

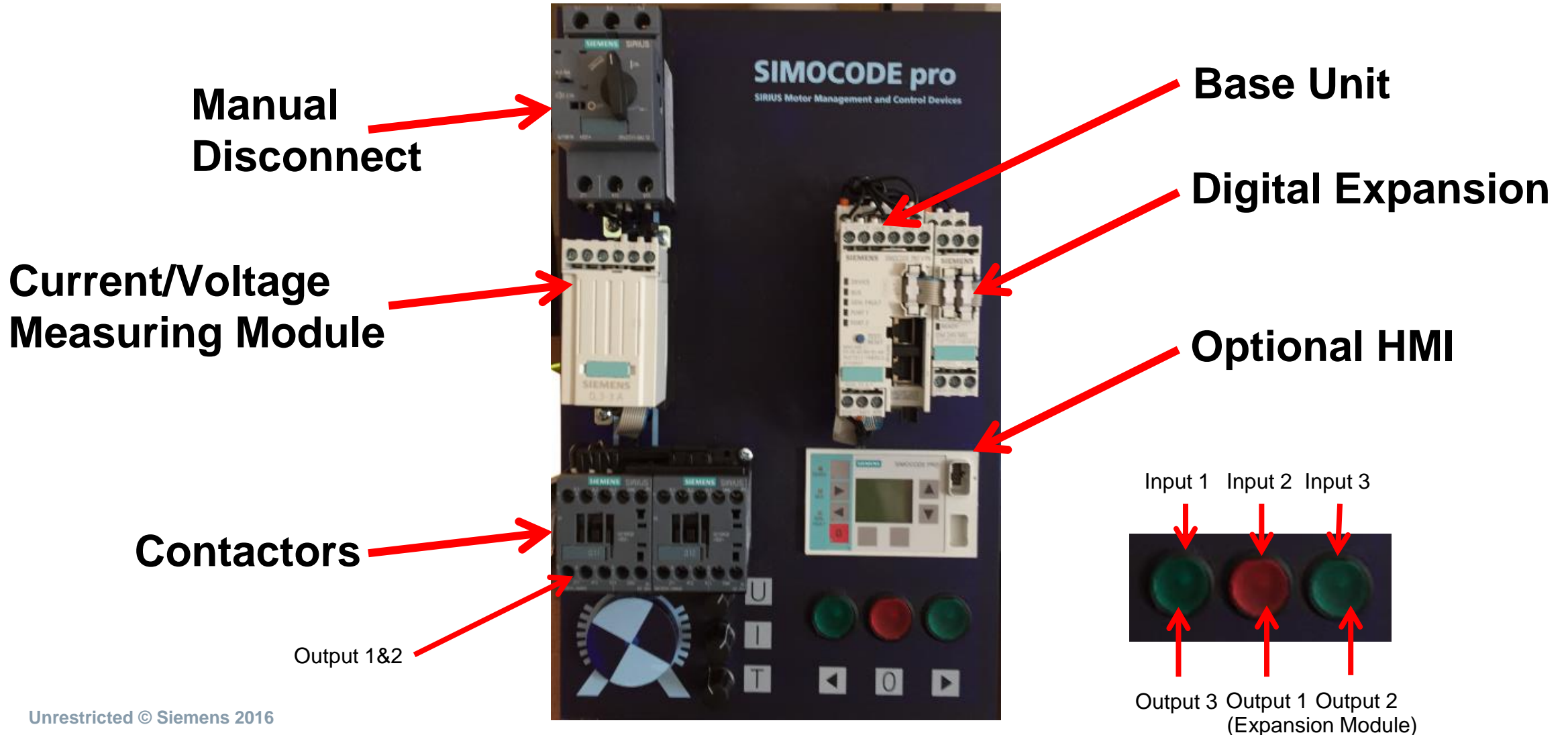
# SIMOCODE pro Labs

Hands On Training

## Hands On Exercises

- Lab 1 – Overload Relay w/ Run PB
- Lab 2 – Online Monitoring of measured values
- Lab 3 – Standard Functions – Remote Reset
- Lab 4 – Direct Starter
- Lab 5 – Reversing Starter with lights
- Lab 6 – Open/review a Saved Configuration
- Lab 7 – Standard Functions
- Lab 8 – Logic Modules
- Lab 9 – PLC Communications
- Lab 10 – Maintenance and Troubleshooting

# SIMOCODE pro Live Demo

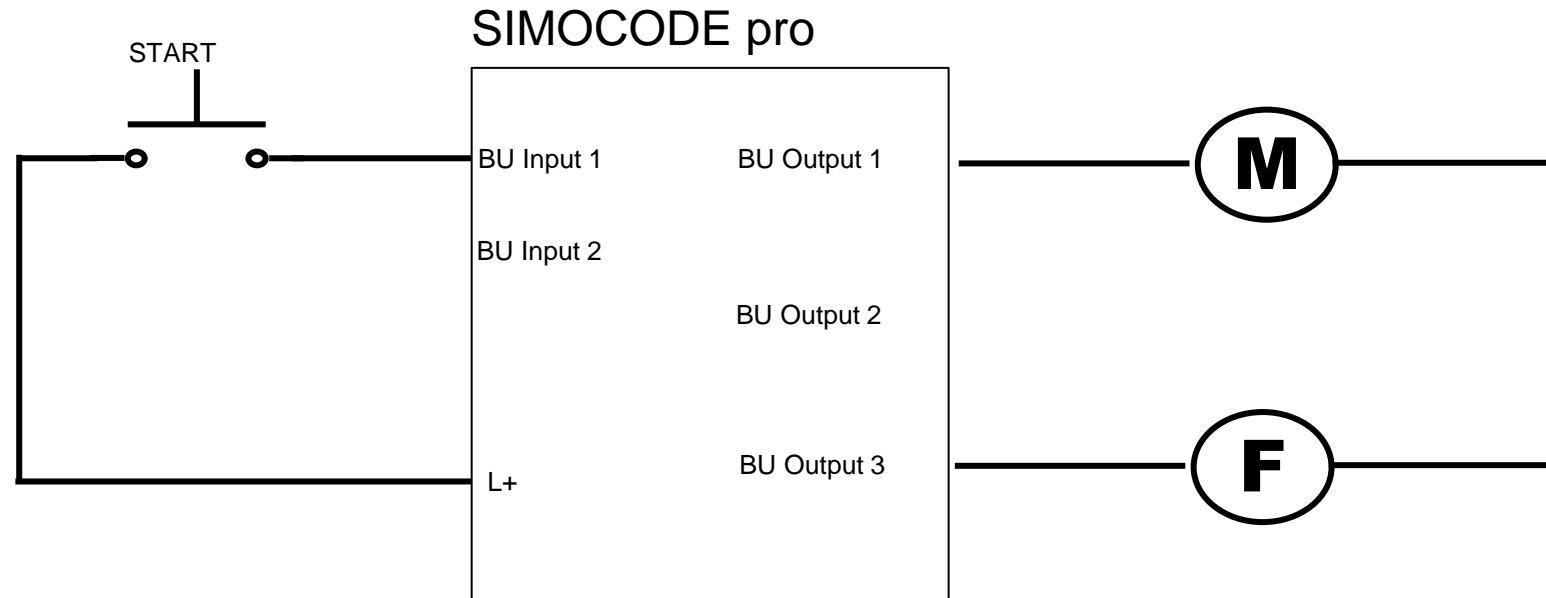


## 5 Step Process

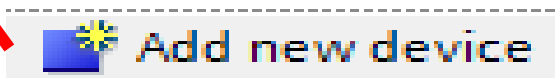
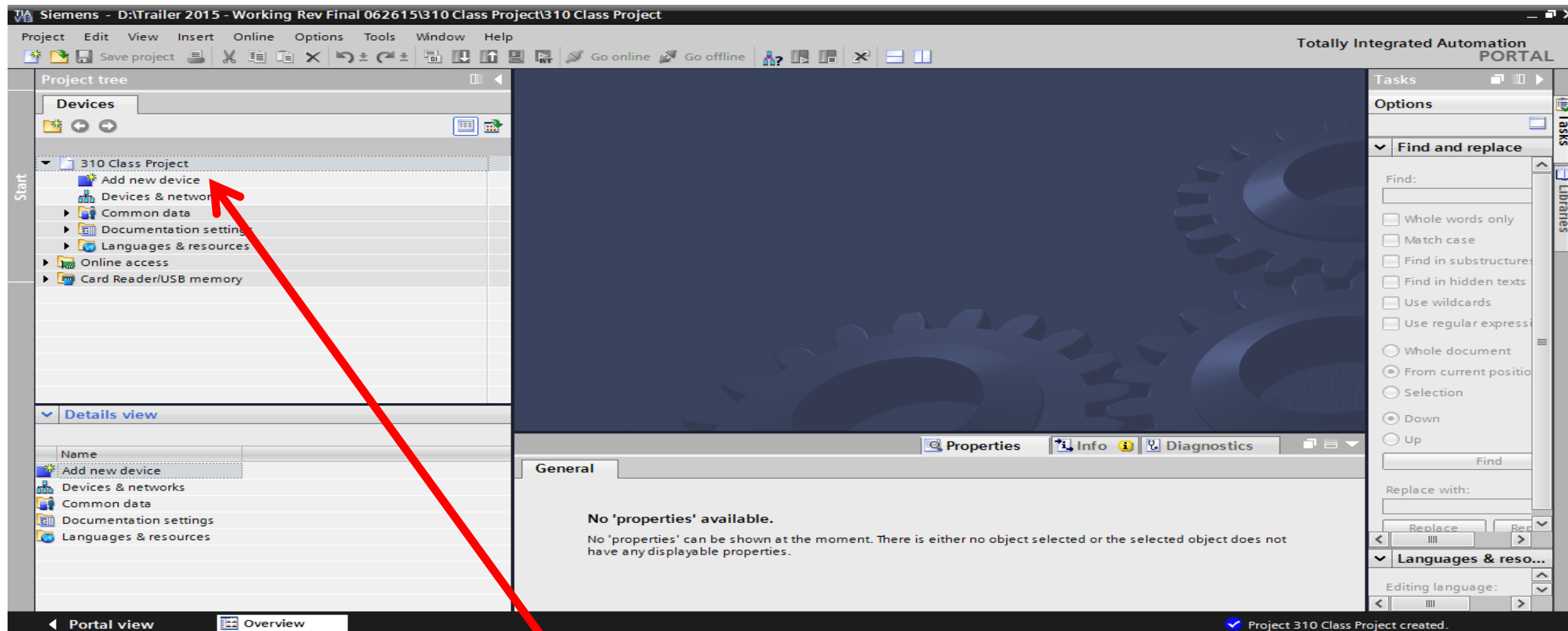
1. Select SIMOCODE basic unit
2. Select application profile
3. Select device configuration
4. Select network address
5. Select motor FLA

# Overload Relay with Run PB

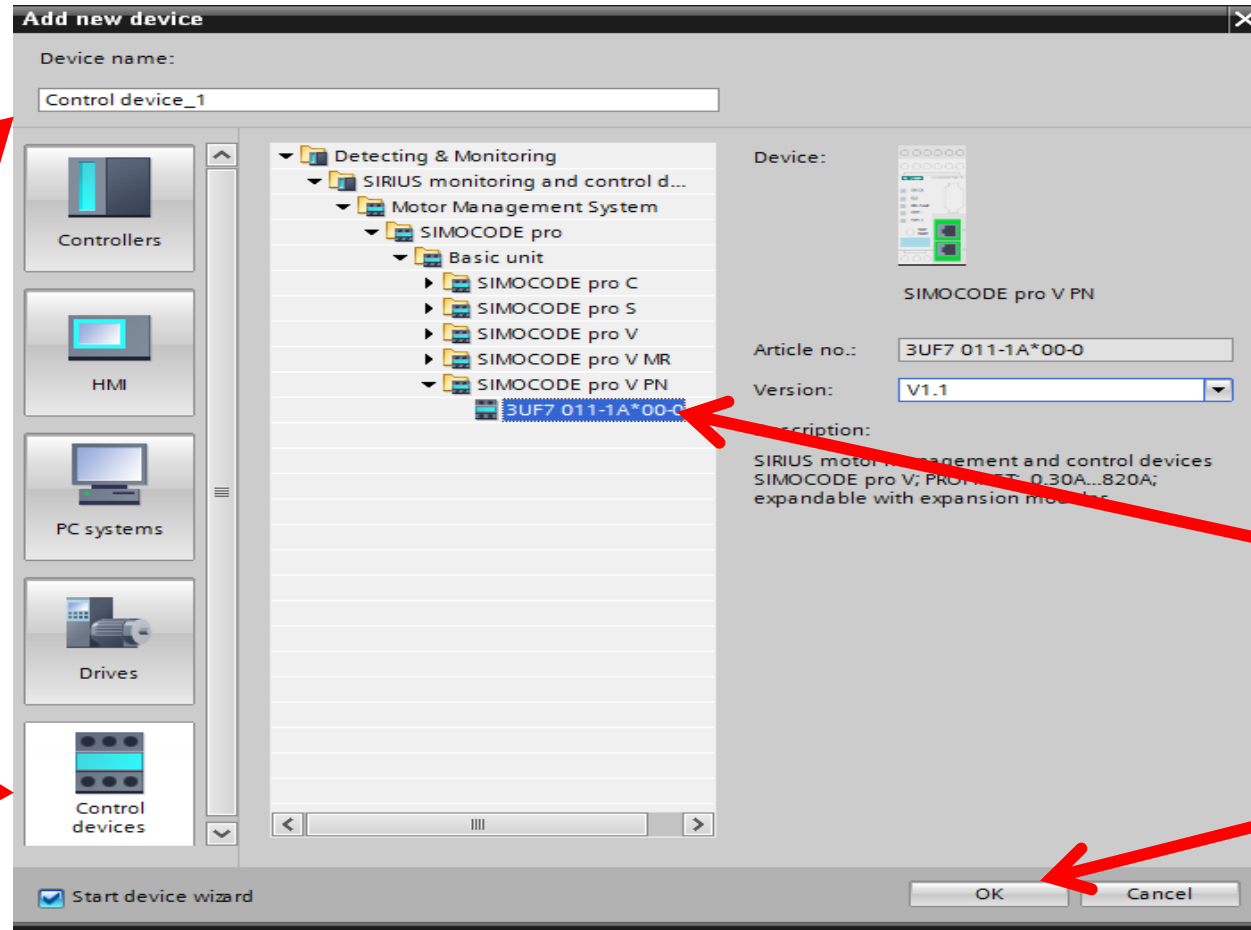
## Lab # 2 (Overload Relay w/ logic)



# Add a New Device



# Step 1 - Select Base Unit and Version



Step 4

Change name to "Overload Relay"

Step 1

Select Control Devices

Step 3

Select Version

Step 2

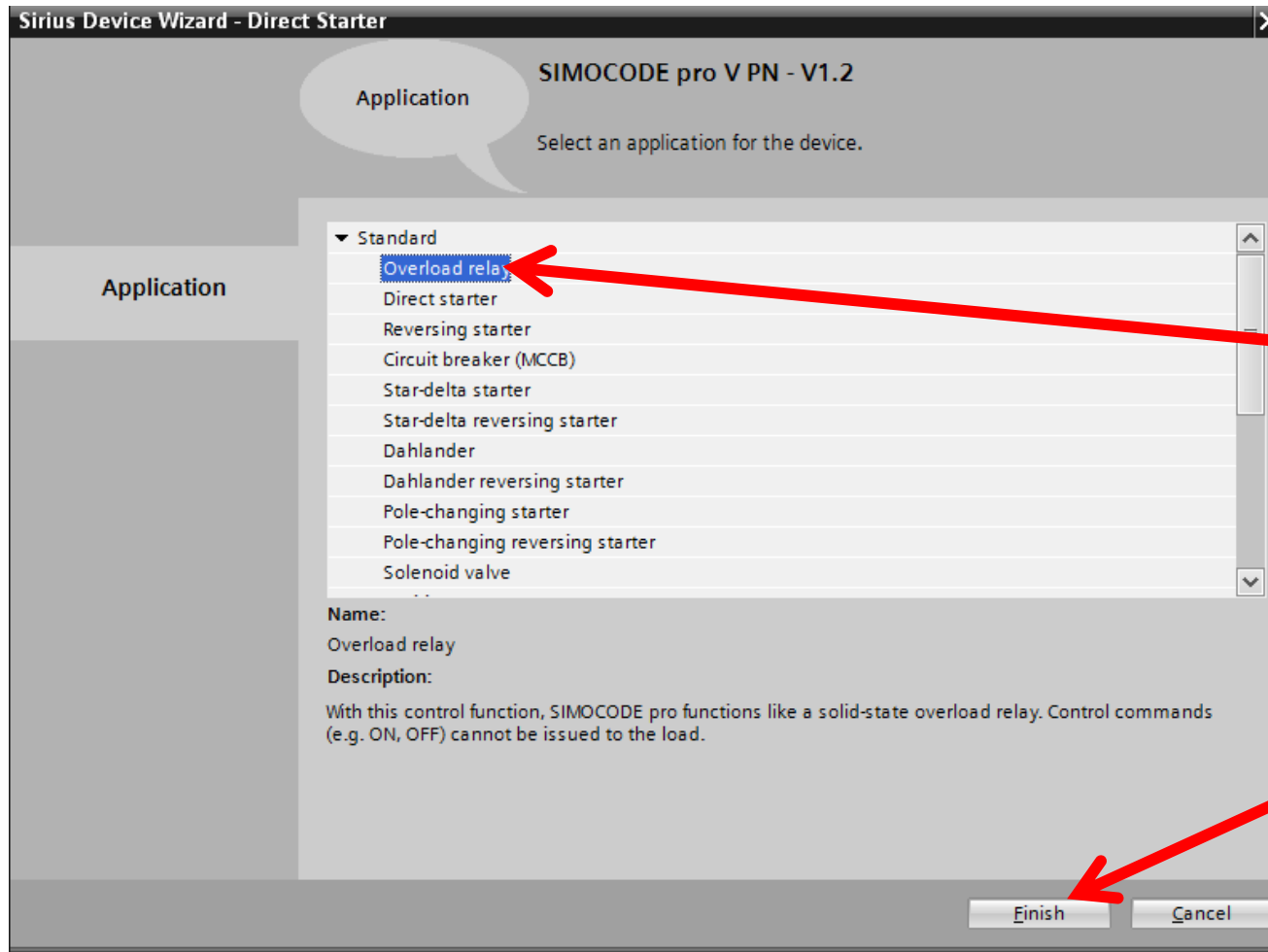
Select SIMOCODE pro V PN

Step 5

Select OK



## Step 2 - Select Profile (Overload Relay)



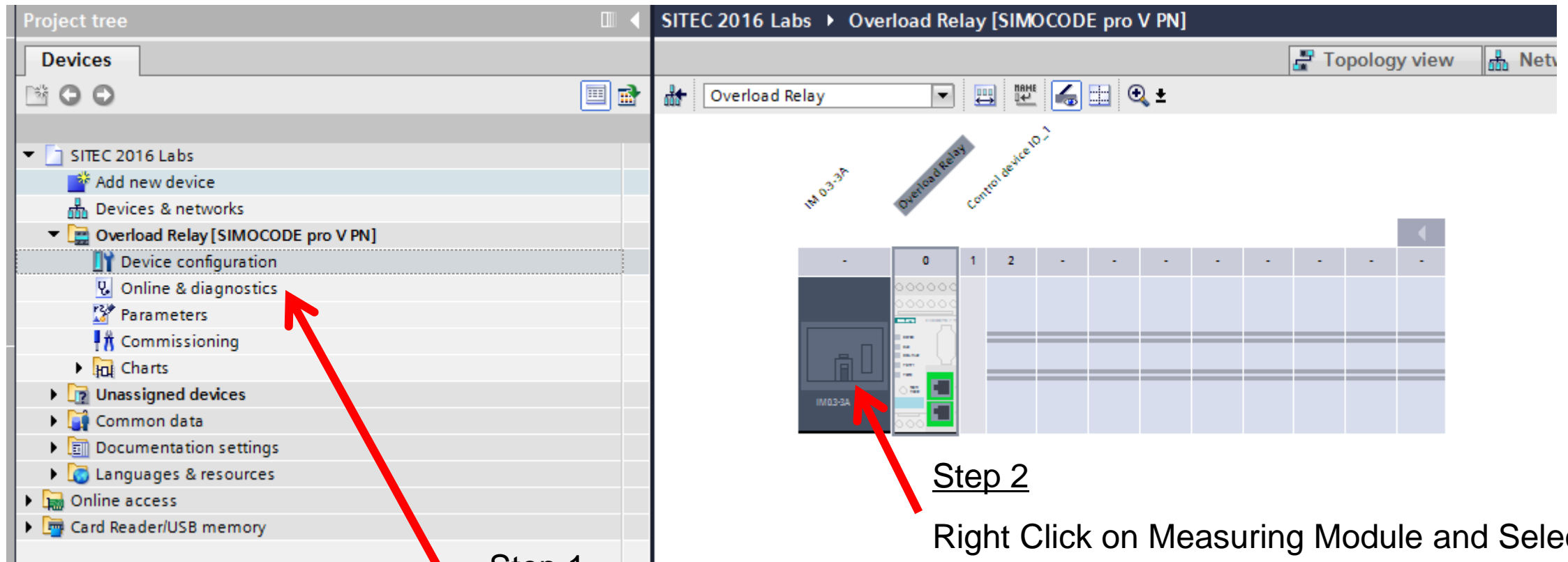
Step 1

Select Overload  
Relay Profile

Step 2

Select Finish

# Step 3 – Match Existing Device



Step 1

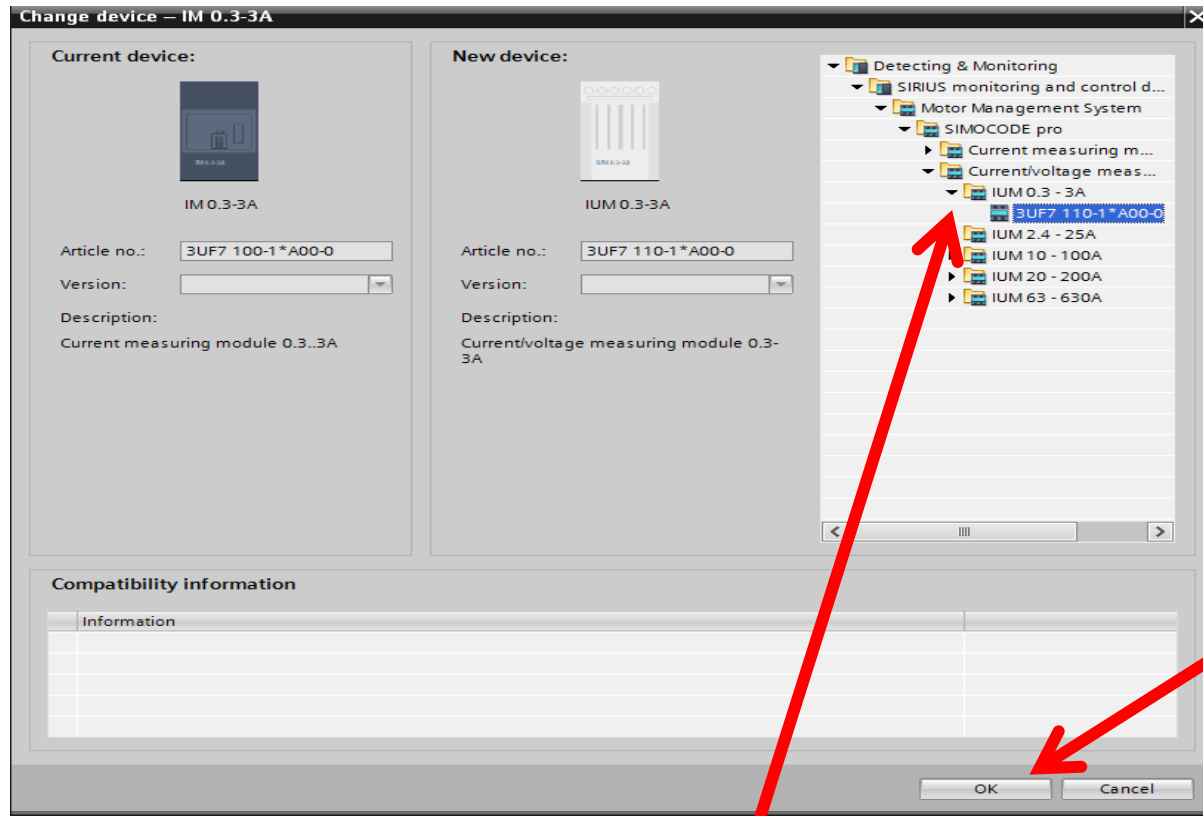
Double Click on Device Configuration

Step 2

Right Click on Measuring Module and Select Change Device



## Step 3 – Match Existing Device

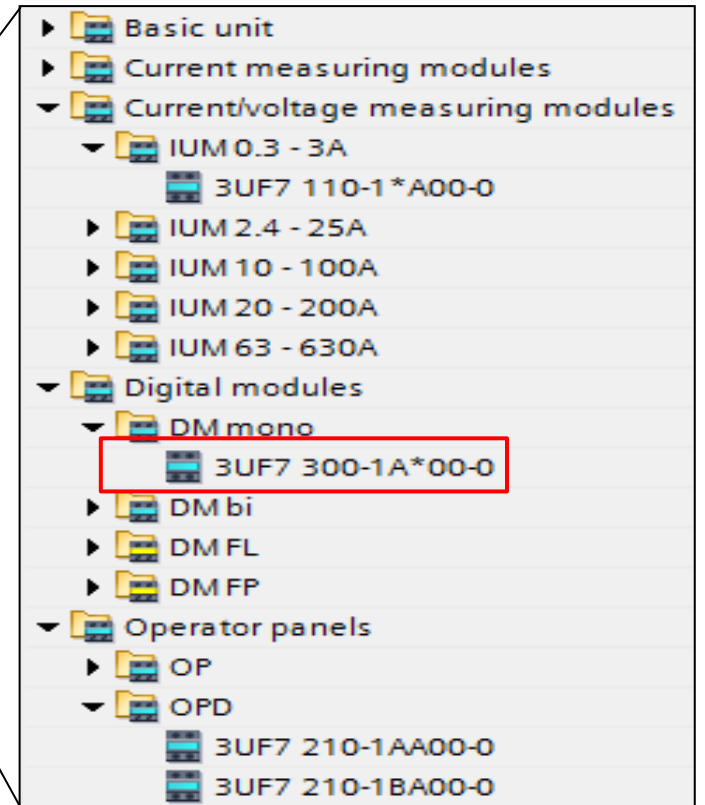
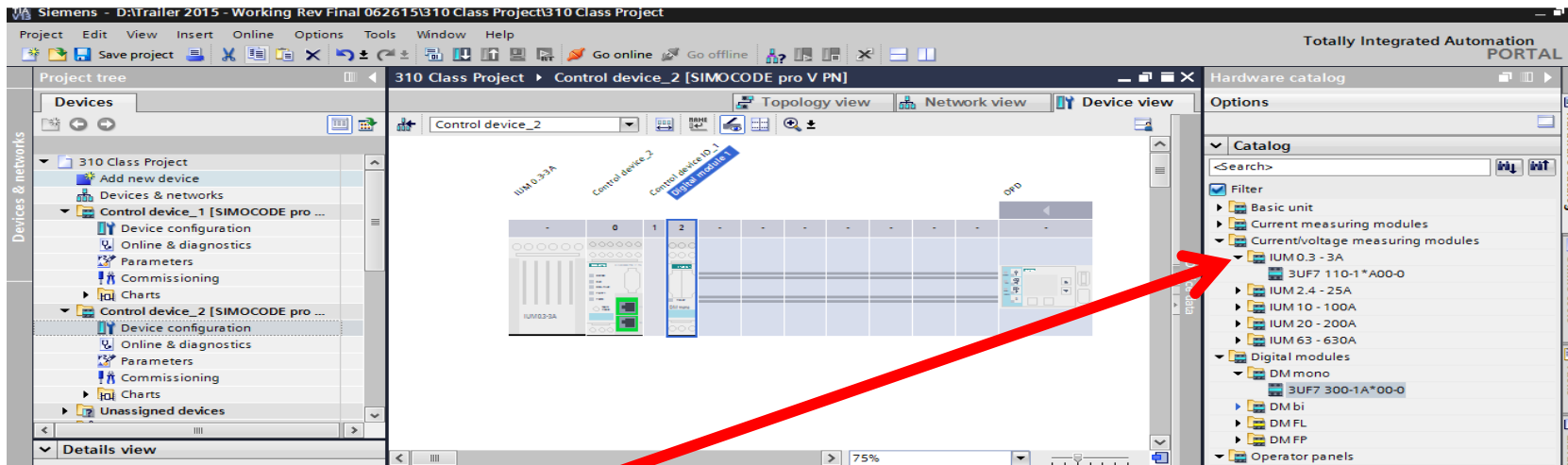


Step 2–  
Select OK

Step 1–

Select 0..3 -3A Current Voltage Measuring Module

## Step 3 – Match Existing Device



Step 1 –

Double Click “DM mono” to insert digital module into rack

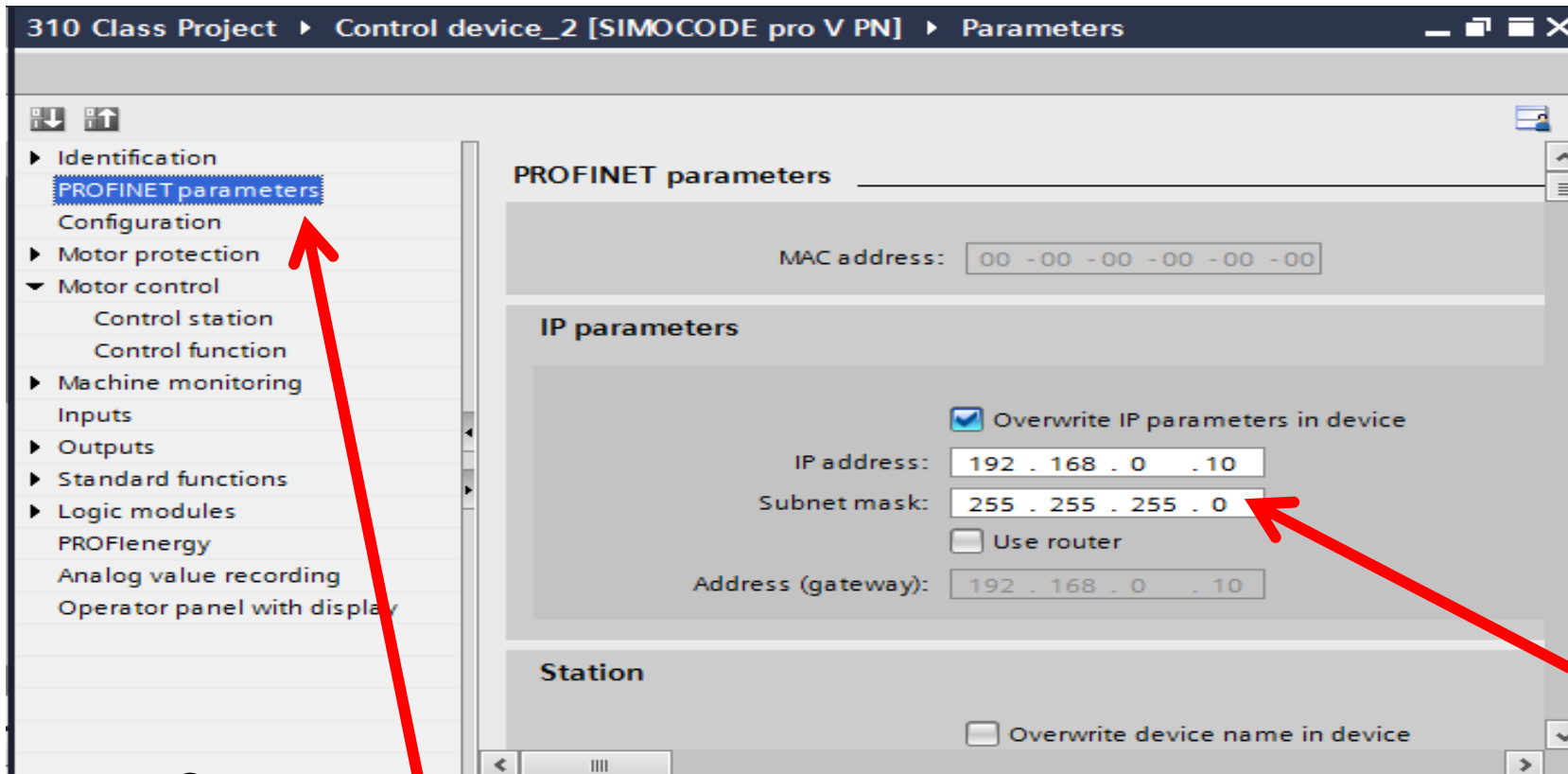
## Step 4 – Select Network Address

The screenshot displays the Siemens SIMATIC Manager interface. On the left, the 'Devices' tree shows the project structure: SITEC 2016 Labs > Add new device > Devices & networks > Overload Relay [SIMOCODE pro V PN]. The 'Parameters' option is highlighted with a blue selection bar and a red arrow pointing to it. The main workspace shows a 'Topology view' of an 'Overload Relay' device. The device is represented by a rack of modules: IUM 0-3-3A, Overload Relay, and Control device ID\_1 Digital module 1. The rack is shown with a grid of slots, with the 'Overload Relay' module occupying slot 0 and the 'Control device ID\_1' module occupying slot 1.

Step 1 –

Double Click Parameters

## Step 4 – Select Network Address



Step 1 –

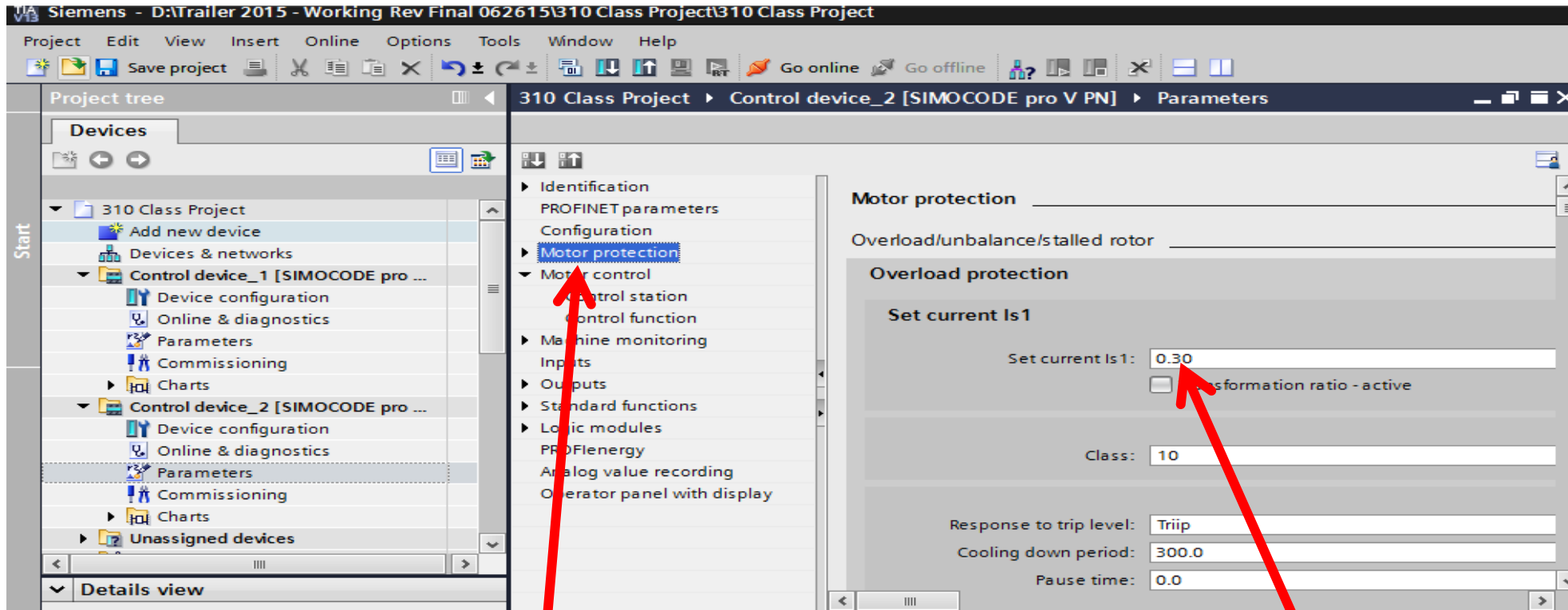
Select “PROFINET parameters”

Step 2 –

Enter the PROFINET address below

IP address: 192 . 168 . 0 . 10  
Subnet mask: 255 . 255 . 255 . 0

## Step 5 – Select FLA



Step 1 –  
Select “Motor protection”

Step 2 –  
The value 0.30 A is OK for the demo

## Select Outputs on Base Unit

The screenshot displays the 'Basic unit' configuration window. On the left, a navigation tree shows 'Outputs' expanded, with 'Basic unit' selected. The main area shows three output slots: 'BU - output 1: Not connected', 'BU - output 2: Not connected', and 'BU - output 3: Protection/Control - 3 QE3'. A red arrow points from the 'Basic unit' option in the tree to the main configuration area. Another red arrow points from the 'Protection/Control - 3 QE3' text in the third output slot to the explanatory note below.

Step 1 –  
Under Outputs - Select “Basic Unit”

Note – Output 3 has been assigned by selecting Overload Relay profile



## Select Outputs on Base Unit

Basic unit

BU - output 1: Not connected

BU - output 2: Not connected

BU - output 3: Protection/Control - 3 QE3

BU - output 1: BU inputs - input 1

BU - output 2: Not connected

BU - output 3: Protection/Control

Extended protection

Monitoring functions

Inputs

BU inputs

input 1

input 2

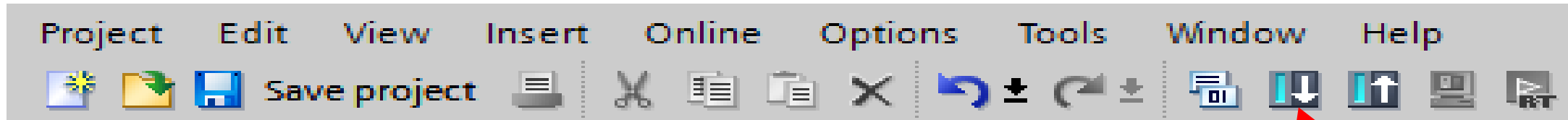
input 3

input 4

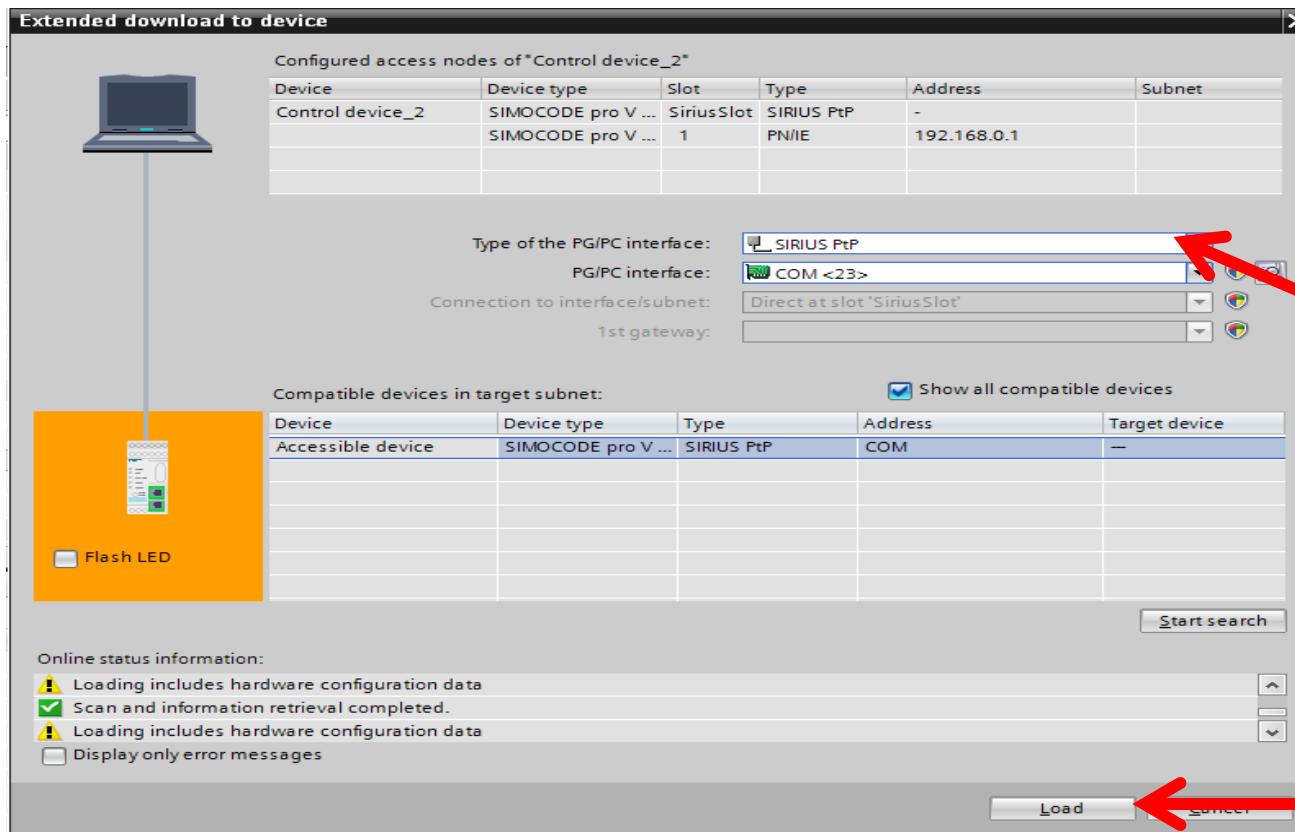
test/reset button

Step 1 – Select “Input 1” under Inputs/BU Inputs

# Download to Device



Step 1 –  
Select “Load to Switching device”



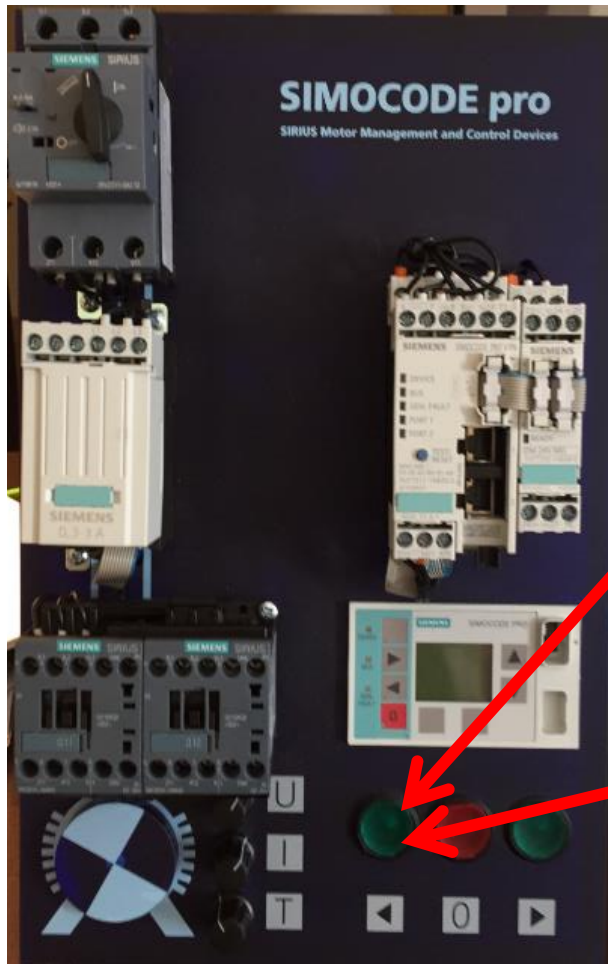
Step 2 – Select “SIRIUS PtP”



Step 3 – Select “Start search”

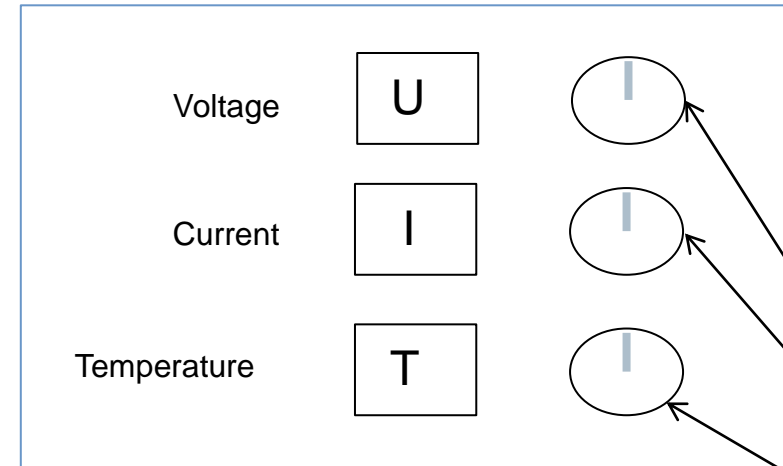
Step 4 – Select “Load”

# Test Overload Relay with Logic



Fault Contact Indication  
(Output #3)

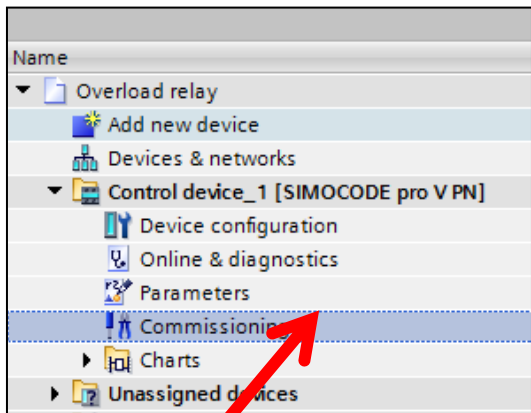
Step 2-  
Press Green PB to run contactor  
(Input #1)



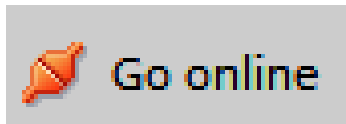
Step 1 - Adjust dials to 12 o'clock

# Online Monitoring

# Monitoring Functions

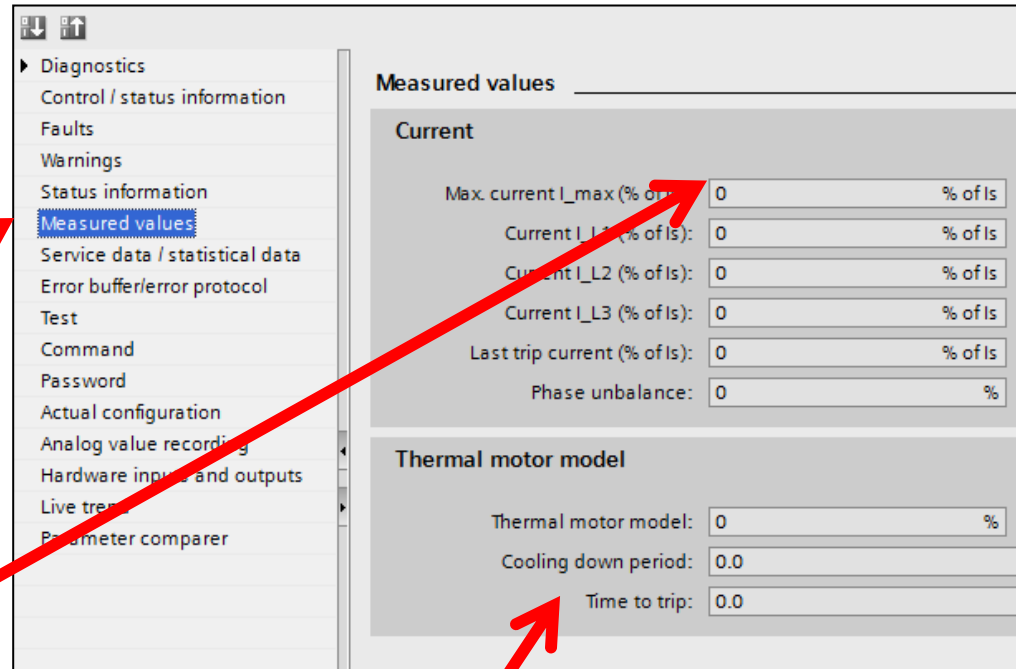


Step 1 –  
Double click “Commissioning”



Step 3 –  
Select “Go Online” on  
top toolbar

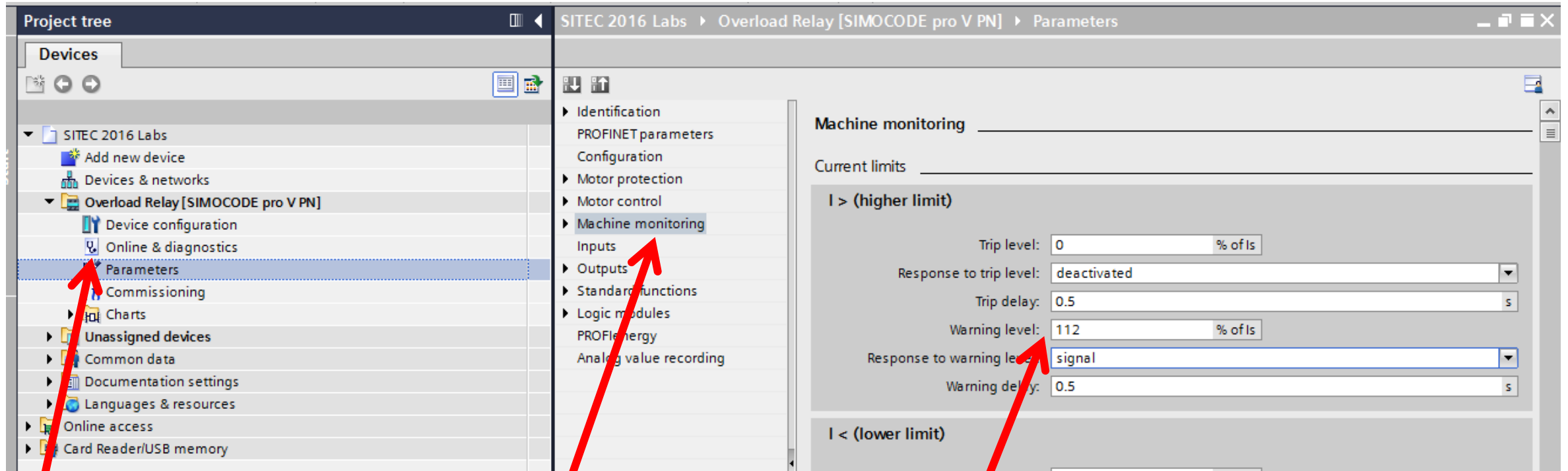
Step 2 –  
Select “Measured Values”



Step 4 –  
Press green PB to start motor and  
monitor motor current

Step 5 –  
Adjust knob labeled I to increase current  
to above 115% and the below 115%  
Notice time to trip when I is above 115%

# Monitoring Functions

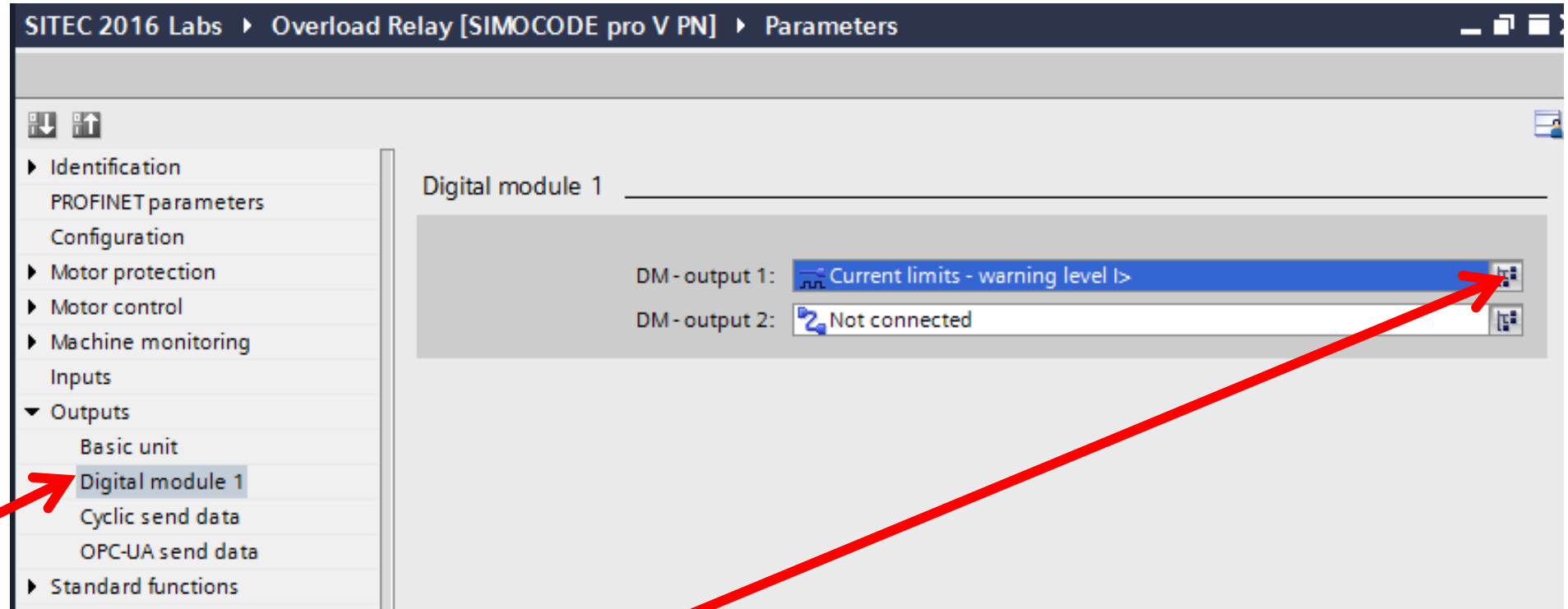


Step 1 –  
Double click “Parameters”

Step 2 –  
Click “Machine Monitoring”

Step 3 –  
Input 115% for “I > - Warning Level”  
and select “Signal” as response

# Monitoring Functions



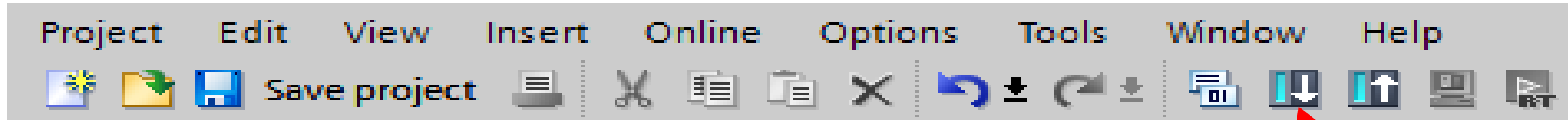
Step 1 –

Select “Digital module 1”

Step 2 –

Under Monitoring Functions - Select  
“Current limits – warning level I>”

# Download to Device



**Extended download to device**

Configured access nodes of "Control device\_2"

Device	Device type	Slot	Type	Address	Subnet
Control device_2	SIMOCODE pro V ...		SIRIUS PtP	-	
	SIMOCODE pro V ...	1	PN/IE	192.168.0.1	

Type of the PG/PC interface:

PG/PC interface:

Connection to interface/subnet:

1st gateway:

Compatible devices in target subnet:  Show all compatible devices

Device	Device type	Type	Address	Target device
Accessible device	SIMOCODE pro V ...	SIRIUS PtP	COM	--

Flash LED

Start search

Online status information:

- Loading includes hardware configuration data
- Scan and information retrieval completed.
- Loading includes hardware configuration data
- Display only error messages

Load

Step 1 –

Select "Load to Switching device"

Step 2 – Select "SIRIUS PtP"



Step 3 – Select "Start search"

Step 4 – Select "Load"



# Test Online Monitoring

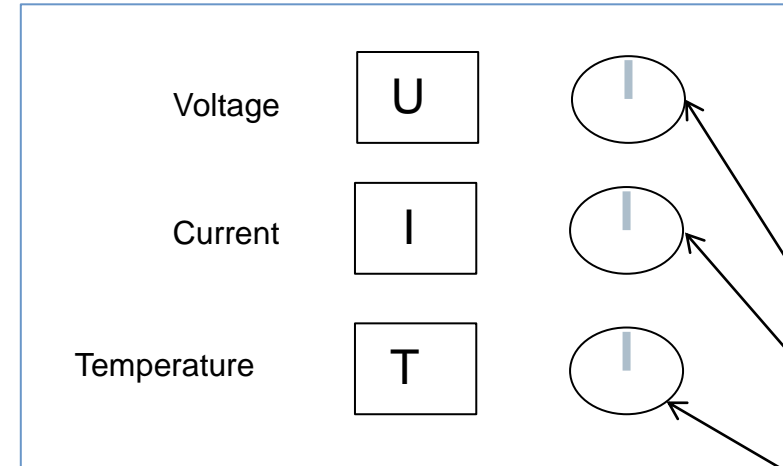


Fault Contact Indication  
(Output #3)

Step 2-

Press Green PB to run contactor

(Input #1)



Step 1 - Adjust dials to 12 o'clock

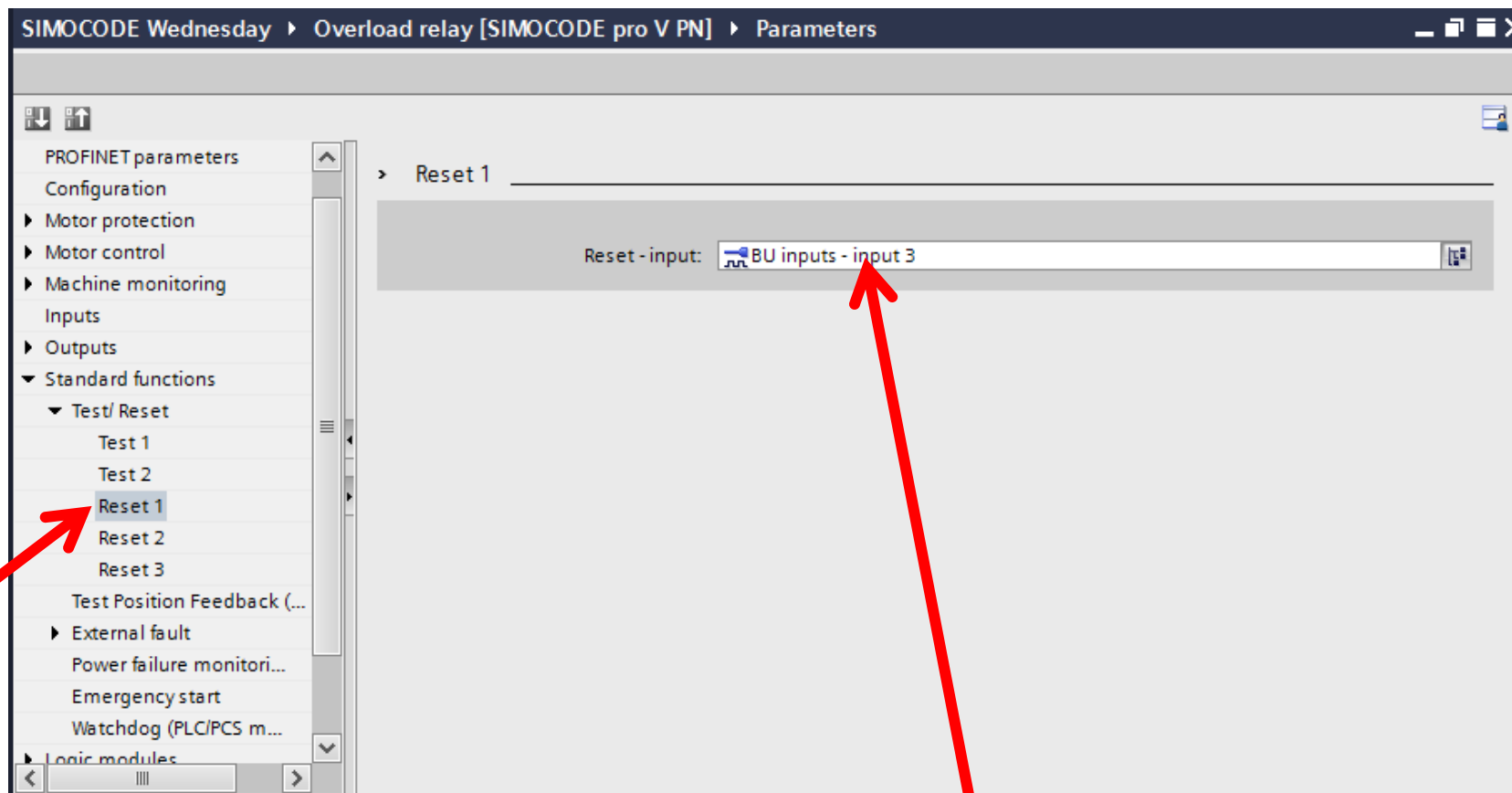
Step 3-

Adjust potentiometer labeled I clockwise until green light turns

(Output #1 on digital expansion)

# Standard Functions

## Remote Reset



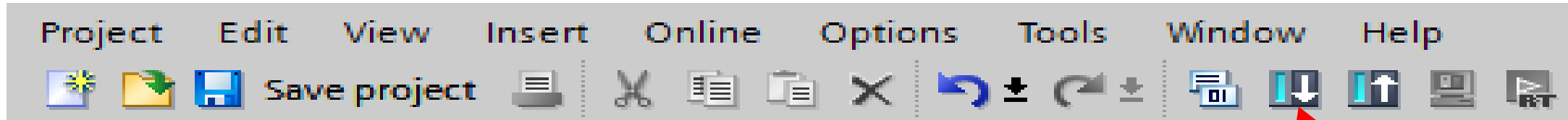
Step 1 –

Under “Standard Functions” - Select “Reset 1”

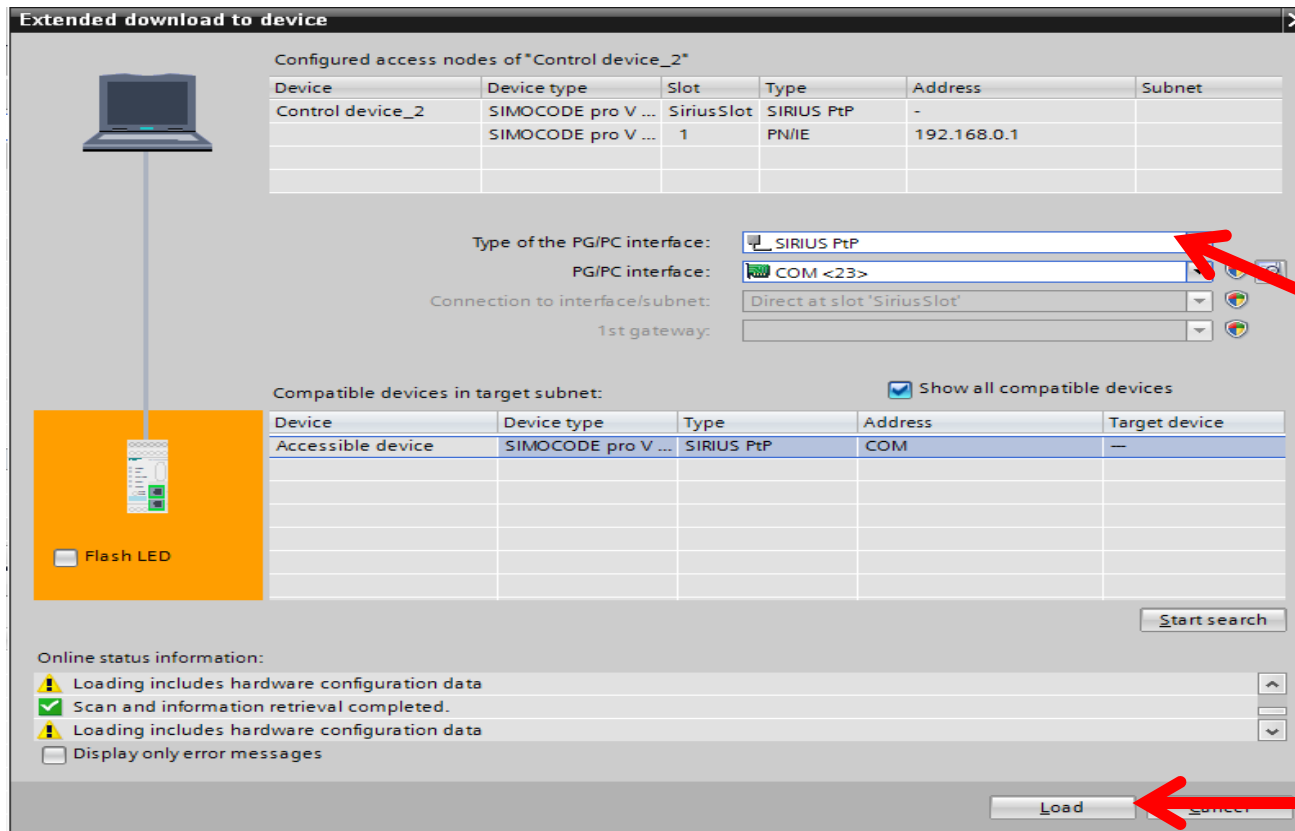
Step 2 –

Under “BU Inputs” - Select “Input 3”

# Download to Device



Step 1 –  
Select “Load to Switching device”



Step 2 – Select “SIRIUS PtP”



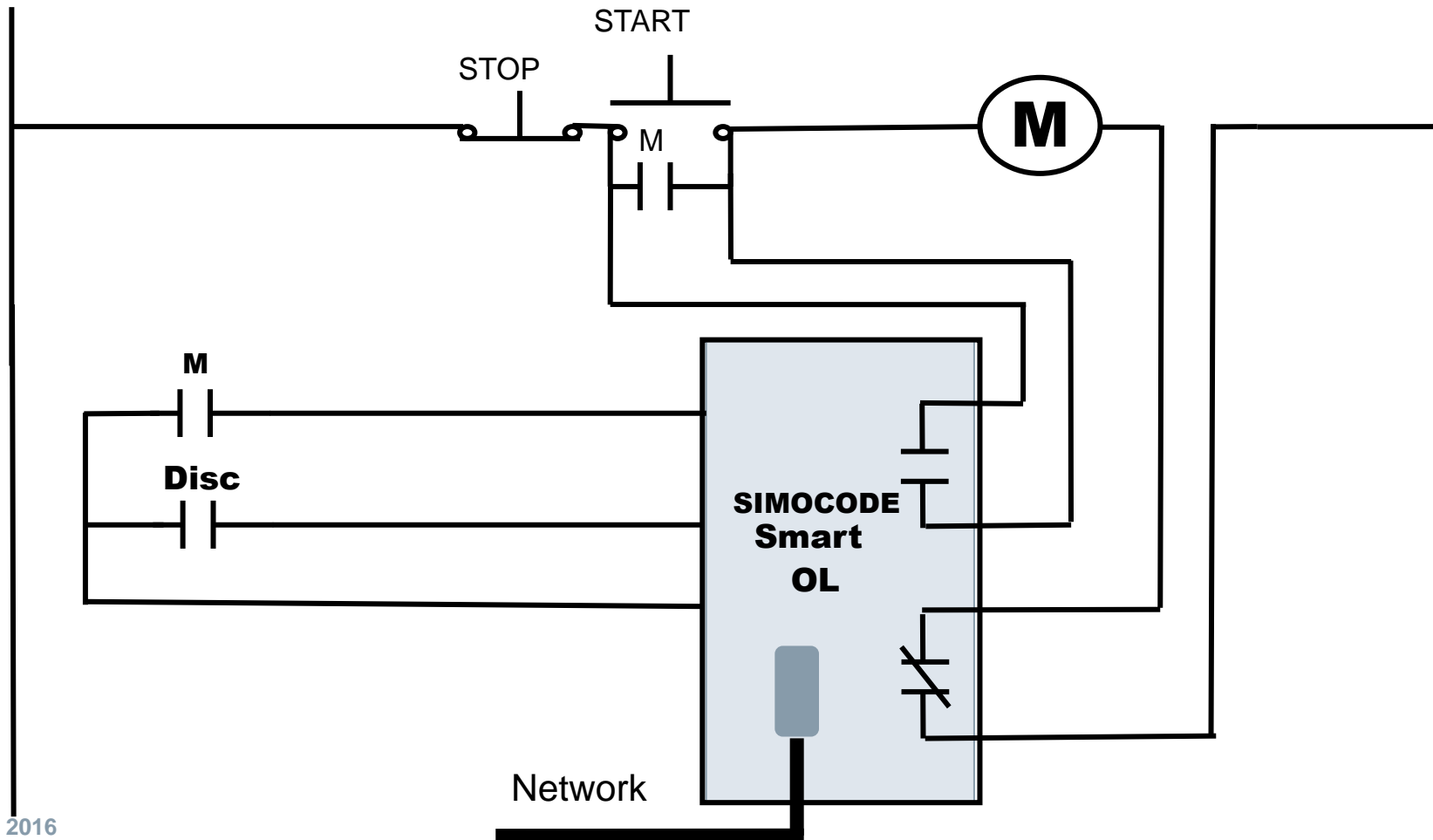
Step 3 – Select “Start search”

Step 4 – Select “Load”

# Direct Starter

# Theory Of Operation

## Overload with Communication

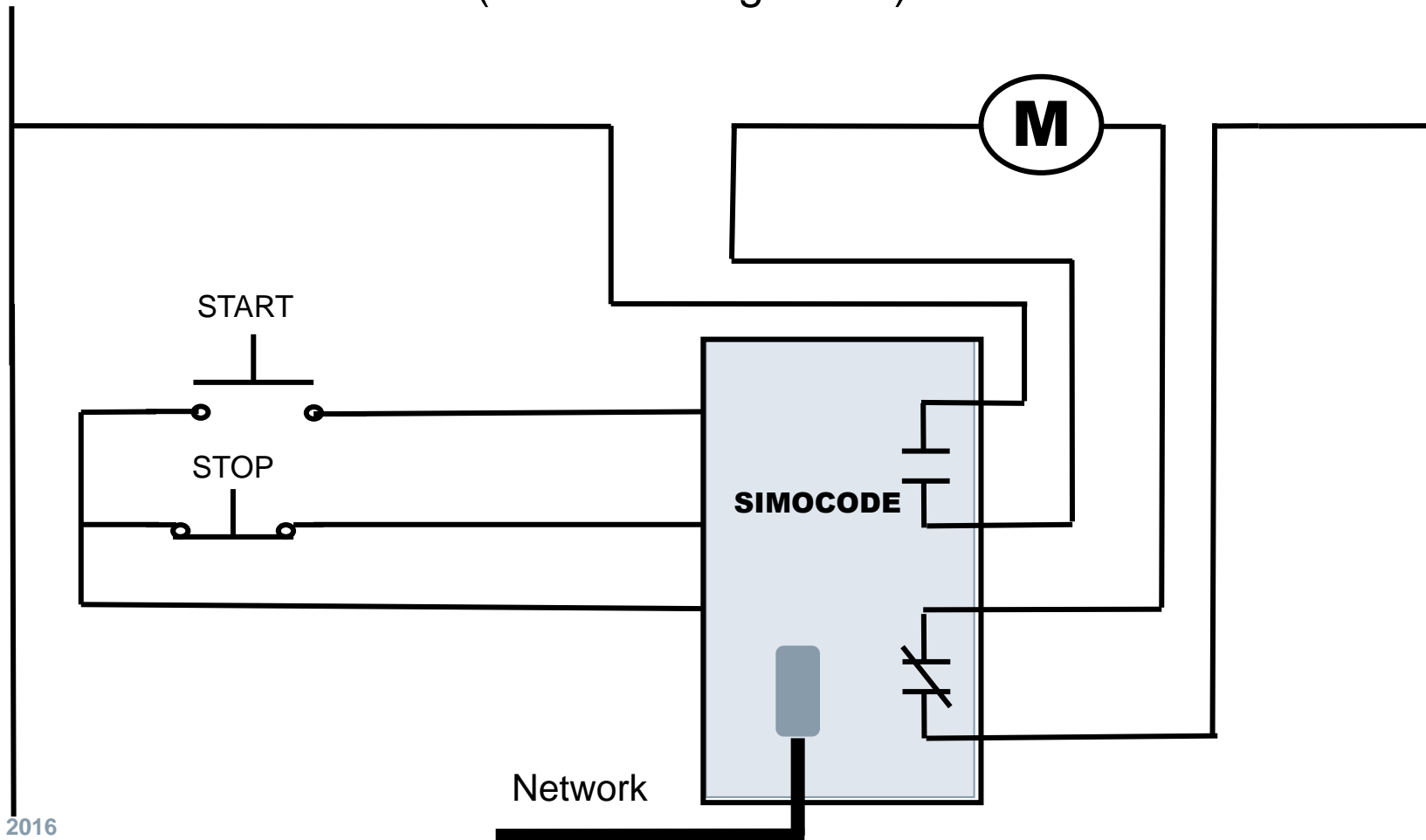


### Additional Values

- Voltage/Power
- Digital I/O
- Analog I/O
- RTD
- Local Logic
- Motor Profiles

# Theory Of Operation

## Starter with Communication (Motor Management)

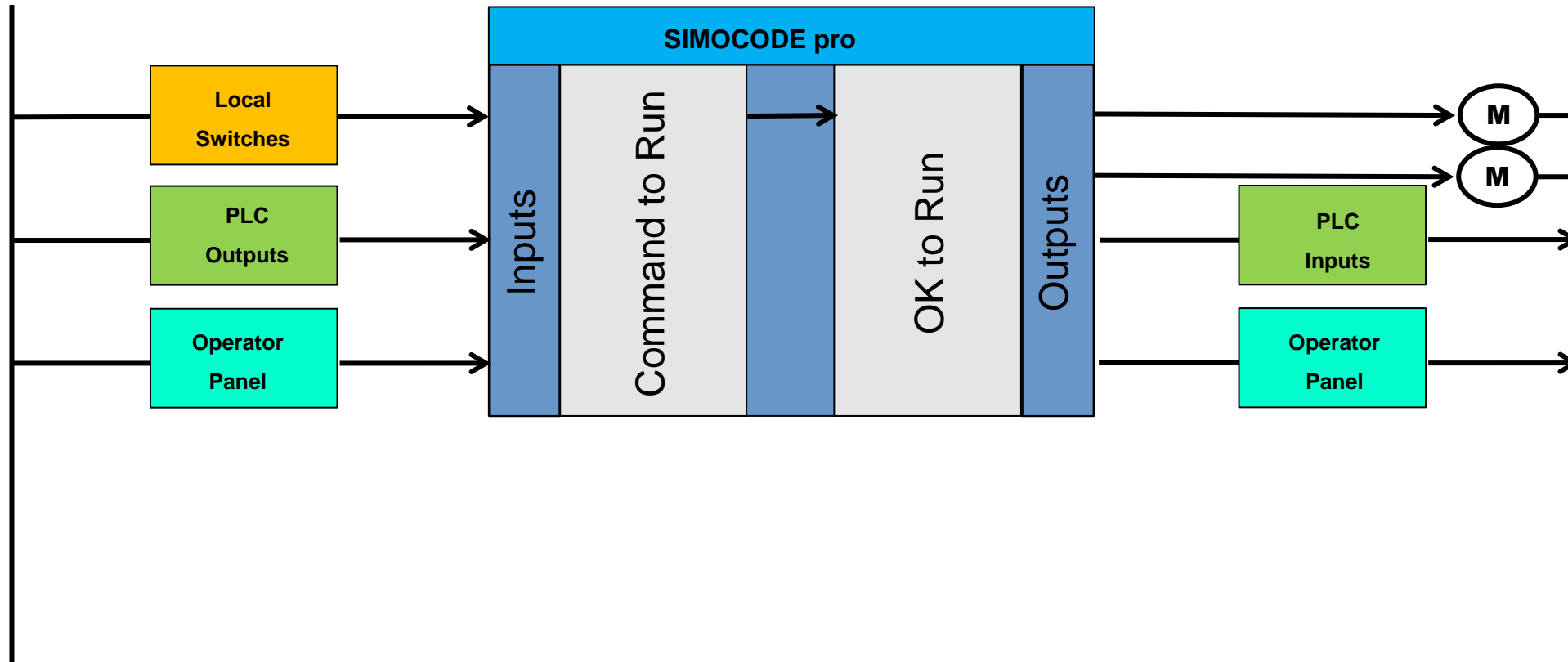


### Additional Values

- Voltage/Power
- Digital I/O
- Analog I/O
- RTD
- Local Logic
- Motor Profiles

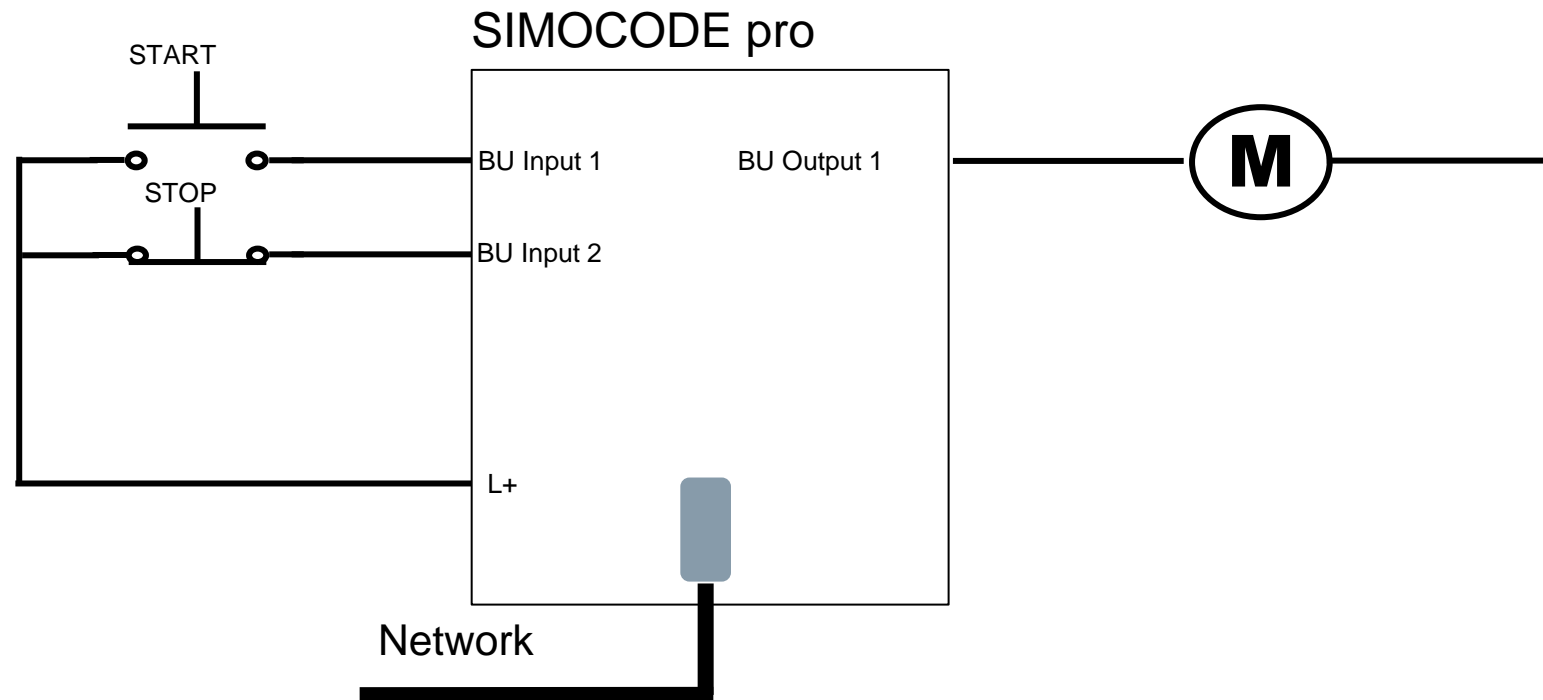
# Theory Of Operation

## Starter with Communication (Motor Management)

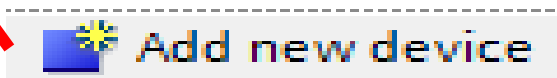
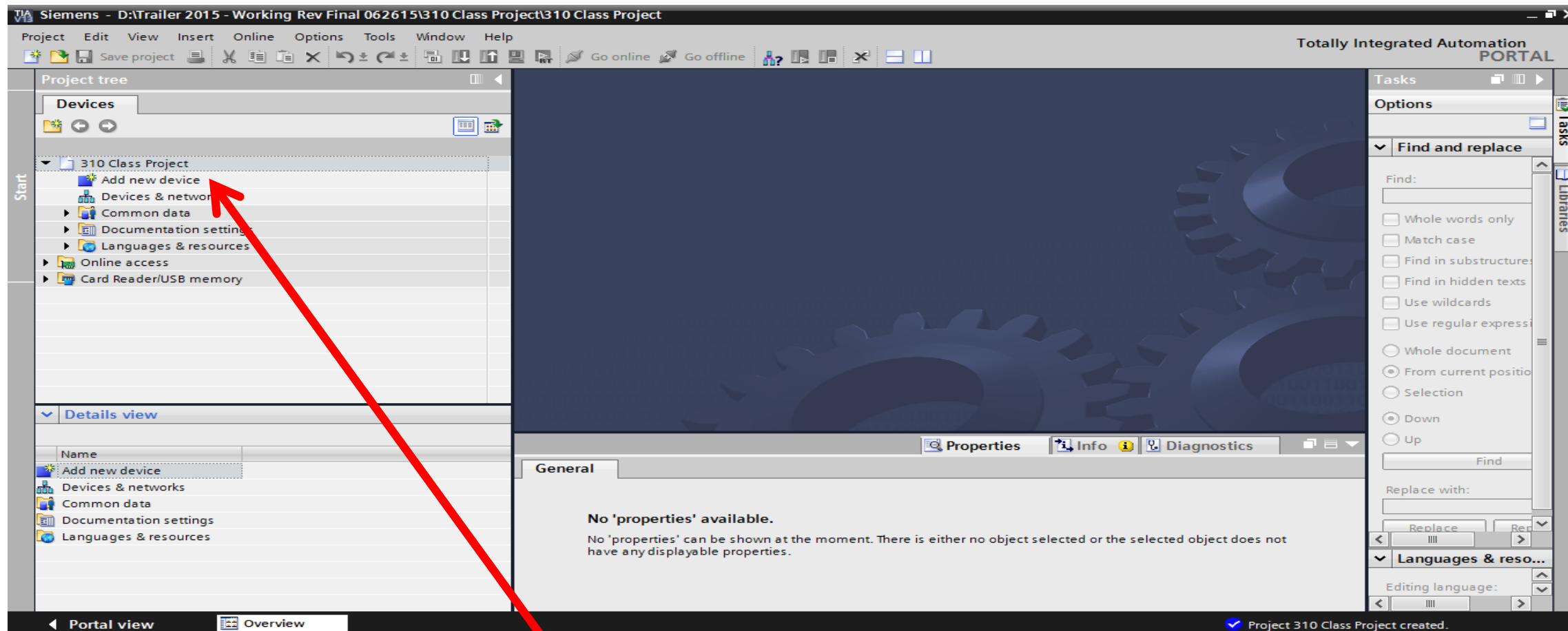




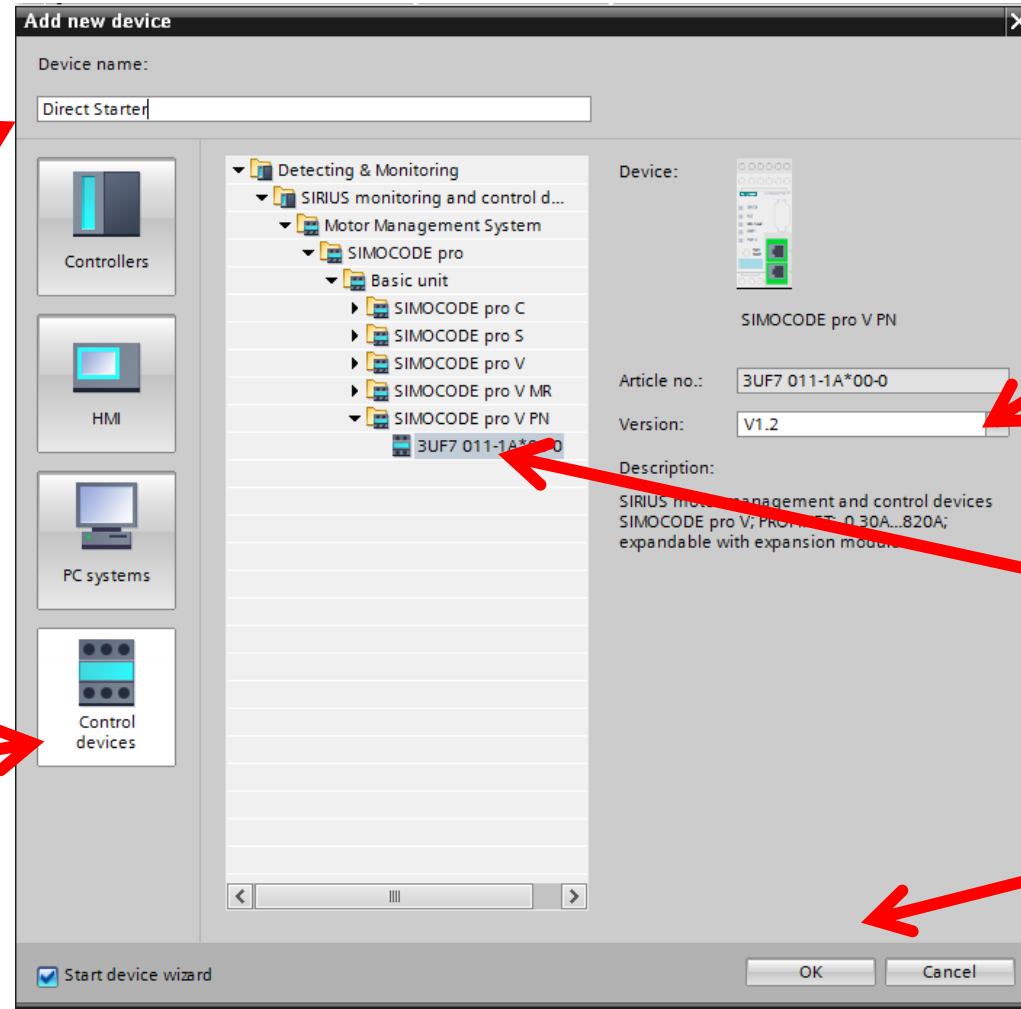
## Lab # 5 (Direct Starter)



# Add a New Device



# Step 1 - Select Base Unit and Version



Step 4

Change name to "Direct Starter"

Step 1

Select Control Devices

Step 3

Select Version

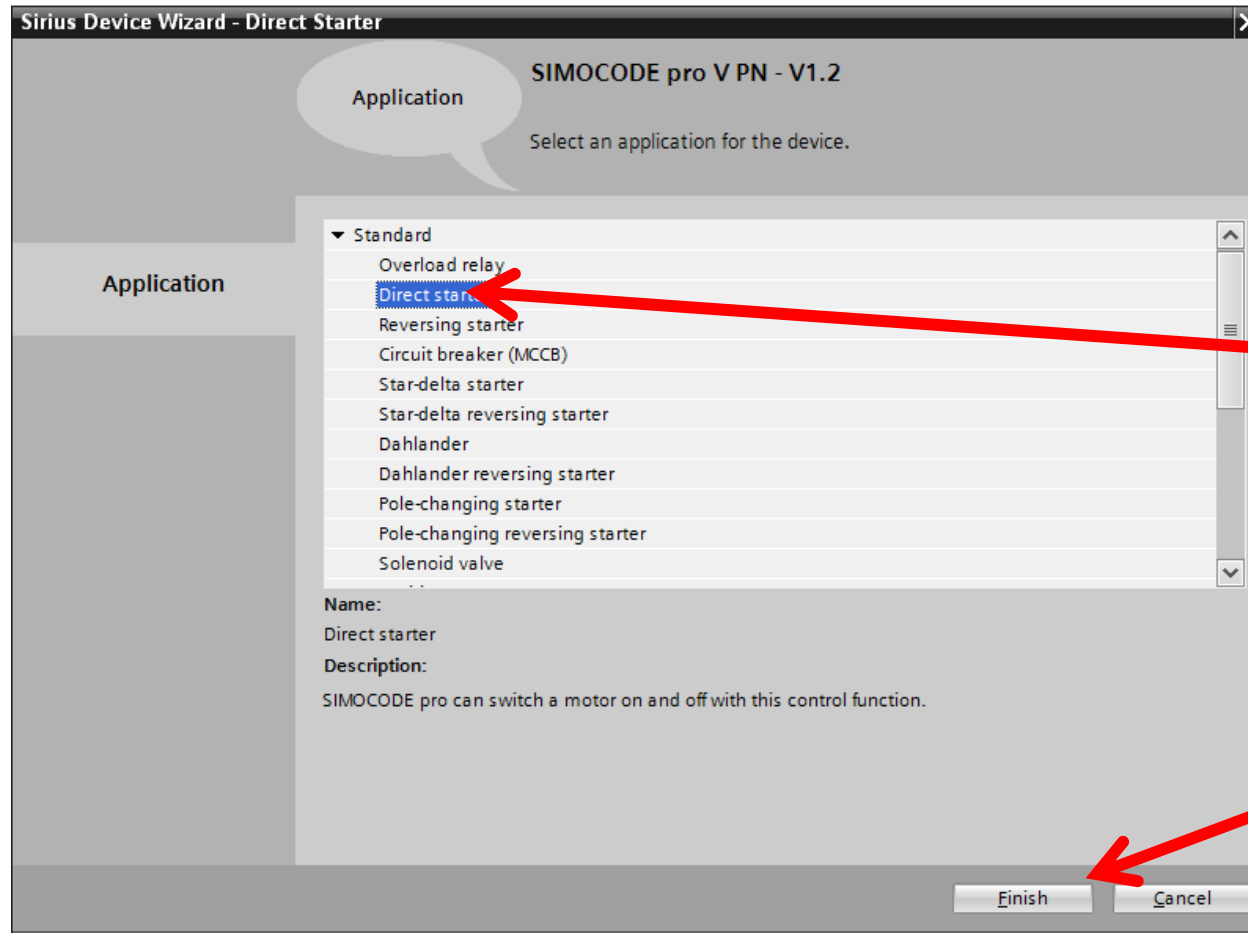
Step 2

Select SIMOCODE pro V PN

Step 5

Select OK

## Step 2 - Select Profile (Direct Starter)



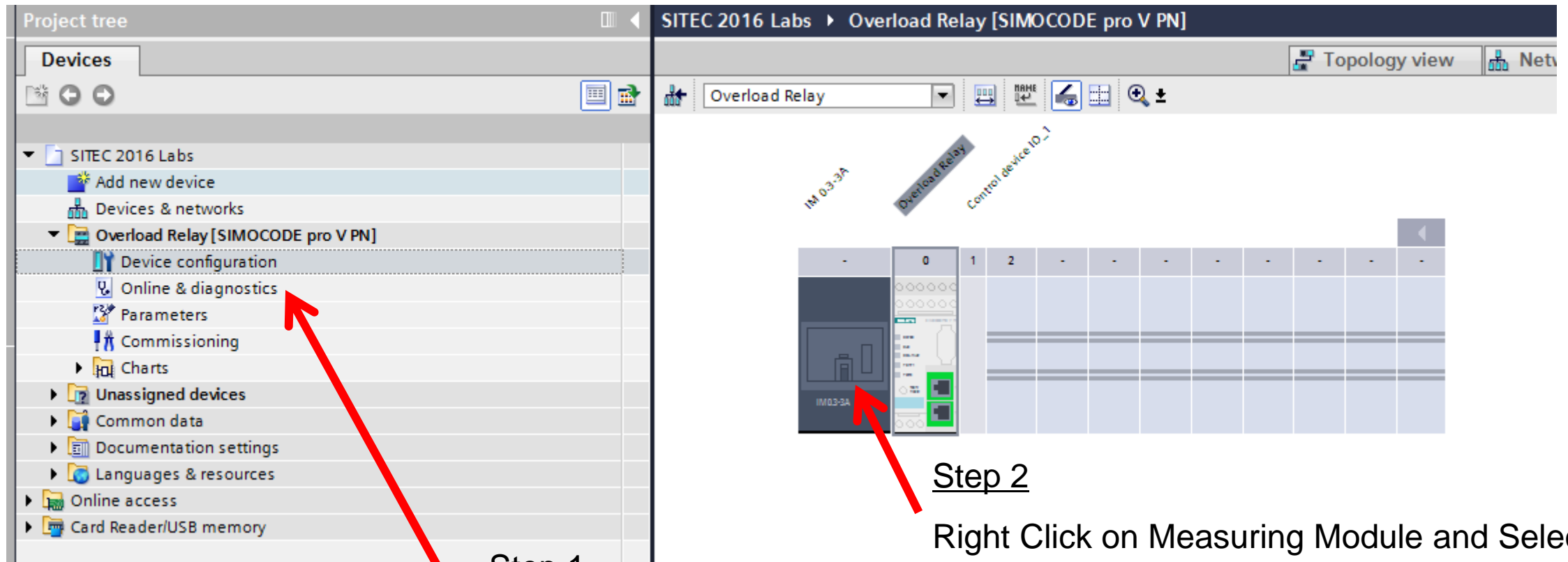
Step 1

Select "Direct Starter" Profile

Step 2

Select Finish

# Step 3 – Match Existing Device



Step 1

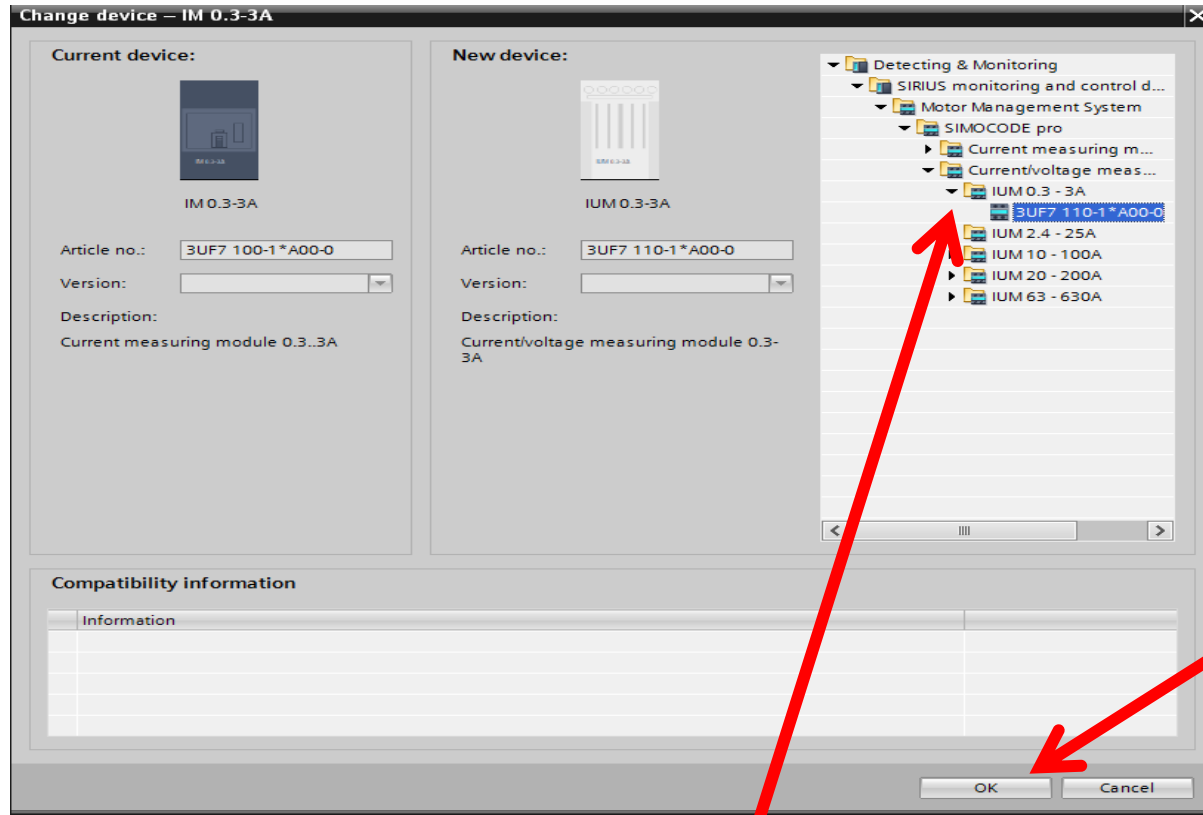
Double Click on Device Configuration

Step 2

Right Click on Measuring Module and Select Change Device



## Step 3 – Match Existing Device

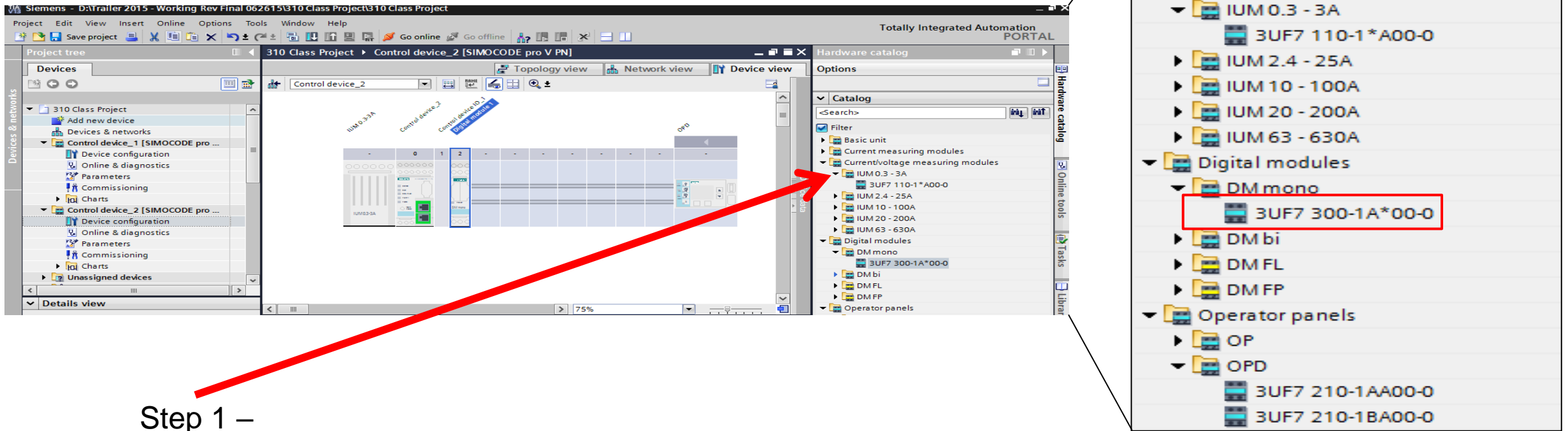


Step 2–  
Select OK

Step 1–

Select 0..3 -3A Current Voltage Measuring Module

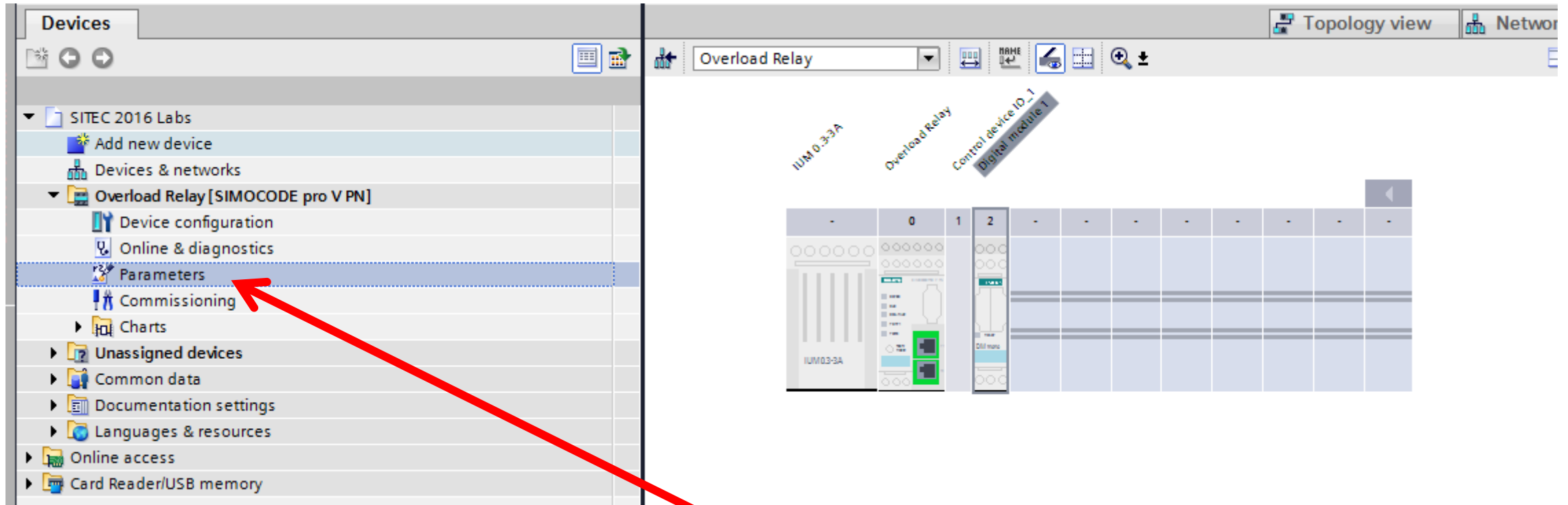
# Step 3 – Match Existing Device



Step 1 –

Double Click “DM mono” to insert digital module into rack

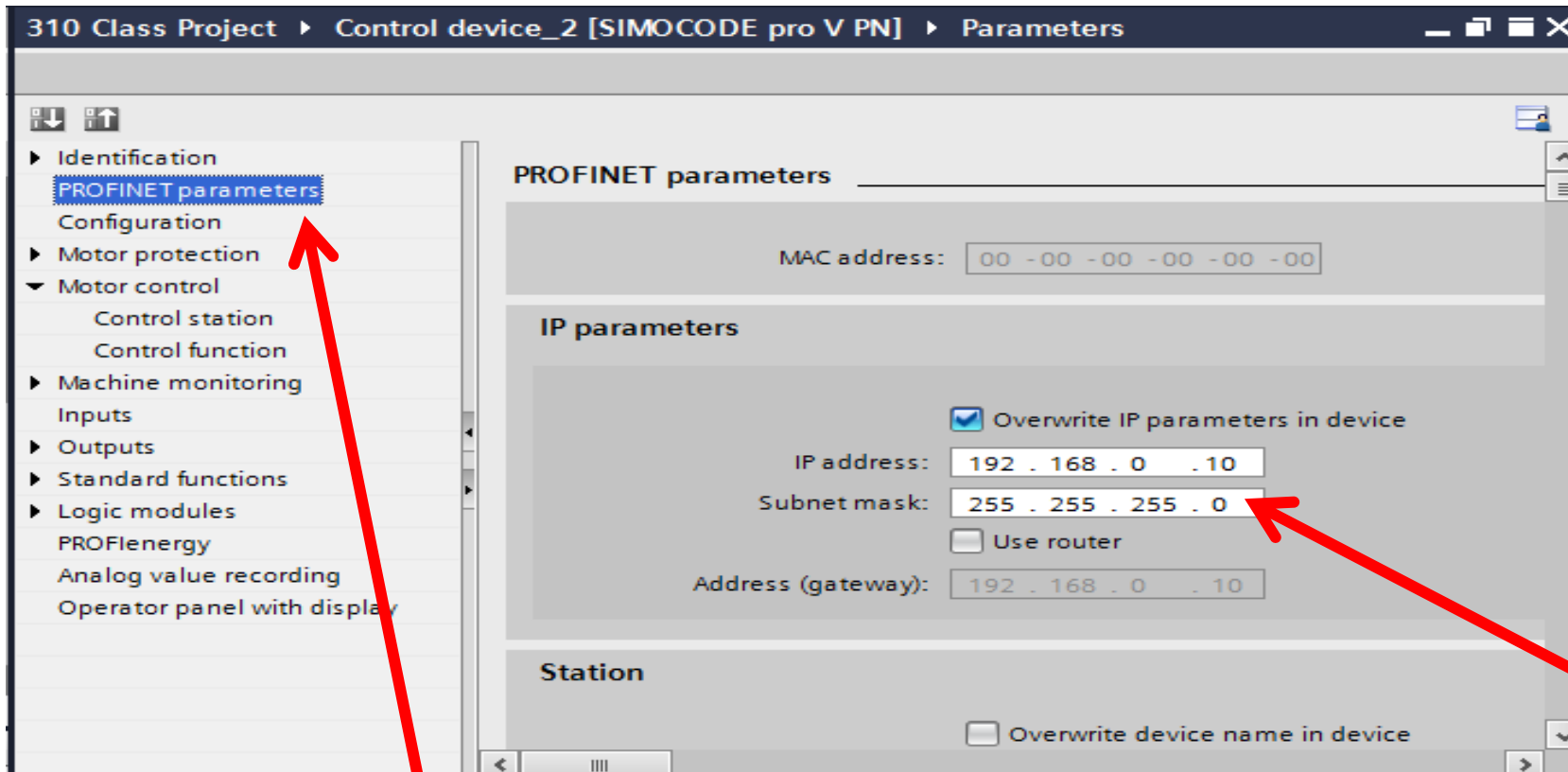
## Step 4 – Select Network Address



Step 1 –  
Double Click Parameters



## Step 4 – Select Network Address



Step 1 –

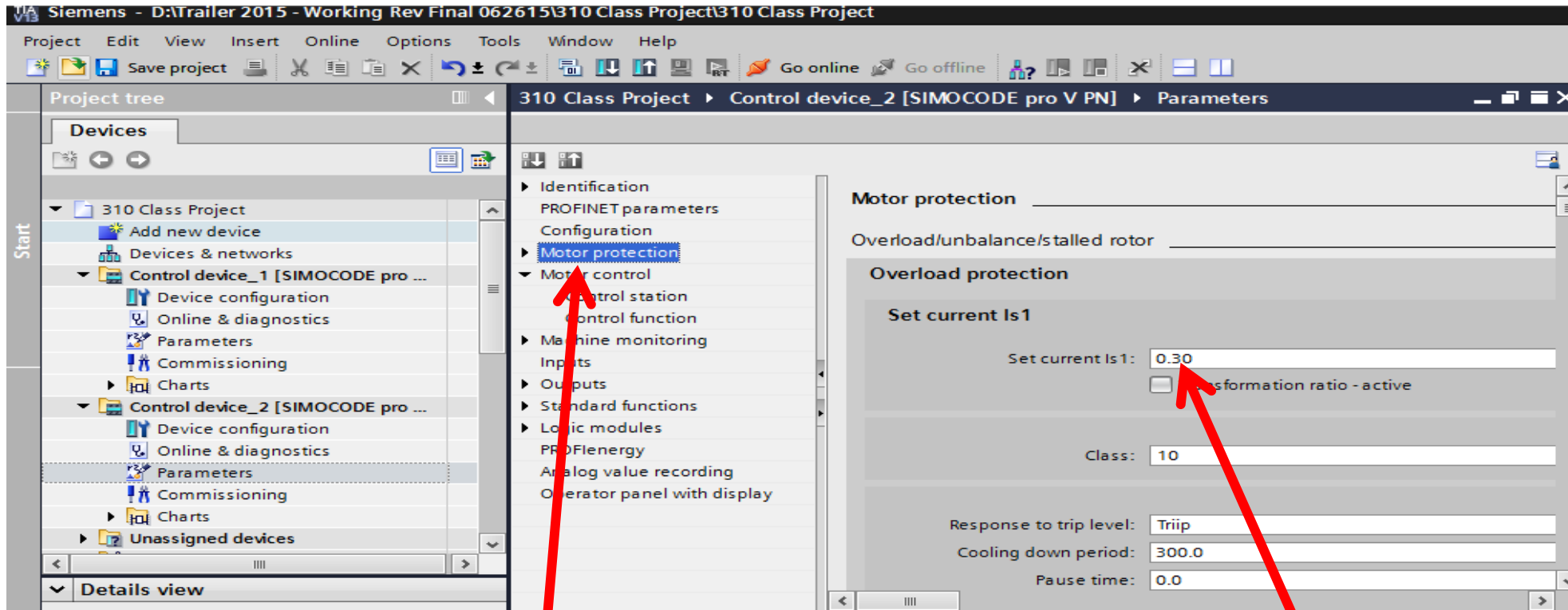
Select “PROFINET parameters”

Step 2 –

Enter the PROFINET address below

IP address: 192 . 168 . 0 . 10  
Subnet mask: 255 . 255 . 255 . 0

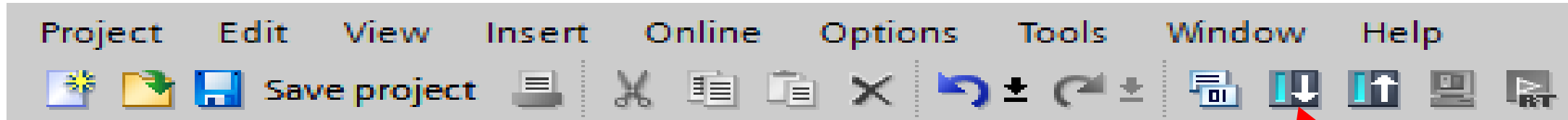
## Step 5 – Select FLA



Step 1 –  
Select “Motor protection”

Step 2 –  
The value 0.30 A is OK for the demo

# Download to Device



Step 1 –  
Select “Load to Switching device”

Extended download to device

Configured access nodes of \*Control device\_2\*

Device	Device type	Slot	Type	Address	Subnet
Control device_2	SIMOCODE pro V ...	SiriusSlot	SIRIUS PtP	-	
	SIMOCODE pro V ...	1	PN/IE	192.168.0.1	

Type of the PG/PC interface:

PG/PC interface:

Connection to interface/subnet:

1st gateway:

Compatible devices in target subnet:  Show all compatible devices

Device	Device type	Type	Address	Target device
Accessible device	SIMOCODE pro V ...	SIRIUS PtP	COM	--

Flash LED

Start search

Online status information:

- Loading includes hardware configuration data
- Scan and information retrieval completed.
- Loading includes hardware configuration data
- Display only error messages

Load

Step 2 – Select “SIRIUS PtP”



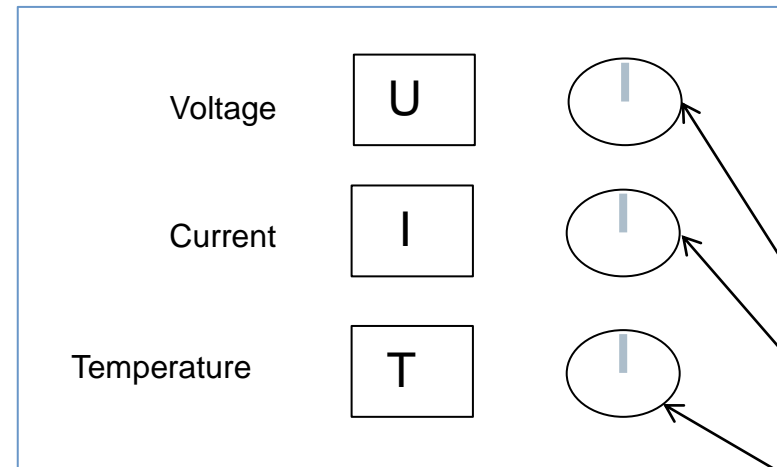
Step 3 – Select “Start search”

Step 4 – Select “Load”

# Test Direct Starter



Step 2 – Press green and red PB to start/stop motor



Step 1 -Adjust dials to 12 o'clock

# Motor Control (Control Station)

Selects local / remote mode

Commands to star/stop

Is the command active

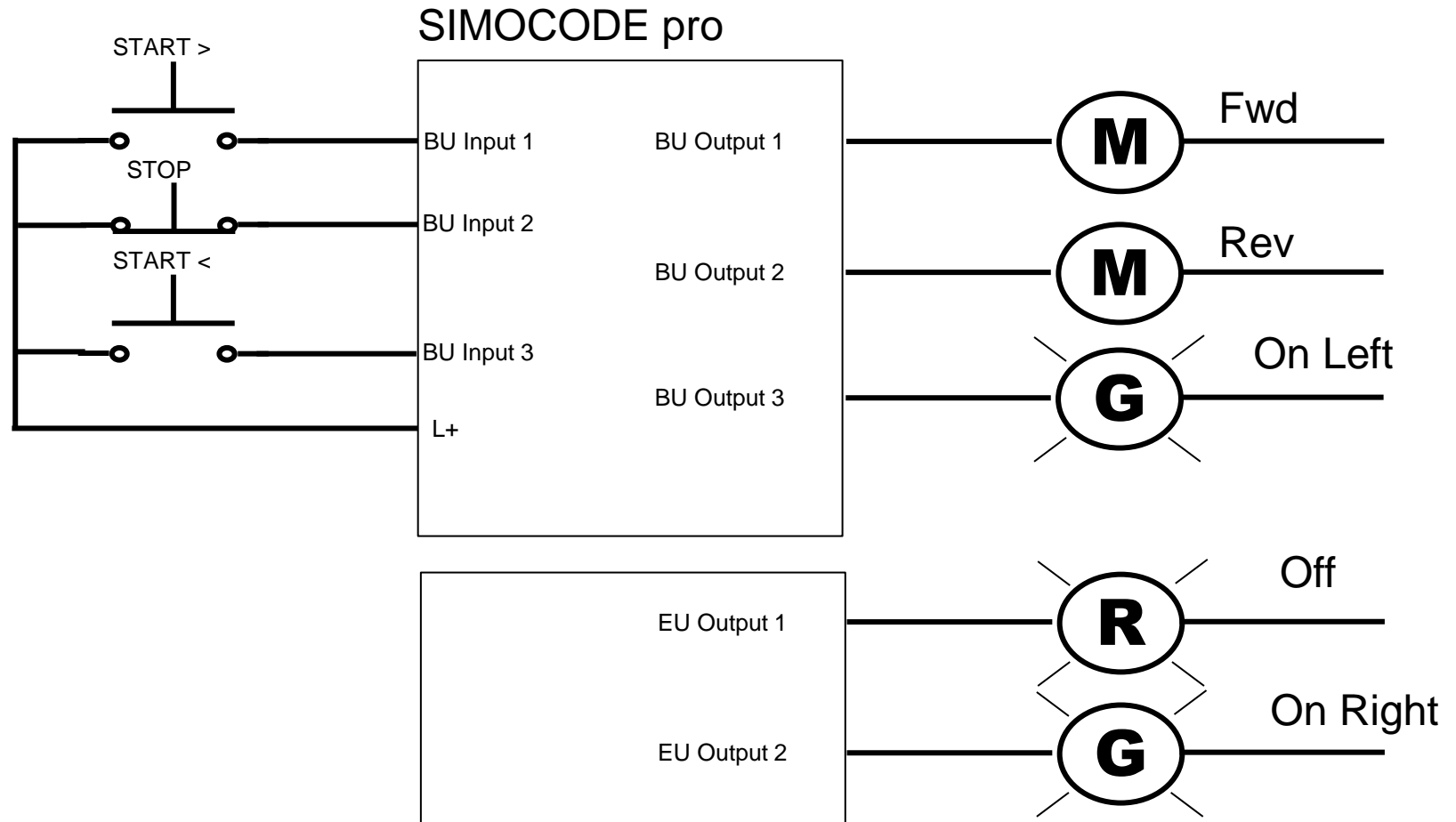
	Local 1	Local 2	Local 3	Remote
Cyclic receive byte 0 - bit 0.5	0	0	1	1
Fixed level - '1' - '1'	0	1	0	1

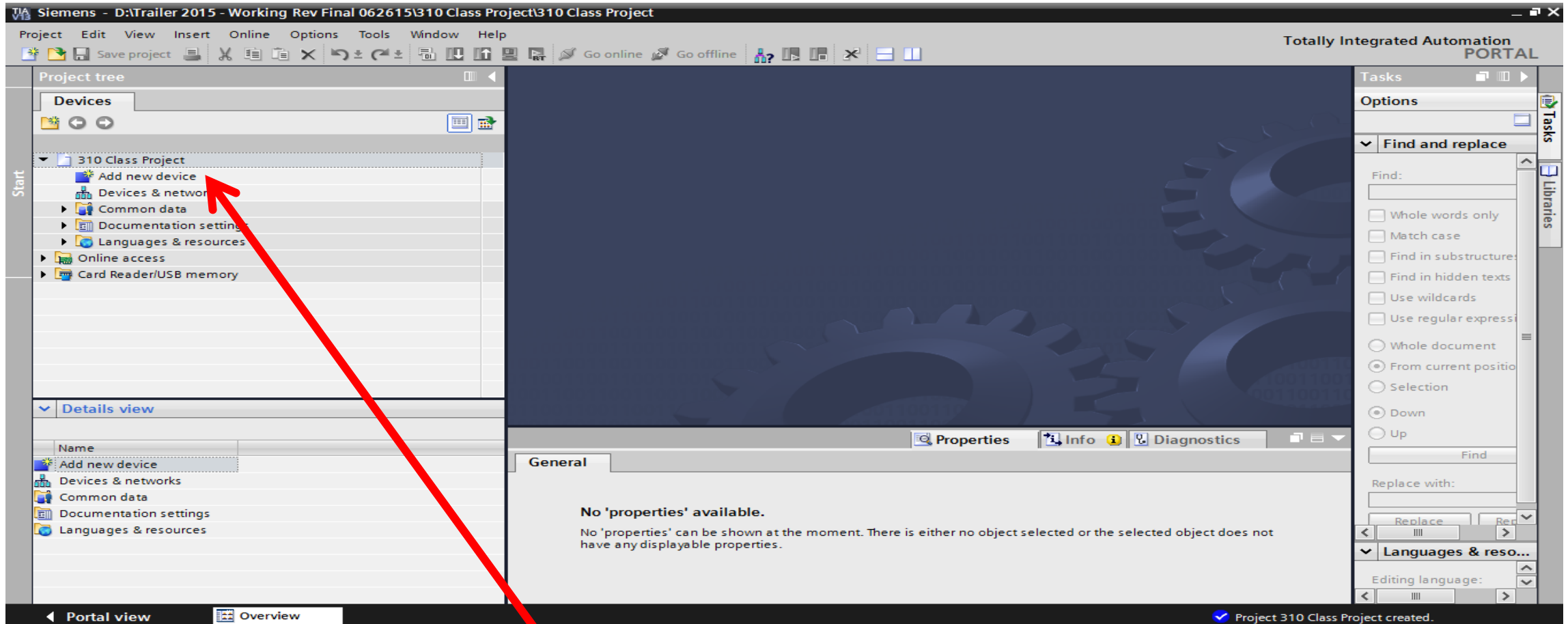
	Local 1	Local 2	Local 3	Remote
BU inputs - input 1	I/O None	On-Off	I/O None	I/O None
BU inputs - input 2	I/O None	I/O None	I/O None	I/O None
BU inputs - input 3	I/O None	I/O None	I/O None	I/O None
Cyclic receive byte 0 - bit 0.0	I/O None	I/O None	I/O None	On-Off
Cyclic receive byte 0 - bit 0.1	I/O None	I/O None	I/O None	I/O None
Cyclic receive byte 0 - bit 0.2	I/O None	I/O None	I/O None	I/O None
Not connected	I/O None	On-Off	I/O None	I/O None
Not connected	I/O None	I/O None	I/O None	I/O None
Not connected	I/O None	I/O None	I/O None	I/O None
OP buttons - button 2	I/O None	On-Off	I/O None	I/O None
OP buttons - button 4	I/O None	I/O None	I/O None	I/O None
OP buttons - button 3	I/O None	I/O None	I/O None	I/O None

# Reversing Starter with Lights

# Lab #6 (Reversing Starter with lights)

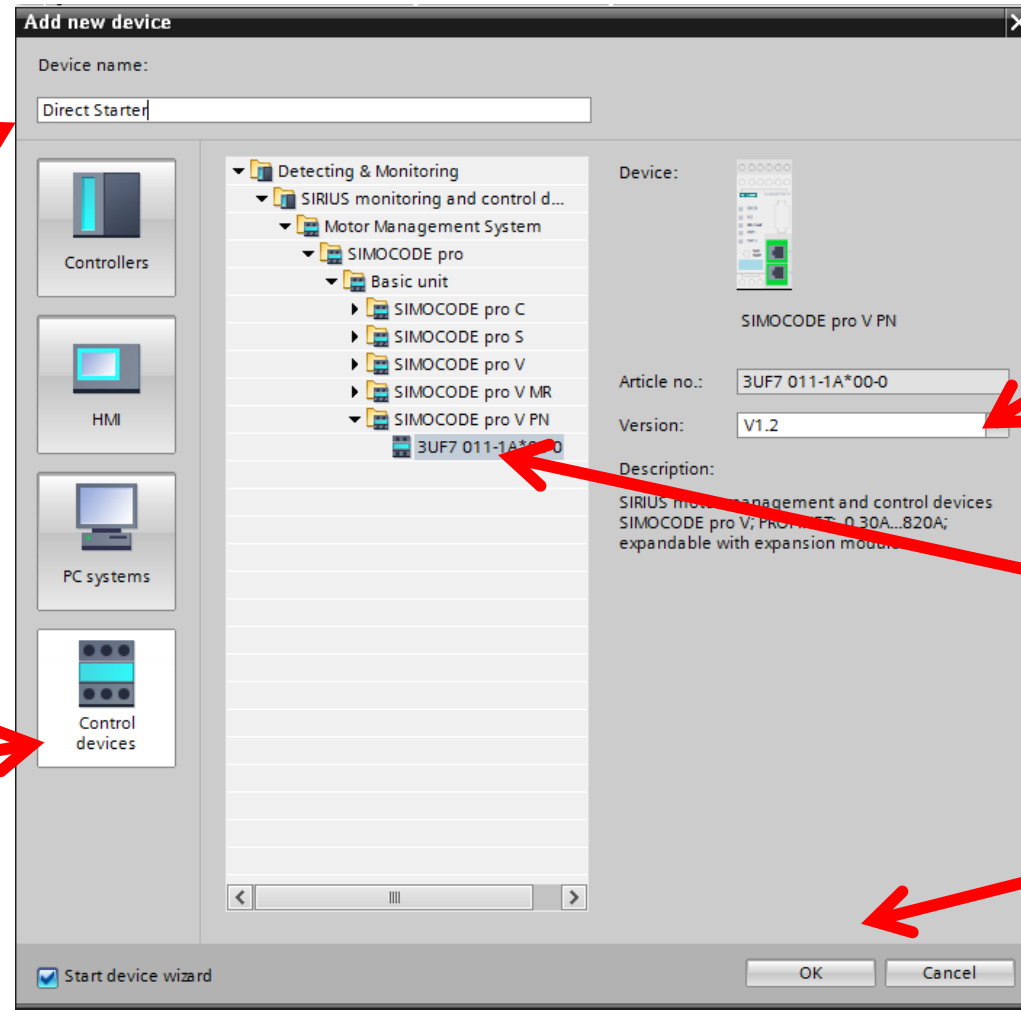


# Add a New Device





# Step 1 - Select Base Unit and Version



Step 4

Change name to "Reversing Starter"

Step 1

Select Control Devices

Step 3

Select Version

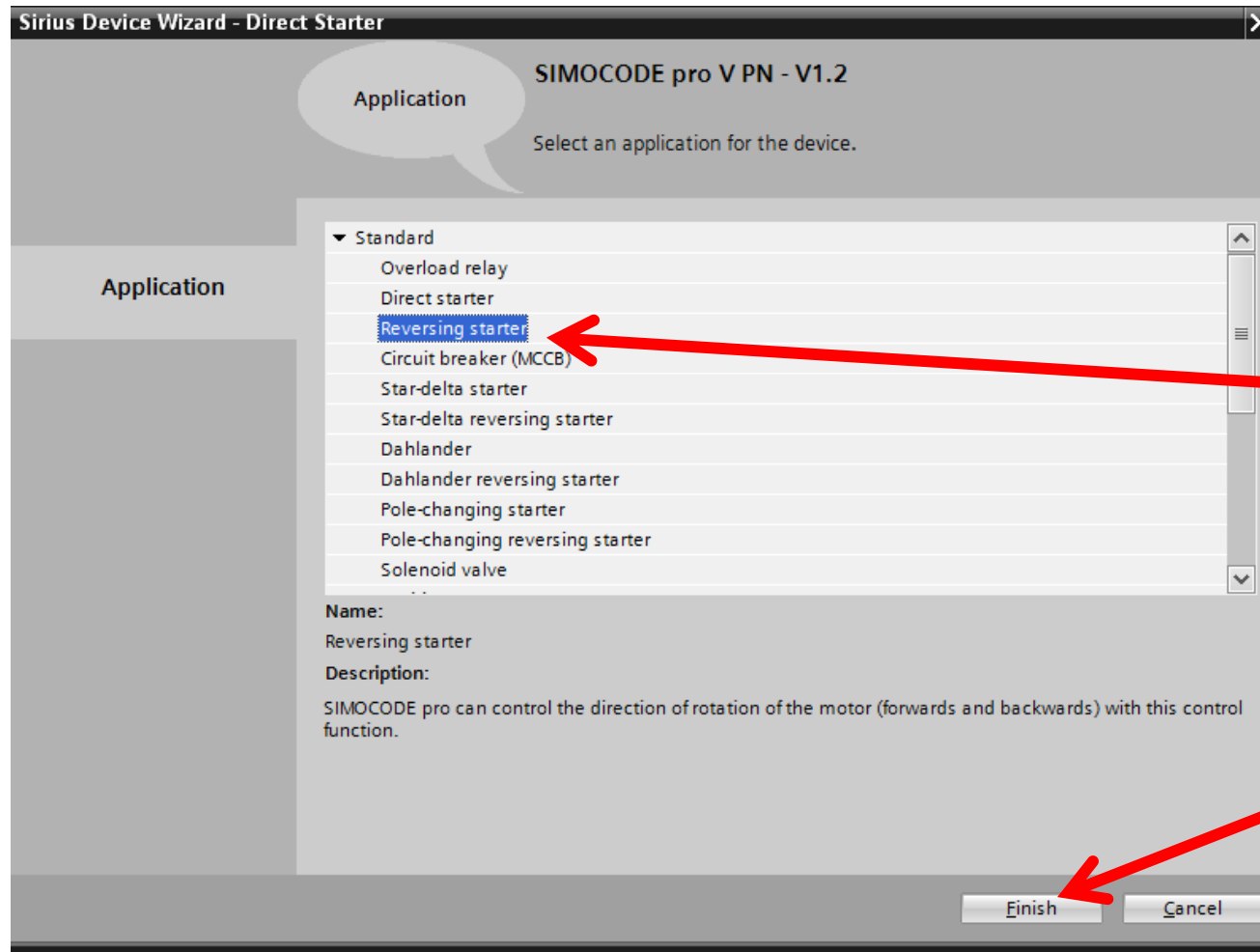
Step 2

Select SIMOCODE pro V PN

Step 5

Select OK

## Step 2 - Select Profile (Reversing Starter)



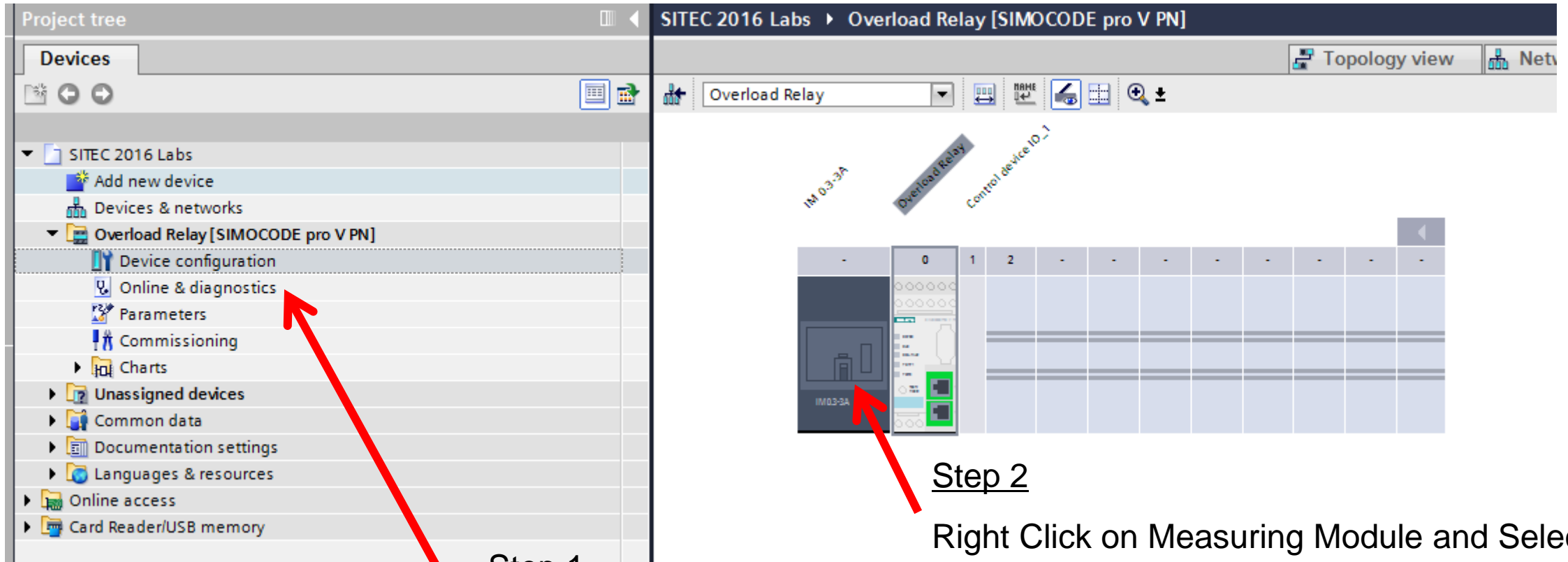
Step 1

Select "Reversing Starter"  
Profile

Step 2

Select Finish

# Step 3 – Match Existing Device



Step 1

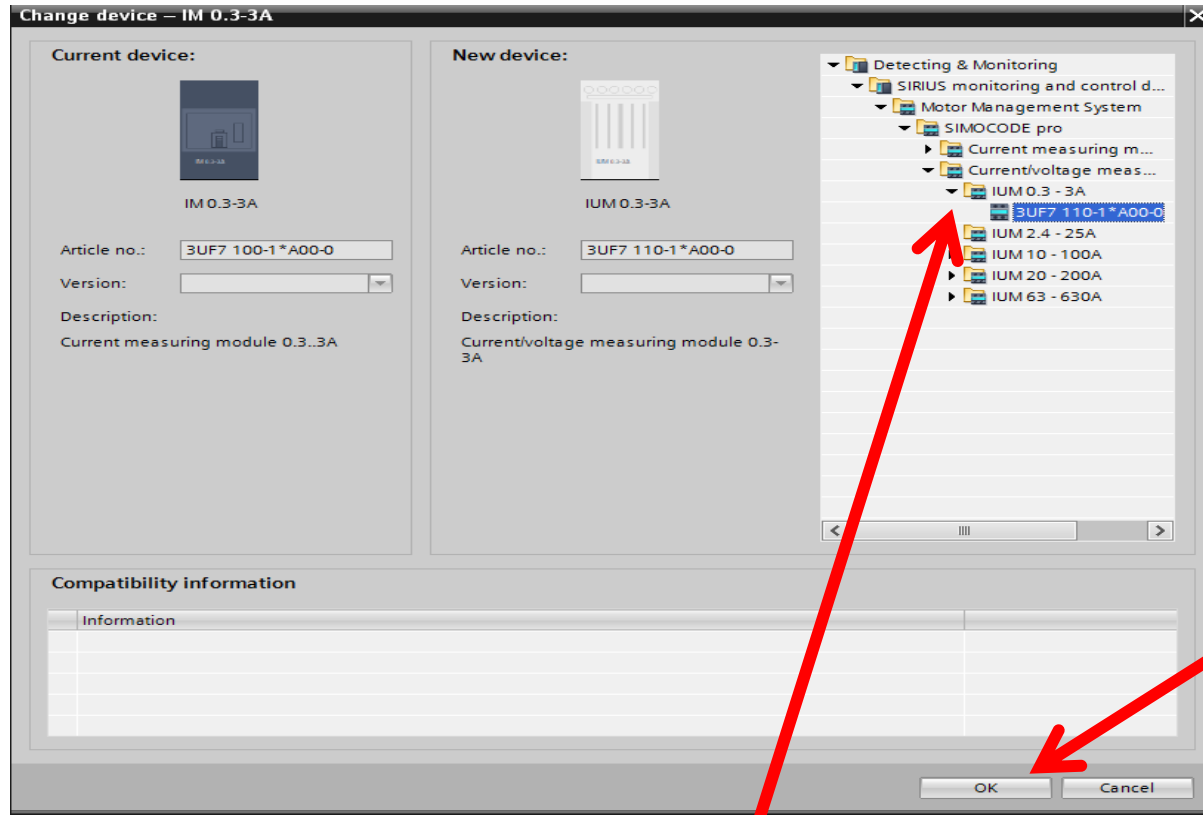
Step 2

Right Click on Measuring Module and Select Change Device

Double Click on Device Configuration



## Step 3 – Match Existing Device



Step 2–  
Select OK

Step 1–

Select 0..3 -3A Current Voltage Measuring Module

## Step 3 – Match Existing Device

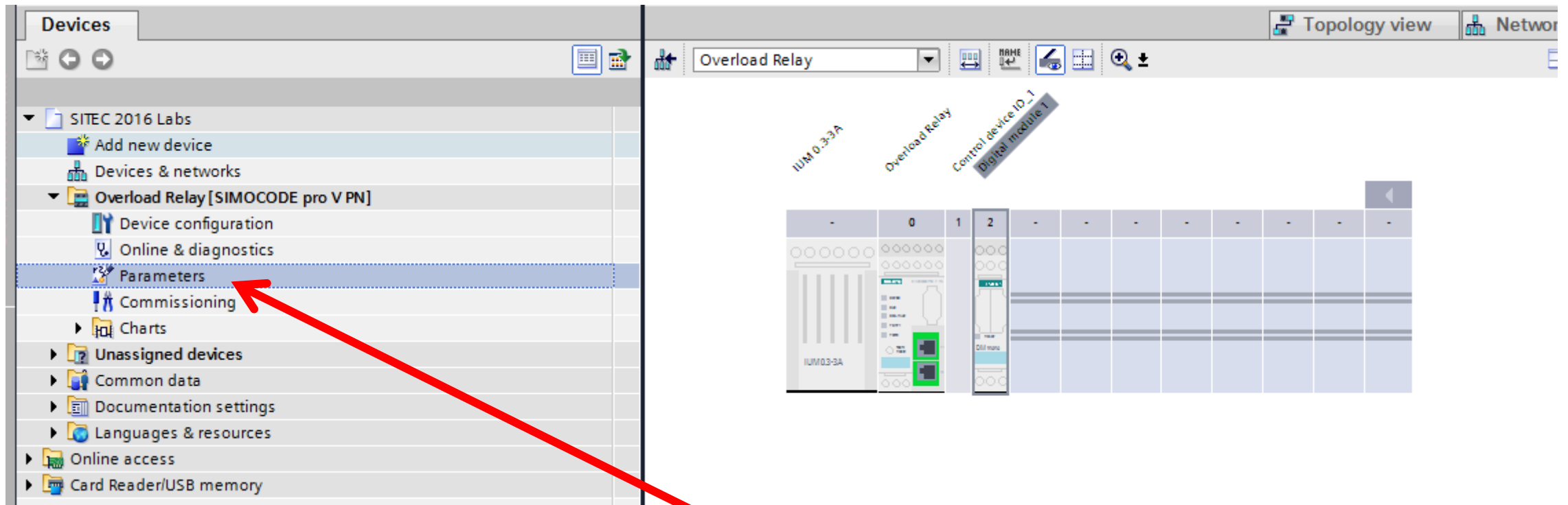
The screenshot shows the Siemens SIMATIC Manager interface. On the left, the 'Project tree' shows a '310 Class Project' with 'Control device\_2' selected. The main window displays a rack configuration with slots 0, 1, and 2. Slot 0 contains 'IUM 0.3-3A', slot 1 contains 'Control device\_2', and slot 2 contains 'Digital module 1'. A red arrow points from the 'DM mono' entry in the hardware catalog to slot 2. The hardware catalog on the right shows a tree structure with 'DM mono' highlighted and its part number '3UF7 300-1A\*00-0' circled in red.

- Basic unit
- Current measuring modules
- Current/voltage measuring modules
  - IUM 0.3 - 3A
    - 3UF7 110-1\*A00-0
  - IUM 2.4 - 25A
  - IUM 10 - 100A
  - IUM 20 - 200A
  - IUM 63 - 630A
- Digital modules
  - DM mono**
    - 3UF7 300-1A\*00-0**
  - DM bi
  - DM FL
  - DM FP
- Operator panels
  - OP
  - OPD
    - 3UF7 210-1AA00-0
    - 3UF7 210-1BA00-0

Step 1 –

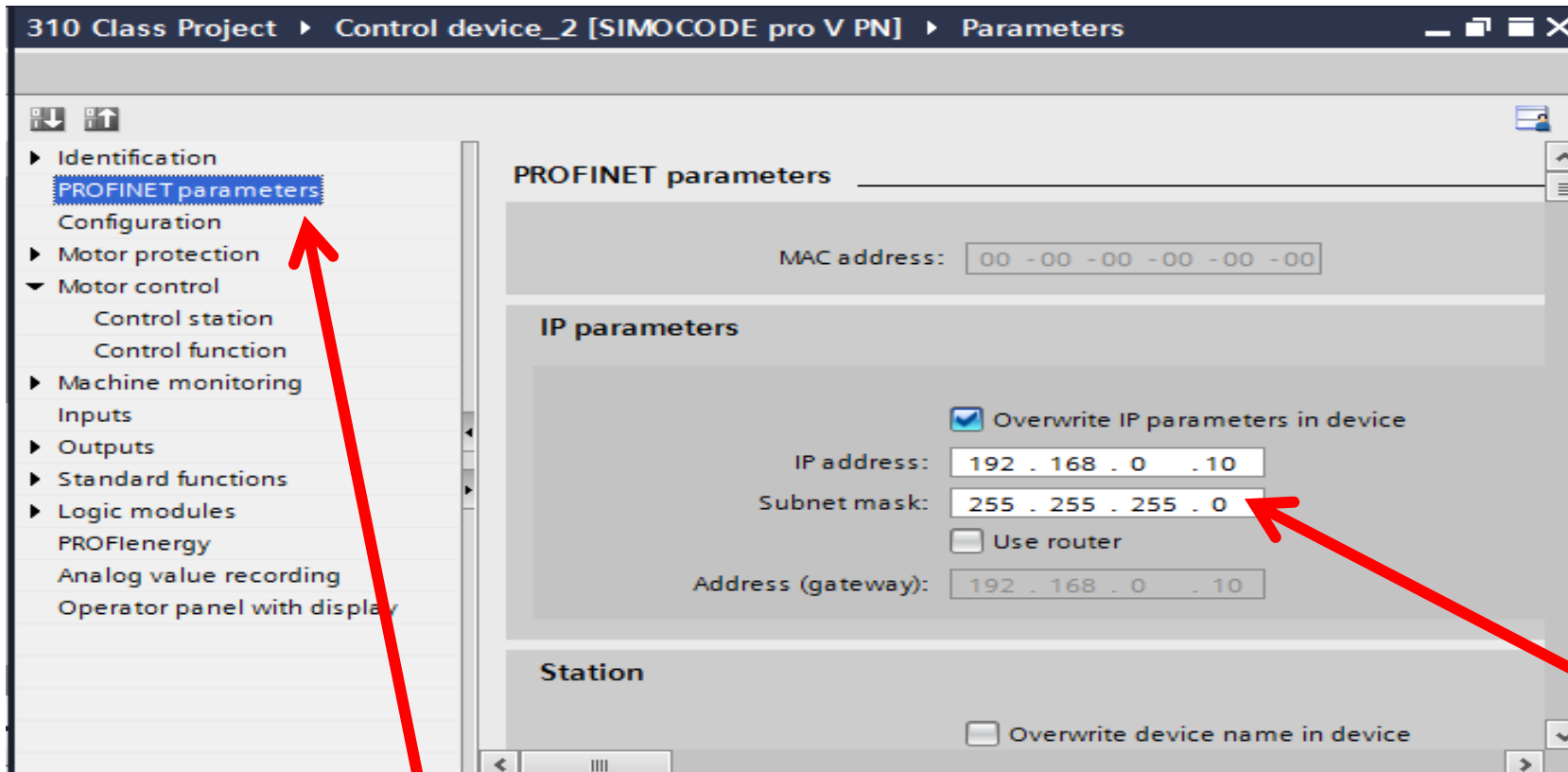
Double Click “DM mono” to insert digital module into rack

## Step 4 – Select Network Address



Step 1 –  
Double Click Parameters

## Step 4 – Select Network Address



Step 1 –

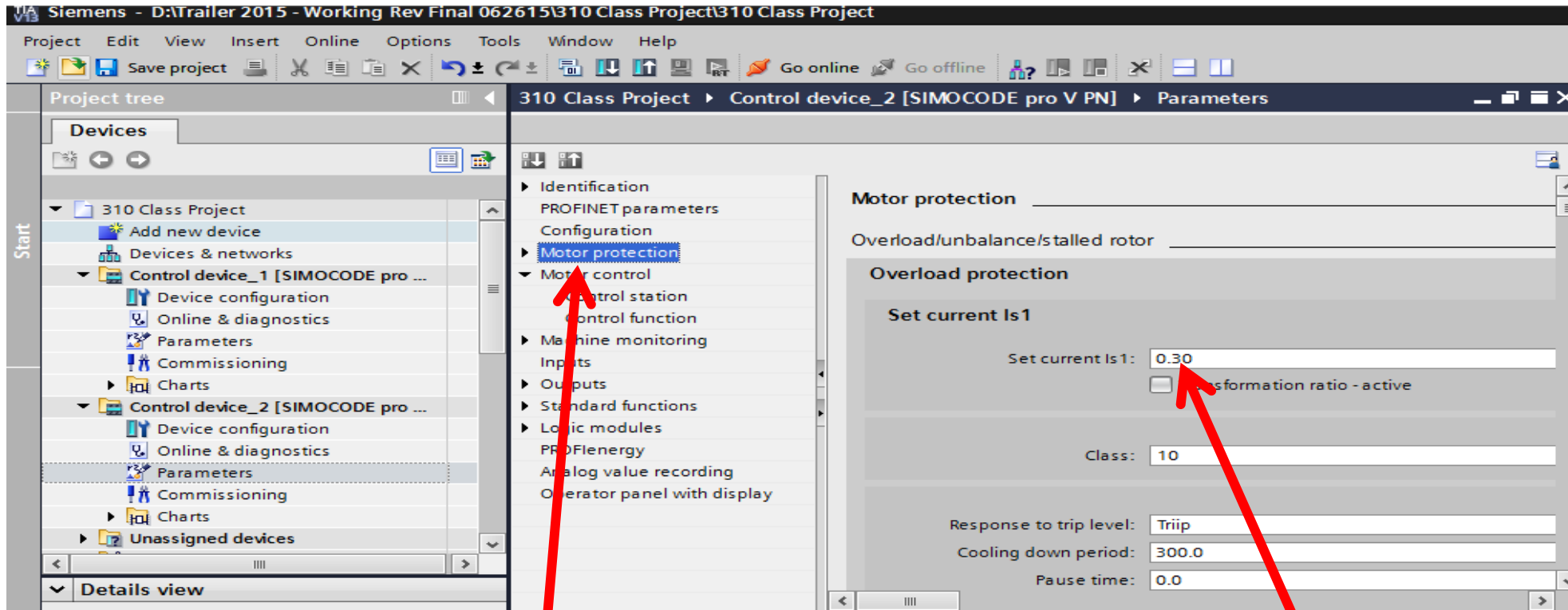
Select “PROFINET parameters”

Step 2 –

Enter the PROFINET address below

IP address: 192 . 168 . 0 . 10  
Subnet mask: 255 . 255 . 255 . 0

## Step 5 – Select FLA

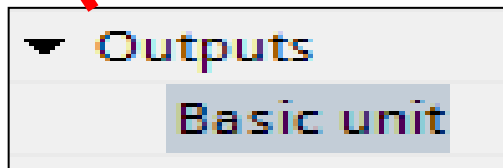
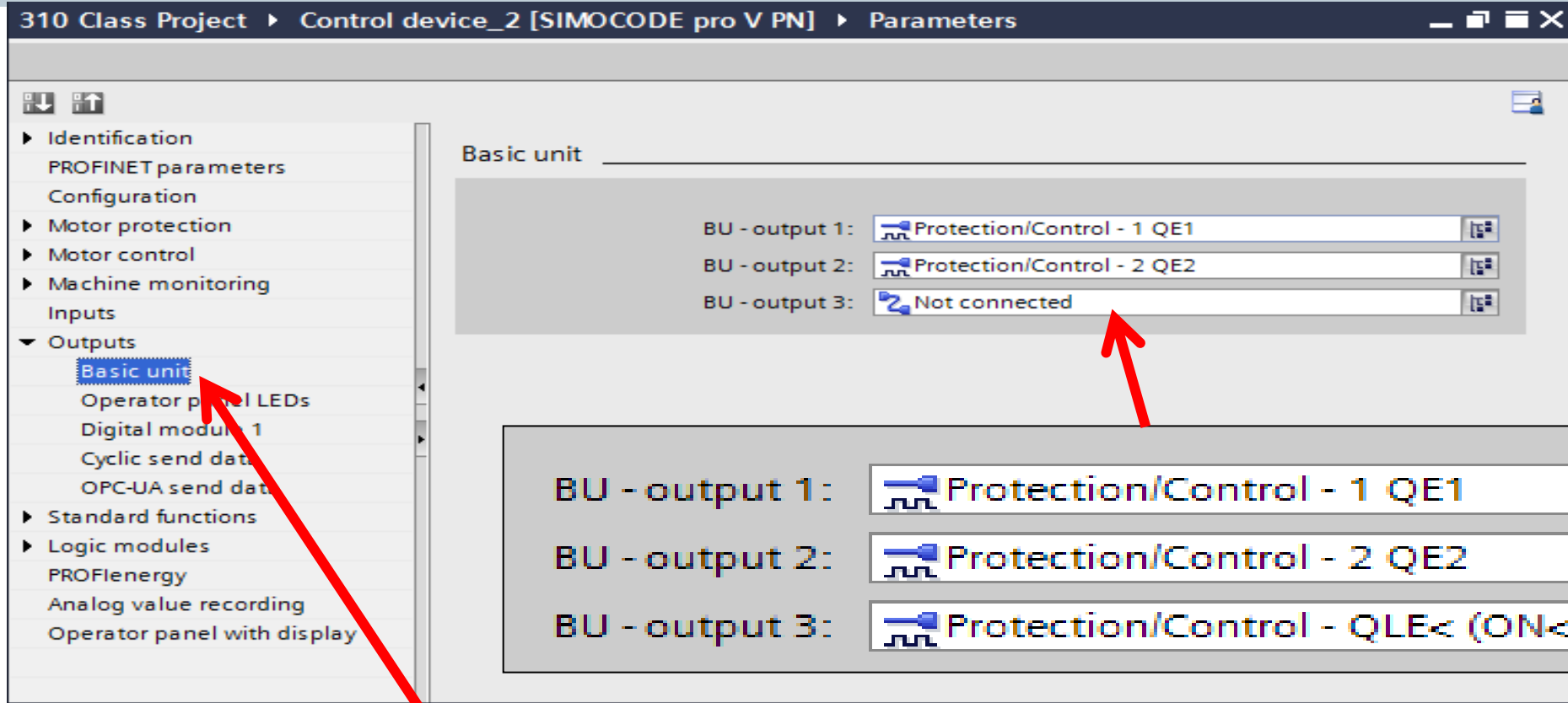


Step 1 –  
Select “Motor protection”

Step 2 –  
The value 0.30 A is OK for the demo



# Select Outputs on Base Unit

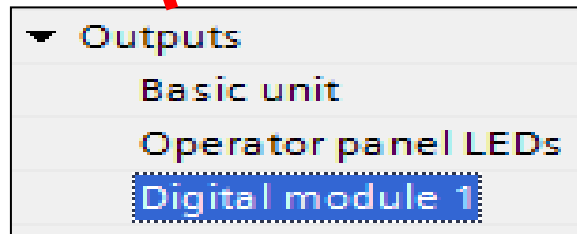
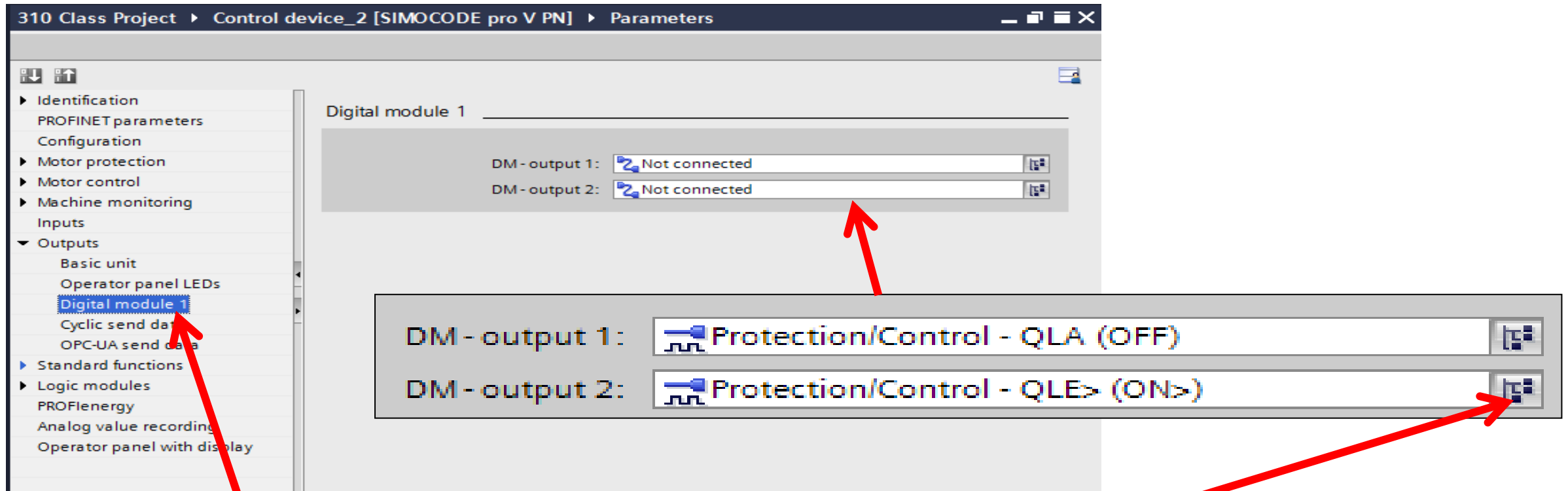


Step 1 –

Under Basic Unit Outputs

Select “Protection/Control – QLE< (On<)” fpr Output 3

# Select Outputs on Digital Module

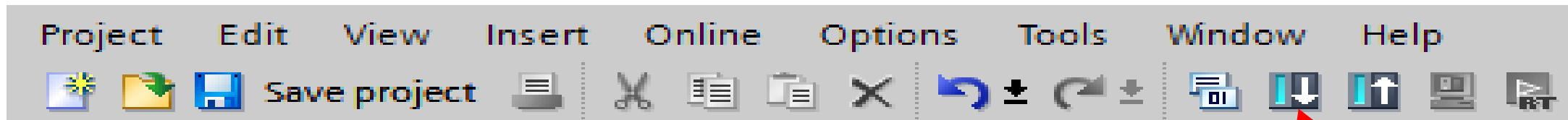


Step 1 –

Under Digital module Outputs

Select “Protection/Control – QLA (Off) for Output 1 and QLE> (On>)” for Output 2

# Download to Device



Step 1 –  
Select “Load to Switching device”

Extended download to device

Configured access nodes of \*Control device\_2\*

Device	Device type	Slot	Type	Address	Subnet
Control device_2	SIMOCODE pro V ...	SiriusSlot	SIRIUS PtP	-	
	SIMOCODE pro V ...	1	PN/IE	192.168.0.1	

Type of the PG/PC interface:

PG/PC interface:

Connection to interface/subnet:

1st gateway:

Compatible devices in target subnet:  Show all compatible devices

Device	Device type	Type	Address	Target device
Accessible device	SIMOCODE pro V ...	SIRIUS PtP	COM	--

Flash LED

Start search

Online status information:

- ⚠ Loading includes hardware configuration data
- ✅ Scan and information retrieval completed.
- ⚠ Loading includes hardware configuration data
- Display only error messages

Load

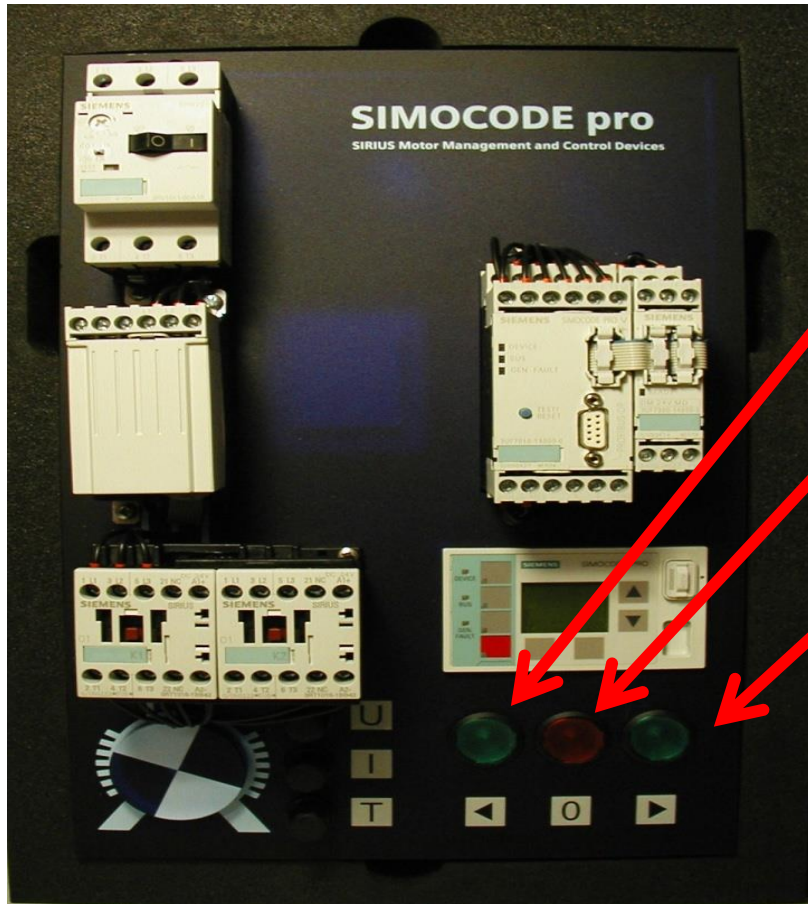
Step 2 – Select “SIRIUS PtP”



Step 3 – Select “Start search”

Step 4 – Select “Load”

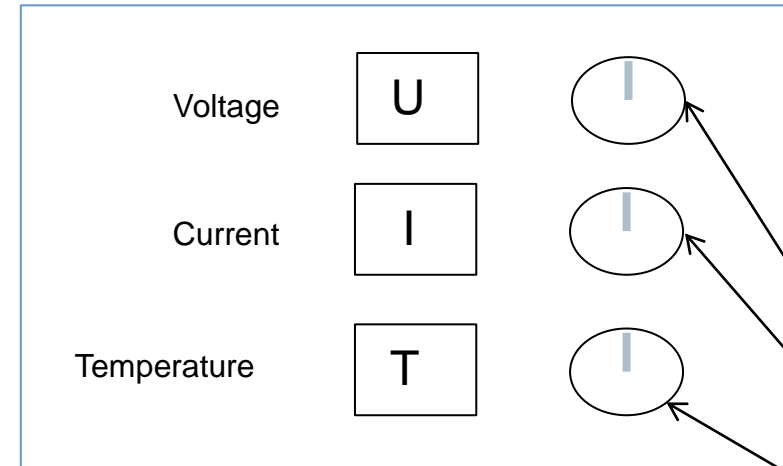
# Test Reversing Starter with Lights



Fwd PB

Stop PB

Rev PB

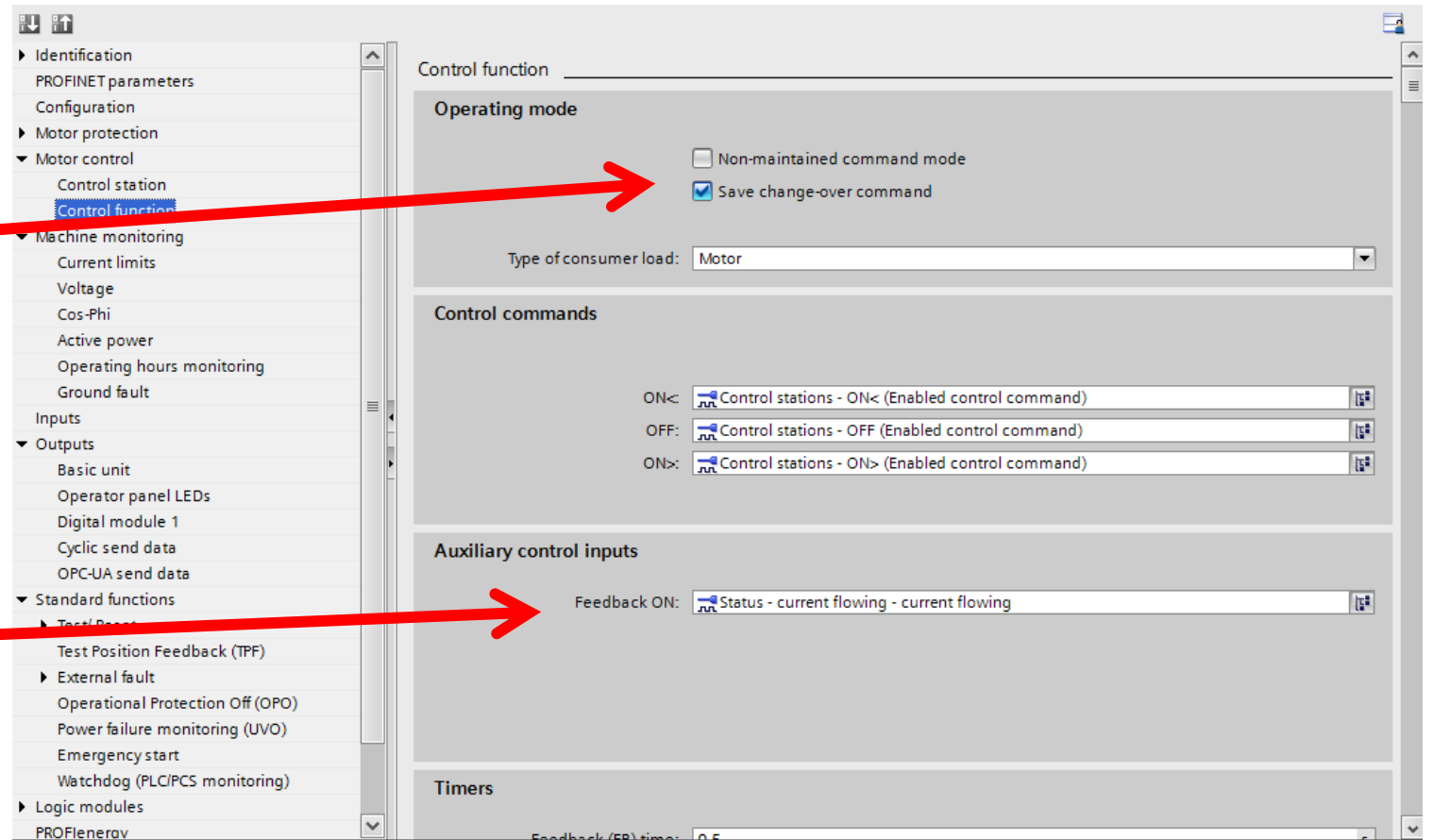


Adjust dials to 12 o'clock

# Motor Control (Control Function)

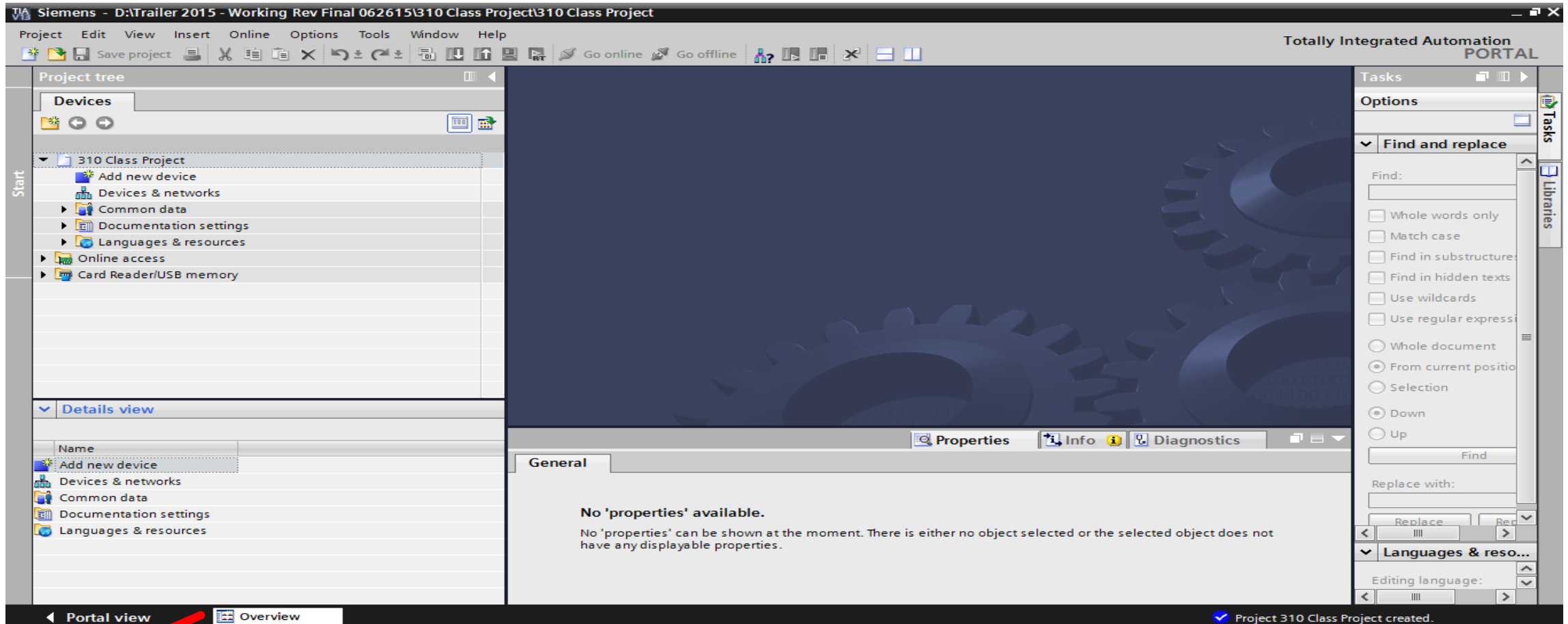
Enables direct reversal of motor

Assigns current flowing to motor running confirmation



# Open/Review a Saved Configuration

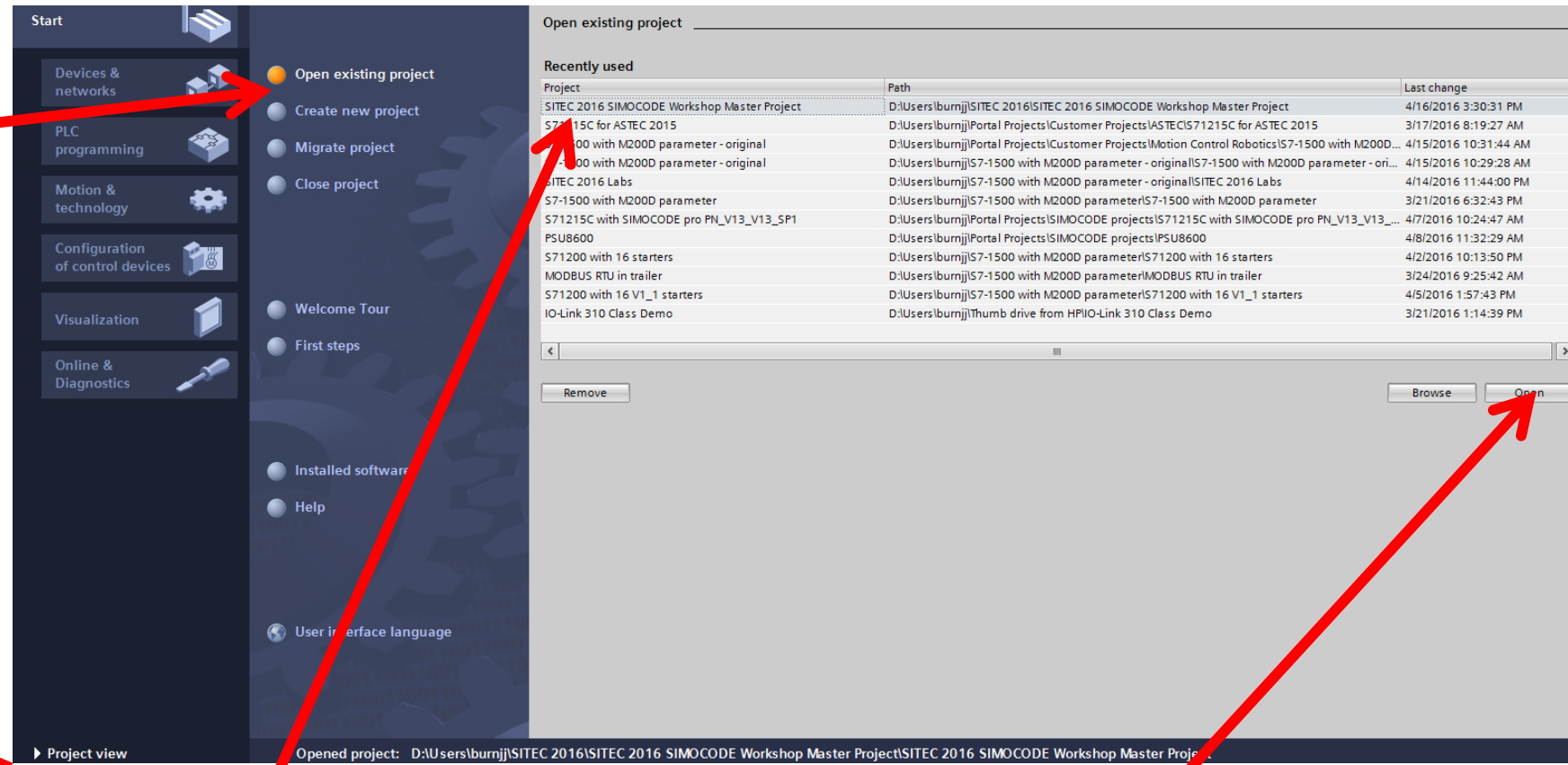
# Open an existing Project



Step 1 – Select “Portal View”

# Open an existing Project

Step 1 –  
Select “Open Existing Project”



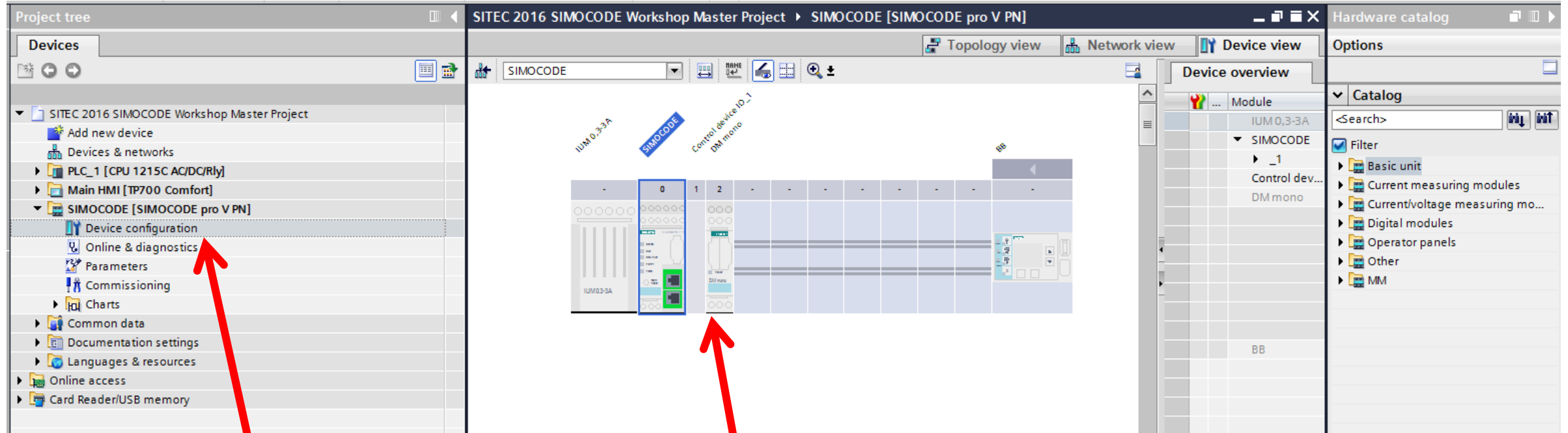
Step 4 –  
Select “Project View”

Step 2 – Select “SITEC 2016 SIMOCODE Workshop Master Project”

Step 3 – Select “Open”



# Device Configuration



Step 1 -

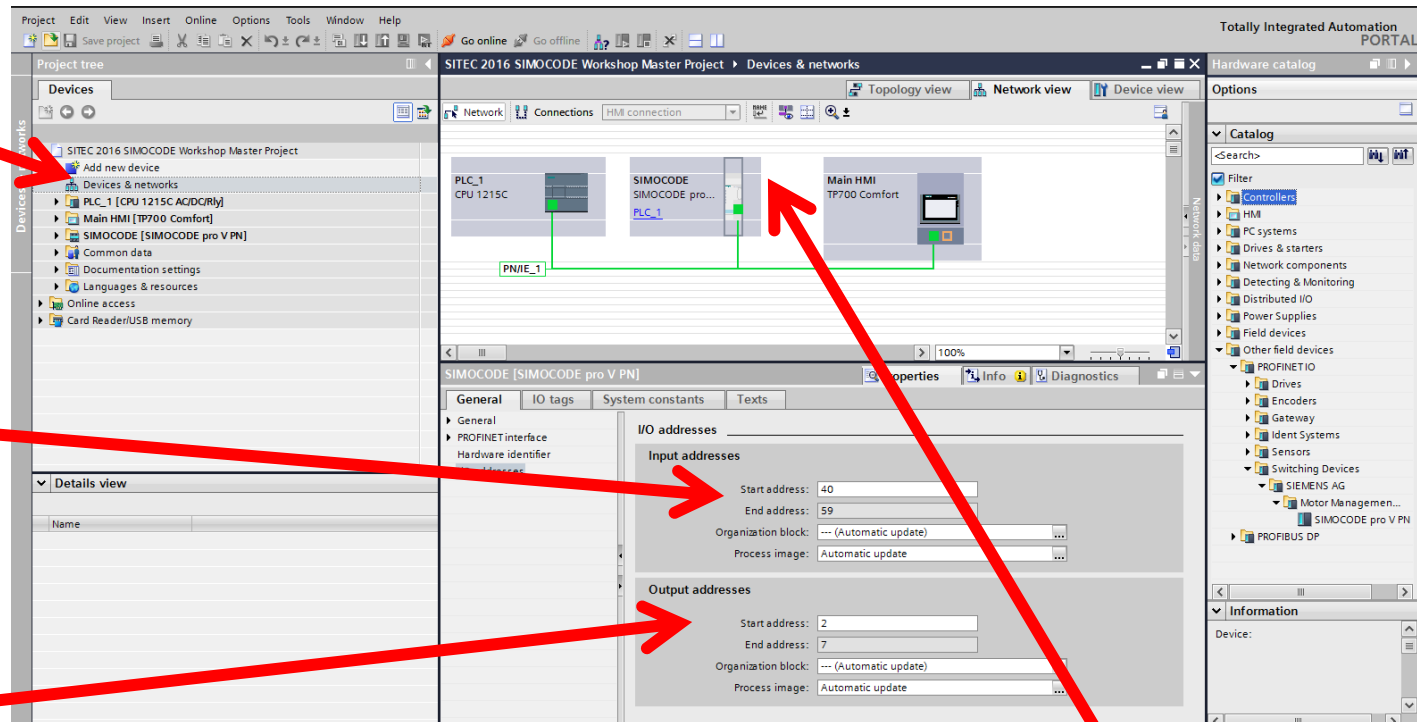
Double Click

“Devices Configuration”

Note – Device configuration

# PLC I/O Addresses for SIMOCODE

Step 1 -  
 Double Click  
 Devices and Networks



Input Address

Start IB 40

End IB 59

Input Address

Start QB 2

End QB 7

Step 2 -

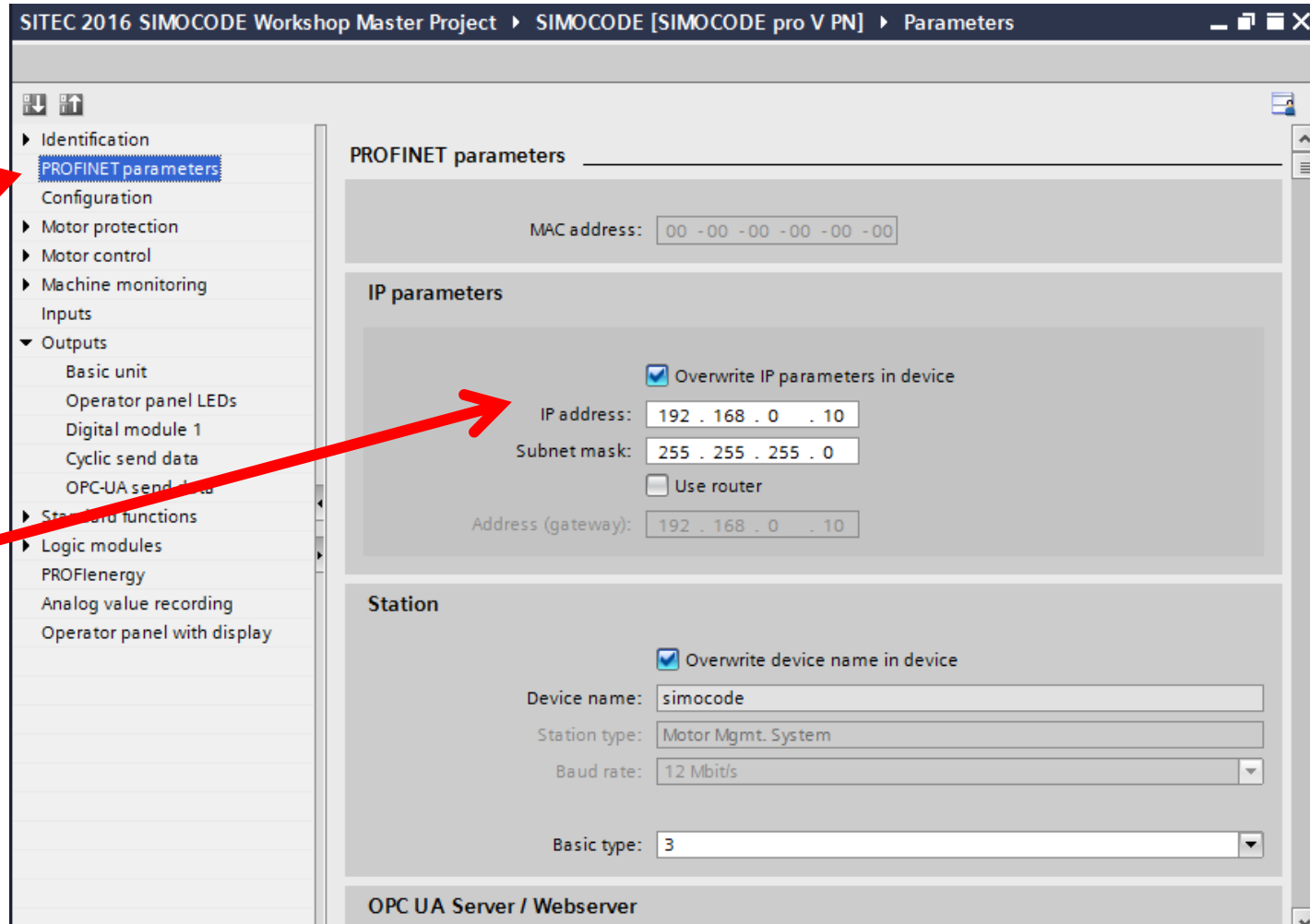
Click on SIMOCODE and then  
 select Properties

# PROFINET Address

Step 1 -

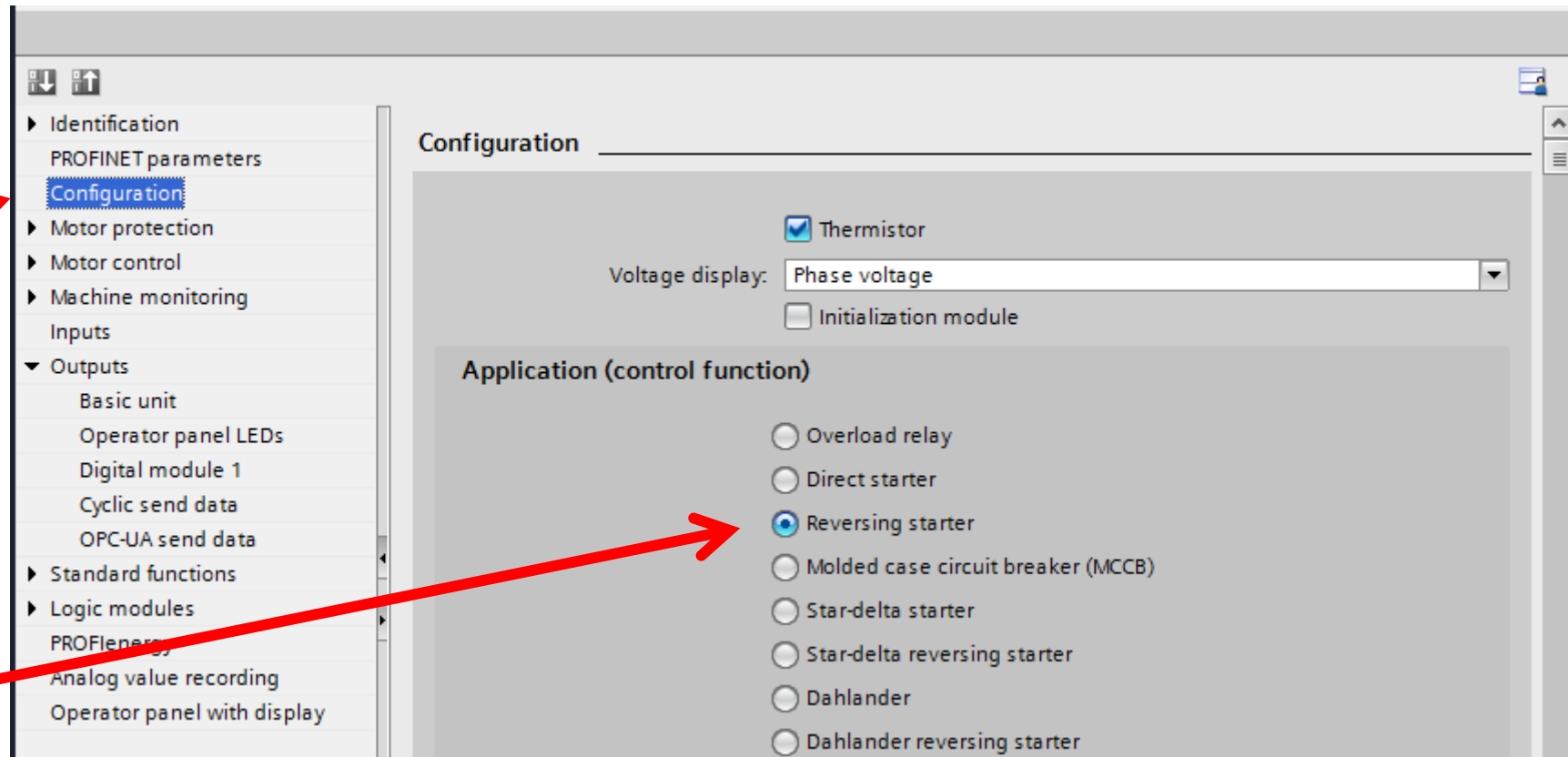
Under Parameters - Click on  
"PROFINET parameters"

Note - SIMOCODE PROFINET  
address and device name



# Configuration

Step 1 -  
Under Parameters -  
Click on "Configuration"



Note - SIMOCODE selected profile  
is "Reversing Starter"

# Motor Protection

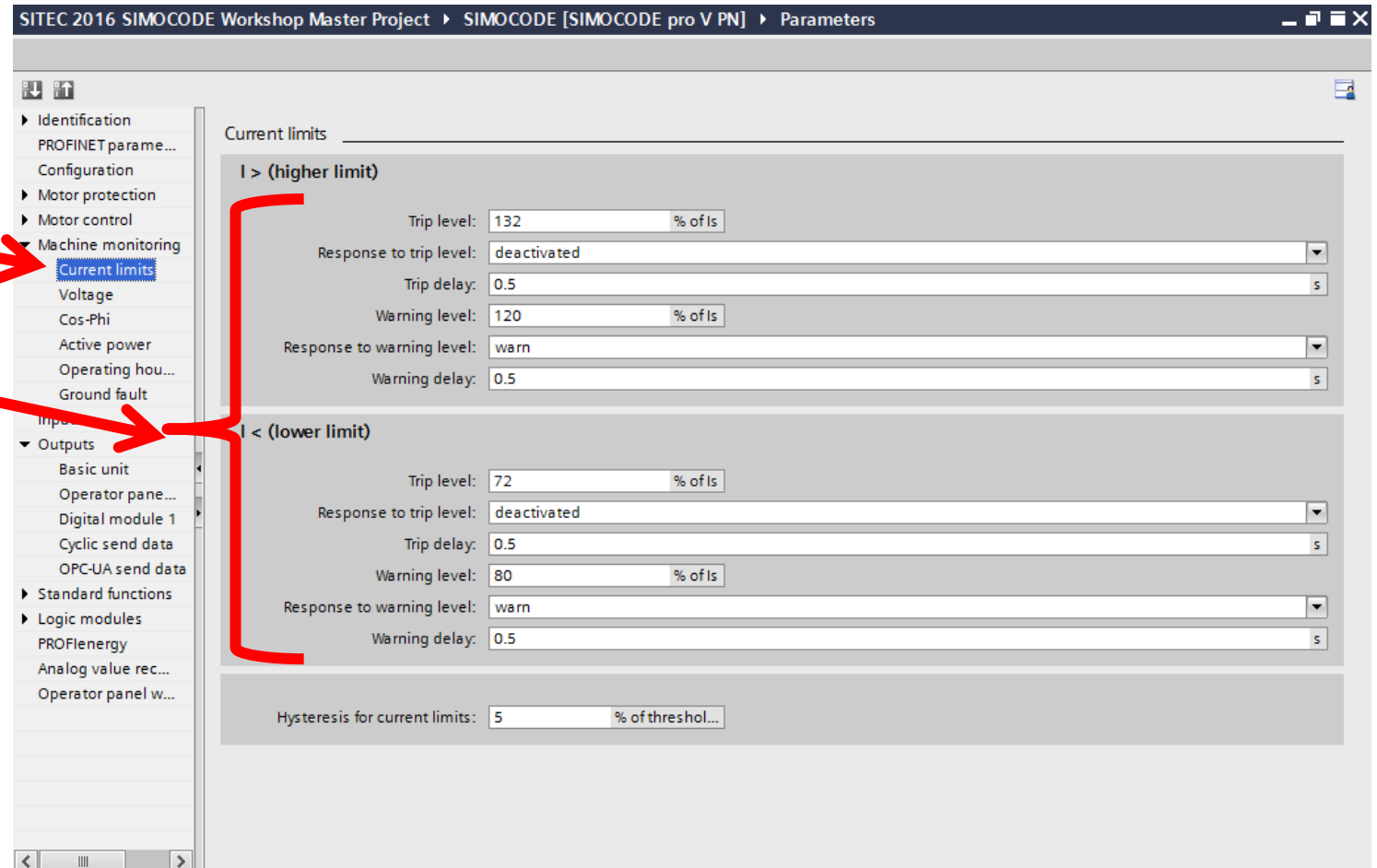
The screenshot displays the Siemens Motor Protection configuration software. On the left is a navigation tree with the following items: Identification, PROFINET parameters, Configuration, **Motor protection** (highlighted), Motor control, Machine monitoring, Inputs, Outputs (expanded), Basic unit, Operator panel LEDs, Digital module 1, Cyclic send data, OPC-UA send data, Standard functions, Logic modules, PROFlenergy, Analog value recording, and Operator panel with display. The main area is titled "Motor protection" and contains the following settings:

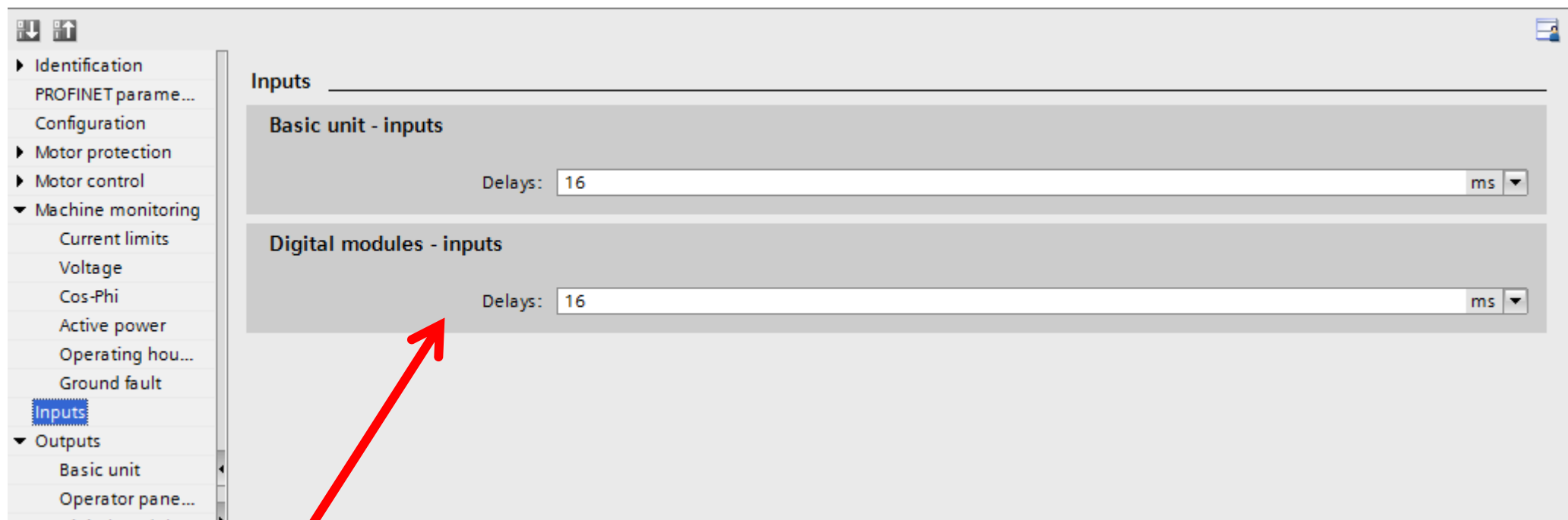
- Overload/unbalance/s talled rotor**
- Overload protection**
  - Set current Is1**
    - Set current Is1: 0.50 A
    - Transformation ratio - active
  - Class:** 10
  - Response to trip level:** Triip
  - Cooling down period:** 300.0 s
  - Pause time:** 0.0 s
  - Type of load:** tri-phase

# Machine Monitoring

## Current Monitoring

Assigns warnings above and below two setpoints





Assign input debounce timing

# Outputs (Basic Unit)

The screenshot displays a software interface for configuring a Basic Unit. On the left, a navigation tree is visible with the following items: Identification, PROFINET param..., Configuration, Motor protection, Motor control, Machine monitoring (expanded), Current limits, Voltage, Cos-Phi, Active power, Operating hou..., Ground fault, Inputs, and Outputs (expanded). Under the 'Outputs' section, 'Basic unit' is selected and highlighted in blue. The main area of the interface shows the configuration for the 'Basic unit' with three output entries:

- BU - output 1: Protection/Control - 1 QE1
- BU - output 2: Protection/Control - 2 QE2
- BU - output 3: Protection/Control - QLE< (ON<)

Each entry includes a small icon on the right side of the text field.



# Outputs (Operator Panel)

The screenshot displays the SIMATIC Manager interface for configuring the Operator panel LEDs. On the left, a navigation tree shows the following structure:

- Identification
- PROFINET parame...
- Configuration
- Motor protection
- Motor control
- Machine monitoring
  - Current limits
  - Voltage
  - Cos-Phi
  - Active power
  - Operating hou...
  - Ground fault
- Inputs
- Outputs
  - Basic unit
  - Operator pane...**
  - Digital module 1
  - Cyclic send data
  - OPC-UA send data

The main area is titled "Operator panel LEDs" and contains four configuration rows:

LED Label	Assigned Signal
LED green 1:	Signal conditioning 4 - output
LED green 2:	Protection/Control - QLE< (ON<)
LED green 3:	Protection/Control - QLE> (ON>)
LED green 4:	Protection/Control - QLA (OFF)

# Outputs (Cyclic Send Data)

The screenshot shows the configuration for Cyclic send data in a Siemens SIMATIC Manager interface. The left sidebar contains a tree view with the following items:

- Identification
- PROFINET param...
- Configuration
- Motor protection
- Motor control
- Machine monitoring
  - Current limits
  - Voltage
  - Cos-Phi
  - Active power
  - Operating hou...
  - Ground fault
- Inputs
- Outputs
  - Basic unit
  - Operator pane...
  - Digital module 1
  - Cyclic send data**
  - OPC-UA send data
- Standard functions
- Logic modules
- PROFenergy
- Analog val...
- Operator panel w...

The main area displays the configuration for Cyclic send data, showing two bytes of data:

**Byte 0**

- Bit 0: Protection/Control - ON<
- Bit 1: Protection/Control - OFF
- Bit 2: Protection/Control - ON>
- Bit 3: Extended protection - prewarning overload (>115%)
- Bit 4: Status - current flowing - current flowing
- Bit 5: Status - remote mode - remote mode
- Bit 6: Protection/Control - QLS (fault)
- Bit 7: Status - group warning - group warning

**Byte 1**

- Bit 0: Extended control - start active
- Bit 1: Voltage - warning level U<
- Bit 2: Fault - hardware fault basic unit - hardware fault basic unit
- Bit 3: Fault - configuration error - configuration error
- Bit 4: Extended control - execution ON command
- Bit 5: Extended control - execution STOP command
- Bit 6: Extended control - feedback (FB) ON
- Bit 7: Extended control - feedback (FB) OFF

Defines meaning of PLC IB40 and IB41 (16 bits) and IB42 to IB 59 (18 bytes) of analog values

OPC-UA send data

**Byte 0**

Bit 0:	Not connected	
Bit 1:	Not connected	
Bit 2:	Not connected	
Bit 3:	Not connected	
Bit 4:	Not connected	
Bit 5:	Not connected	
Bit 6:	Not connected	
Bit 7:	Not connected	

**Byte 1**

Bit 0:	Not connected	
Bit 1:	Not connected	
Bit 2:	Not connected	
Bit 3:	Not connected	
Bit 4:	Not connected	
Bit 5:	Not connected	
Bit 6:	Not connected	
Bit 7:	Not connected	

# Standard Functions

# Standard Functions

- ▼ Standard functions
  - ▶ Test/ Reset
  - Test Position Feedback (TPF)
  - ▶ External fault
  - Operational Protection Off (OPO)
  - Power failure monitoring (UVO)
  - Emergency start
  - Watchdog (PLC/PCS monitoring)

The screenshot displays the configuration interface for 'Standard functions'. The left sidebar shows a tree view with the following structure:

- Identification
- PROFINET parameters
- Configuration
- Motor protection
- Motor control
- Machine monitoring
  - Current limits
  - Voltage
  - Cos-Phi
  - Active power
  - Operating hours monitoring
  - Ground fault
- Inputs
- Outputs
  - Basic unit
  - Operator panel LEDs
  - Digital module 1
  - Cyclic send data
  - OPC-UA send data
- Standard functions**
  - ▶ Test/ Reset
  - Test Position Feedback (TPF)
  - ▶ External fault
  - Operational Protection Off (OPO)
  - Power failure monitoring (UVO)
  - Emergency start
  - Watchdog (PLC/PCS monitoring)
- Logic modules
- PROFenergy
- Analog value recording
- Operator panel with displav

The main configuration area is titled 'Standard functions' and contains the following settings:

- Test/ Reset**
  - Test/Reset keys disabled
- Test 1**
  - Test - input: Cyclic receive byte 0 - bit 0.3
- Test 2**
  - Test - input: Not connected
- Reset 1**
  - Reset - input: Cyclic receive byte 0 - bit 0.6
- Reset 2**
  - Reset - input: Cyclic receive byte 1 - bit 1.0
- Reset 3**
  - Reset - input: Not connected

# Logic Modules

# Logic Modules

- Logic modules
  - ▶ Truth table 3I/1Q
  - ▶ Truth table 2I/1Q
  - ▶ Truth table 5I/2Q
  - ▶ Counter
  - ▶ Timer
  - ▶ Signal conditioning
  - ▶ Non-volatile element
  - ▶ Flashing
  - ▶ Flicker
  - ▶ Limit monitor
  - ▶ Calculators
  - ▶ Analog multiplexer
  - ▶ Pulse width mod. (PWM)

The screenshot displays the configuration interface for a Logic module in SIMATIC Manager. The left sidebar shows a tree view with 'Logic modules' expanded, listing various modules such as Truth table 3I/1Q, Truth table 2I/1Q, Truth table 5I/2Q, Counter, Timer, Signal conditioning, Non-volatile element, Flashing, Flicker, Limit monitor, Calculators, Analog multiplexer, and Pulse width mod. (PWM). The main window shows the configuration for 'Truth table 1 3I/1Q'. It features three input fields, each set to 'Not connected'. Below the inputs is a truth table grid for 'Truth table 1 3I/1Q' with columns I1, I2, I3, and O1. The grid contains the following data:

I1	I2	I3	O1
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

# PLC Communications (Instructor led)

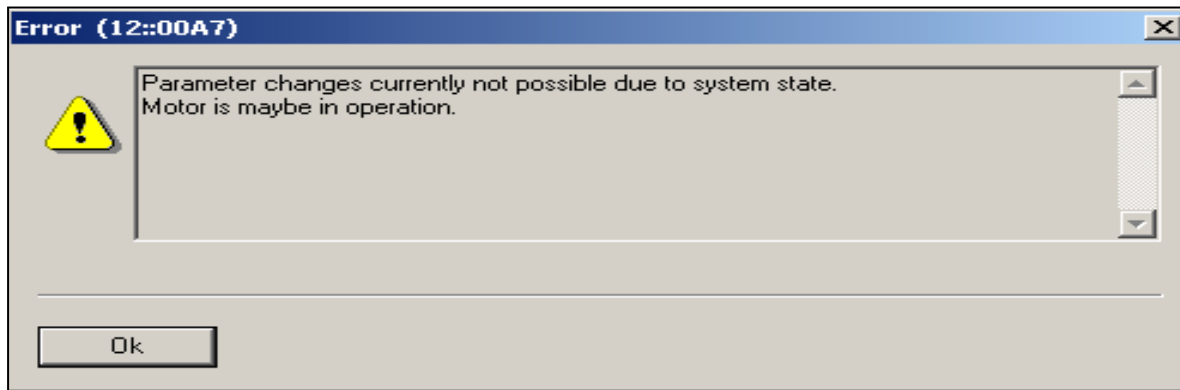


# Maintenance and Troubleshooting

# Typical Download Problems

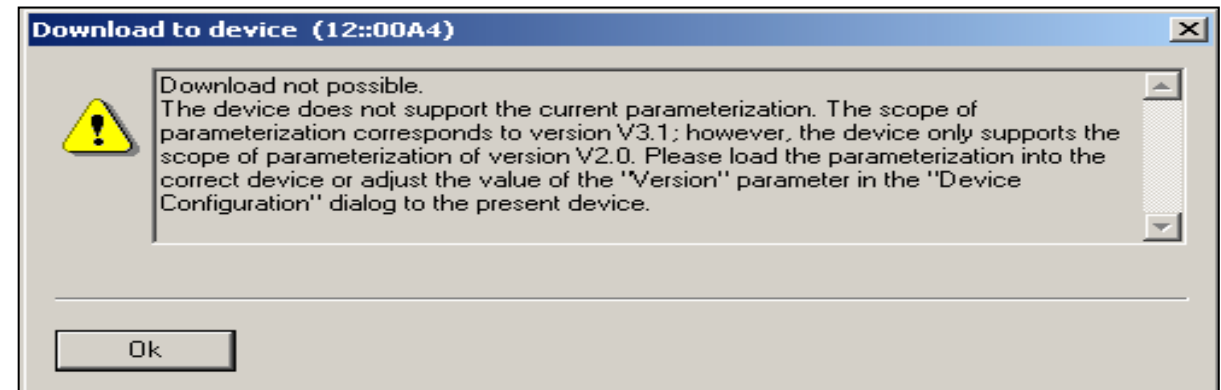


Click Download ICON to load configuration



## Possible causes

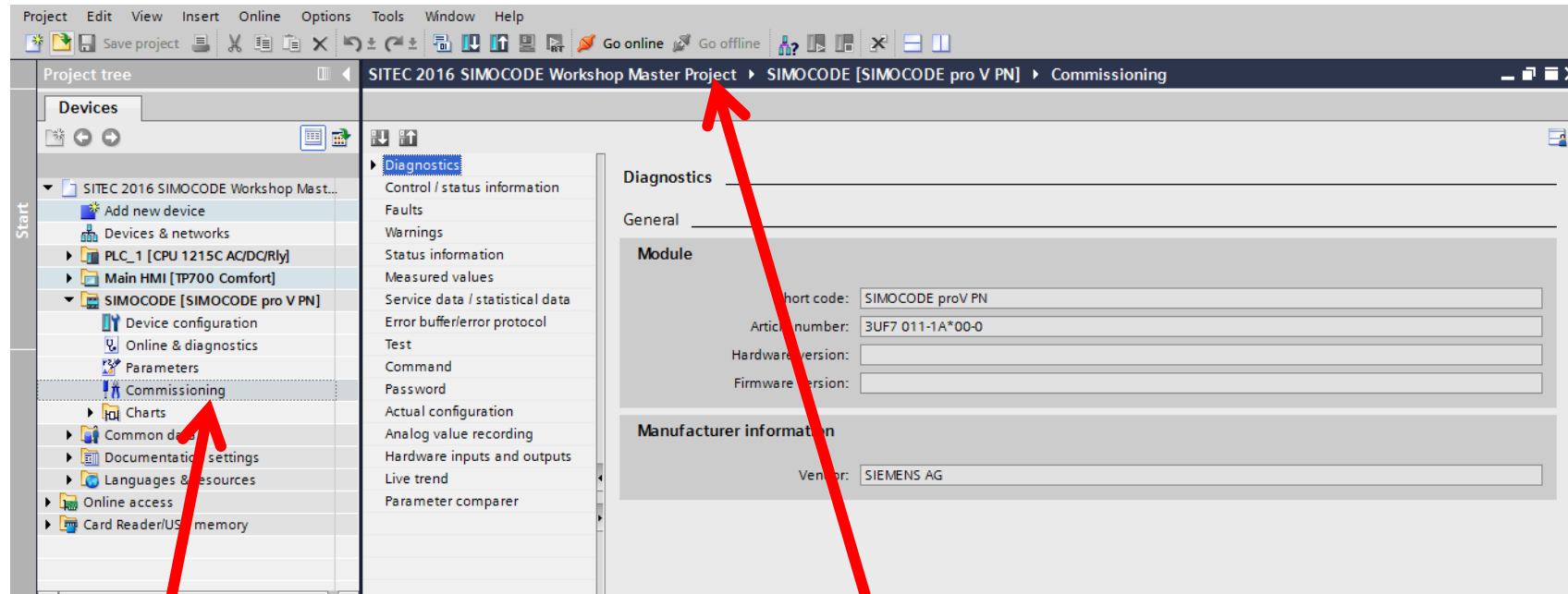
- In Remote
- Local stop input off



## Possible cause

- Configured version does not match actual version

# Commissioning

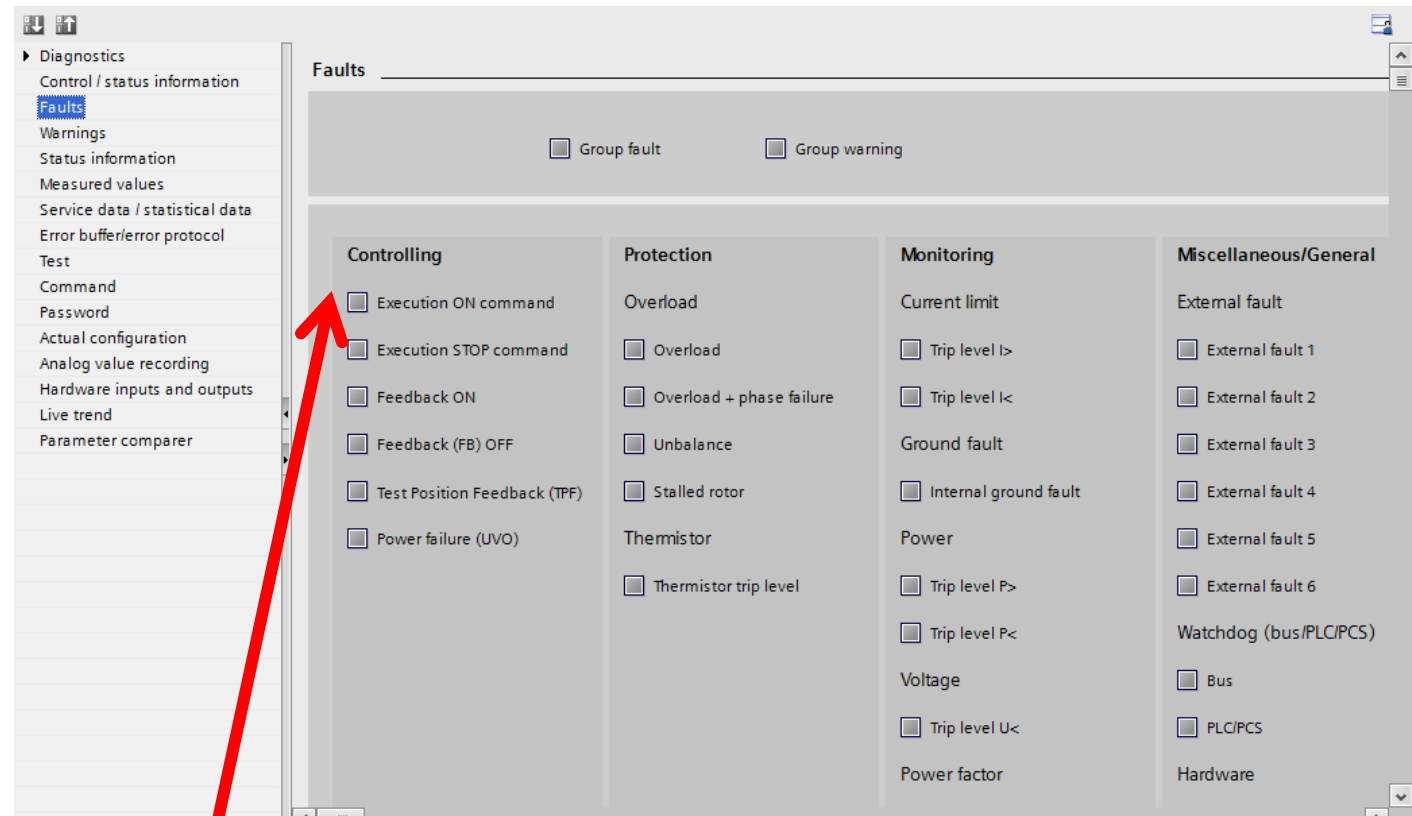


Step 1 –  
Double Click “Commissioning”

Step 2 –  
Select “Go Online”

▶ Diagnostics
Control / status information
Faults
Warnings
Status information
Measured values
Service data / statistical data
Error buffer/error protocol
Test
Command
Password
Actual configuration
Analog value recording
Hardware inputs and outputs
Live trend
Parameter comparer

# Faults



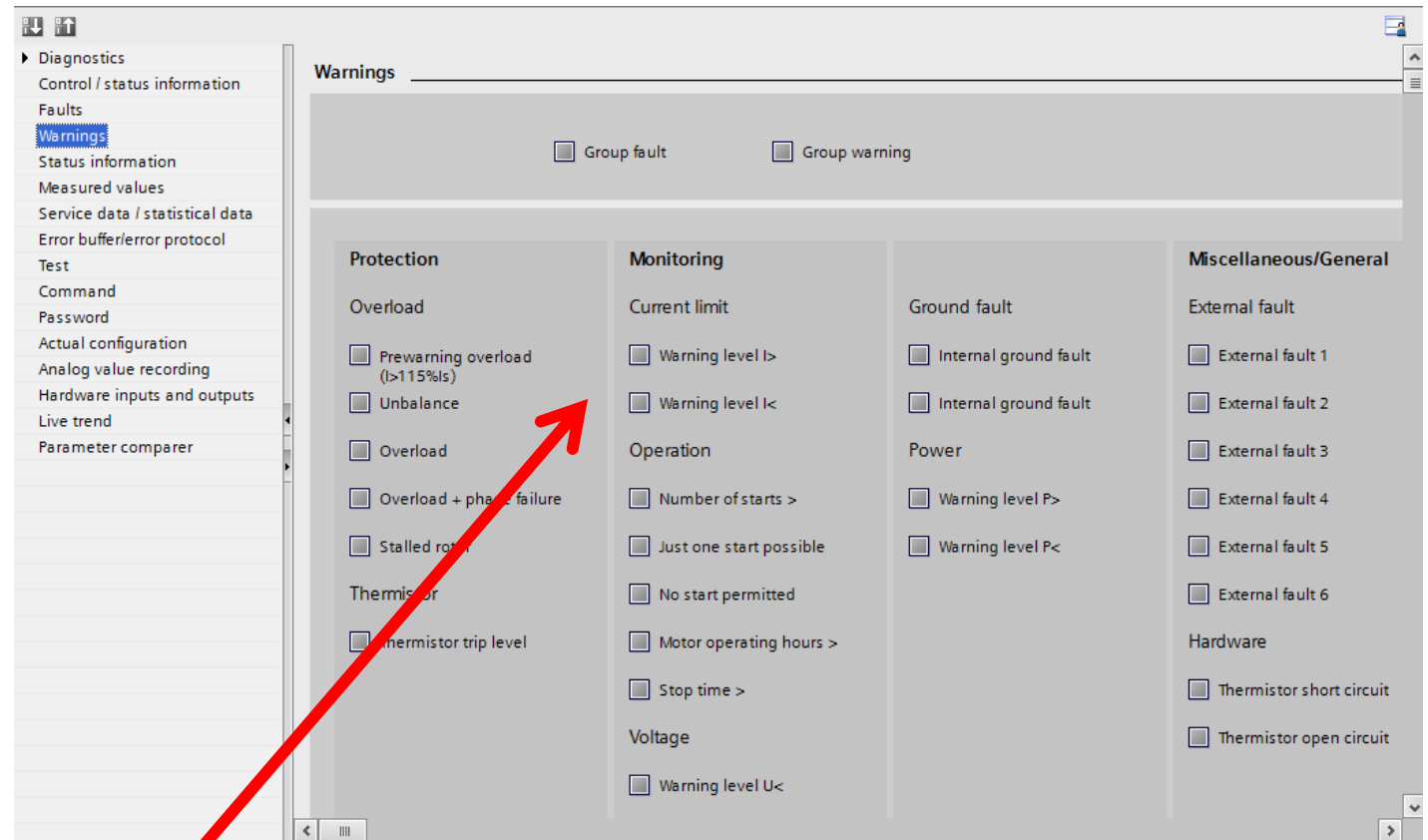
## Step 1 –

Turn off MSP and press local start

## Note–

“Execution On Command” fault turns on

# Warnings



## Step 1 –

Turn on motor and turn current potentiometer counter clockwise until under current warning comes on

# Service and Statistical Data

The screenshot displays a Siemens service data interface. On the left is a navigation menu with the following items: Diagnostics, Control / status information, Faults, Warnings, Status information, Measured values, Service data / statistical data (highlighted), Error buffer/error protocol, Test, Command, Password, Actual configuration, Analog value recording, Hardware inputs and outputs, Live trend, and Parameter comparer. The main content area is titled 'Service data / statistical data' and is divided into three sections: Motor, Basic unit, and Timer.

**Motor**

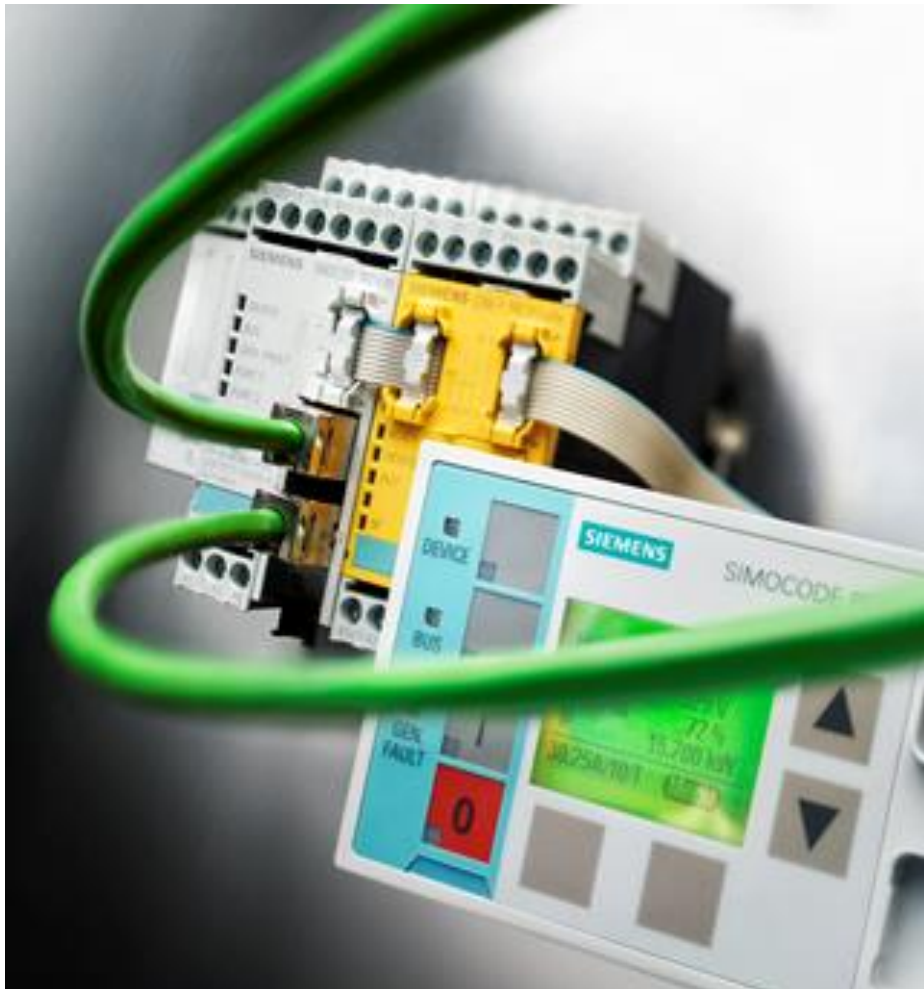
- Motor operating hours: 3 0 h ⚡
- Motor operating hours >:
- Number of overload trips: 5 0 ⚡
- Number of starts: 837 0 ⚡
- Permissible starts - actual value: 0
- Just one start possible:
- No start permitted:
- Stop time: 4 0 h ⚡
- Stop time >:

**Basic unit**

- Time shift UTC +:
- Device operating hours: 457 h
- Number of parameterizations: 90
- Date:
- Time:

**Timer**

## SIMOCODE Motor Management



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