

1. smc5d-m4 central unit

1.1. Technical specifications:

- Power: 24V DC, 300mA
- Ethernet 100 Mbit connector - **recommended cat. 6A** or higher cable.
- USB HS connector - **good quality cable, with ferrite choke recommended.**
- CAN bus connector - for connecting additional extension modules.
- 6 axes (X,Y,Z,A,B,C) with differential outputs, up to 300 kHz step frequency.
- 4 relay outputs, galvanically isolated, in two separate groups, one of the groups can be switched to OC or 0/+5V DC mode.
maximum values for relays: 1A/30V DC, 0.5A/125V AC
maximum current for OC mode: 300 mA DC
maximum current for voltage mode 0/5V DC: 100 mA
- Additional output limiting motor current, operating in two modes OC or 0/+5V.
- 8 opto-isolated inputs with led
- Handwheel operator panel connector.
- 2 separate and galvanically isolated connectors from the red switch in the Handwheel operator panel.
- Micro SD card connector.
- Protection against too high supply voltage and reverse power connection.
- Housing designed for DIN rail mounting, length: 155mm, width: 86mm, thickness: 30mm.

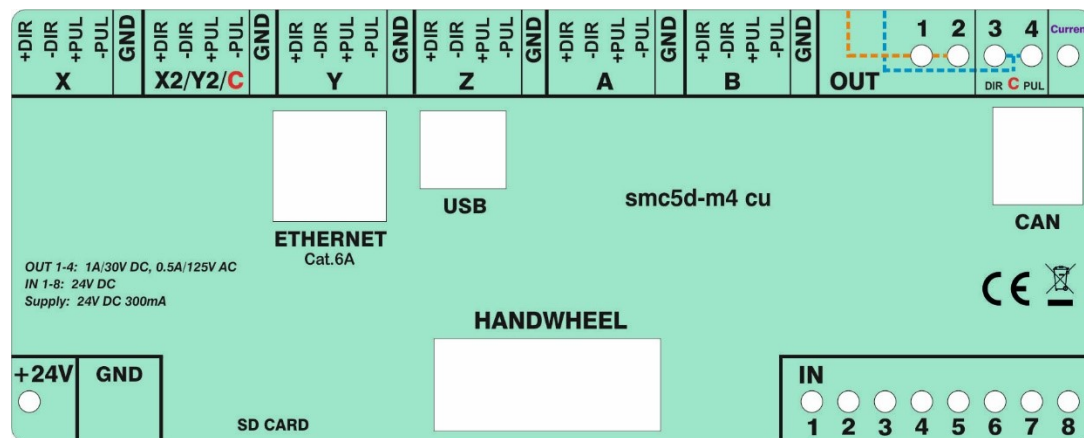
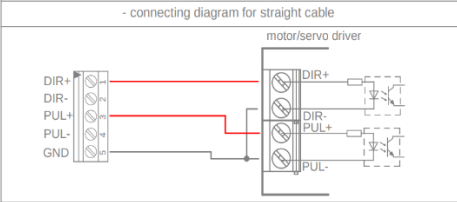
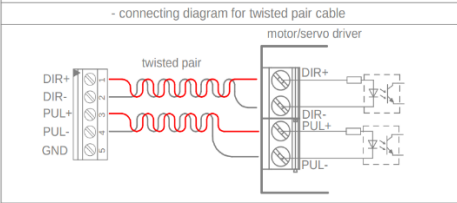
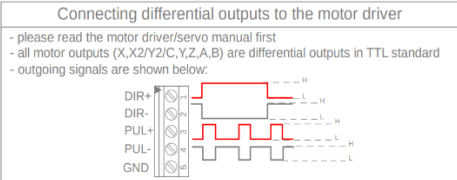
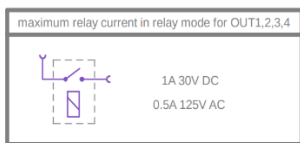
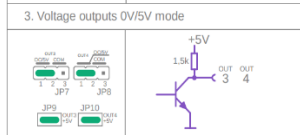
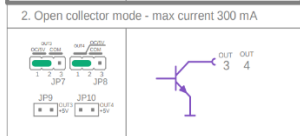
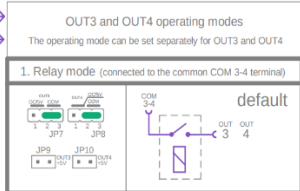
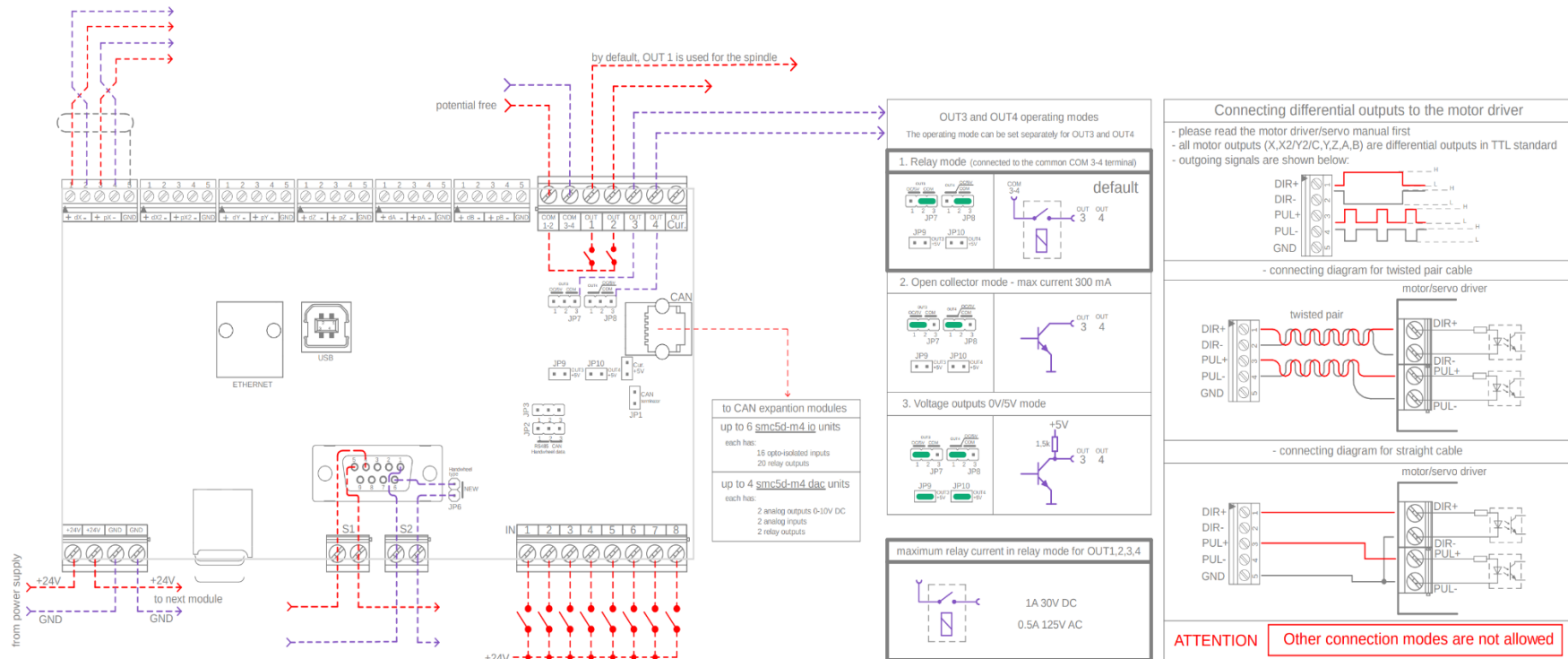


Fig. 1 View of the front panel of the central unit

1.2. Central unit - external connections and internal operating mode settings:

1.3. The figures below shows the connection and jumper settings of central unit. Note: **jumpers are available after removing the cover.**



ATTENTION Other connection modes are not allowed

Jumpers	default settings	
JP1	CAN bus terminating resistor ON	CAN bus terminating resistor OFF
JP2, JP3	Handwheel RS485 bus type	Handwheel CAN bus type
JP6	Handwheel with two circuits S1 and S2 Attention: Only works with Handwheel connected	Handwheel with one circuit S1 only Attention: Only works with Handwheel connected
Cur. +5V	Open collector "Current" output	Voltage "Current" output, 0V/+5V
JP7, JP8	Relay mode for OUT3 and OUT4	Open collector or voltage mode for OUT3 and OUT4 (according to JP9 or JP10)
JP9, JP10	Open collector output for OUT3 and OUT4 (if the jumpers for a given output: JP7 and JP8 are set to OC/5V position)	Voltage output for OUT3 and OUT4, 0V/+5V (if the jumpers for a given output: JP7 and JP8 are set to OC/5V position)

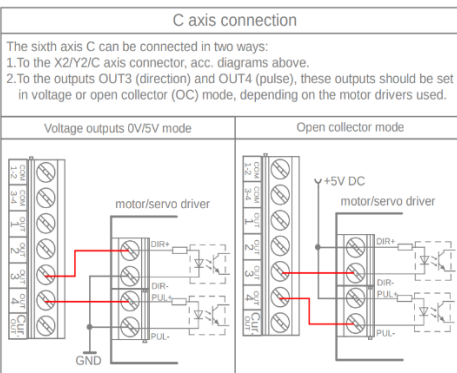
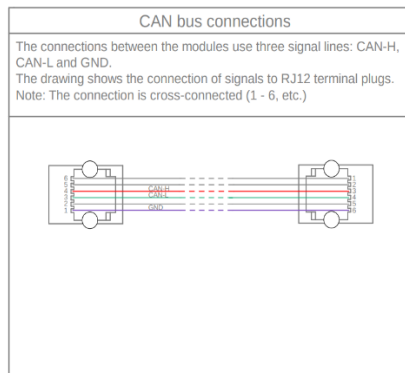


Fig. 2 Electrical wiring diagram and location of jumpers

2. smc5d-m4 io

2.1. Technical specifications:

- Power: 24V DC, 400mA
- 2 CAN bus connectors
- 20 relay outputs, galvanically isolated, in two separate groups of 10 output each.
Maximum values for relays: 1A/30V DC, 0.5A/125V AC
- 16 opto-isolated inputs.
- Protection against too high supply voltage and reverse power connection.
- Housing designed for DIN rail mounting, length: 155mm, width: 86mm, thickness: 30mm.

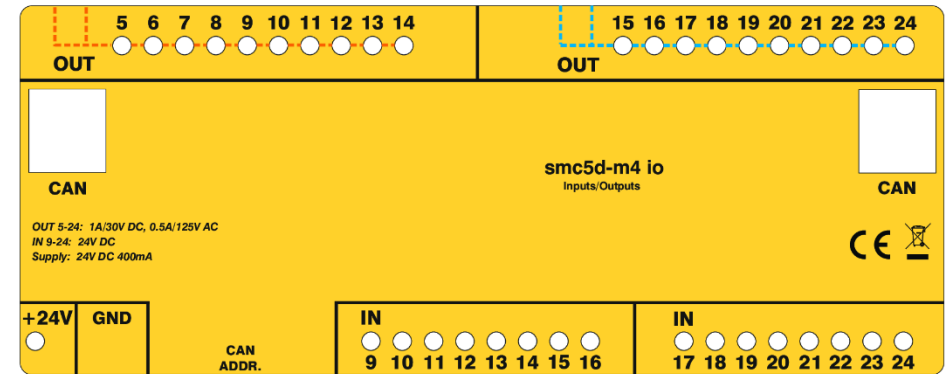


Fig. 3 View of the front panel of the io module

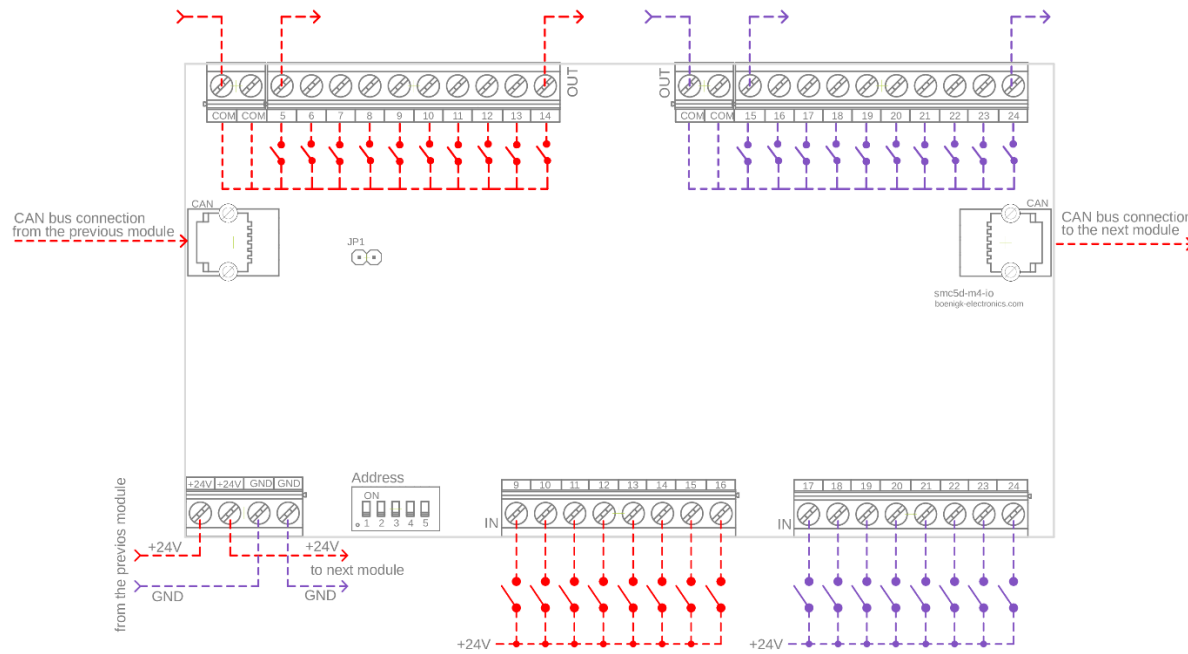


Fig. 4 Electrical wiring diagram and location of jumper

3. smc5d-m4 dac

3.1. Technical specifications:

- Power: 24V DC, 100mA.
- 2 CAN bus connectors.
- 2 Analog outputs 0-10V DC 20mA (0-5V DC or PWM - depending on jumper settings) with fine-tune possibility.
- 2 Analog inputs 0-13V DC – accuracy 0.02V.
- 2 relay outputs, galvanically isolated, maximum values for relays: 1A/30V DC, 0.5A/125V AC.
- Protection against too high supply voltage and reverse power connection.
- Housing designed for DIN rail mounting, length: 86mm, width: 86mm, thickness: 30mm.

Note 1:

The yellow power LED flashes when the dac module has no communication with the central unit.

Note 2:

R1 and R2 potentiometers are used to precisely set the 10 V voltage - separately for each channel.

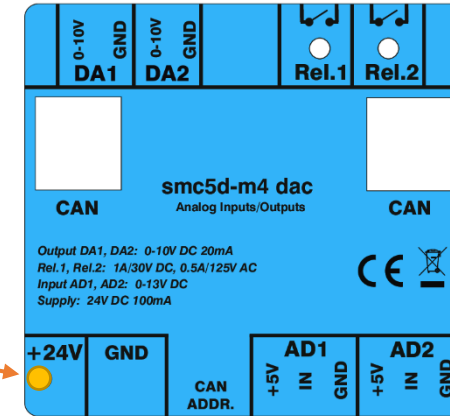
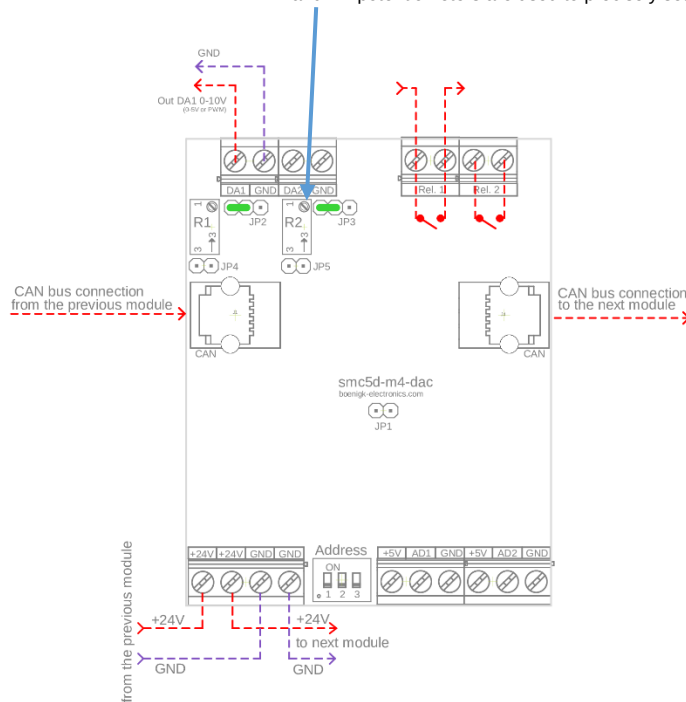


Fig. 5 View of the front panel of the dac







Jumpers	default settings	
JP1	<input checked="" type="checkbox"/> CAN bus terminating resistor ON	<input type="checkbox"/> CAN bus terminating resistor OFF
JP2	<input checked="" type="checkbox"/> DA1 voltage output (0-10V or 0-5V according to JP4 settings)	<input type="checkbox"/> DA1 PWM output
JP3	<input checked="" type="checkbox"/> DA2 voltage output (0-10V or 0-5V according to JP5 settings)	<input type="checkbox"/> DA2 PWM output
JP4	<input type="checkbox"/> DA1 0-10V	<input checked="" type="checkbox"/> DA1 0-5V
JP5	<input type="checkbox"/> DA2 0-10V	<input checked="" type="checkbox"/> DA2 0-5V

Fig. 6 Electrical wiring diagram and jumpers settings

4. Addressing expansion modules in the smc5d-m4 system, connected via CAN bus.

The following modules can be connected to the central unit:

- up to 6 (six) io  modules each with 16 digital inputs and 20 relay outputs,
- up to 4 (four) dac  modules each with two 0-10V DC analog outputs, two relay outputs, and two 0-13V analog inputs.

The address of each module is set with dip switches   located at the bottom of the device.

Addresses for given type of modules , e.g. io, cannot be the same.

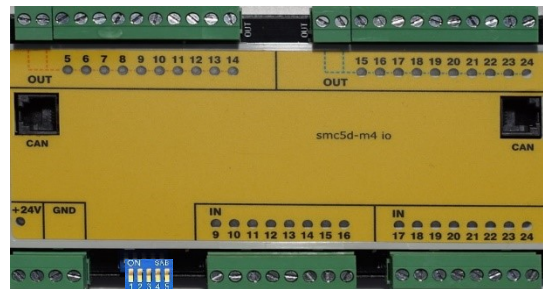








Fig. 7 Smc5d-m4 io address settings

address in the application	dip switch settings
#0	
#1	
#2	
#3	
#4	
#5	

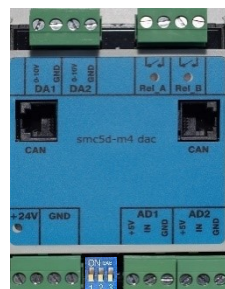




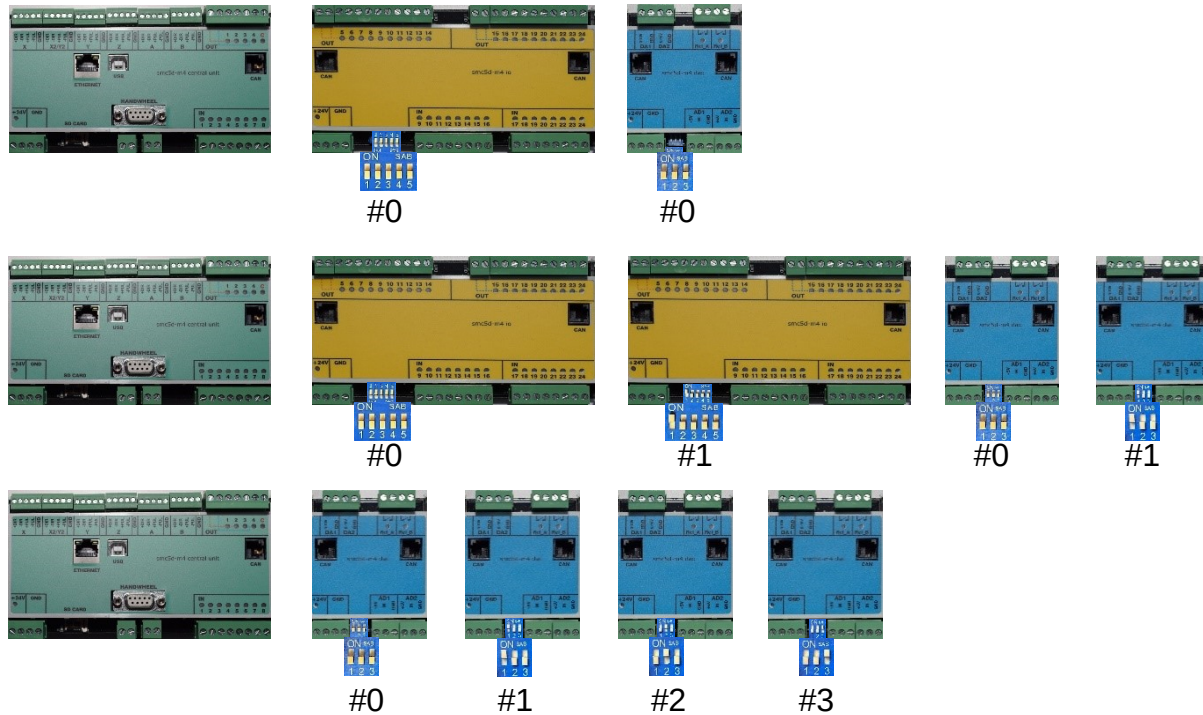


Fig. 8 Smc5d-m4 dac address settings

address in the application	dip switch settings
#0	
#1	
#2	
#3	

Examples of correct address setting



Maximum configuration



5. CAN bus termination rules

A CAN bus termination resistor must be present at the two end points of the network – see the figure below:

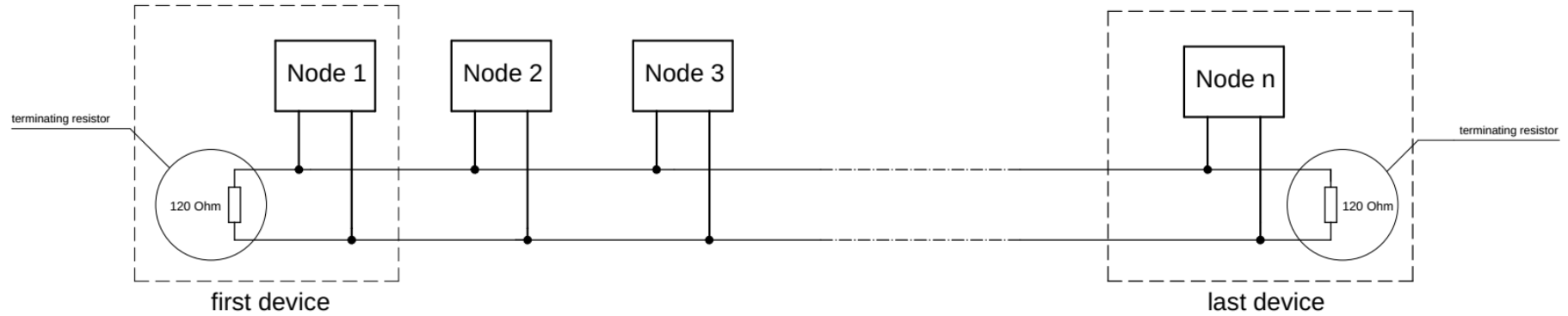


Fig. 9 Termination resistors

Each module of the smc5d-m4 system has a terminating resistor – switched with a J1 jumper.

	Termination resistor OFF
	Termination resistor ON

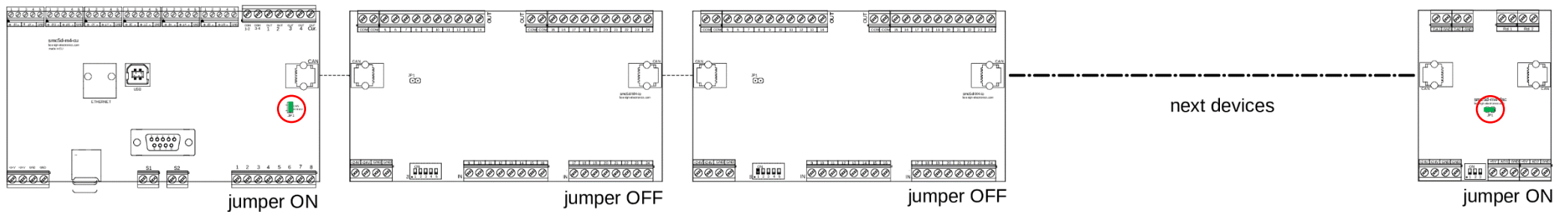


Fig. 10 Example of the correct setting of the terminating resistors