

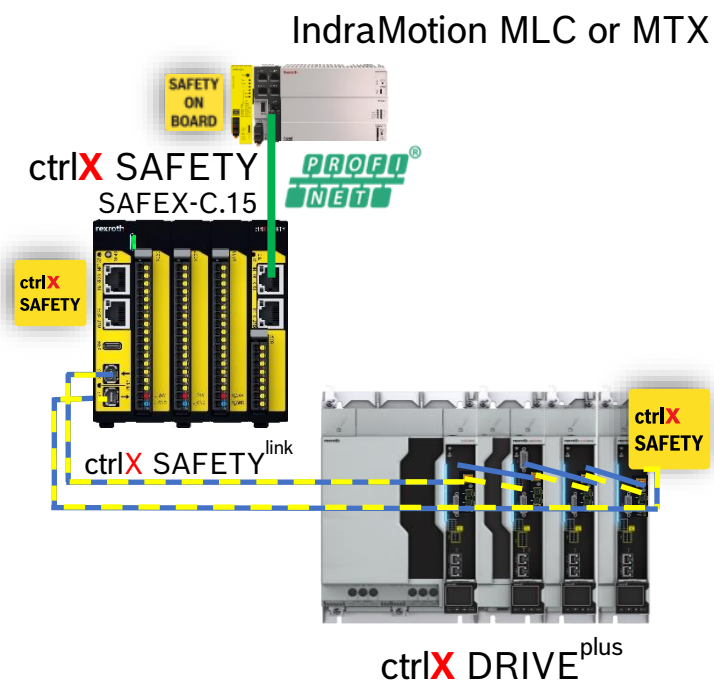
### 1. Introduction

This document describes how to connect to a Profisafe PLC a C15. At this purpose the test was performed using a SafeLogic safety plc functional module mounted on an MLC75 as simulation of what could be a possible connection with a Siemens Profisafe PLC

### 2. Scope

The purpose of the test is to verify the operation and communication between a Profisafe machine safety PLC, for example Siemens, and our C15 safety PLC, this in order to provide a possible configuration of use of the Safety Motion functions of our CtrlX drive through precisely the use of a C15 safety PLC this to remedy the current absence of the Profisafe protocol within the CtrlX using the SafetyLink connection from C15 to the drives and the Profisafe connection between the C15 and the machine safety plc

### 3. Hardware Configuration

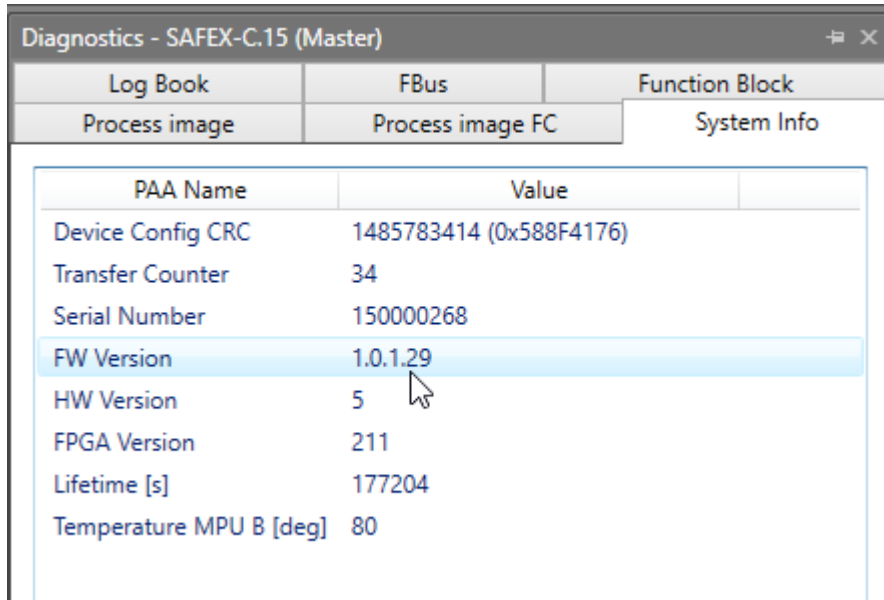


4. Versione Firmware e GSDML file

1. CtrlX Drive

Firmware 03V14

2. C15



The screenshot shows a software window titled "Diagnostics - SAFEX-C.15 (Master)". It has a tabbed interface with three tabs: "Log Book", "FBus", and "Function Block". The "Function Block" tab is active, and within it, the "System Info" sub-tab is selected. Below the tabs is a table with two columns: "PAA Name" and "Value".

PAA Name	Value
Device Config CRC	1485783414 (0x588F4176)
Transfer Counter	34
Serial Number	150000268
FW Version	1.0.1.29
HW Version	5
FPGA Version	211
Lifetime [s]	177204
Temperature MPU B [deg]	80

C15 Firmware e GSDML files link :

[https://www.boschrexroth.com/de/de/myrexroth/collaboration/collaboration-rooms/?path=%2FCtrlX-Automation%2FctrlX\\_SAFETY%2FSAFETY\\_Runtime\\_APPS%2FRuntime-Firmware%2FV1.0.1.29\\_FPGA211&search=](https://www.boschrexroth.com/de/de/myrexroth/collaboration/collaboration-rooms/?path=%2FCtrlX-Automation%2FctrlX_SAFETY%2FSAFETY_Runtime_APPS%2FRuntime-Firmware%2FV1.0.1.29_FPGA211&search=)

Note: The GSDML file is included in the firmware zip file and must match the firmware version installed on the C15

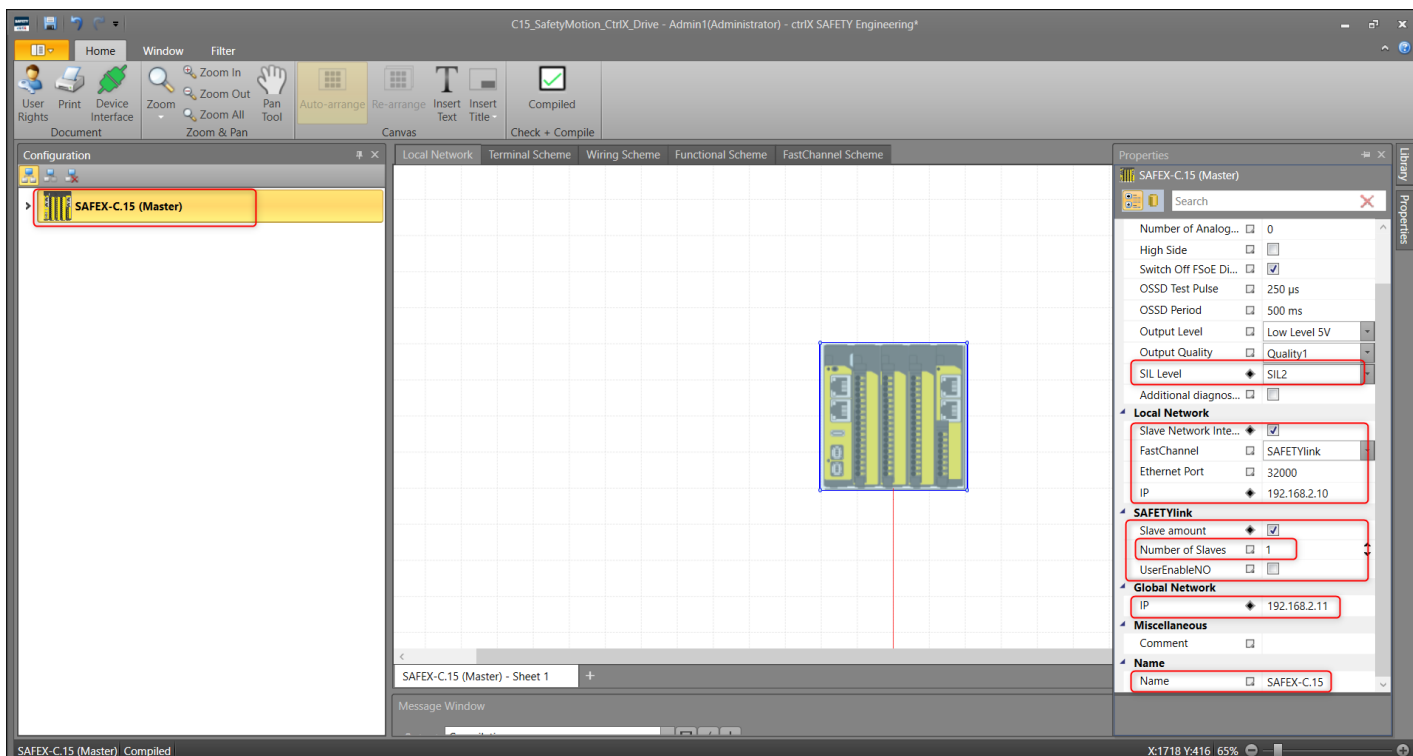
3. MLC75 Safety Logic

MLC 14V22 P13 Safety

SafeLogic 02v06

## 5. C15 Configuration Settings

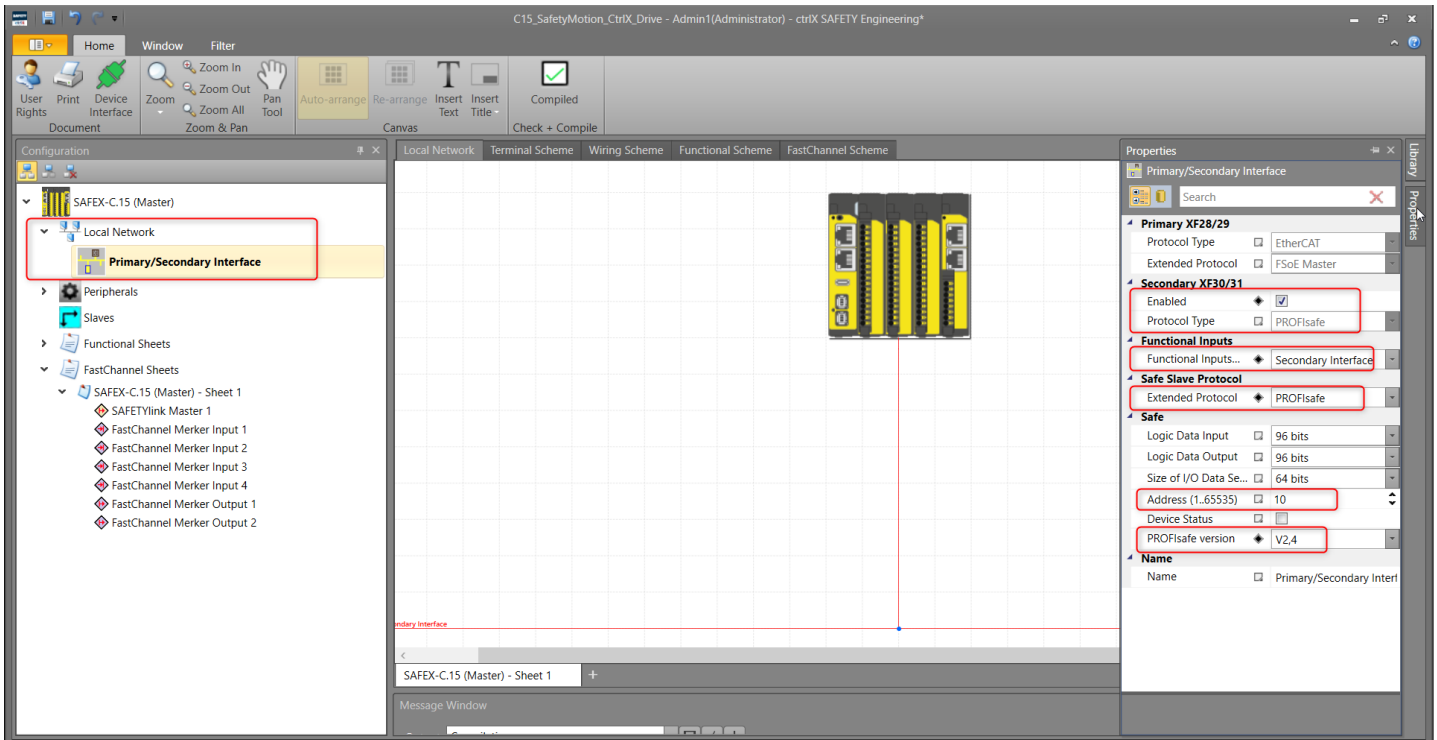
### 1. Generic Properties configuration



#### Notes:

- Safety level SIL2 must be selected with SafeLogic MLC/XM with Siemens can also be SIL3
- The "Number of Slaves" field indicates the number of CtrlX drives connected to the C15 via SafetyLink
- Enter in the "Name" field the name of the C15 device to be assigned within the Profinet Master configuration: It is important that the name entered in this field is entered in the definition of the C15 on the Profinet Master PLC
- Enter the IP address to be used in the configuration of the Profinet Master in the "Global Network" "IP" section; This address can be written directly by the Profinet Master

## 2. Local Network Configuration

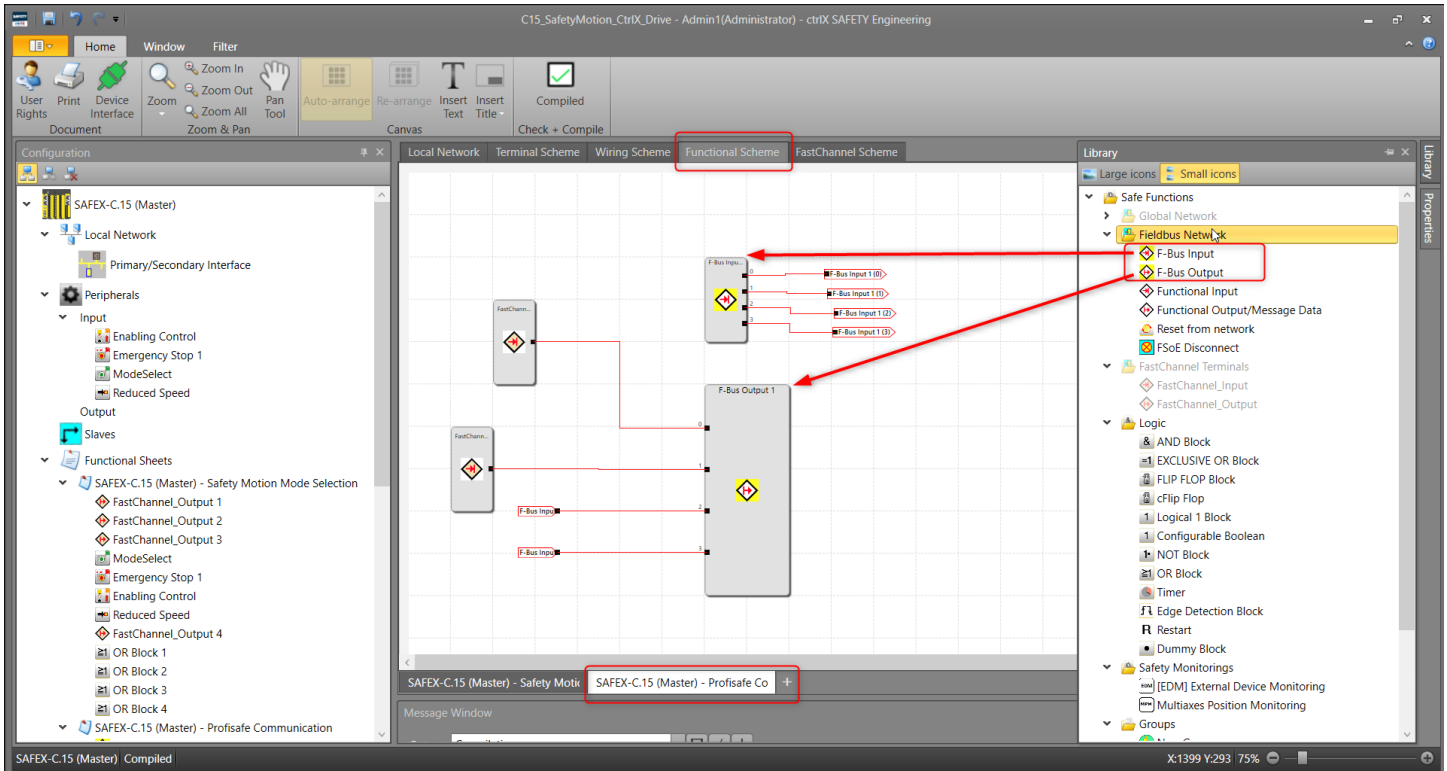


### Notes:

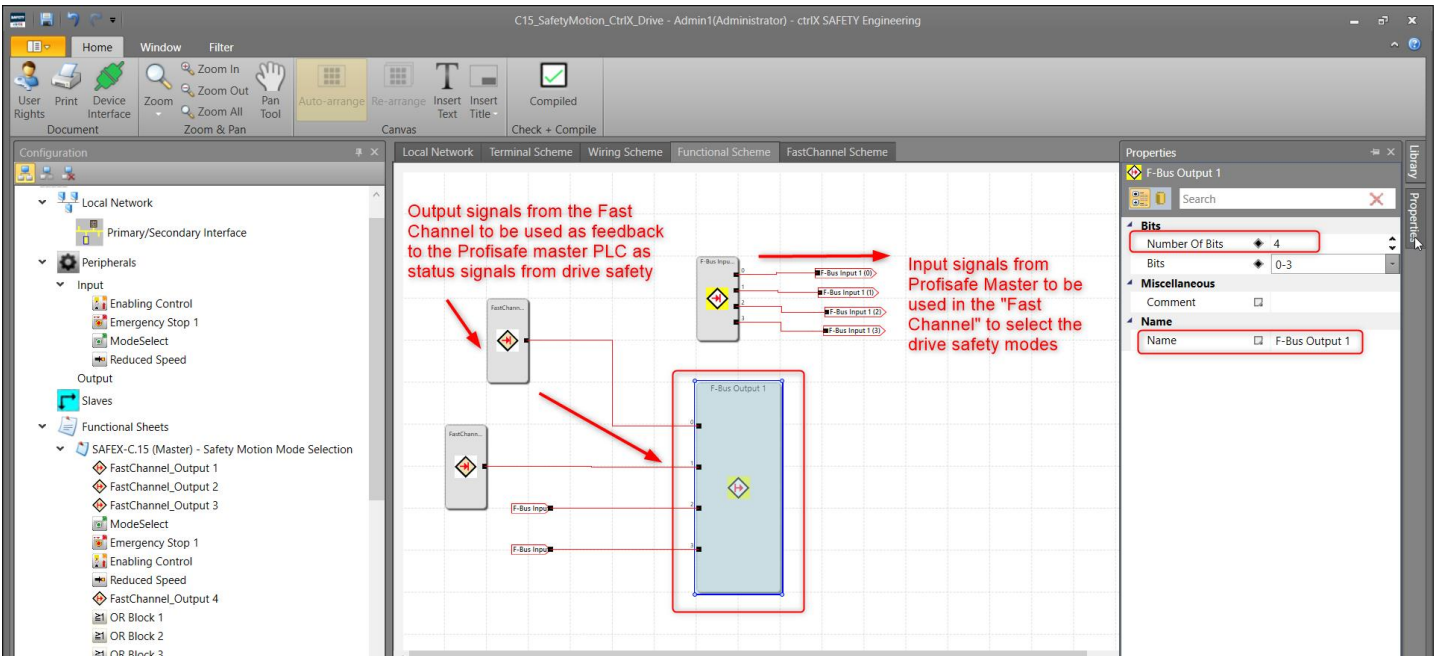
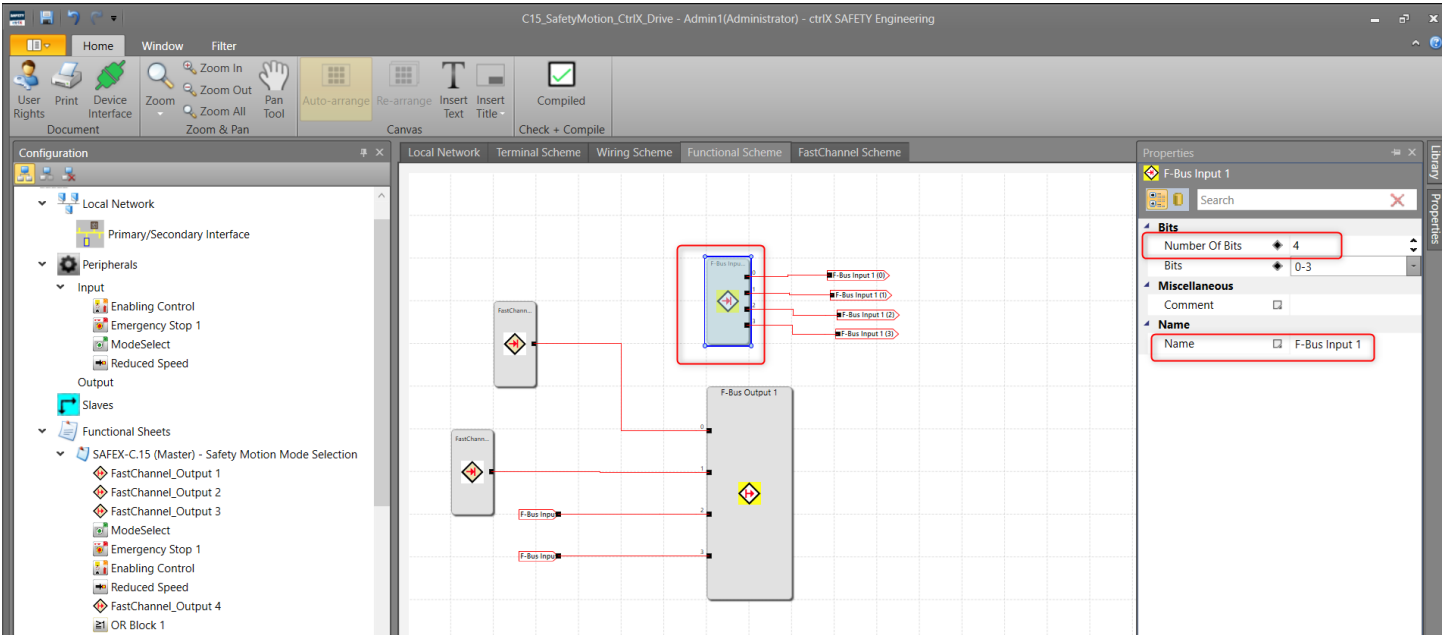
- The Profisafe V2.4 version must be selected compulsorily for the connection with our SafeLogic MLC/XM but with Siemens it is also possible to use the V2.6 version
- In the "Address" field, assign the address of the C15 device to be used within the configuration of the same on the machine Safety PLC (In our case the SafeLogic MLC/XM in the customer's case the Siemens safety PLC or other)
- 12 bytes of IO safety are available to be exchanged with the machine safety PLC

### 3. Profisafe Data Exchange

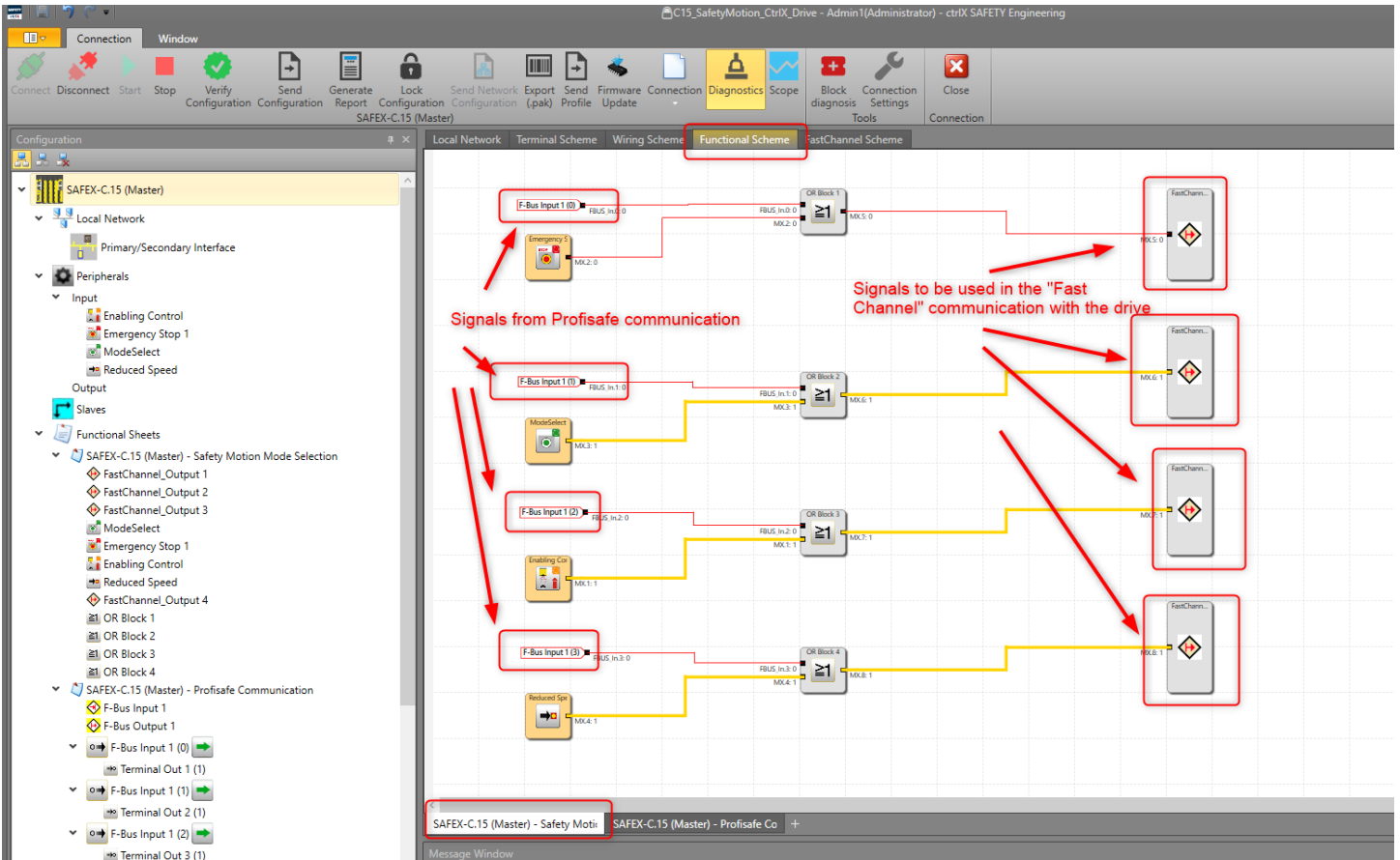
#### 1. Insert objects for Profisafe In/Out communication



2. Enter the number of IO's expected in Profisafe communication

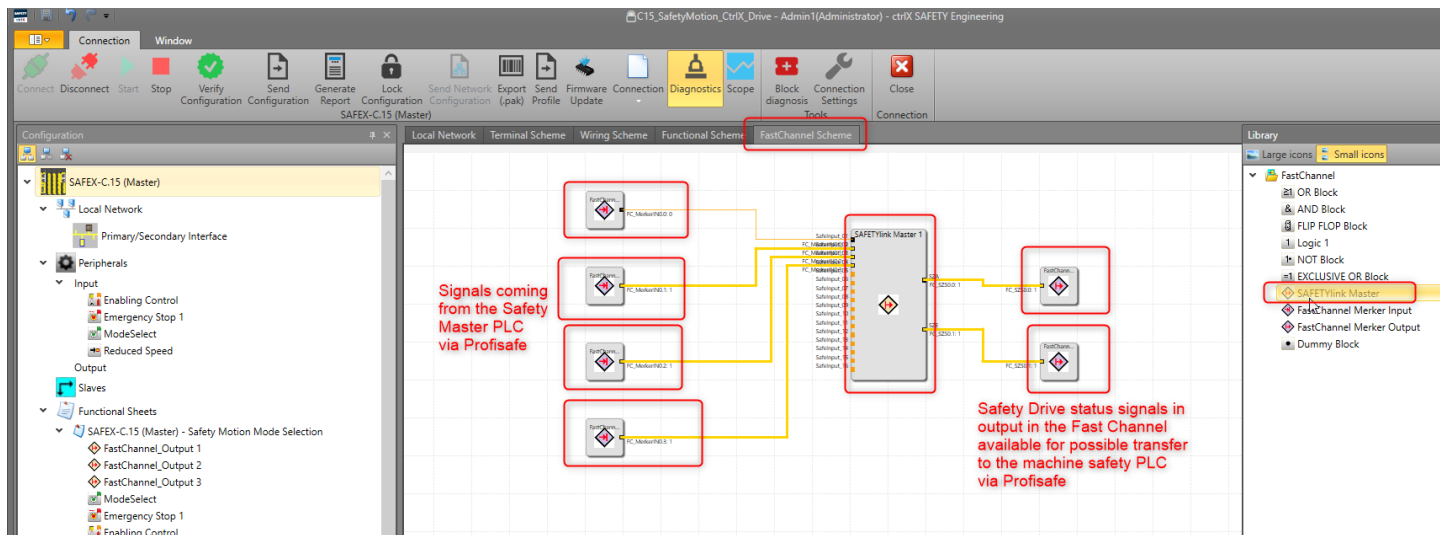


**3. Transfer of Profisafe signals to “Fast Channel” SafetyLink signals**



#### 4. Fast Channel

The communication management via SafetyLink between the C15 and the CtrlX drives must be included in the "Fast Channel".



For each drive, the "SAFETYLINK Master" object must be called to which the activation signals of the different safety modes required for the drive and coming from the Profisafe communication previously established with the machine safety PLC previously transferred to "Fast Channel" type signals must be assigned



## 6. CtrlX Drive Safety Communication Settings

Commissioning wizard

### Step 11 of 53

Configuration:

Safety bus communication

With safety bus communication, the safety functions can be selected and acknowledged via safe channels of the master communication.



Safety bus communication

SafeMotion without safety bus communication

During the operation of SafeMotion without safety bus communication, the selection and acknowledgment can be realized discretely via digital inputs and outputs. The safe selection can be carried out optionally "via one channel" or "via two channels".

In the case of a discrete selection and acknowledgment, it has to be ensured that the wiring and the safety unit that generates the selection at least complies with the safety level required for the application.

Verification display

 Refresh  Apply

<< Previous

Next >>

Cancel

Commissioning wizard

**Step 12 of 53**

Configuration:  
ctrlX SAFETYlink

If there are several axes in a danger zone at a machine, they can be combined in a safety zone.

- Axis acknowledges safety independently (no ctrlX SAFETYlink zone node)
- Axis is ctrlX SAFETYlink zone node
  - Axis reacts to zone error with warning E8300
  - Axis signals its own safety technology errors as zone errors

[Diagnostics](#)

Commissioning wizard

**Step 14 of 53**

Configuration:  
IO mapper inputs

Via the IO mapper inputs, safe and functional input signals can be mapped and assigned to target parameters

**Network 1**

Function block:



SAFE-In

