

# SIMOCODE pro

Motor Management System

# SIMOCODE pro Capabilities

pro C



3UF7000...

pro V



3UF7010...

pro V PN



3UF7011...

pro V MR



3UF7012...

pro S



3UF7020...

- PROFIBUS
- PROFINET
- MODBUS RTU

## Main Functions:

- Protection
- Monitoring
- Local I/O
- Local Logic

# Hardware Overview – SIMOCODE pro V

## Current measuring module



0.3 A - 630 A  
through-hole or busbar connection



## Basic unit

4I/3O binary  
thermistor  
PROFIBUS DP  
PROFINET  
MODBUS RTU  
24 V DC /  
110-240 V AC/DC



## Current / Voltage measuring module



0.3 A – 630 A / 690 V  
through-hole or busbar connection

## Operator panel with or without display



## Expansion modules

- Fail-safe digital module
- Digital I/Os
- Analog I/Os
- Temperature sensor
- External ground fault via summation current transformer

## Configuration Accessories

### PROFIBUS address assignment to one or several basic units

- **Addressing plug** for PROFIBUS address assignment without PC / programming device



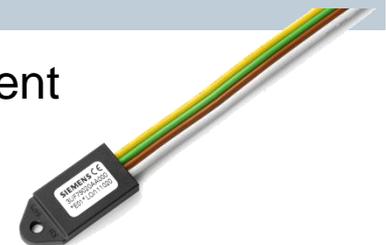
### Easy duplication of configuration

- **Memory module** for parameterization or device replacement without PC / programming device



### Plug & play replacement

- **Initialization module** for automatic addressing and parameterization after device replacement



# SIMOCODE pro Software Detailed Options



SIMOCODE ES	Basic	Standard	Premium
Access through the local interface on the device	✓	✓	✓
Parameter assignment	✓	✓	✓
Operating	✓	✓	✓
Diagnostics	✓	✓	✓
Test	✓	✓	✓
Service data	✓	✓	✓
Parameterizing with the integrated graphics editor	--	✓	✓
Creation of typicals	--	✓	✓
Parameter export	--	✓	✓
Comparison functions	--	✓	✓
Trend display of measured values	--	✓	✓
Parameter comparison	--	✓	✓
Analog value recording <sup>1)</sup>	--	✓	✓
Standard-compatible printout according to EN ISO 7200	--	✓	✓
Group functions	--	--	✓
Access through PROFIBUS/PROFINET	--	--	✓
Teleservice through MPI	--	--	✓
S7-Routing <sup>2)</sup>	--	--	✓
STEP7 Object Manager	--	--	✓

SIMOCODE ES V13	Basic	Standard	Premium
Access through the local interface on the device	✓	✓	✓
Parameter assignment in list form	✓	✓	✓
Parameter printing in list form	✓	✓	✓
Operating	✓	✓	✓
Diagnostics	✓	✓	✓
Test	✓	✓	✓
Service data	✓	✓	✓
Analog value recording <sup>1)</sup>	✓	✓	✓
Trend display of measured values	--	✓	✓
Parameterizing with convenient graphical display	--	✓	✓
Parameterizing with the integrated graphics editor (CFC-based)	--	✓	✓
Printing of diagrams	--	✓	✓
Parameter comparison	--	✓	✓
Access through PROFIBUS/PROFINET	--	--	✓
Teleservice through MPI	--	--	✓
S7-Routing <sup>2)</sup>	--	--	✓

## Example Application

### Line Shaker Application:

- High starting current in extreme cold conditions (tripping @ Class 40 OL)
- Reversing starter
- Existing small enclosure

### Solution - SIMOCODE pro S:

- Reversing style profile
- Added logic to inhibit tripping during extended cold startup
- Runs as Class 10 OL during normal operation
- Fits into existing enclosure



## Example Application

# Blowout Preventer

Solution - SIMOCODE pro V:

- Protects main hydraulic pump
- Provides key maintenance and operational data
- Provides local control if required

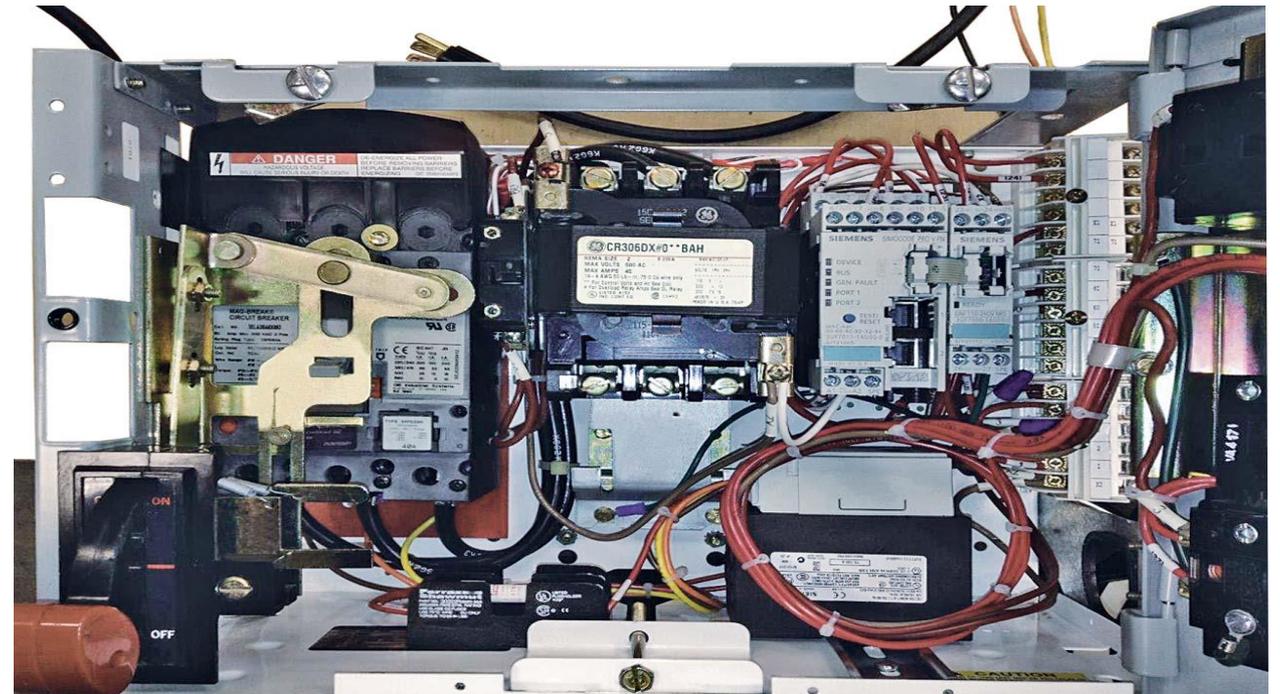


## Example Application

### MCC Retrofit

Solution - SIMOCODE pro V:

- Fits into existing bucket
- Eliminate new Cap Expense
- Flexible implementation
- Provides key maintenance and operational data



## Example Application

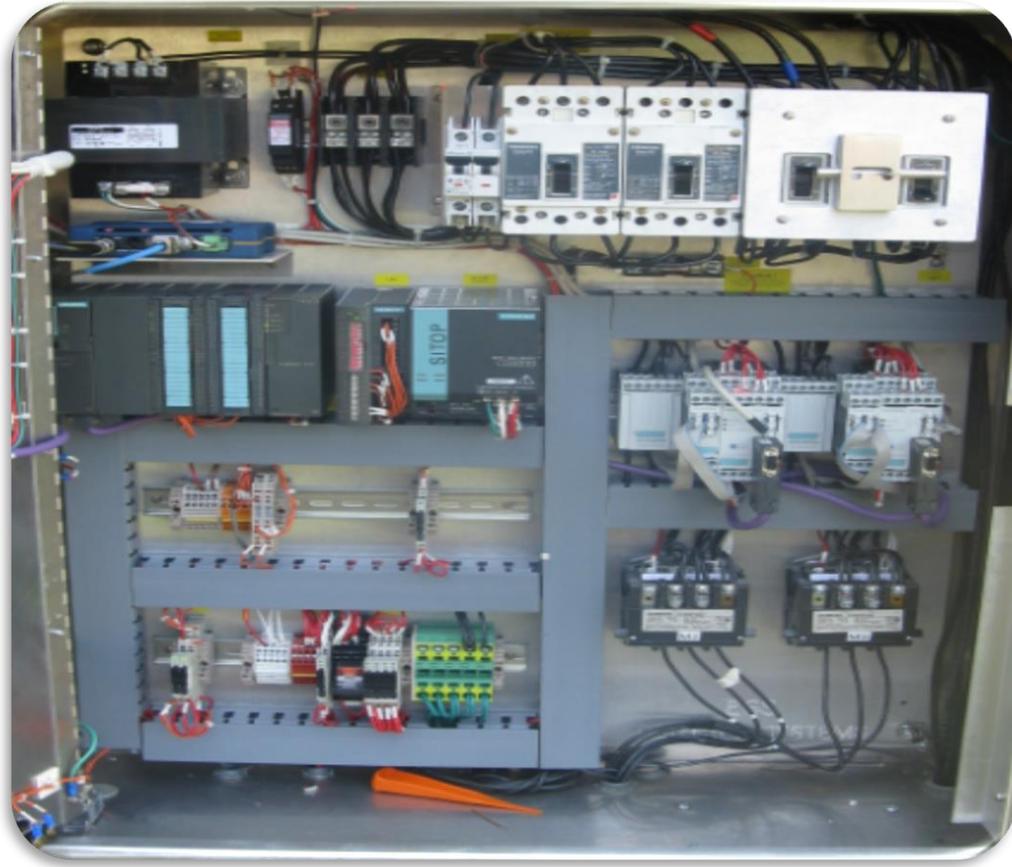
### LNG Production with Modbus RTU



# SIMOCODE pro – The intelligent interface between motor application and controller

SIEMENS

## Project: Pumping System Modernization



### Business case:

Legacy system was outdated and lacked modern communications, diagnostics, and future expansion needs for application

SIMOCODE was selected as the ideal motor management system for the application along with Siemens S7 controllers, SINAUT remote communications, and WinCC SCADA for visualization & remote control

### Benefits included

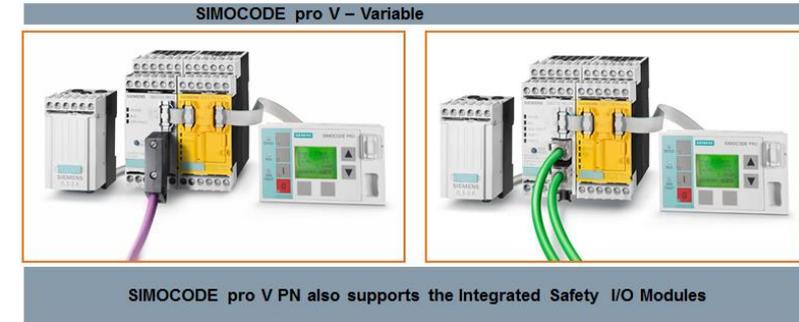
- Improved communications and monitoring
- Improved maintenance through advanced diagnostics
- Lower operating cost
- Scalable and future focused

# Example Application

## MCC with Machine Safety

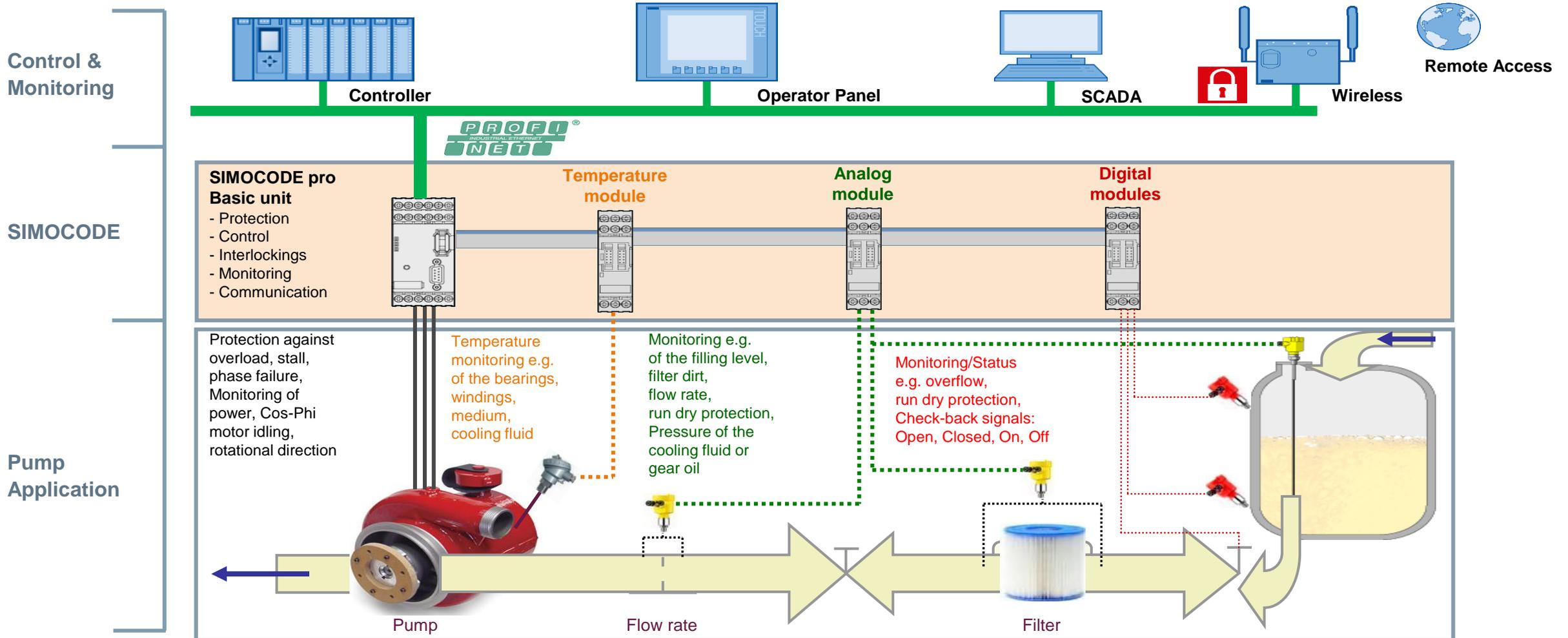
Solution - SIMOCODE pro V:

- Meets SIL 3 Safety Rating
- Process Monitoring
- Operational data



# SIMOCODE pro – The intelligent interface between pump application and controller

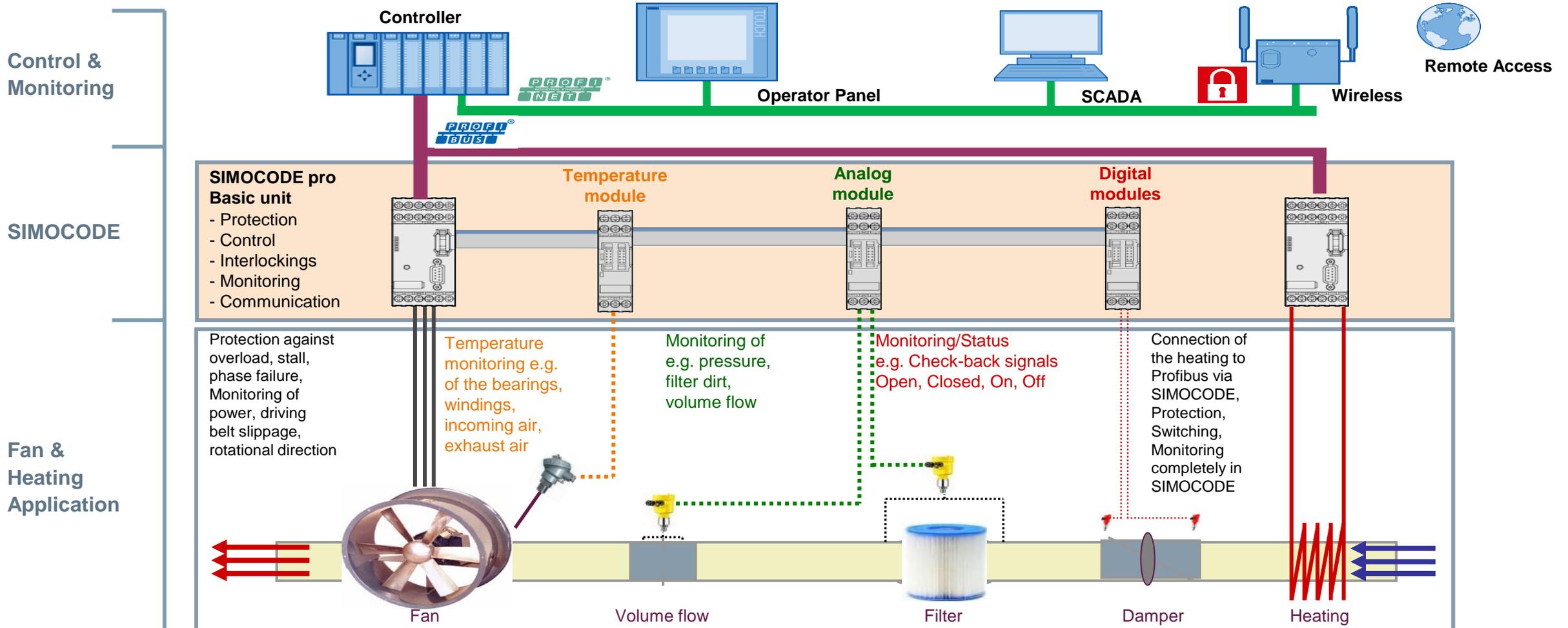
## Application Example: Pump / Motor Control & Monitoring



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# SIMOCODE pro – The intelligent interface between fan application and controller

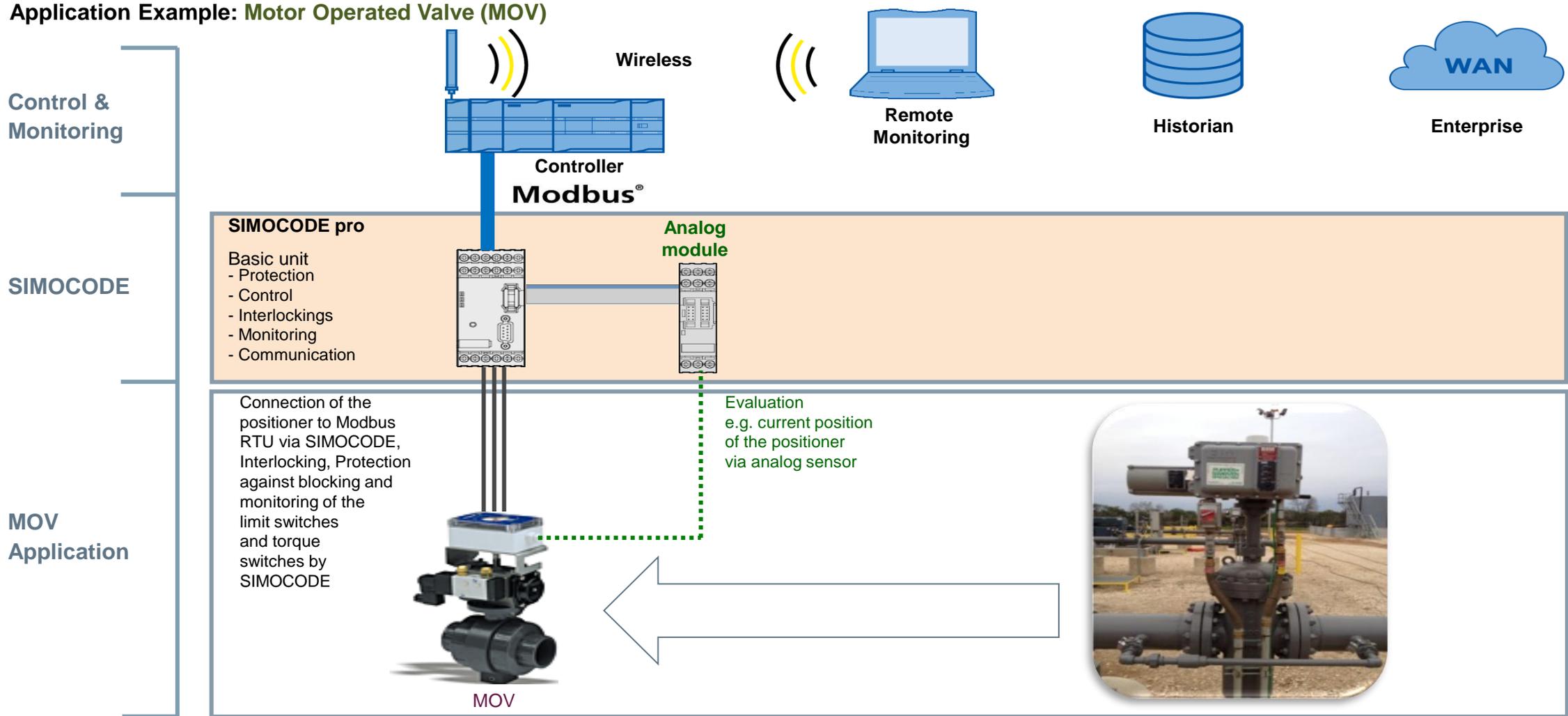
## Application Example: Fan & Heating



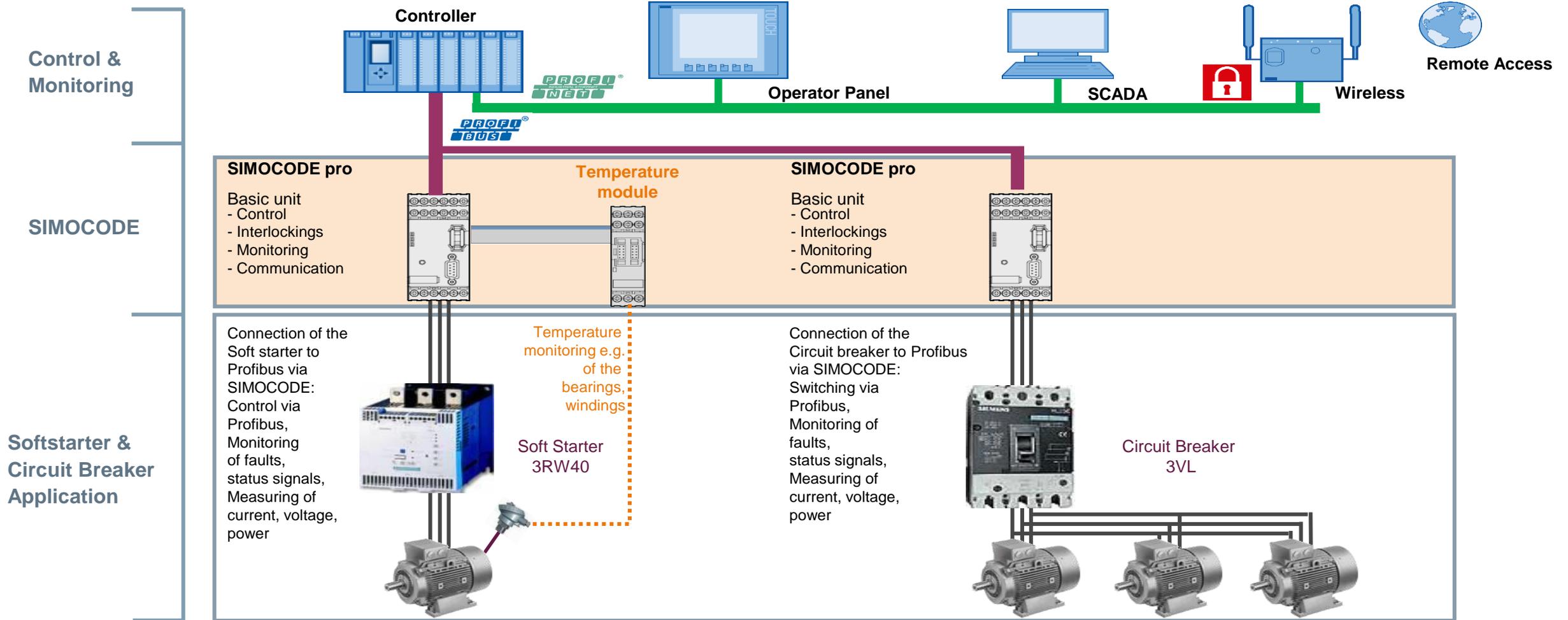
# SIMOCODE pro – The intelligent interface between motor operated valve application and controller



Application Example: **Motor Operated Valve (MOV)**

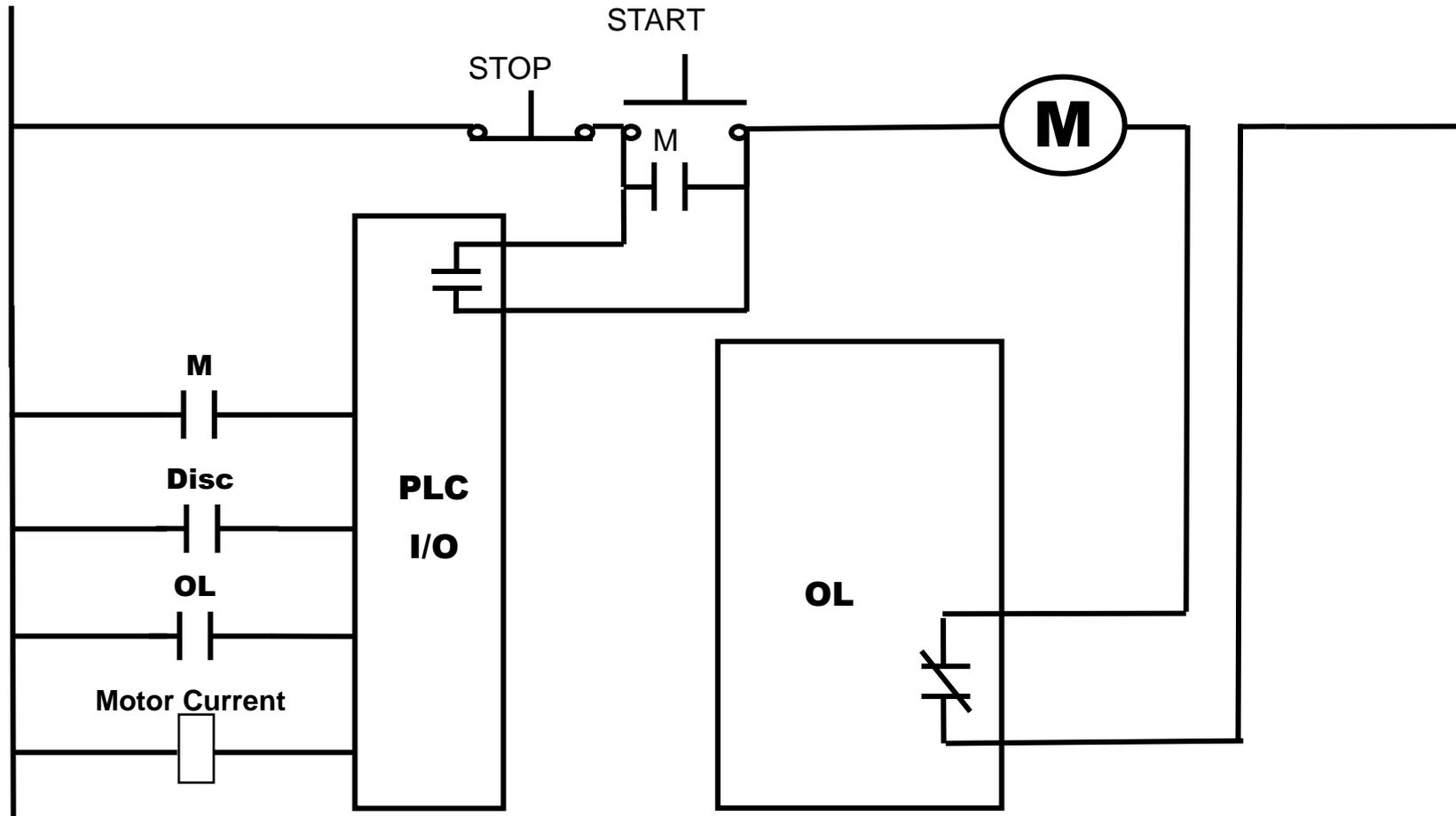


# SIMOCODE pro – The intelligent interface between soft starter, circuit breaker and controller



# Theory Of Operation

## Traditional Overload

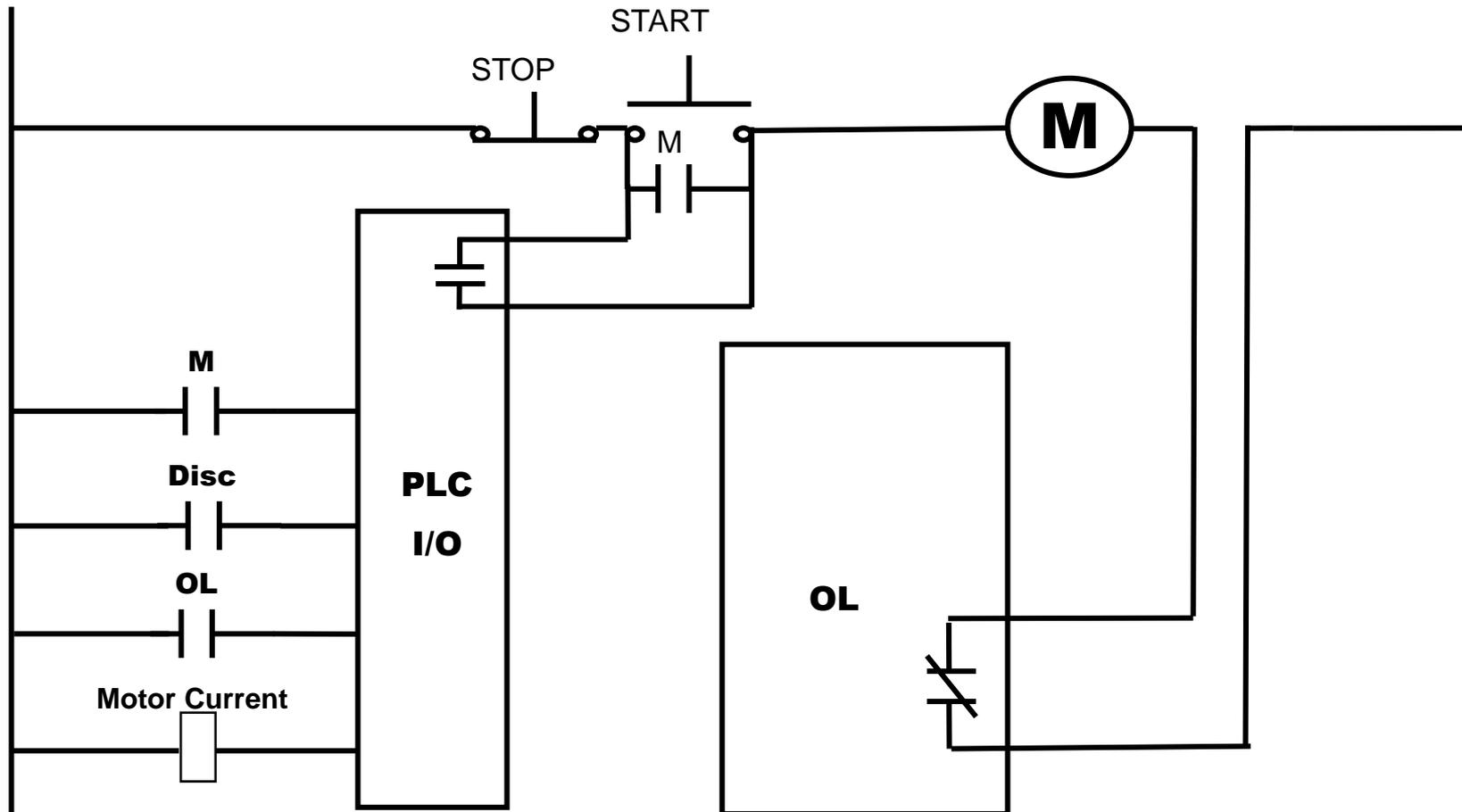


# Theory Of Operation



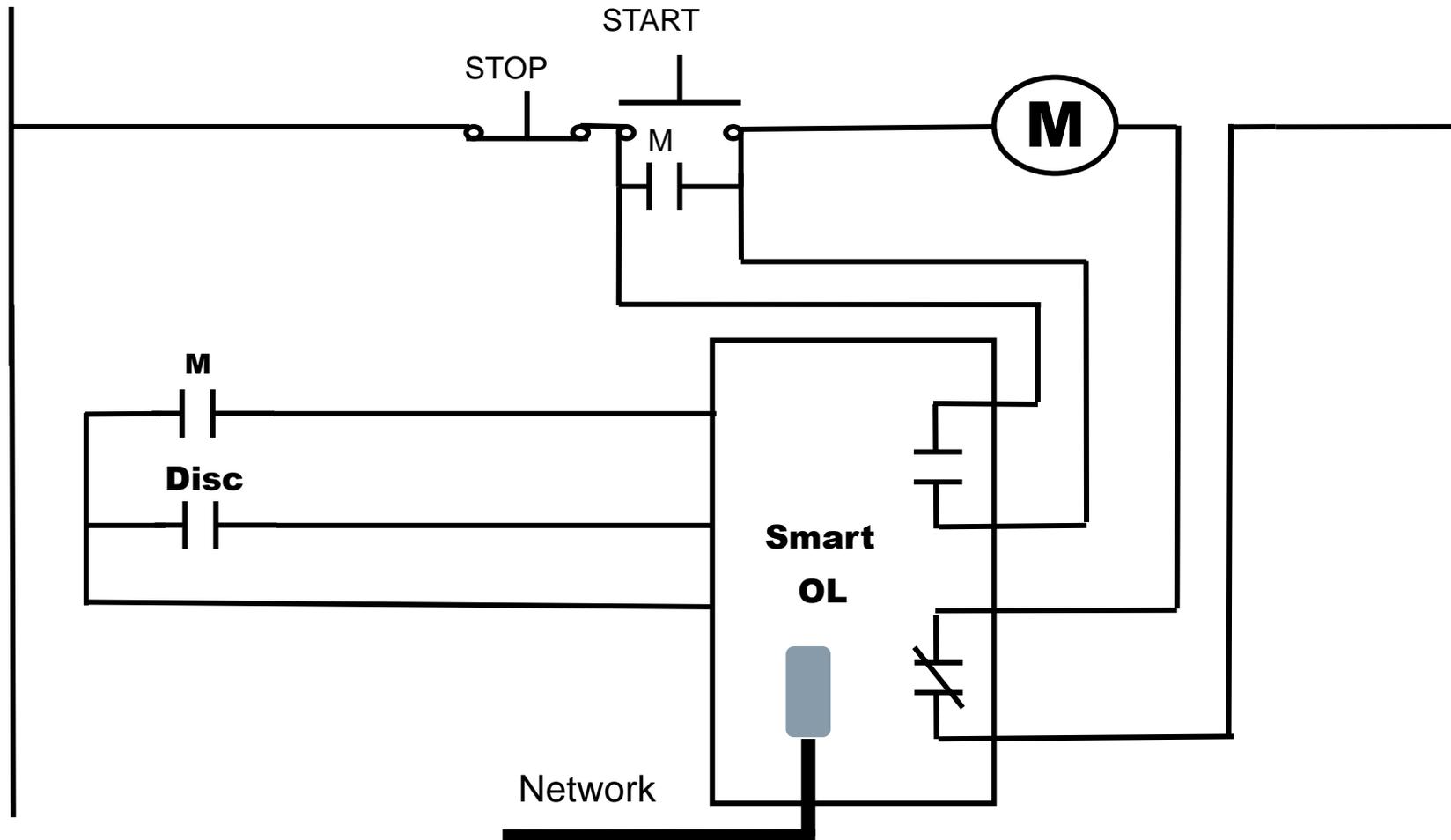
# Theory Of Operation

## Traditional Overload



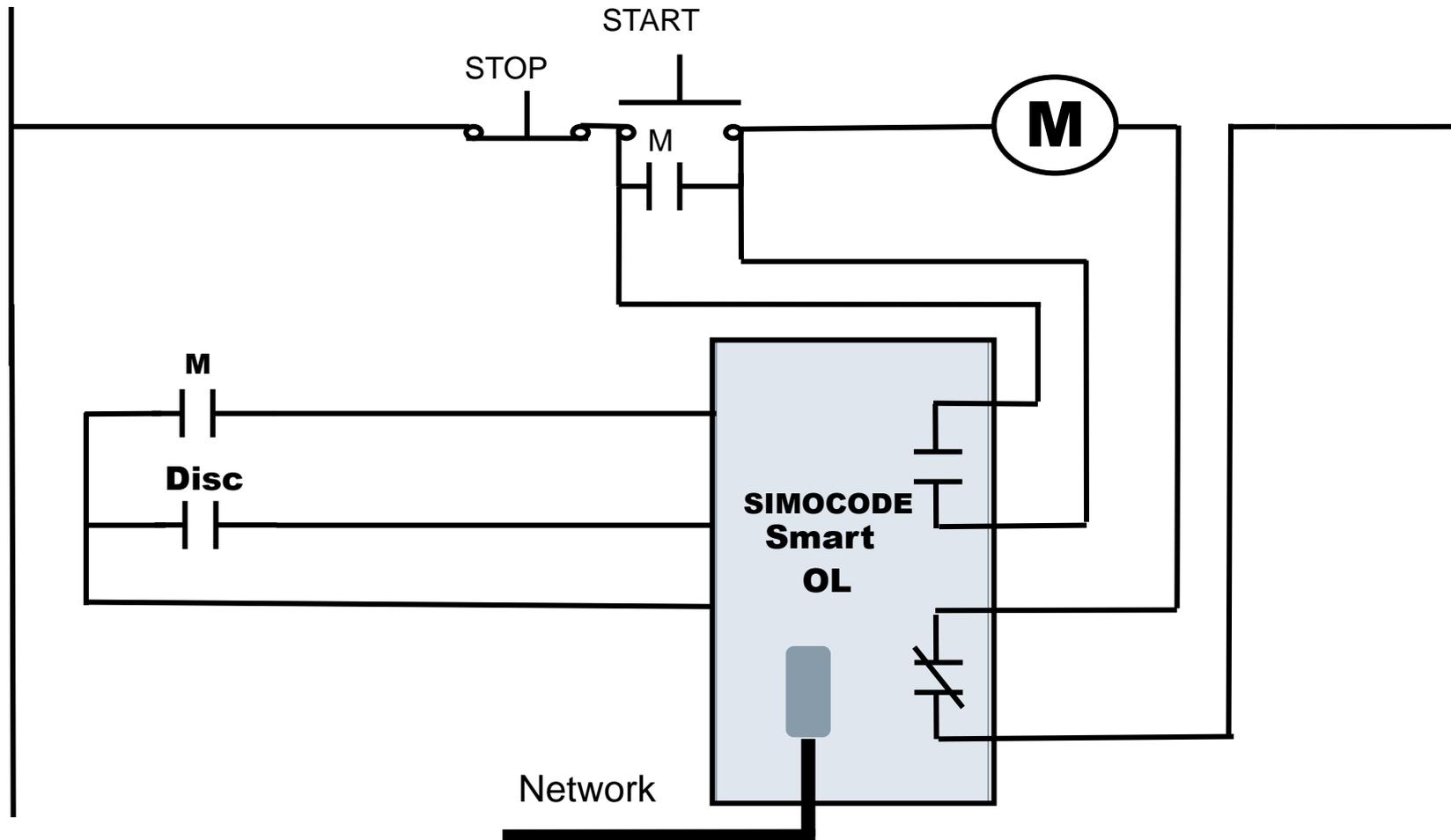
# Theory Of Operation

## Overload with Communication



# Theory Of Operation

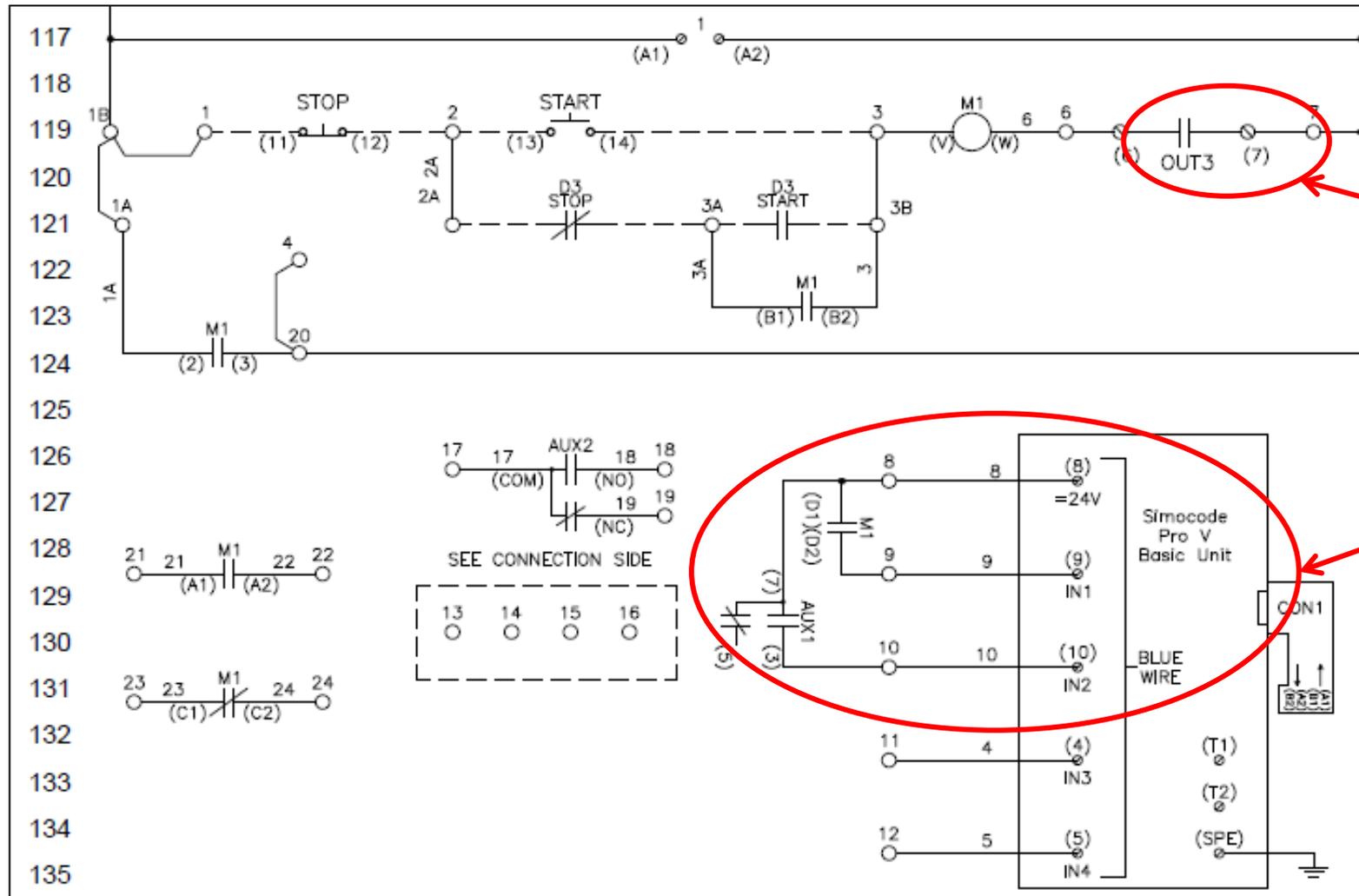
## Overload with Communication



### Additional Values

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

# Customer Example

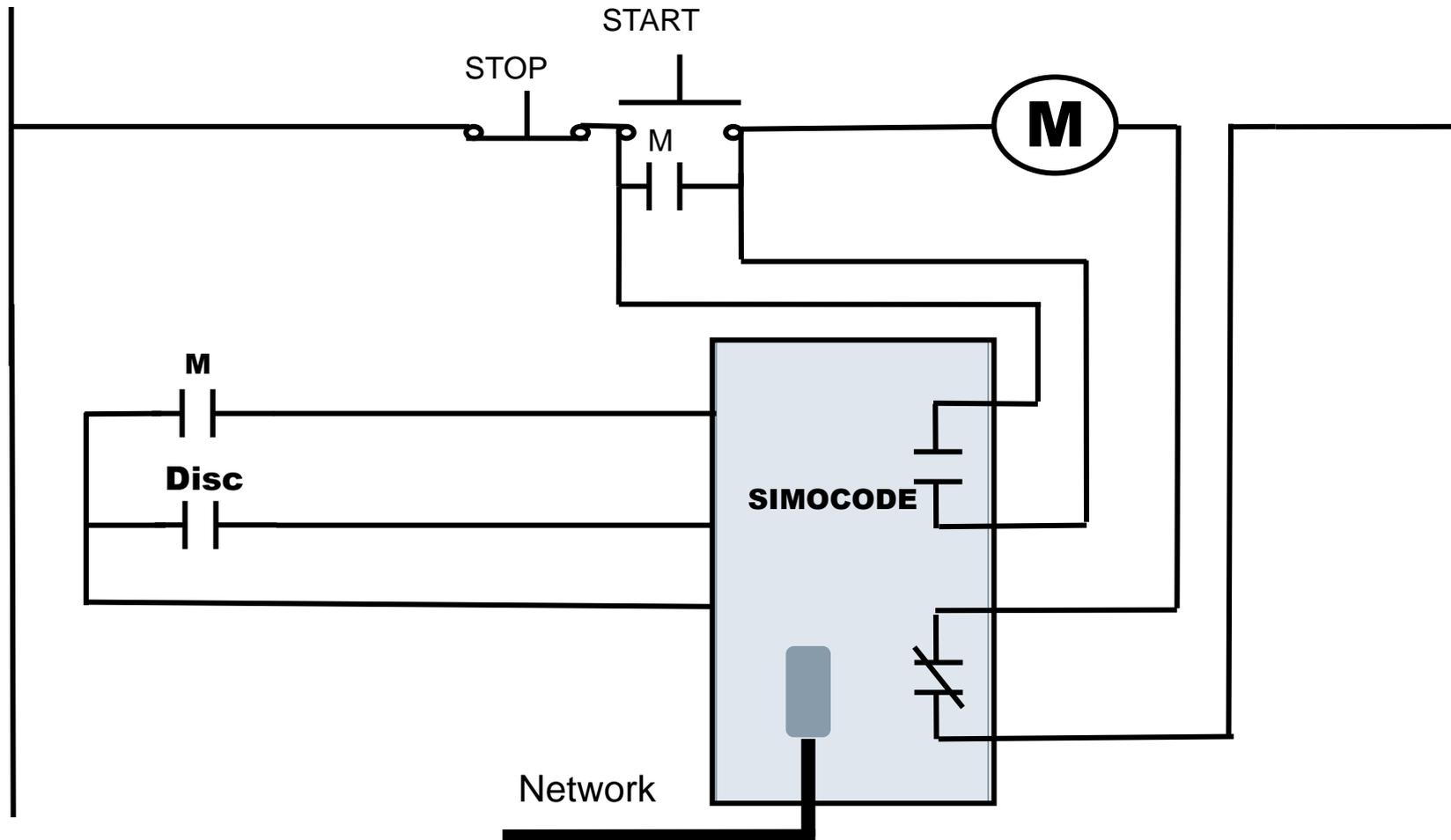


Fault Contact Output

Feedback Inputs

# Theory Of Operation

## Overload with Communication

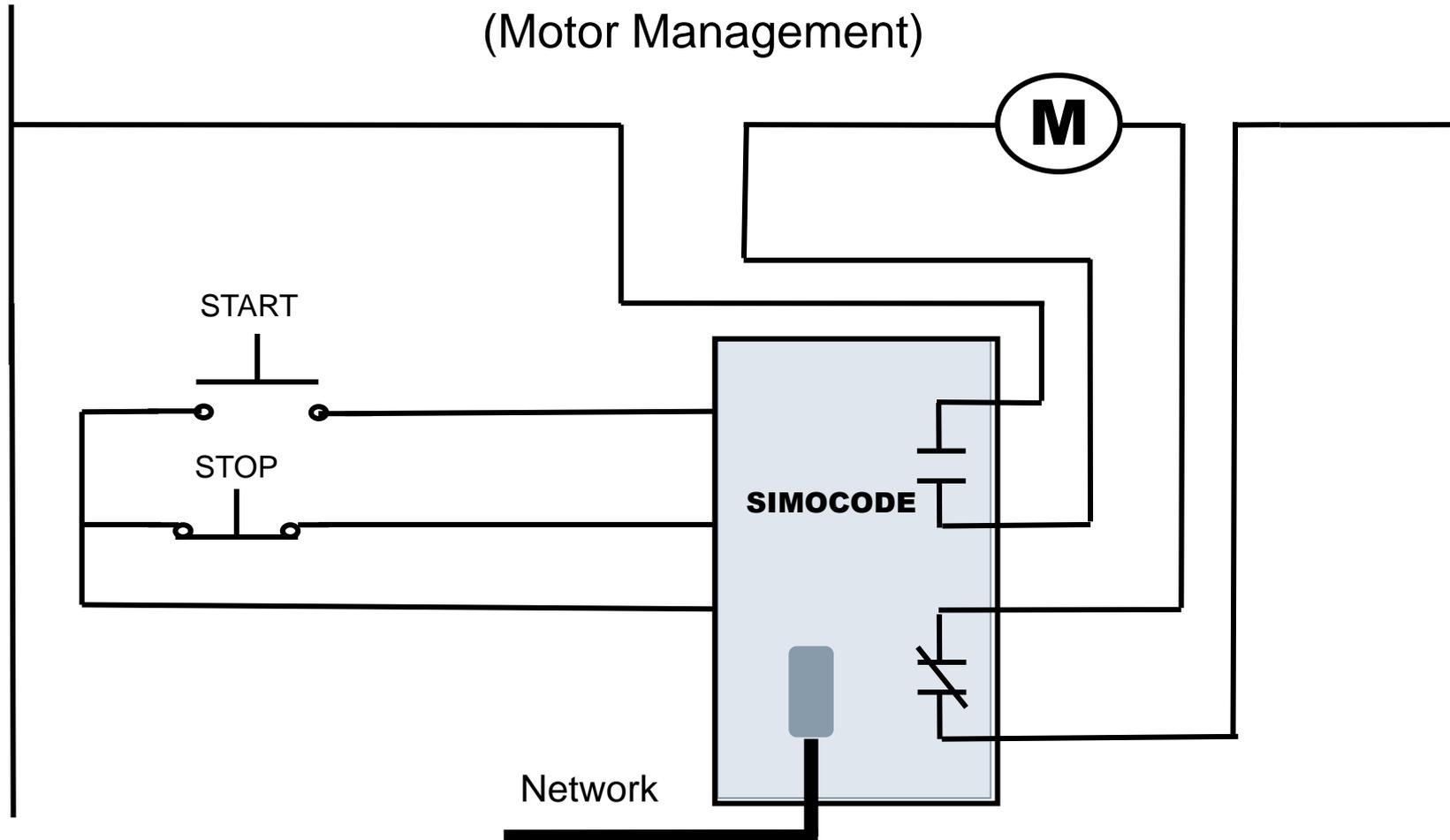


### Additional Values

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

# Theory Of Operation

## Starter with Communication (Motor Management)

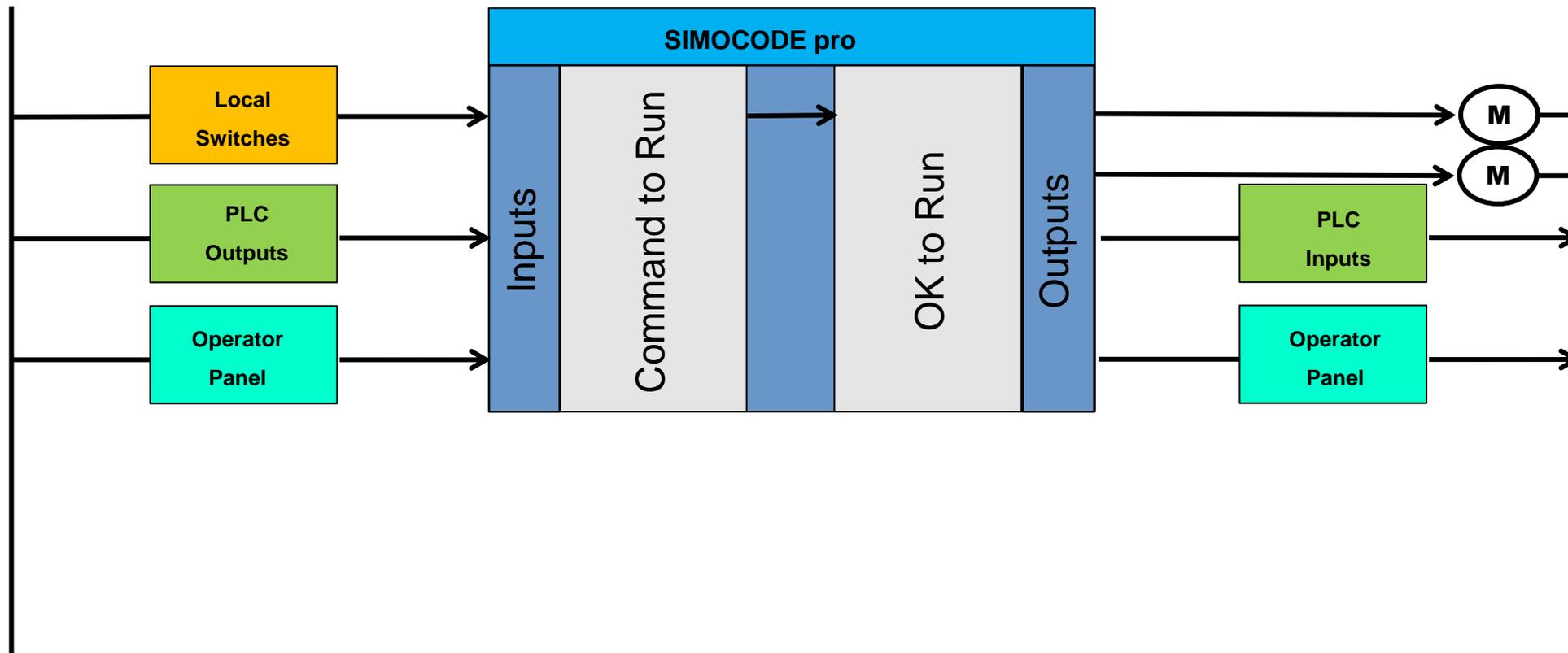


### Additional Values

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

# Theory Of Operation

## Starter with Communication (Motor Management)



## SIMOCODE pro Safety

### Fail-safe digital module DM-F Local

#### ***For local applications or integration in F-PLCs without PROFIsafe***

- Safety-related disconnection via an EMERGENCY-STOP sensor or via a fail-safe control's signal without PROFIsafe
- Parameterization of the safety function via DIP switch on DM-F LOCAL
- Diagnostics information is available in SIMOCODE ES in the form of standard signals
- Safety function up to SIL 3 / PL e with Category 4



### Fail-safe digital module DM-F PROFIsafe

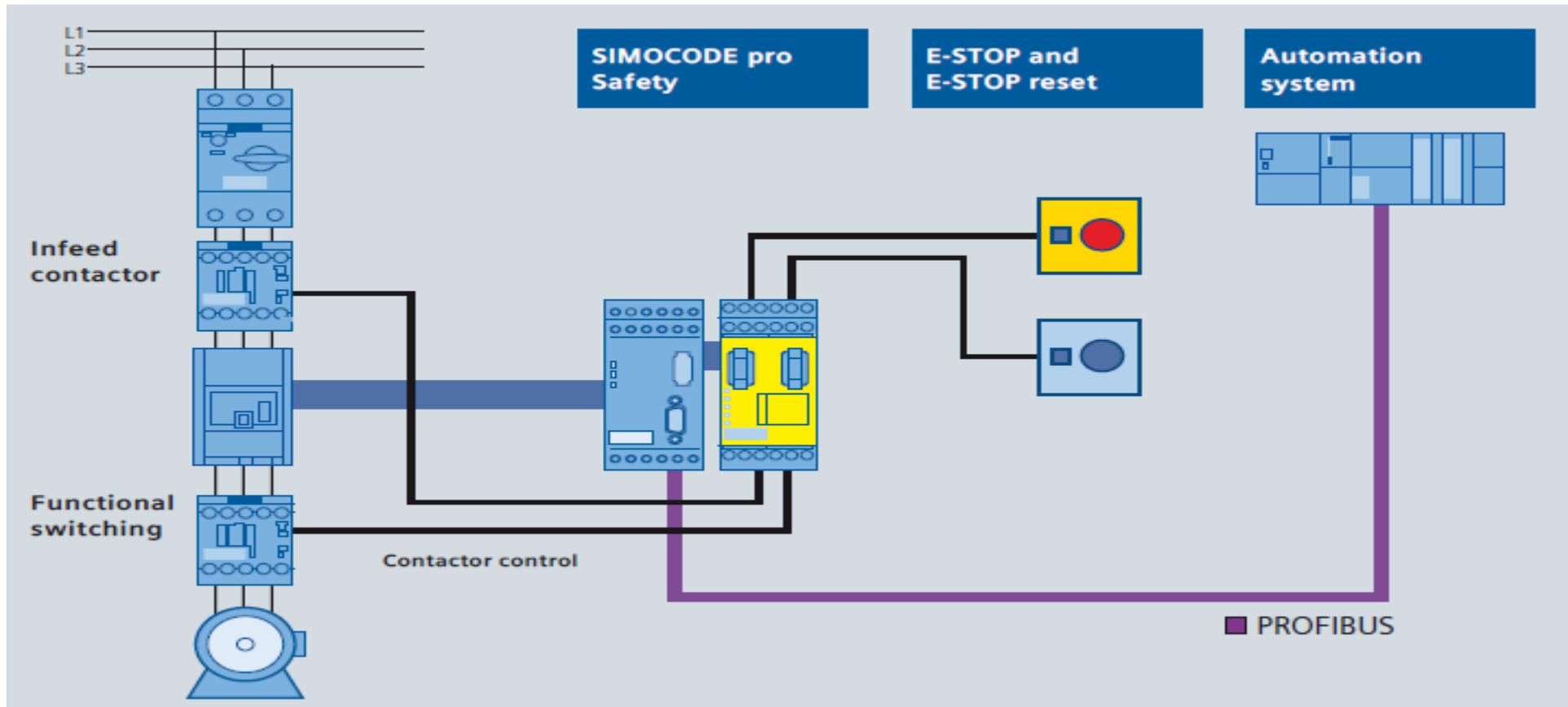
#### ***For decentral, distributed applications with PROFIsafe***

- Safety-related disconnection by means of the PROFIsafe signal via the F-PLC
- DIP switch on DM-F PROFIsafe for setting of the PROFIsafe address
- Evaluation of the PROFIsafe telegram in the DM-F – no workload on SIMOCODE
- Safety function up to SIL 3 / PL e with Category 4



# Motor Starter with Local, Safety-related Shutdown

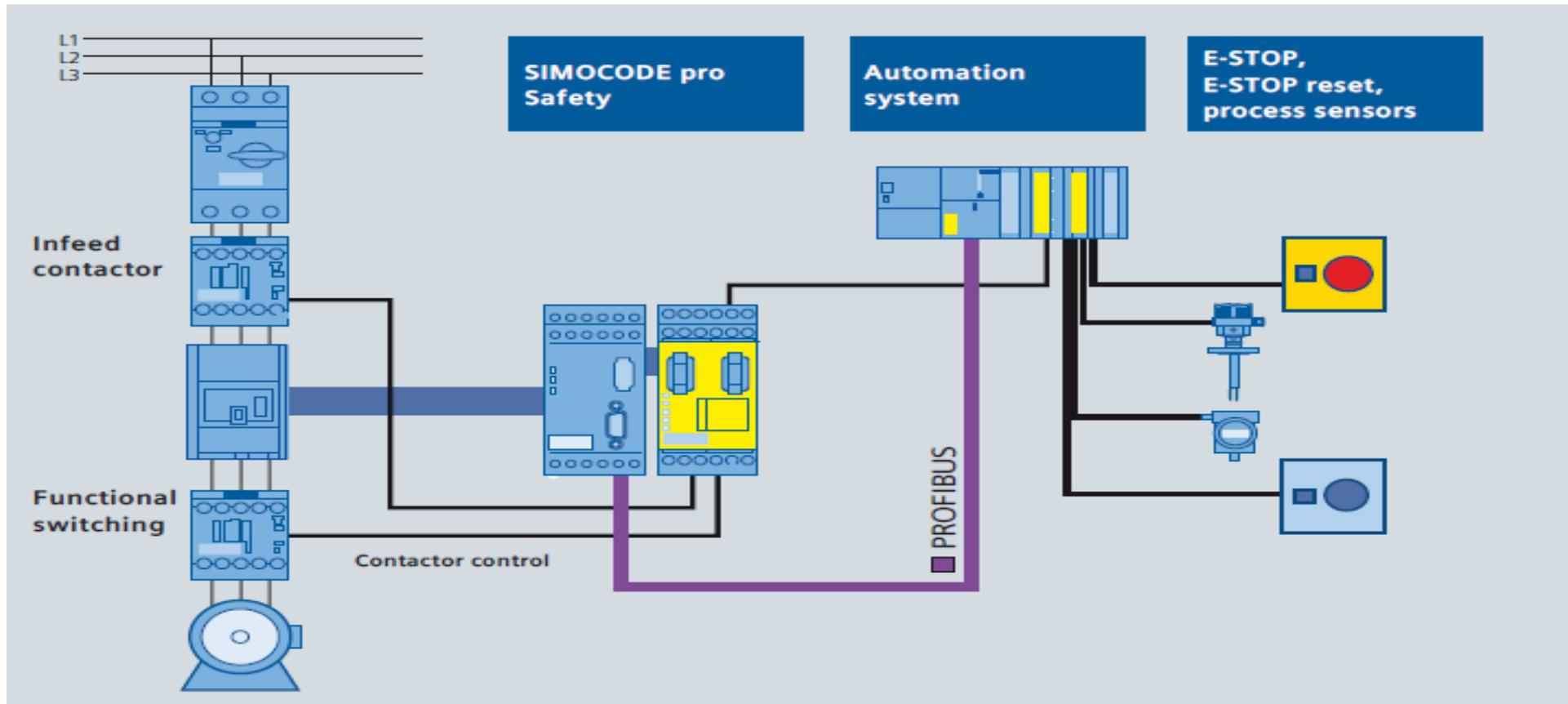
## SIMOCODE pro Safety – DM-F Local, Connection to PROFIBUS



Note:  
This supports both  
PROFIBUS and  
PROFINET networks

# Motor Starter with Local, Safety-related Shutdown

## SIMOCODE pro Safety – DM-F Local, Connection to PROFIBUS



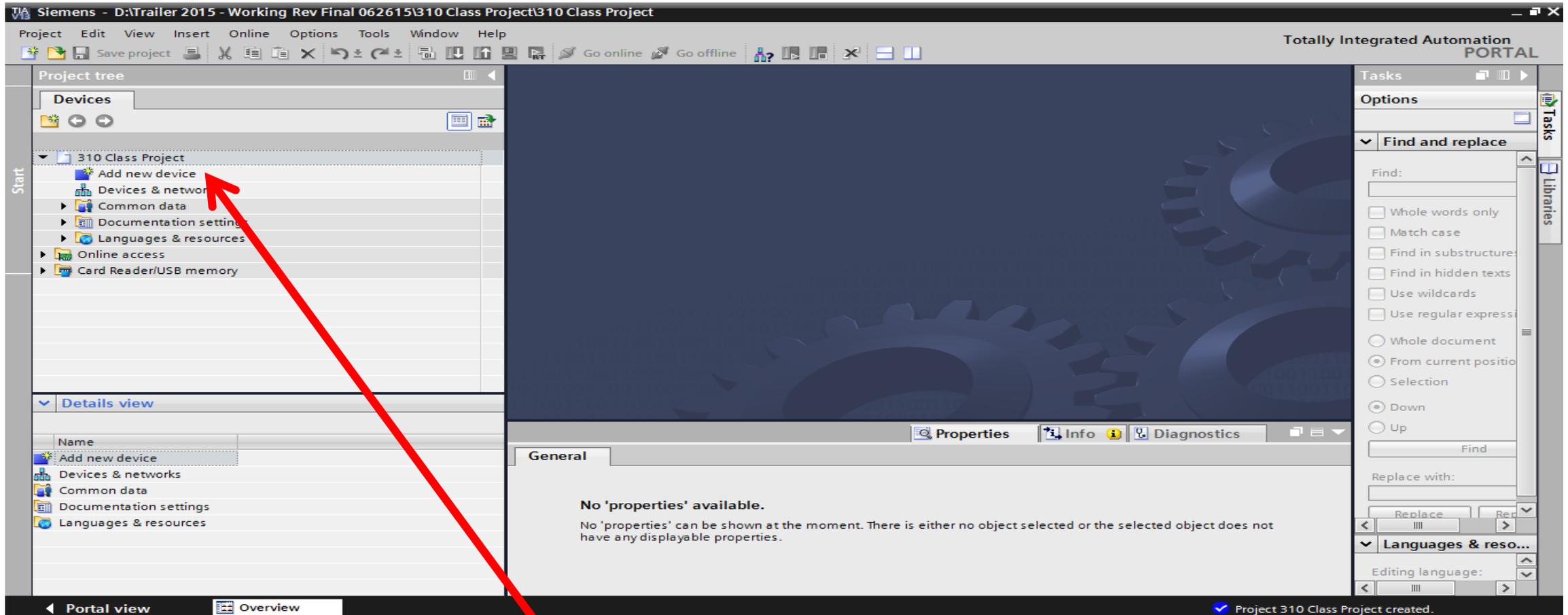
Note:  
This supports both  
PROFIBUS and  
PROFINET networks



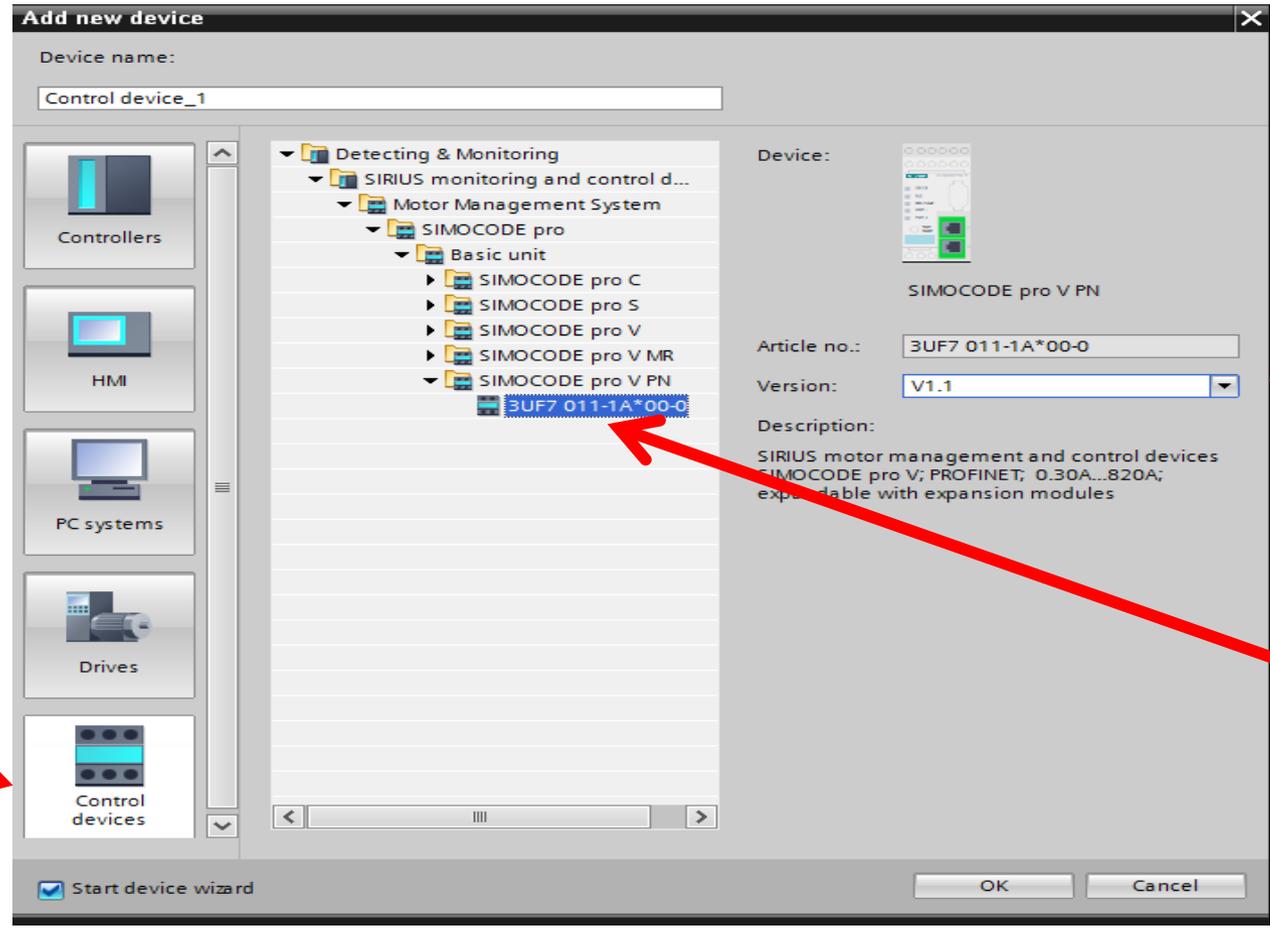
## 5 Step Process

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

# Add a New Device



# Step 1 - Select Base Unit and Version

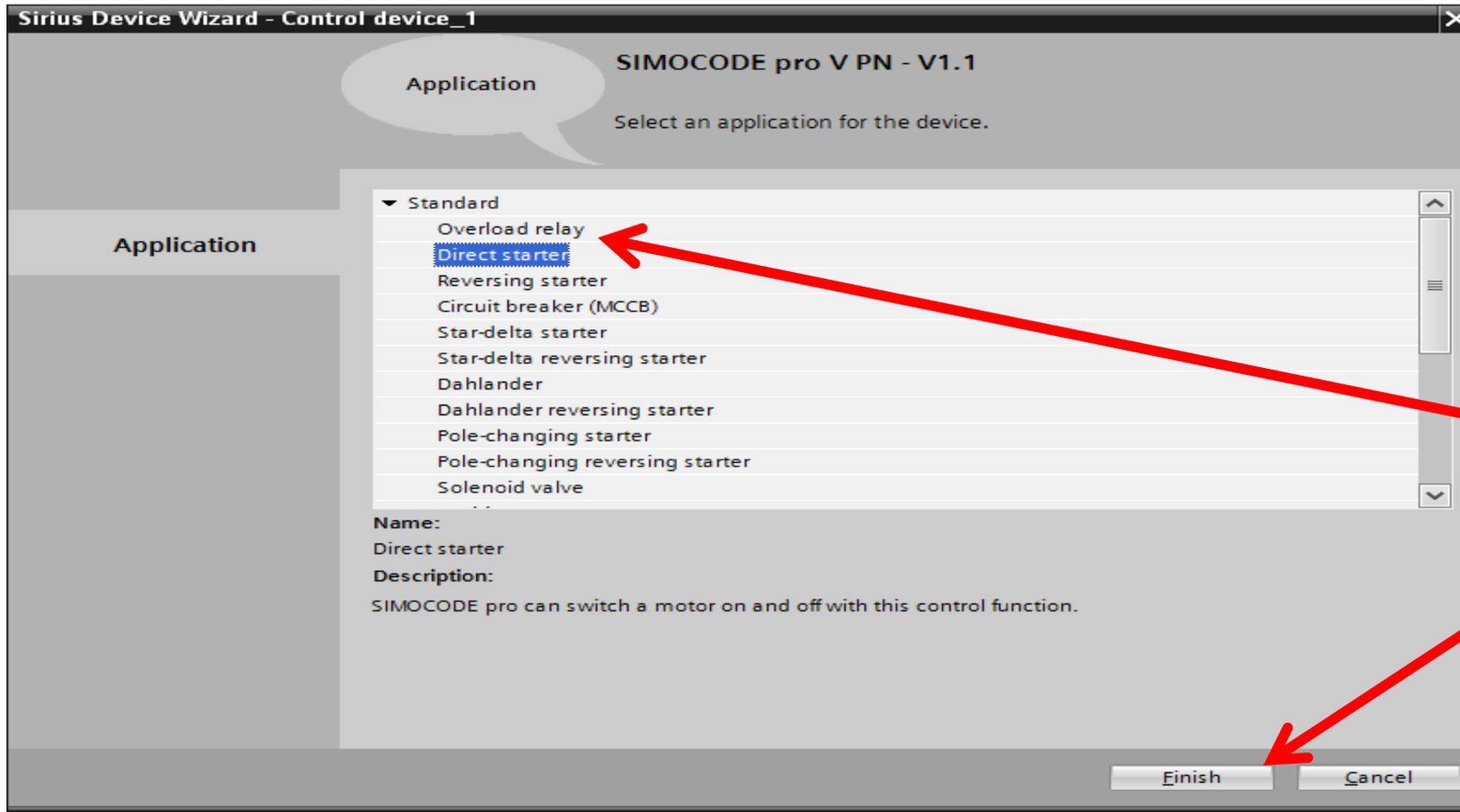


Step 1

Step 3

Step 2

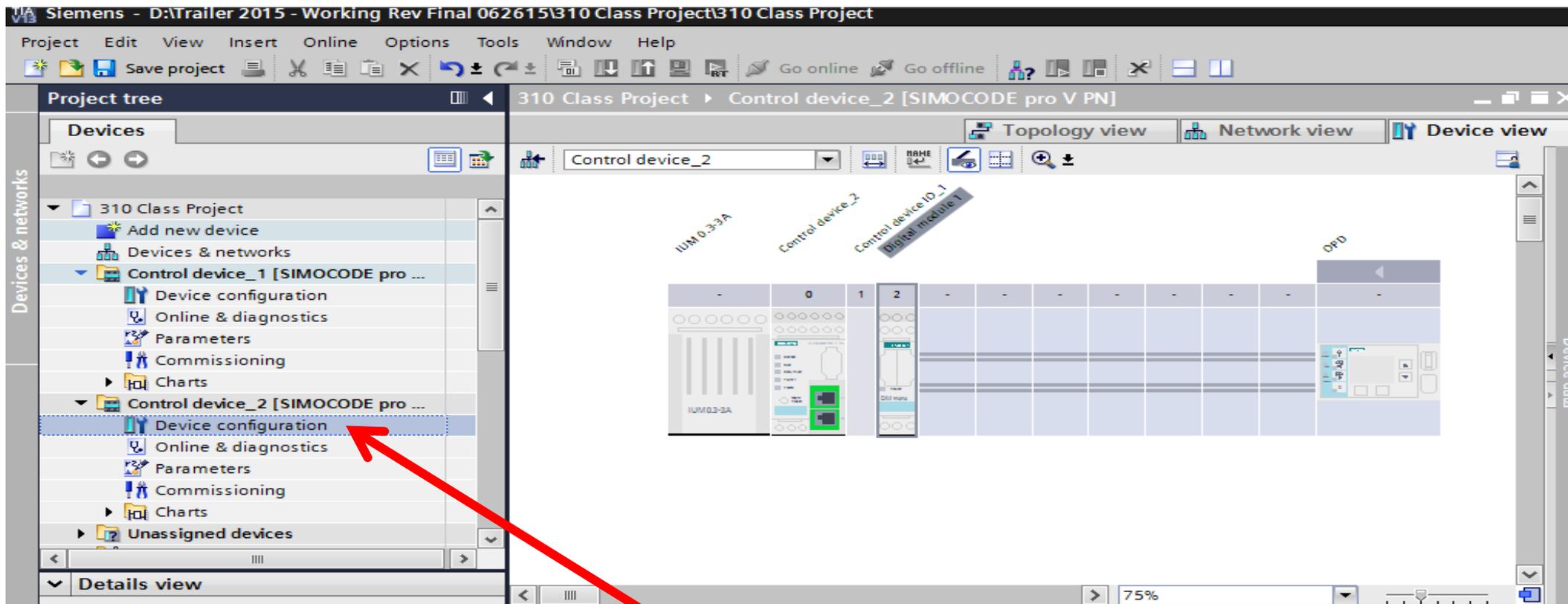
## Step 2 - Select Profile (Overload Relay)



Select **Overload Relay** Profile

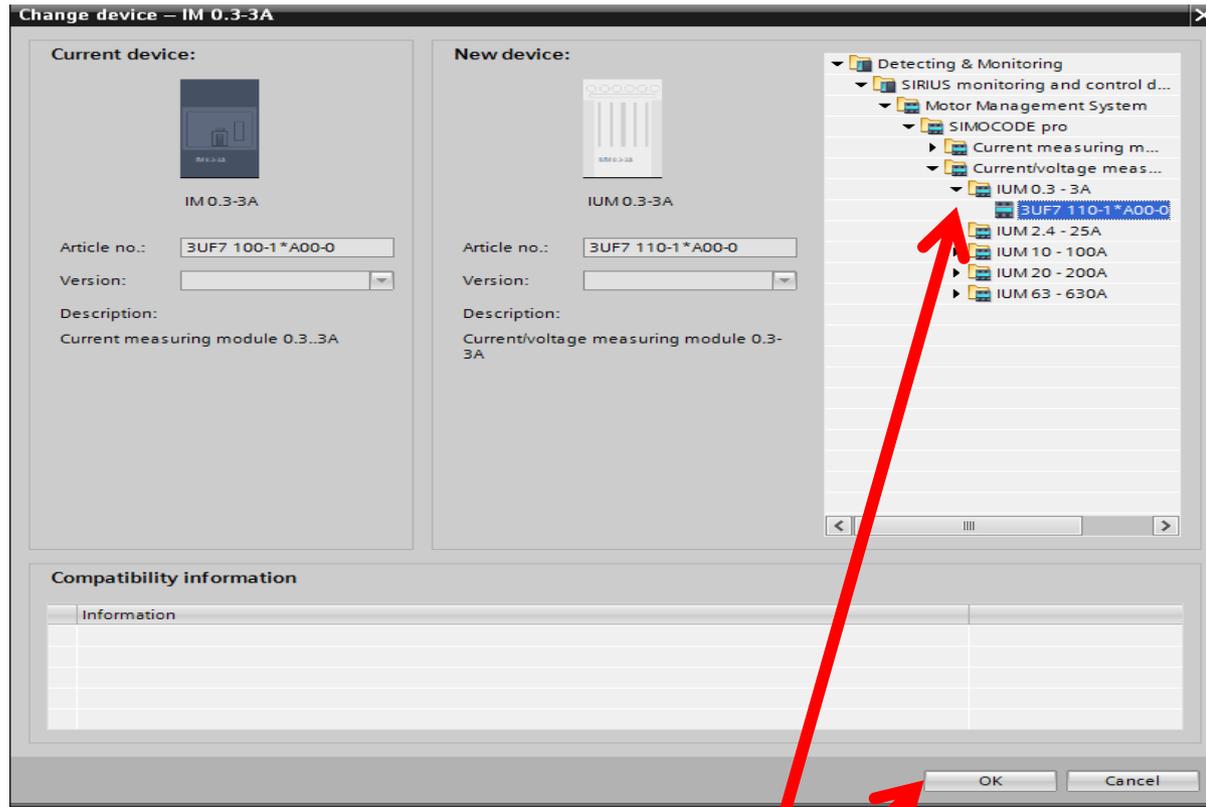
Select Finish

# Step 3 – Match Existing Device

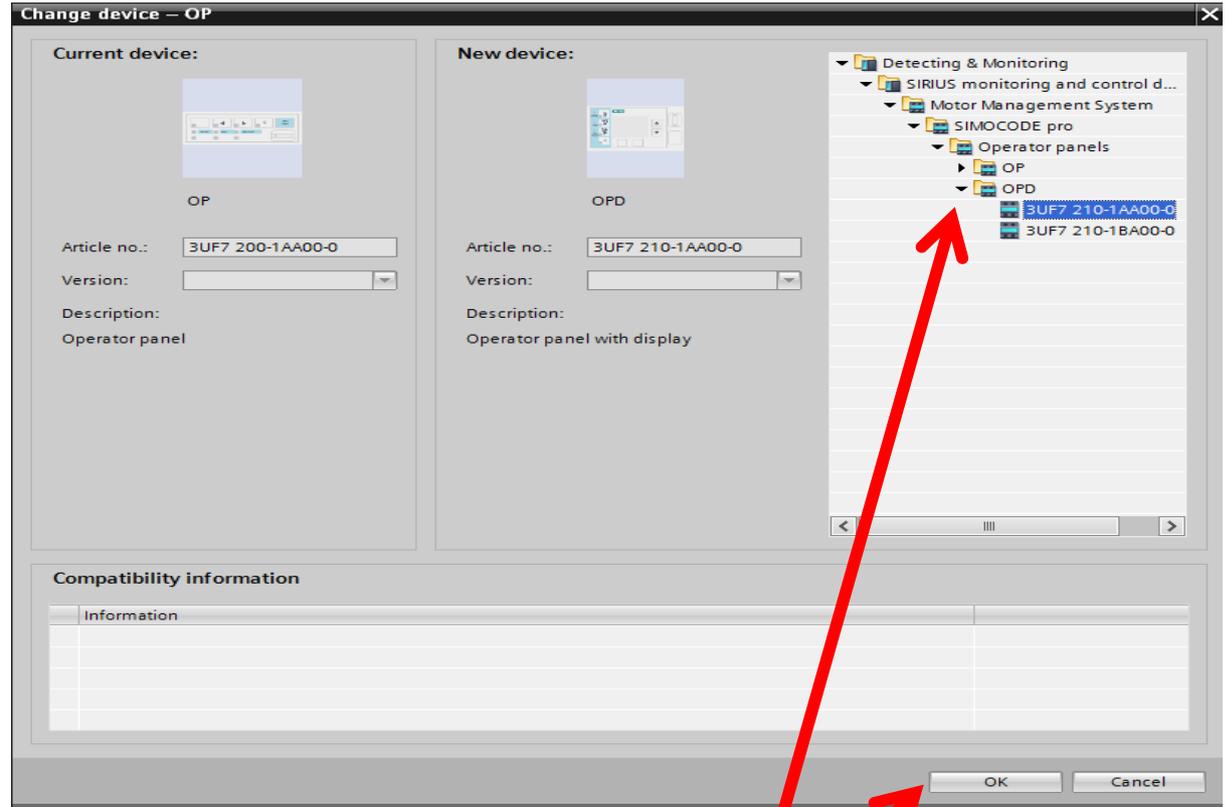


 Device configuration

# Step 3 – Match Existing Device

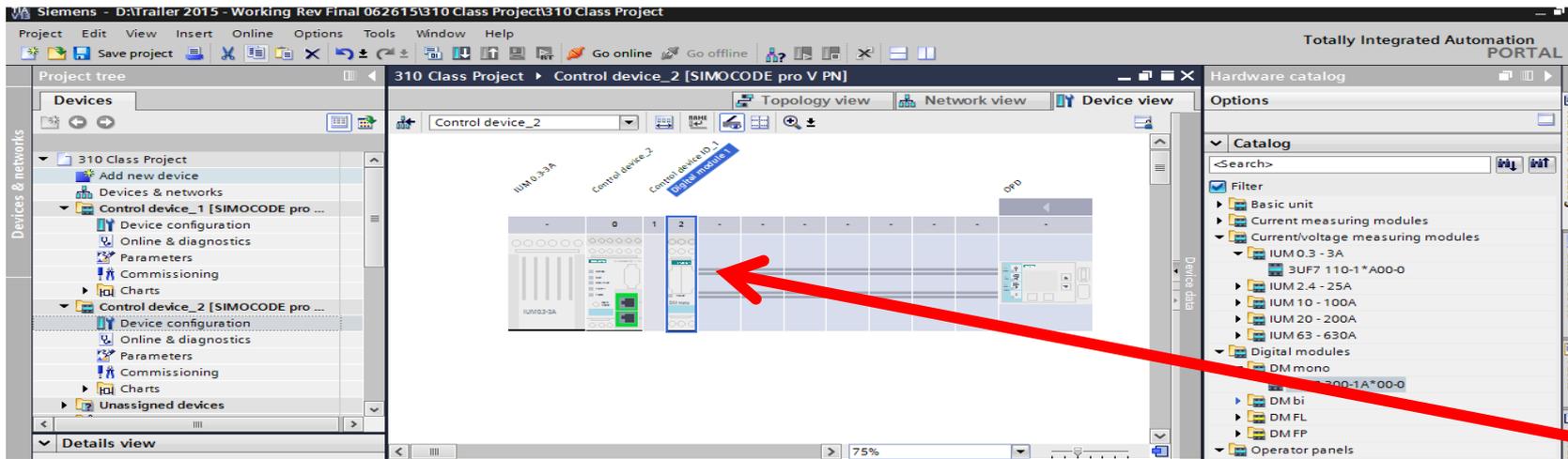


Change Measuring Module

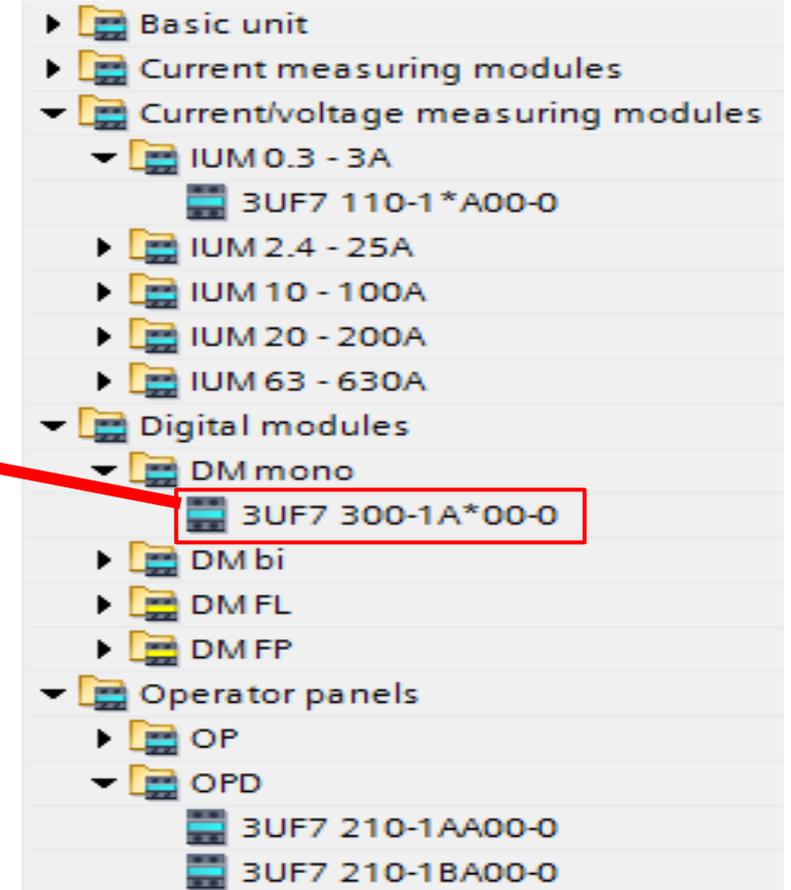


Change Operating Panel

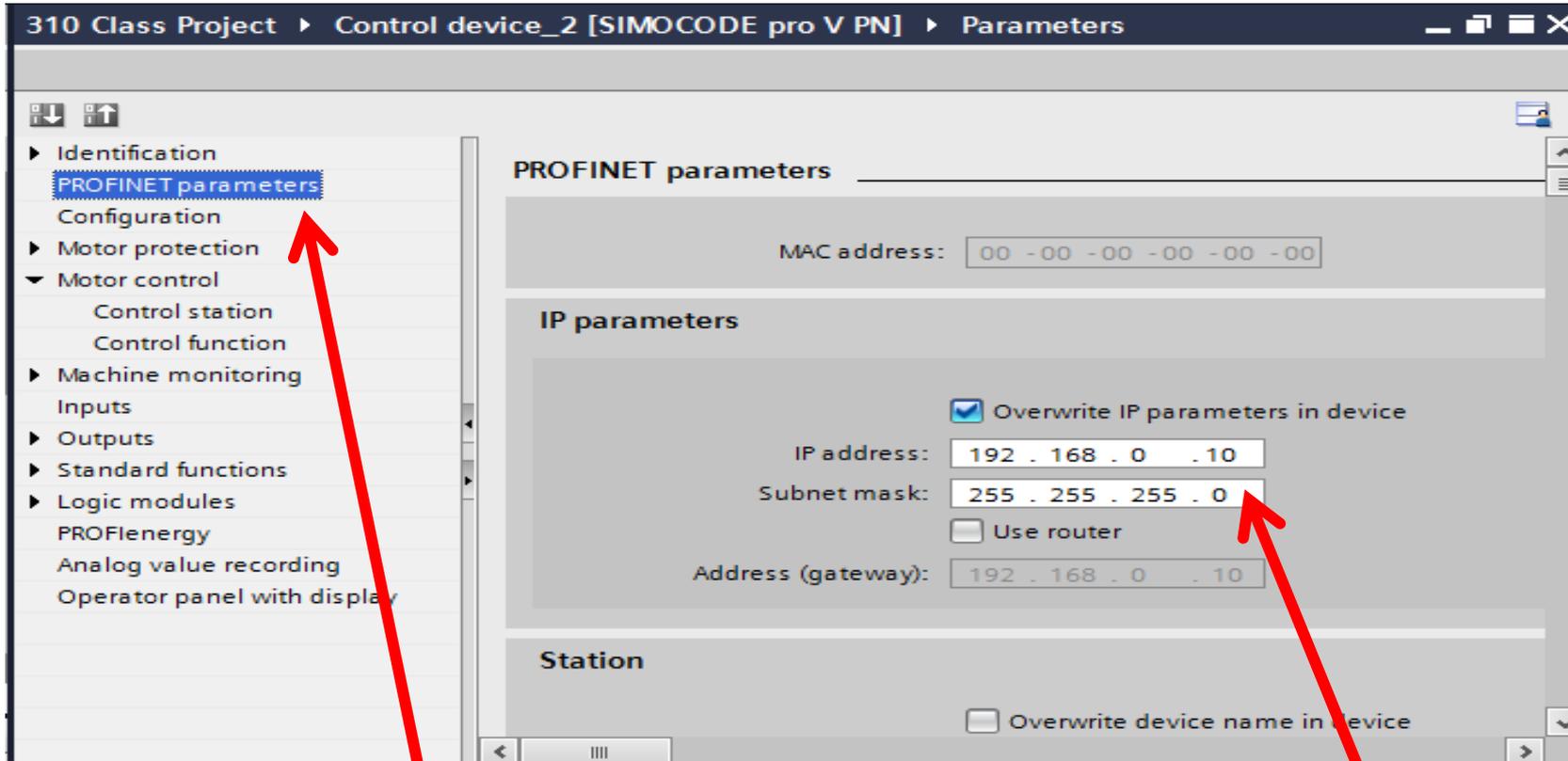
# Step 3 – Match Existing Device



Add Digital Module (DM mono)



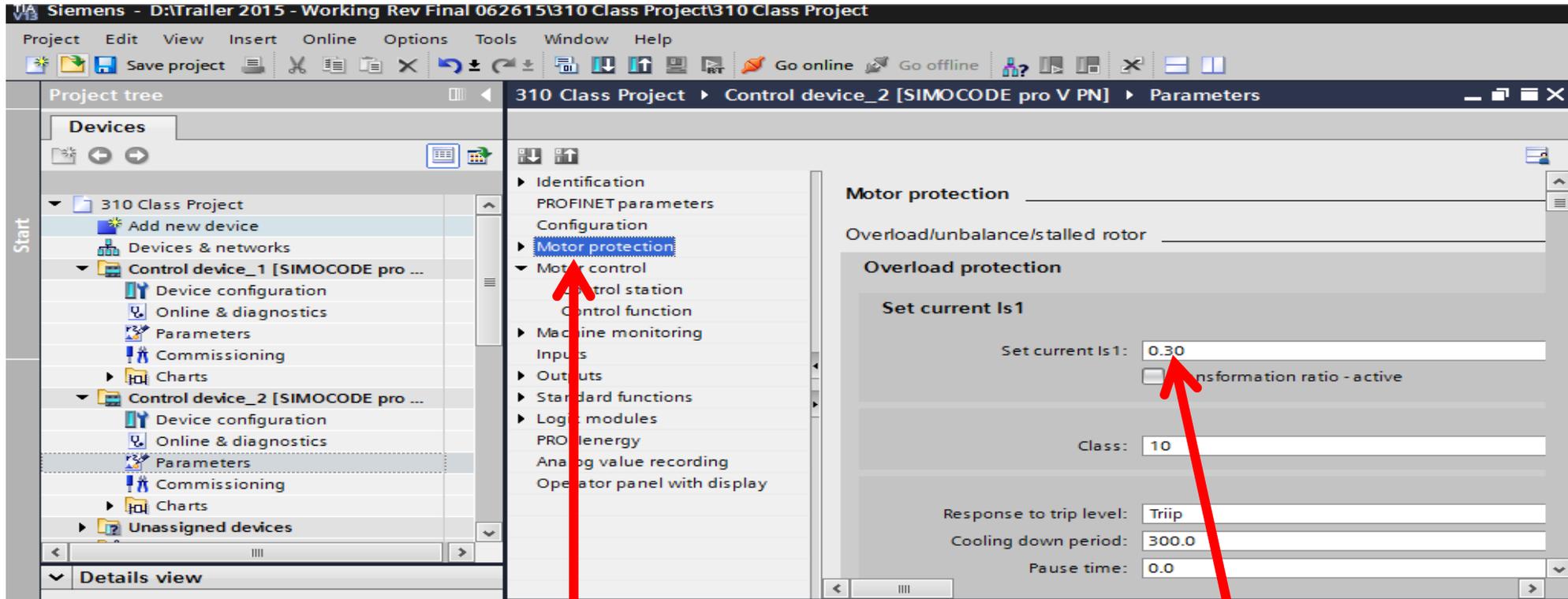
## Step 4 – Select Network Address



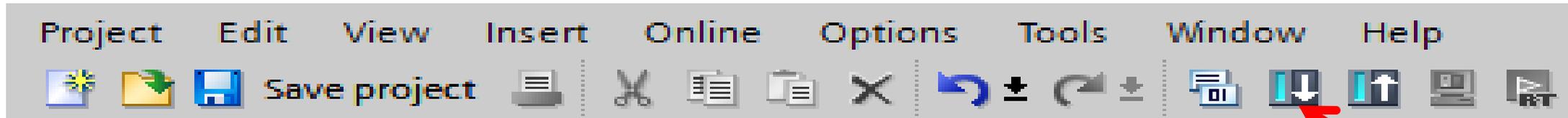
PROFINET parameters

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

# Step 5 – Select FLA



# 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 ...	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

Online status information:

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



# SIMOCODE pro Live Demo



**Manual Disconnect**

**Current/Voltage Measuring Module**

**Contactors**

**Base Unit**

**Digital Expansion**

**Optional HMI**

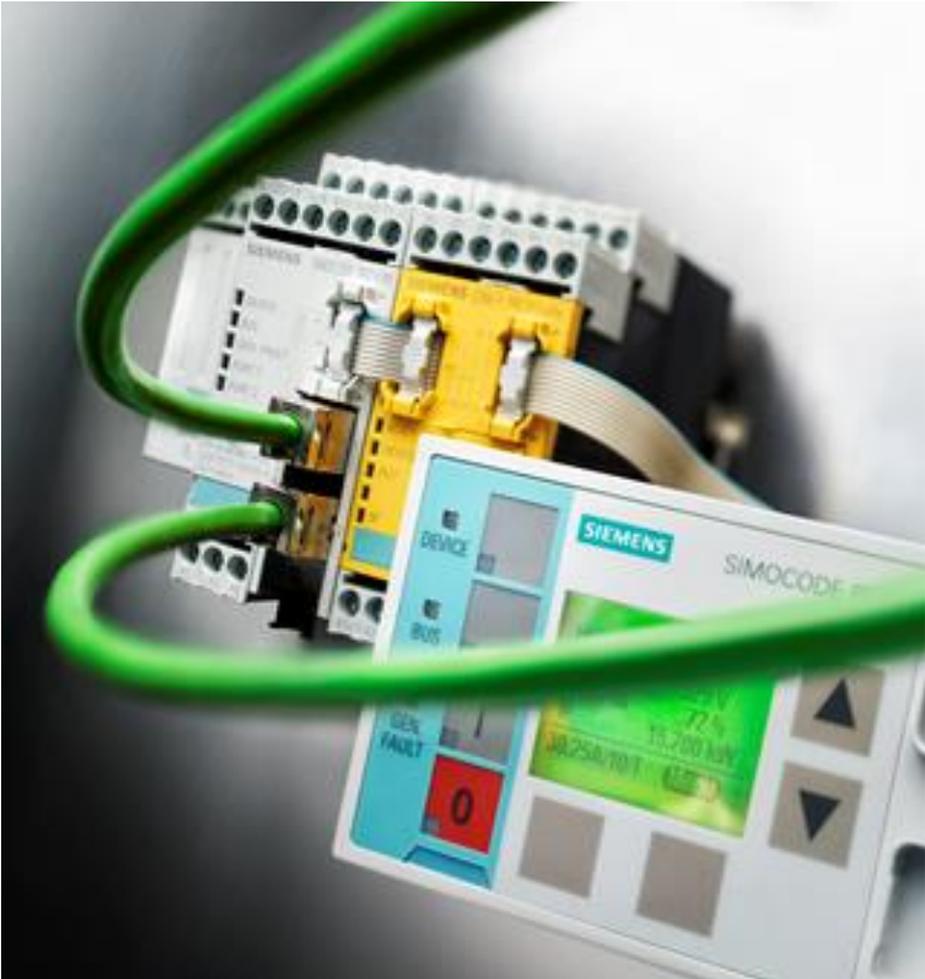
# SIMOCODE pro Labs

Hands On Training

# Questions



## SIMOCODE Motor Management



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