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UR20-FBC-EC / UR20-1COM-SAI-PRO

Quick Start Guide for Integration of SAI-Pro in EtherCAT

Abstract:
In this Quick Start Guide we will illustrate the first steps to add SAI-AU Subbus modules via u-remote SAI-Pro Gateway to a u-remote EtherCAT coupler.

Hardware reference

No.	Component name	Article No.	Hardware / Firmware version
1	UR20-FBC-EC	1334910000	HW 01.21.00 / FW 01.10.00 HW 02.04.00 / FW 01.11.00
2	UR20-1COM-SAI-PRO	2007430000	HW 01.01.00 / FW 01.01.00
3	SAI-AU M12 SB 8DIO	1938640000	FW 01.09.00

Software reference

No.	Software name	Article No.	Software version
1	CODESYS	-	V3.5 SP15 + (64-bit)
2	WinPCap	-	4.1.3

File reference

No.	Name	Description	Version
1	-	-	-

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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.

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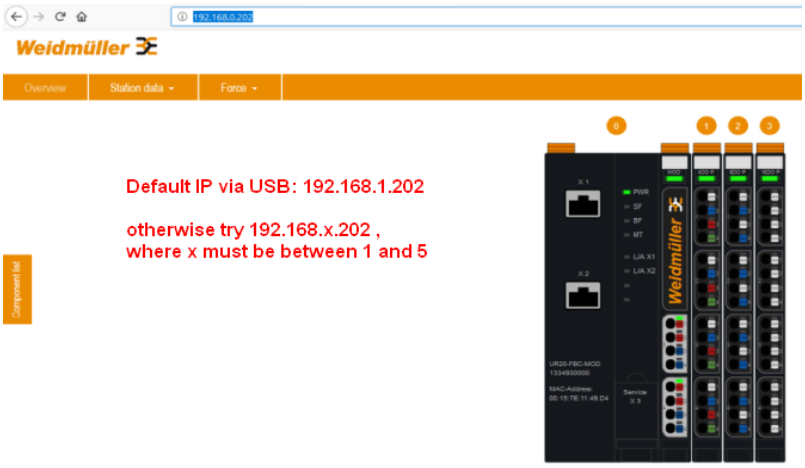
Security notes
In order to protect equipment, systems, machines and networks against cyber threats, it is necessary to implement (and maintain) a complete state-of-the-art industrial security concept. The customer is responsible for preventing unauthorized access to his equipment, systems, machines and 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 Requirements

2.1 Connection to EtherCAT Coupler

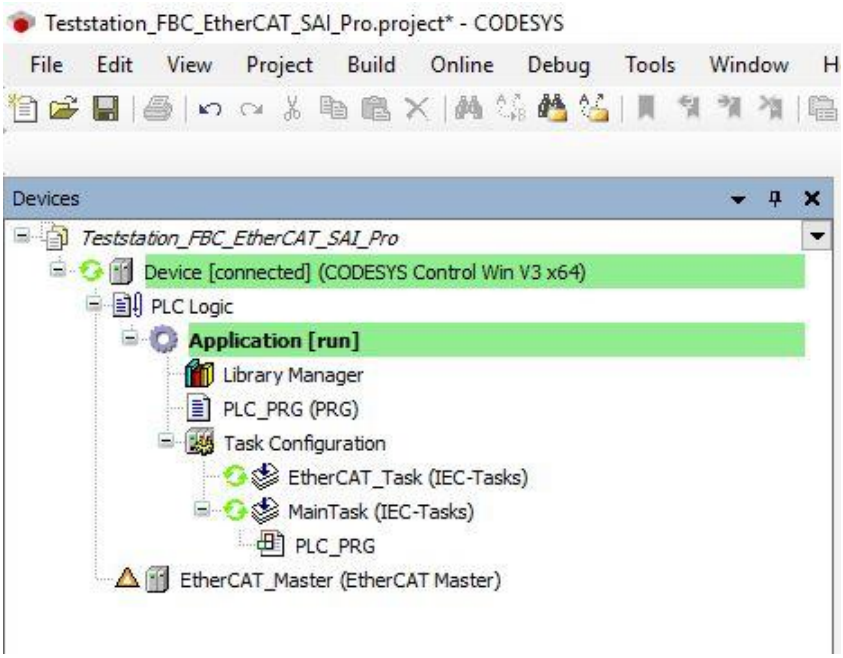
The purpose of accessing this interface through web browser is to check if our u-remote station is correct and to monitor the configuration of the subbus module.

Default IP via USB: **192.168.1.202**



2.2 CODESYS Configuration

We assume that you already have a working configuration including an EtherCAT Master.

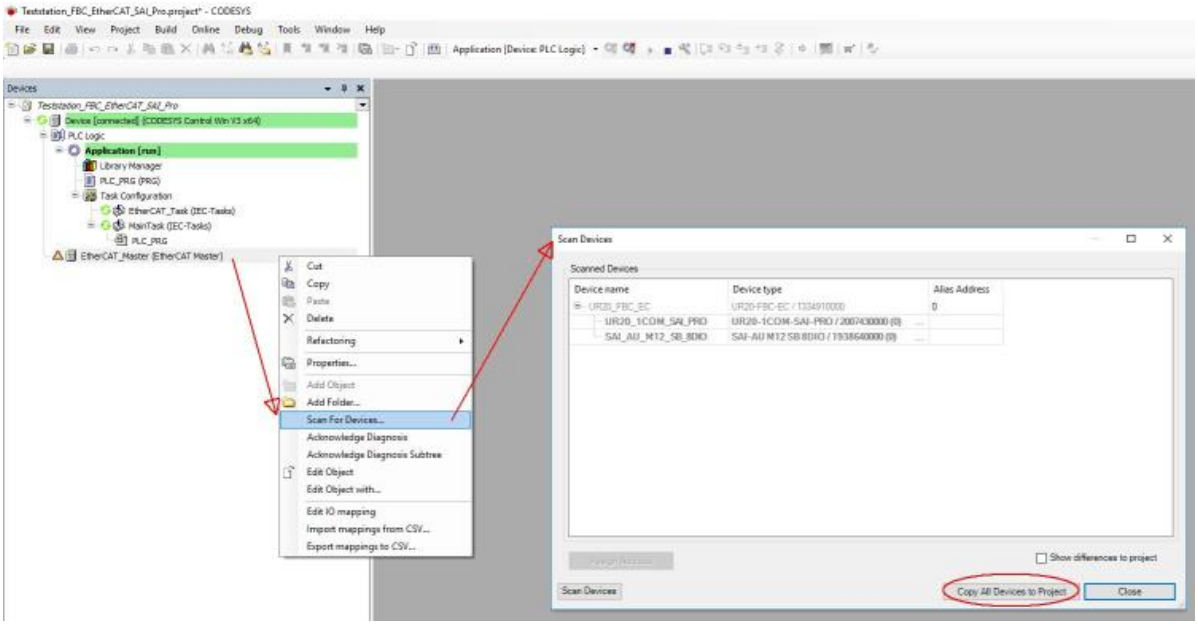


3 Configuration of u-remote station

3.1 Adding u-remote modules

1) Right-click on the EtherCAT_Master
2) Choose “Scan for Devices…”

Your u-remote station must be running **without errors** (all modules green led) for that.



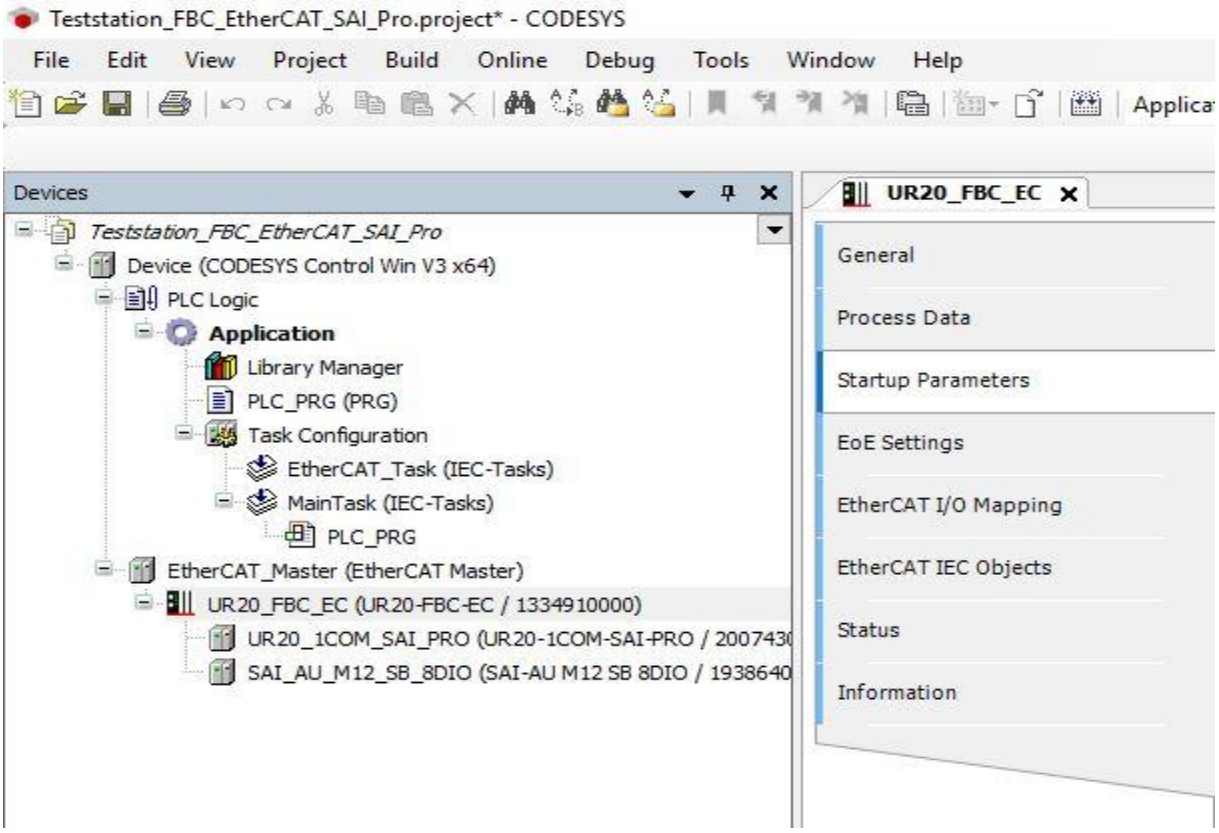
Your station will be **“displayed”** with the attached modules.

3) Choose “Copy All Devices to Project” to put scanned devices below your EtherCAT_Master.

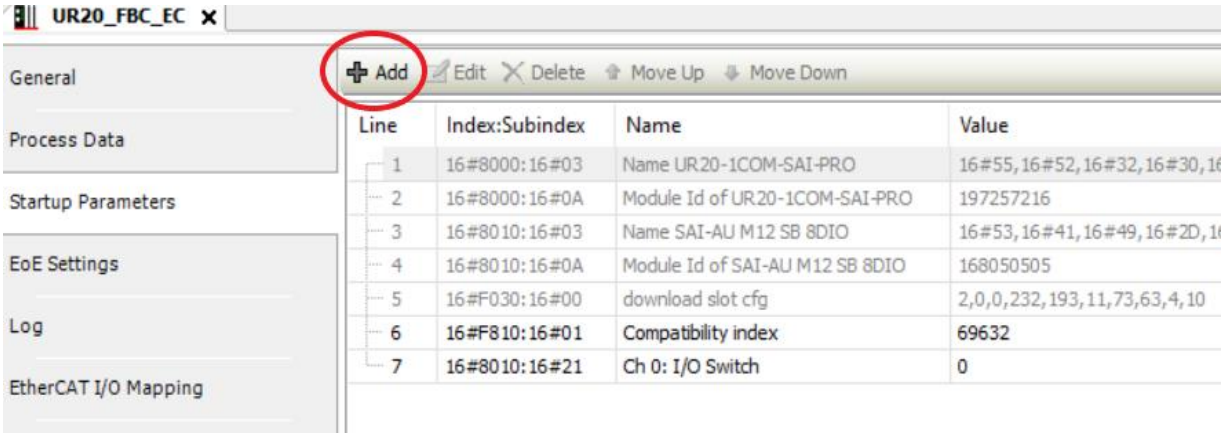
3.2 Configuration of Subbus module

1) Stop your Application and Logout.

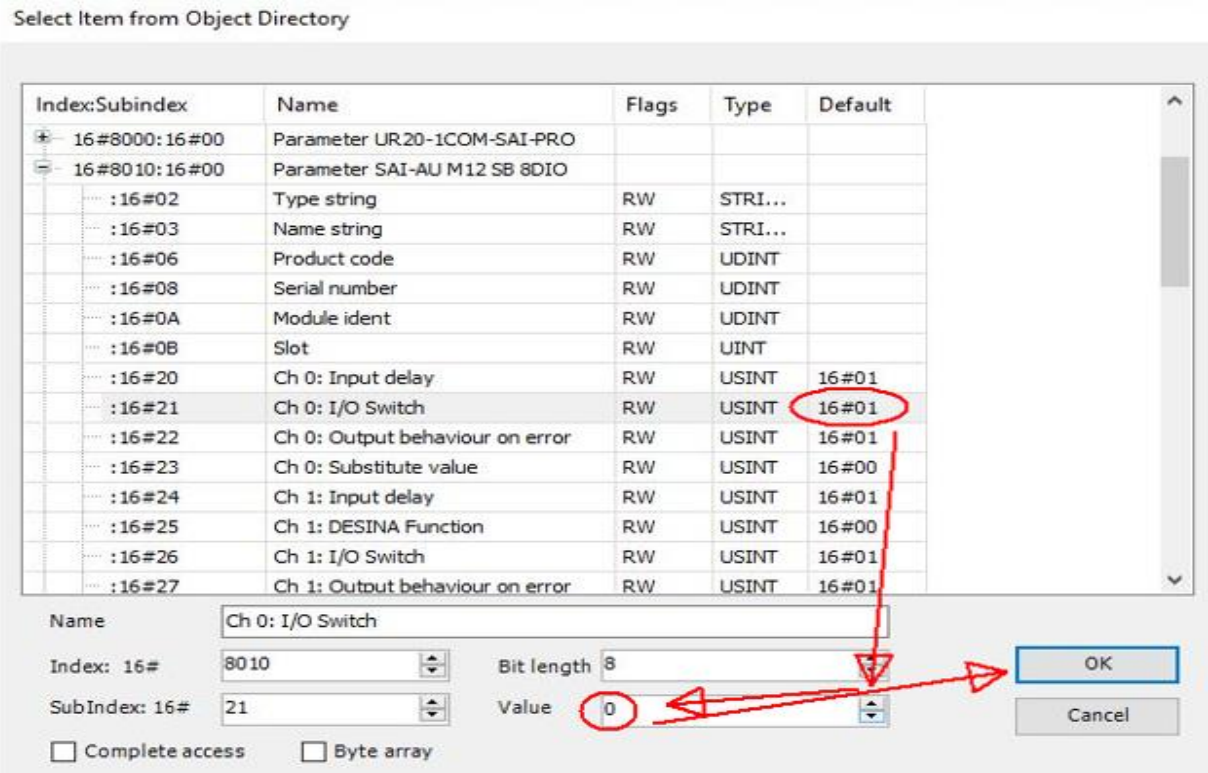
2) Right-click on the EtherCAT-Coupler (UR20_FBC_EC)
3) Choose “Startup Parameters” from the Coupler menu.

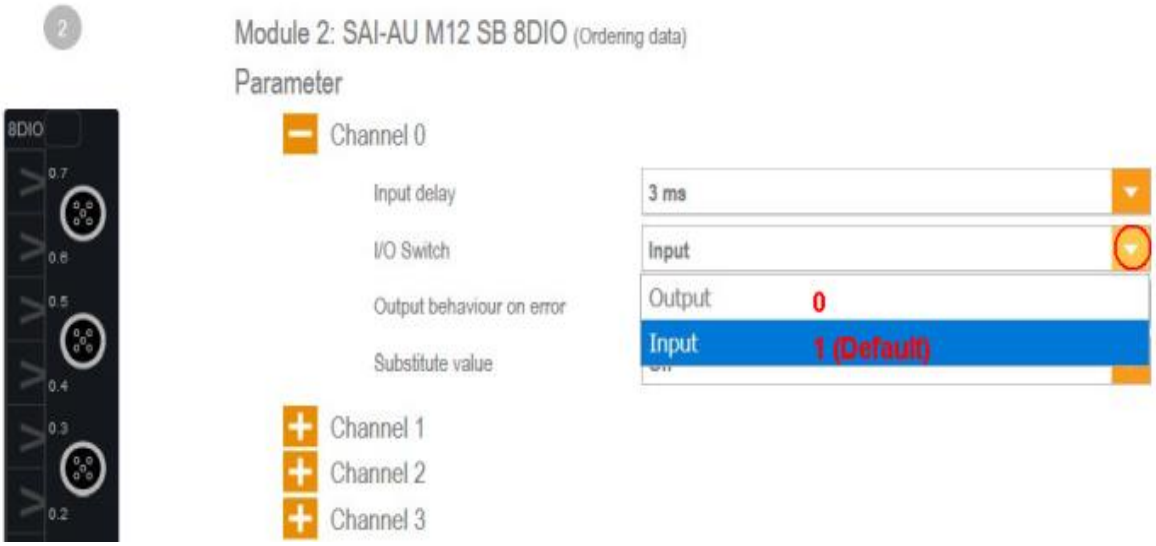


4) Choose “Add” to attach objects which will be written at station startup.

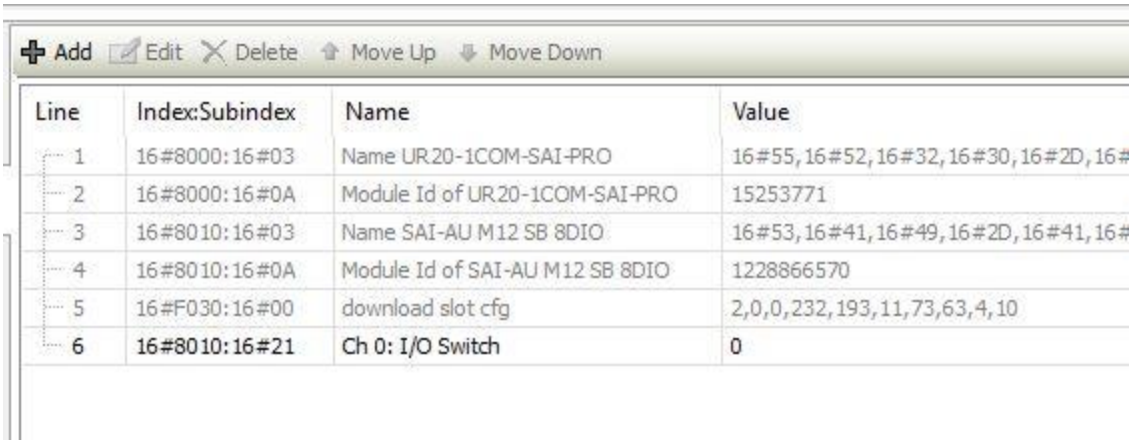


5) Choose Item for “Parameter SAI-AU…” module and expand the Object list.
In our example we want to configure the first channel (Ch 0) of our 8DIO module as an output.


Select Item from Object Directory
Index:Subindex
Name
Flags
Type
Default
16#8000:16#00
Parameter UR20-1COM-SAI-PRO
16#8010:16#00
Parameter SAI-AU M12 SB 8DIO
:16#02
Type string
RW
STRI...
:16#03
Name string
RW
STRI...
:16#06
Product code
RW
UDINT
:16#08
Serial number
RW
UDINT
:16#0A
Module ident
RW
UDINT
:16#0B
Slot
RW
UINT
:16#20
Ch 0: Input delay
RW
USINT
16#01
:16#21
Ch 0: I/O Switch
RW
USINT
16#01
:16#22
Ch 0: Output behaviour on error
RW
USINT
16#01
:16#23
Ch 0: Substitute value
RW
USINT
16#00
:16#24
Ch 1: Input delay
RW
USINT
16#01
:16#25
Ch 1: DESINA Function
RW
USINT
16#00
:16#26
Ch 1: I/O Switch
RW
USINT
16#01
:16#27
Ch 1: Output behaviour on error
RW
USINT
16#01
Name
Ch 0: I/O Switch
Index: 16#
8010
Bit length
8
SubIndex: 16#
21
Value
0
OK
Cancel
Complete access
Byte array


2
Module 2: SAI-AU M12 SB 8DIO (Ordering data)
Parameter
8DIO
0.7
0.6
0.5
0.4
0.3
0.2
Channel 0
Input delay
3 ms
I/O Switch
Input
Output behaviour on error
Substitute value
Output
0
Input
1 (Default)
Channel 1
Channel 2
Channel 3

6) After <OK> you should see the new parameter in the list.

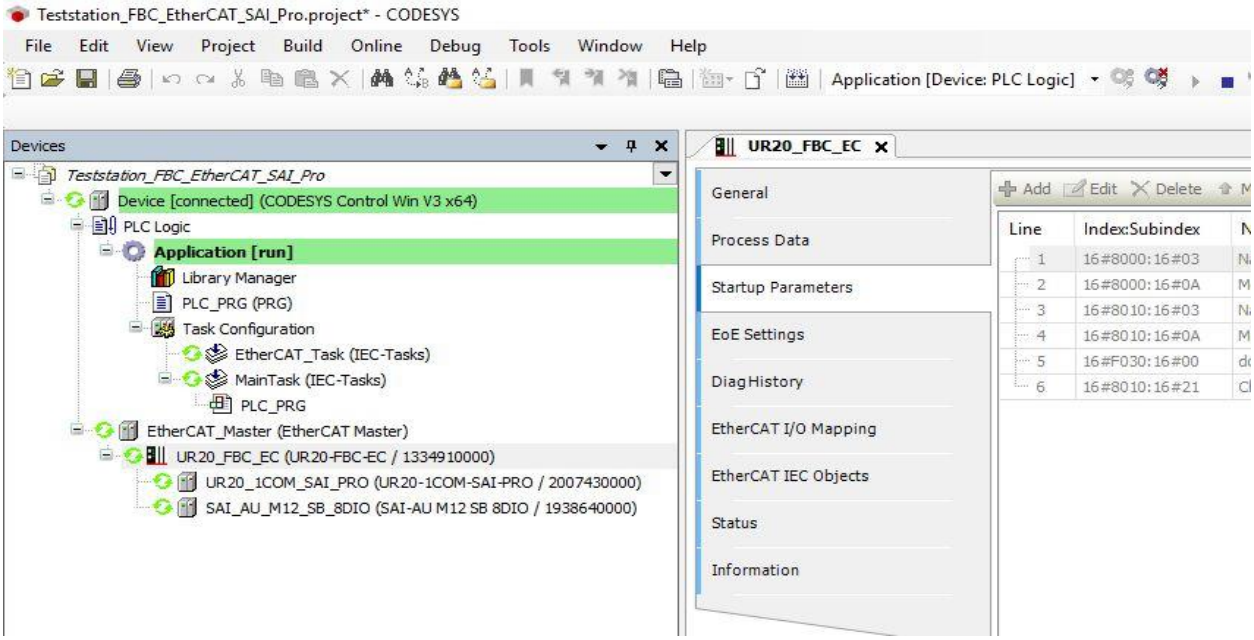


7) (Re)build and save your application.

4 Check configuration of u-remote station

4.1 Restart system

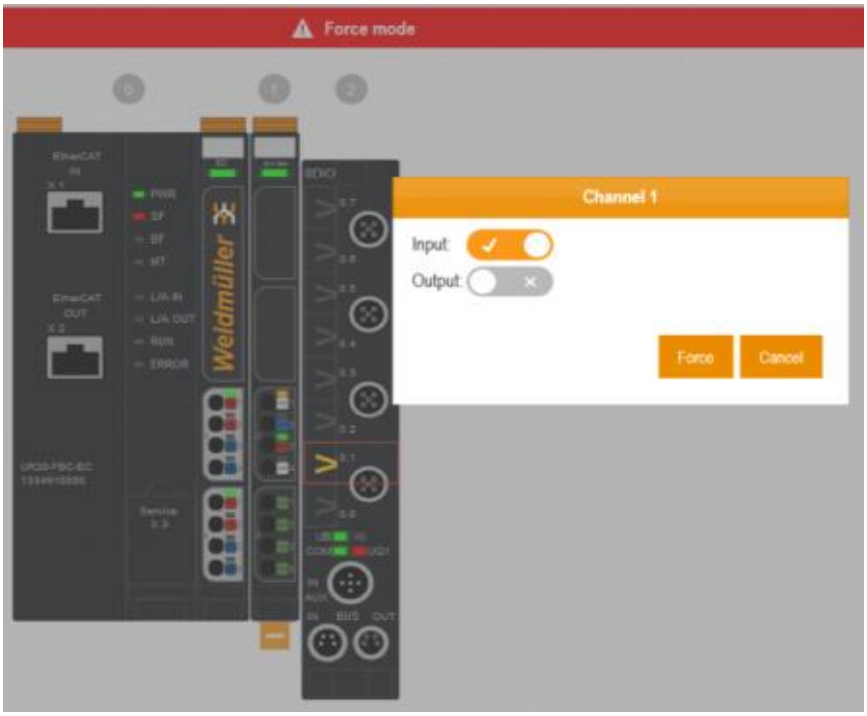
Restart your u-remote station (Power Cycle). Login to your PLC and start application.



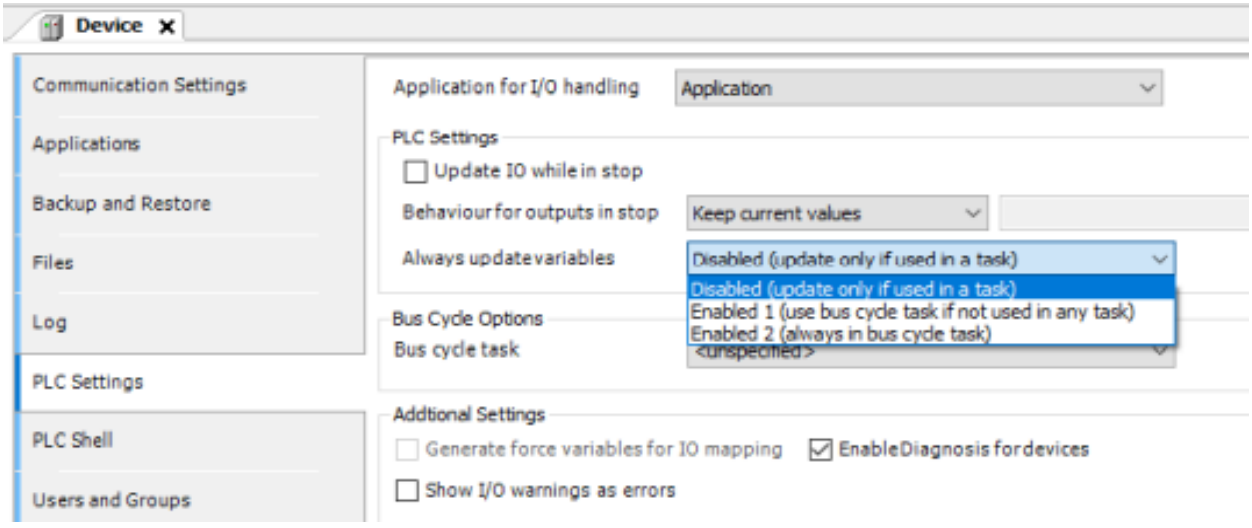
4.2 Check your configuration

1) Connect to web interface and click on the **Module** details.
2) Check whether configuration of <I/O Switch> (Channel 0) has changed or not.

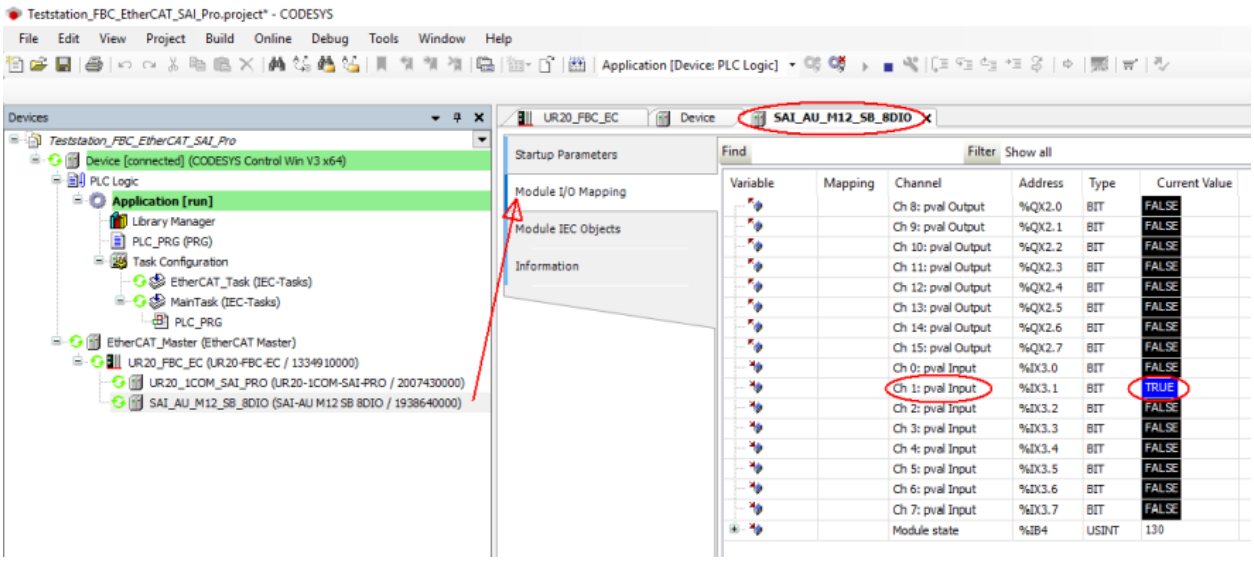
3) Change to the web interface again and activate <Force mode>.
4) Then force Input of channel 1 to ON.



5) Now change to your CODESYS application, click on **Device** and open the “PLC Settings” tab, change it to 1 or 2 if you want to see (and force) values even if there is no PLC Program.



6) Now click on the 8DIO module and open the “Module I/O Mapping” tab. Here you must be able to see the forced Input.



If it looks like this, everything is fine.