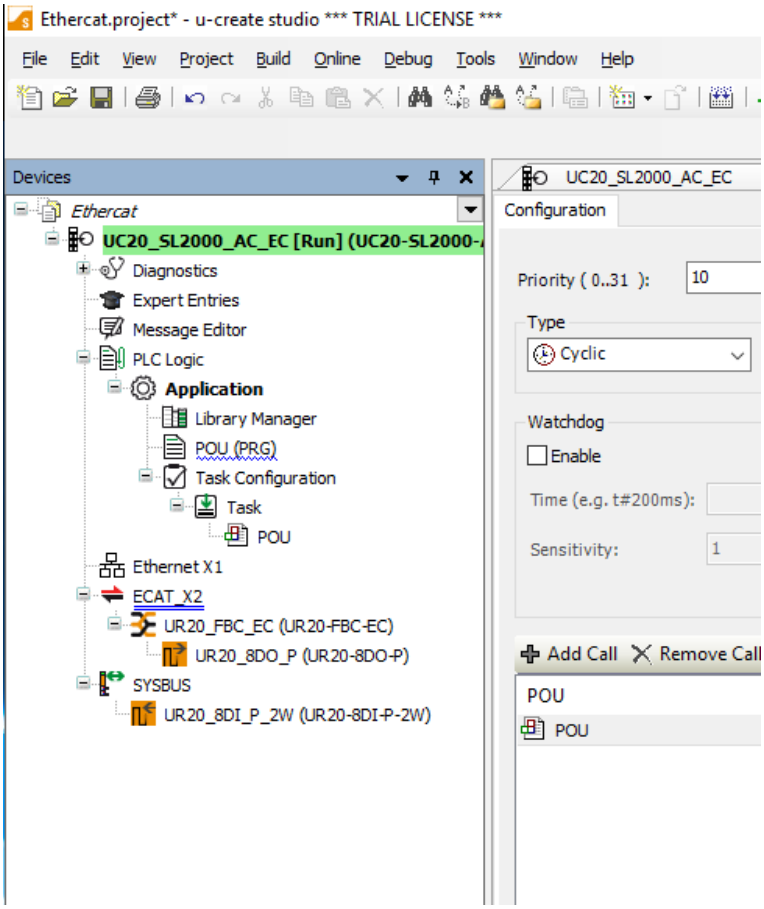


3.) Click on the inserted coupler and add the u-remote module.
In this application it is an 8DO module.



3.4 Attach u-remote module to SYSBUS

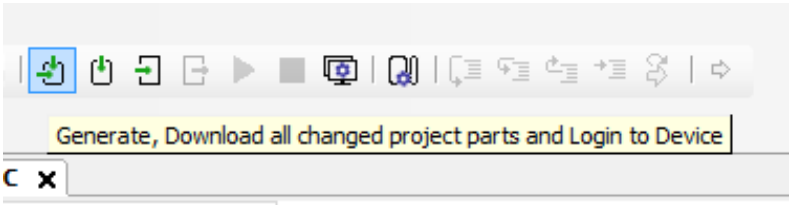
Right click on the SYSBUS and Add Device. Choose the module and confirm.



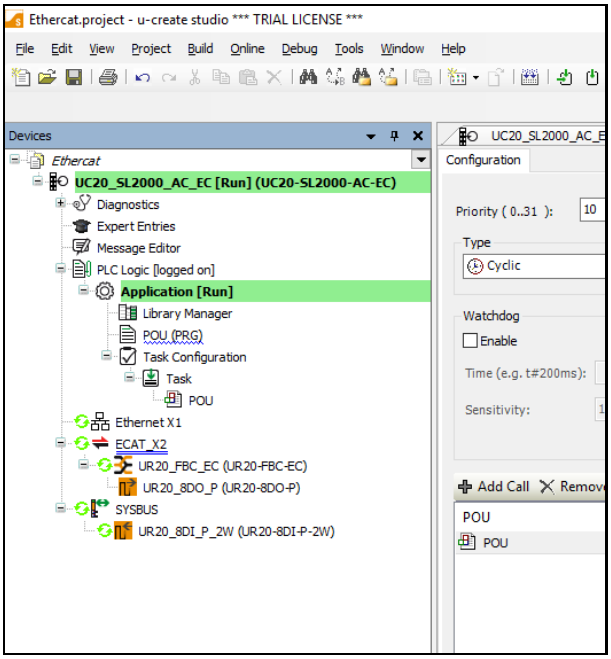
3.5 Download and Login

Generate, Download the program and Login to the device.

Username : Administrator
Password: tobechanged



If everything is working fine, then a green icon is shown in the program.

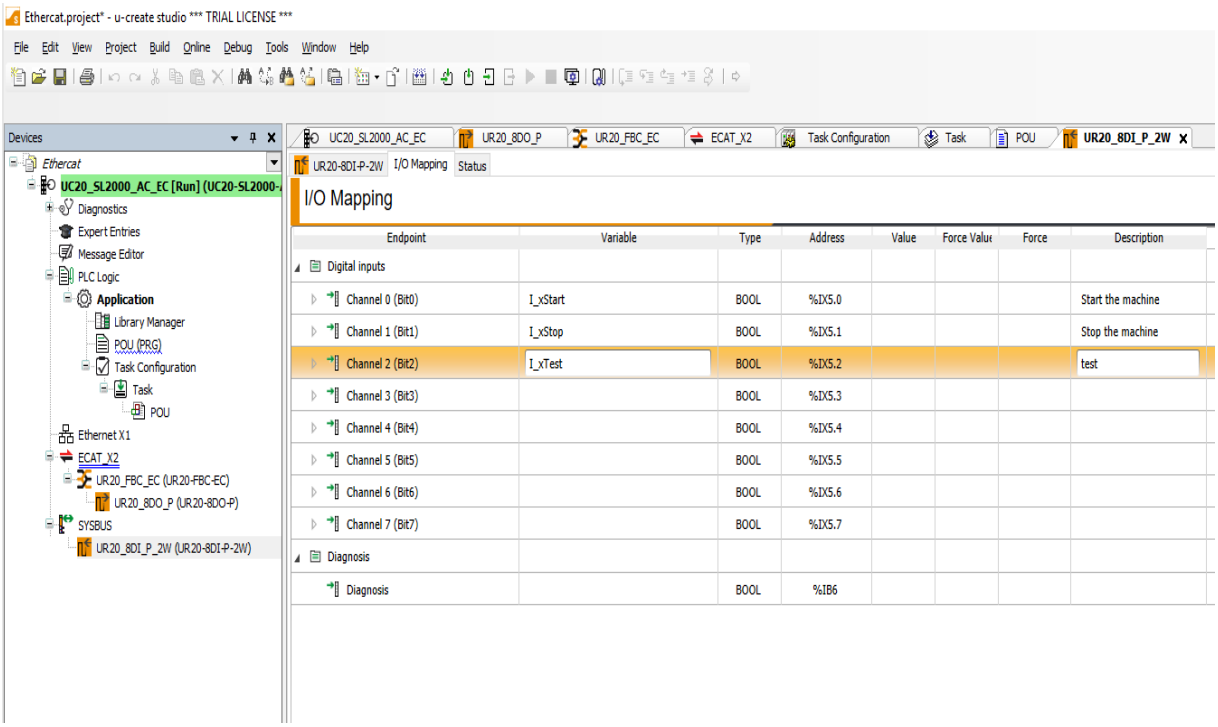


4 u-create studio – I/O-Mapping

4.1 I/O-Mapping by Variable

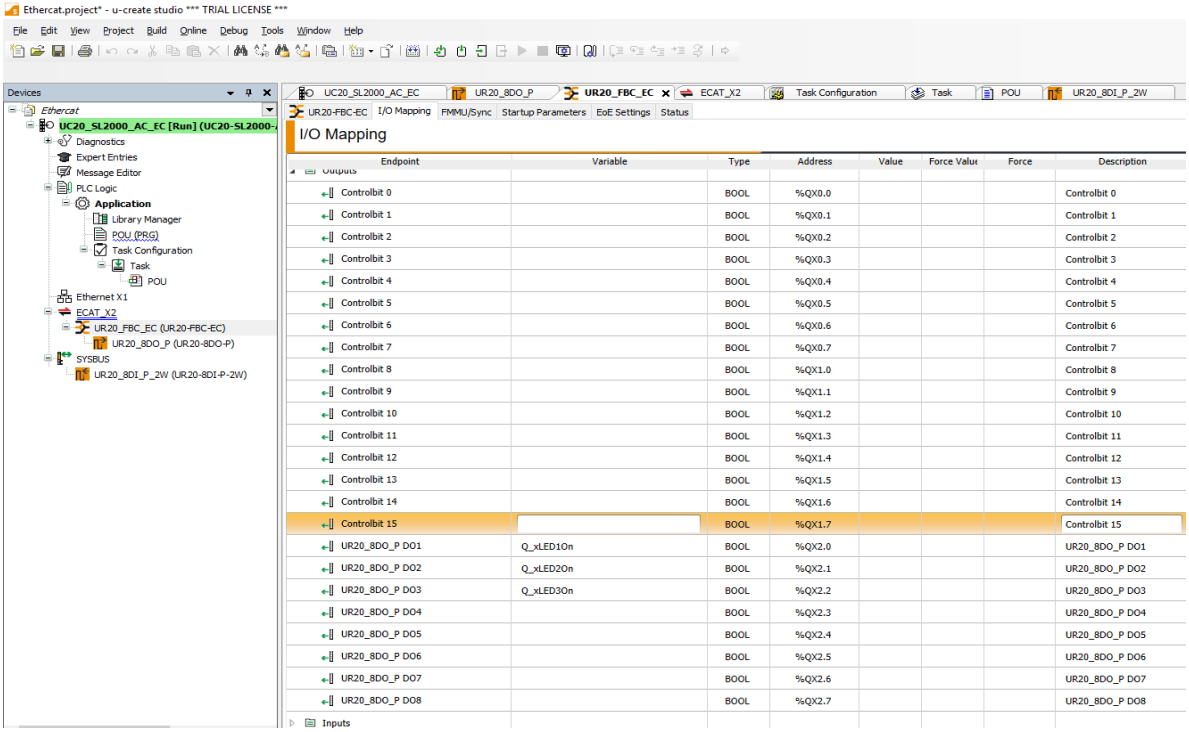
SYSBUS:

Choose the module where you want to receive data. Then change to the tab I/O Mapping and create the variables.



ECAT_X2:

Double click on the u-remote controller (not directly on the module) and change to tab I/O mapping. Then you can create the variables.



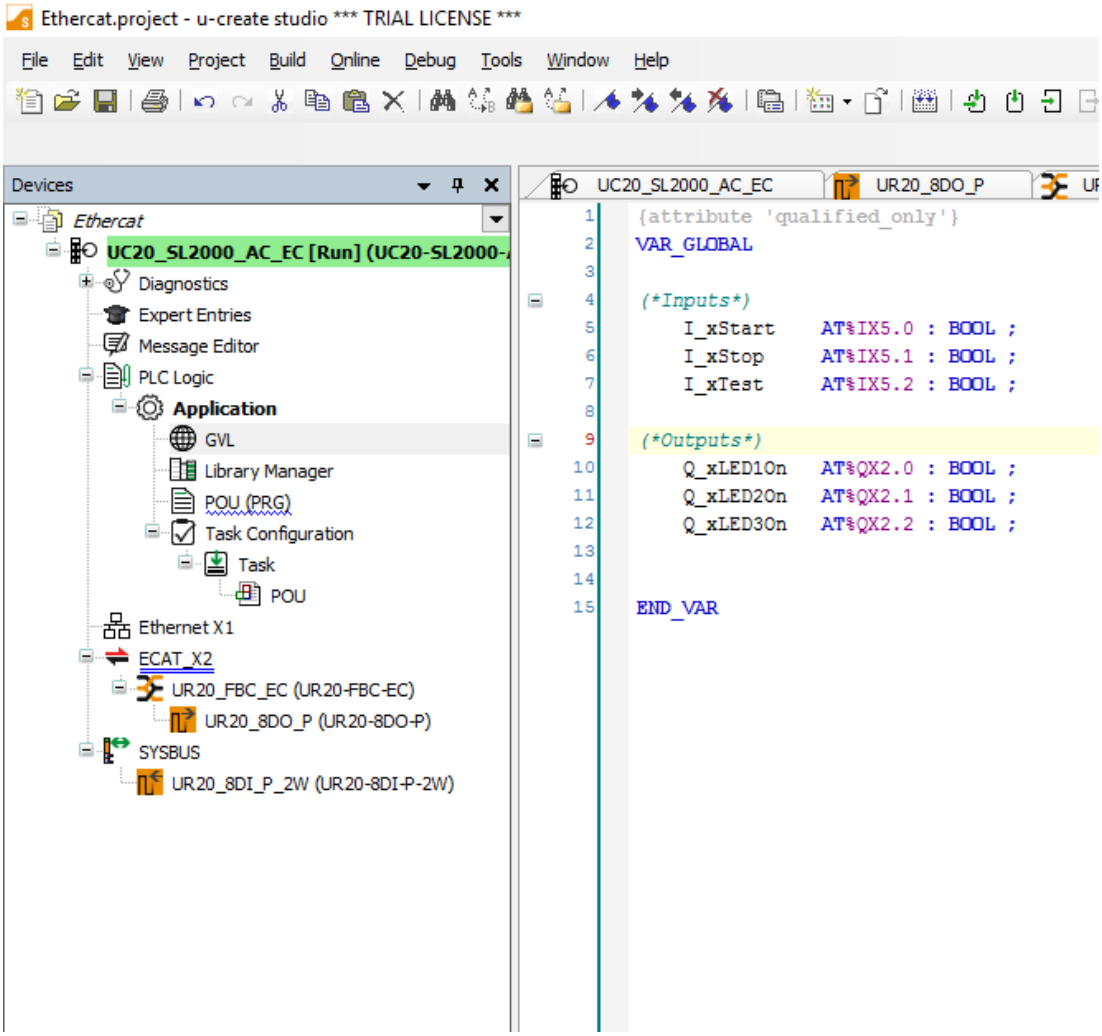
If you have used this method, then we can Program the application.
If you want to use / learn another possibility for I/O-mapping, then read the next subchapter.

4.2 I/O-Mapping by Addresses

It is also possible to map the variables by addresses, but it is not recommended.

To map the variables, follow these steps:

1.) Create a “Global Variable List”, right click on Application -> Add Object -> Global Variable List.
2.) Create the Variables and choose the address from the IO module.



Now we can Program the application.