SMART MOTOR DEVICES

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Drivers and controllers for electromotors

2023

WHY CHOOSE US?

Smart Motor Devices OÜ is a developer, manufacturer and provider of motor control devices both for OEMs and single-users around the globe.

With our control design and development expertise we deliver suitable reliable and easy-to-use solutions for very different application fields and systems.

Users receive full technical information and qualified advice on the requested products. Our clients are sure of the reliability and efficiency of the products offered.

SMART MOTOR DEVICES

We design and manufacture

- DC Brush motor controllers
- DC Brushless motor controllers
- Stepper motor controllers

Brush DC motor controllers

- BMD-5DIN
- BMD-20DIN
- BMD-40DIN

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Brush DC motor controller BMD-5DIN

Description

- BMD-5DIN is a speed controller for small size DC brush motors. The controller is cheaper than the base 20A version, but it can be successfully used in the most standard low and medium power systems.
- Motor speed is regulated by 0…5 VDC or 0…10 VDC analog signal or can be adjusted by an internal potentiometer.
- Acceleration and deceleration time are also adjusted by potentiometers.

Brush DC motor controller BMD-5DIN

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **10 - 24 VDC**
- Rated current: **up to 5 A**
- Peak current: **10A**
- Control methods: **Analog speed control 0…5V or 0…10V**

Brush DC motor controller BMD-20DIN

Description

- BMD-20DIN is a speed driver for DC brush motor.
- Motor speed is regulated by 0…5 VDC analog signal or can be adjusted by an internal potentiometer.
- Acceleration and deceleration time are also adjusted by potentiometers.
- The controller provides current limitation function to prevent motor overloading.

Brush DC motor controller BMD-20DIN

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **12 - 24 VDC**
- Rated current: **up to 20 A**
- Peak current: **30A**
- Control methods: **Analog speed control 0…5V**

Brush DC motor controller BMD-40DIN

Description

- BMD-40DIN is a driver for DC brush motor, which is used for speed, acceleration and deceleration control.
- Regulation methods: analog signal 0…5 VDC analog signal or internal potentiometer.
- Current limitation function prevents motor overloading.

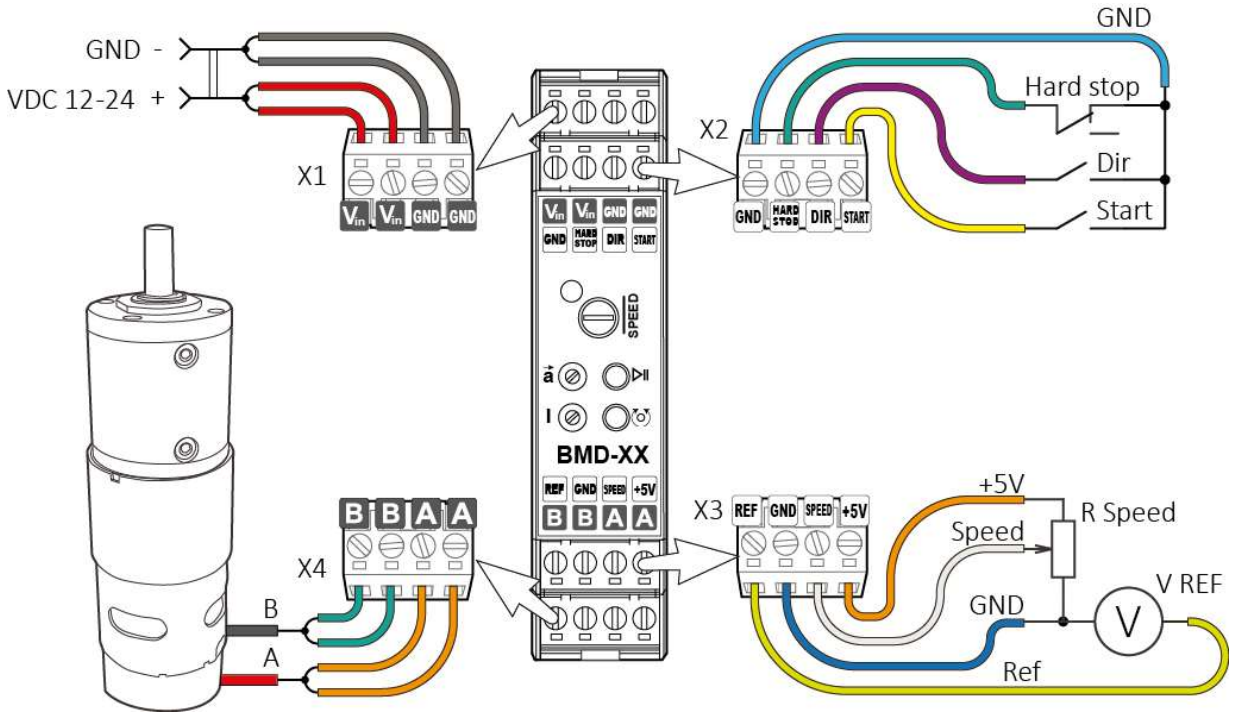
Brush DC motor controller BMD-40DIN

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **12 - 24 VDC**
- Rated current: **up to 40 A**
- Peak current: **100A**
- Control methods: **Analog speed control 0…5V**

Brush DC motor controllers

Example of connection



Brush DC motor controllers

- **BMD-20DIN ver.2**
- **BMD-40DIN ver.2**

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Brush DC motor controller BMD-20DIN ver.2

Description

- BMD-20DIN ver.2 is a DC brush motor speed controller. The controller provides different methods of motor speed regulation, using potentiometers, analog or PWM signal.
- Acceleration and deceleration time are also adjustable.
- This motor speed controller provides current limitation function to prevent motor overloading.

Brush DC motor controller BMD-20DIN ver.2

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **12 - 24 VDC**
- Rated current: **up to 20 A**
- Peak current: **30A**
- Control methods:
  - **0…5V**
  - **-10…10 V**
  - **5…20 mA**
  - **PWM**

Brush DC motor controller BMD-40DIN ver.2

Description

- BMD-40DIN ver.2 is a DC brush motor speed controller. The controller provides different methods of motor speed regulation, using potentiometers, analog or PWM signal.
- Acceleration and deceleration time are also adjustable.
- This motor speed controller provides current limitation function to prevent motor overloading.

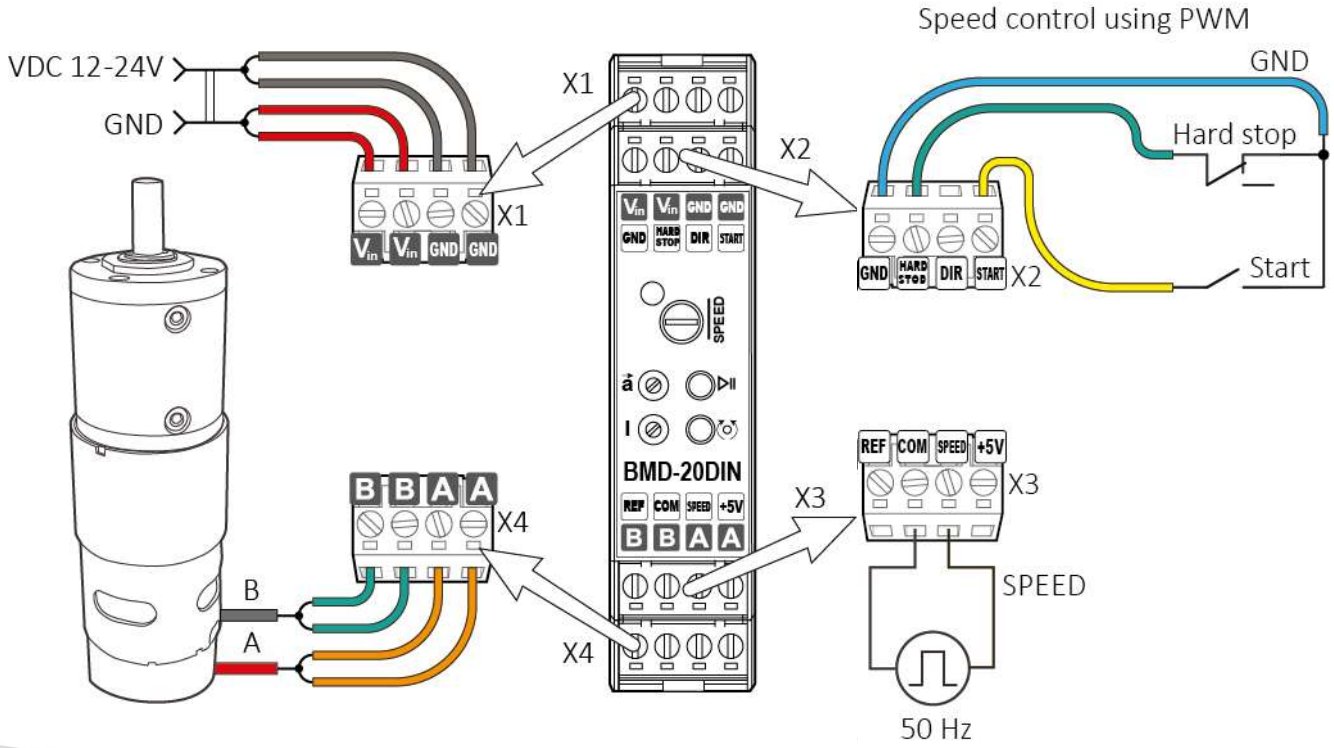
Brush DC motor controller BMD-40DIN ver.2

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **12 - 24 VDC**
- Rated current: **up to 40 A**
- Peak current: **100A**
- Control methods:
  - **0…5V**
  - **-10…10 V**
  - **5…20 mA**
  - **PWM**

Brush DC motor controllers ver.2

Example of connection



Brush DC motor programmable controllers

- BMSD-20Modbus
- BMSD-40Modbus

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Brush DC motor programmable controller BMSD-20Modbus

Description

- BMSD-20Modbus is a programmable controller for DC brush motors.
- The unit can be controlled via RS-485 Modbus ASCII or RTU. It provides speed and position control (for motors with encoder).
- There are programmable digital inputs.
- Current limitation function.

Brush DC motor programmable controller BMSD-20Modbus

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **12 - 24 VDC**
- Rated current: **up to 20 A**
- Peak current: **30A**
- Control methods:
  - **RS-485 Modbus** (speed or position)
  - **Pre-programmed motion**

Brush DC motor programmable controller BMSD-40Modbus

Description

- BMSD-40Modbus is a programmable controller for DC brush motors.
- The unit can be controlled via RS-485 Modbus ASCII or RTU.
- It provides speed and position control (for motors with encoder).
- There are programmable digital inputs.
- Current limitation function.

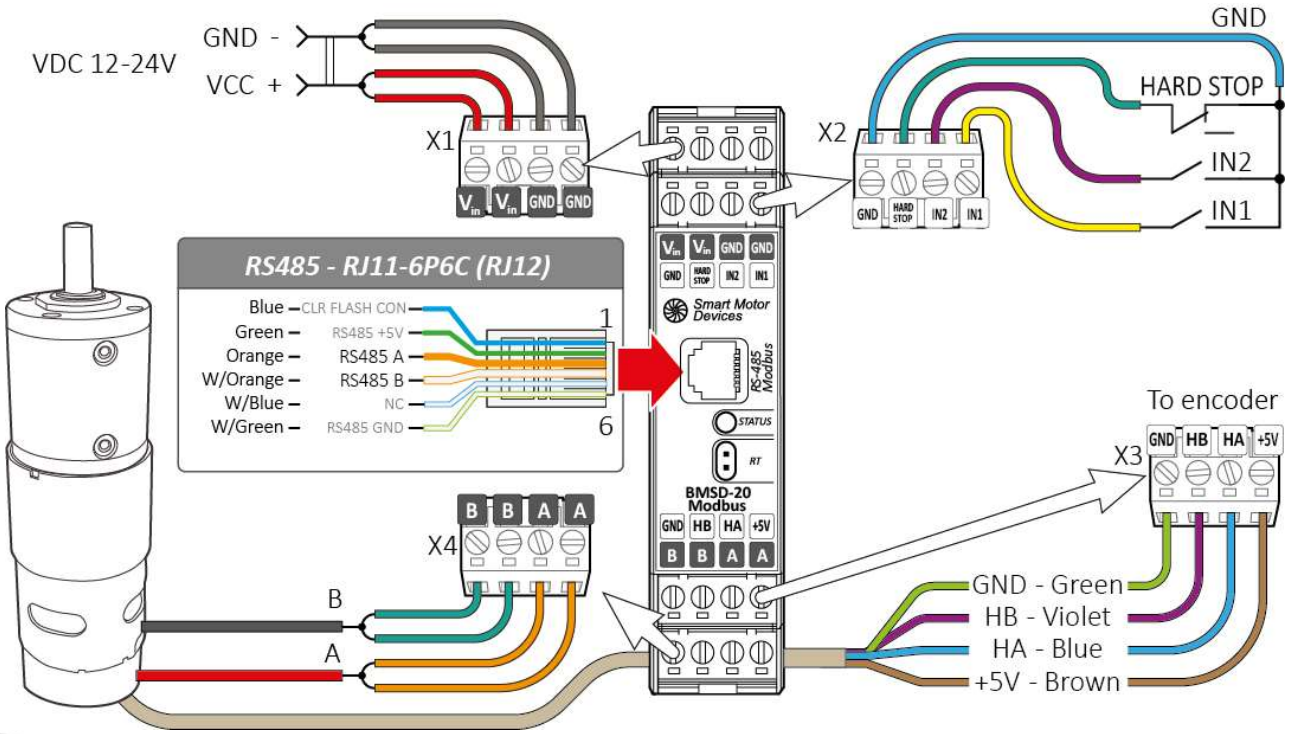
Brush DC motor programmable controller **BMSD-40Modbus**

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **12 - 24 VDC**
- Rated current: **up to 40 A**
- Peak current: **100A**
- Control methods:
  - **RS-485 Modbus** (speed or position)
  - **Pre-programmed motion**

Brush DC motor programmable controllers

Example of connection



Brushless motor controllers

- **BLD-20DIN**

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Brushless motor controller BLD-20DIN

Description

Brushless DC motor controller

- The driver is designed to control 3-phase DC motors with Hall sensors.
- This model provides analog speed control, acceleration and deceleration regulation.
- Adjustable current limitation prevents motor overload and damage.
- Digital inputs **START/STOP, DIR, HARD STOP** are useful for system integration.

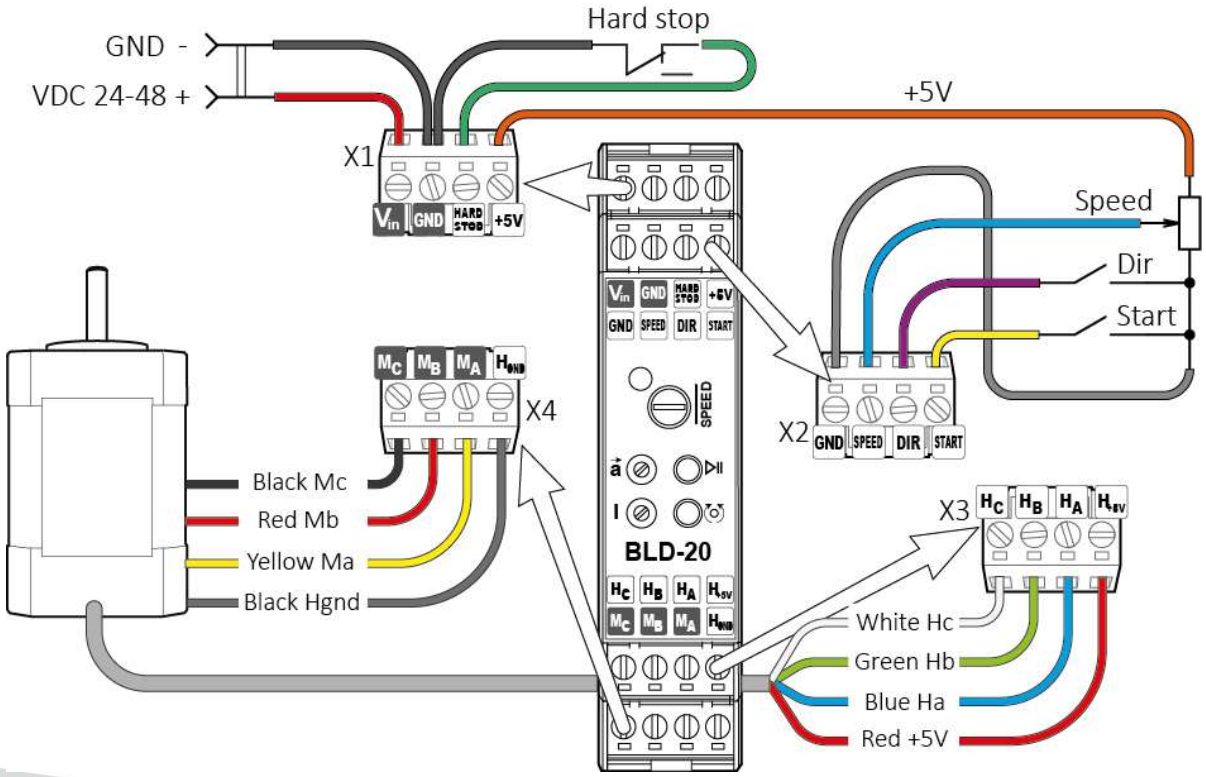
Brushless motor controller BLD-20DIN

Technical data

- Emergency stop signal **«HARD STOP»**
- Voltage: **24 – 48 VDC**
- Rated current: **up to 20 A**
- Peak current: **30 A**
- Control methods: **Analog speed control**

Brushless motor controller BLD-20DIN

Example of connection



Brushless motor controllers

- **BLSD-20Modbus**
- BLSD-50Modbus

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Brushless motor controller BLSD-20Modbus

Description

Brushless DC motor controller

- The controller is designed to control 3-phase BLDC motors with Hall sensors.
- The model provides RS-485 Modbus ASCII/RTU communication for programming, setting of operation parameters and state control.
- BLSD-20Modbus provides speed and position control, motor current limitation, holding possibility.

Brushless motor controller BLSD-20Modbus

Technical parameters

- Voltage **24 – 48 VDC**
- Current **up to 20 A (peak 80 A)**
- Control methods:
  - **Analog speed control**,
  - **Pre-programmed motion**,
  - **RS-485Modbus (speed or position)**

Brushless motor controller **BLSD-50Modbus** (In development)

Description

Brushless DC motor controller

- The controller is designed to control 3-phase BLDC motors with Hall sensors.
- The model provides RS-485 Modbus ASCII/RTU communication for programming, setting of operation parameters and state control.
- BLSD-50Modbus provides speed and position control, motor current limitation, holding possibility.

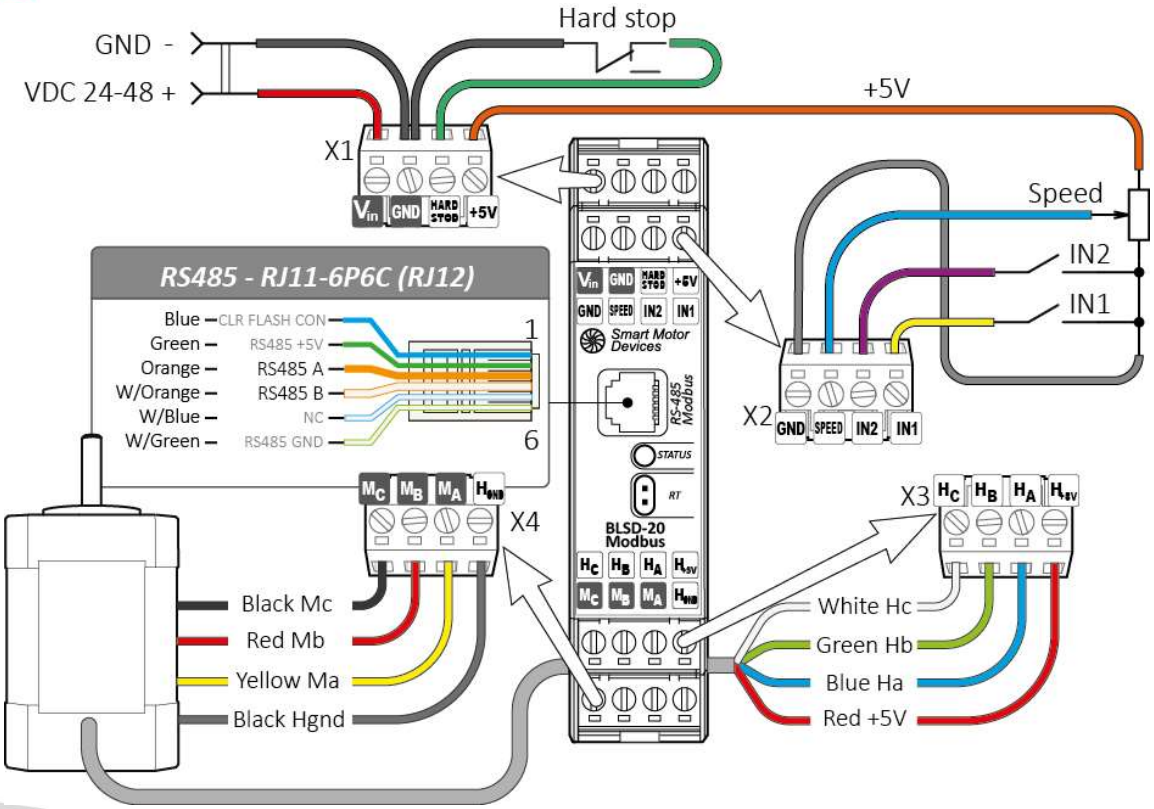
Brushless motor controller **BLSD-50Modbus** (In development)

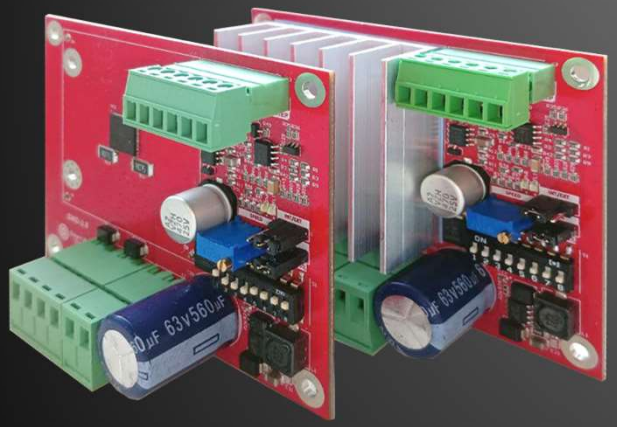
Technical parameters

- Voltage: **24 – 48 VDC**
- Current: **up to 50 A (peak 100 A)**
- Control methods:
  - **Analog speed control**,
  - **Pre-programmed motion**,
  - **RS-485Modbus (speed or position)**

Brushless motor controller BLSD-20Modbus

Example of connect





Open frame stepper motor driver

- SMD-1.6
- SMD-2.8
- SMD-4.2
- SMD-8.0

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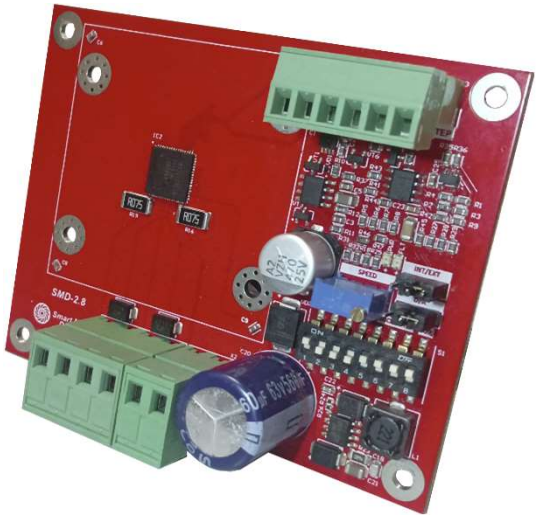
Stepper motor driver SMD-1.6 (4.2)* open frame

Description

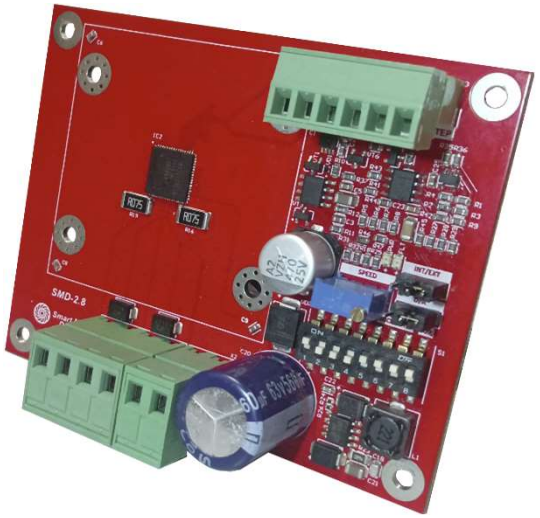


- The **SMD-1.6 (4.2)** stepper motor driver is manufactured in a frameless design, in the form of an open board with mounting holes.
- There is also a version of the driver in an open case with mounting on a standard DIN rail.
- The **SMD-1.6 (4.2)** driver operates in microstepping mode up to 1/128, provides smooth stepper motor motion without vibration and noise, and high output torque.

* - In parentheses, the parameters of the driver with a current of 4.2A

Stepper motor driver SMD-1.6 (4.2)* open frame

Technical parameters



- Voltage, VDC: **12 – 24 (48)**
- Max. current per phase, A: **0.1 (2.7) - 1.6 (4.2)**
- Microstepping: **1/1 - 1/128**
- Control methods:
  - **STEP / DIR**
  - **Analog input**

* - In parentheses, the parameters of the driver with a current of 4.2A

Stepper motor driver SMD-2.8 (8.0)* open frame

Description

- The **SMD-2.8 (8.0)** stepper motor driver is manufactured in a frameless design, in the form of an open board with mounting holes.
- There is also a version of the driver in an open case with mounting on a standard DIN rail.
- The **SMD-2.8 (8.0)** driver operates in microstepping mode up to 1/128, provides smooth stepper motor motion without vibration and noise, and high output torque.

* - In parentheses, the parameters of the driver with a current of 8.0A

Stepper motor driver SMD-2.8 (8.0)* open frame

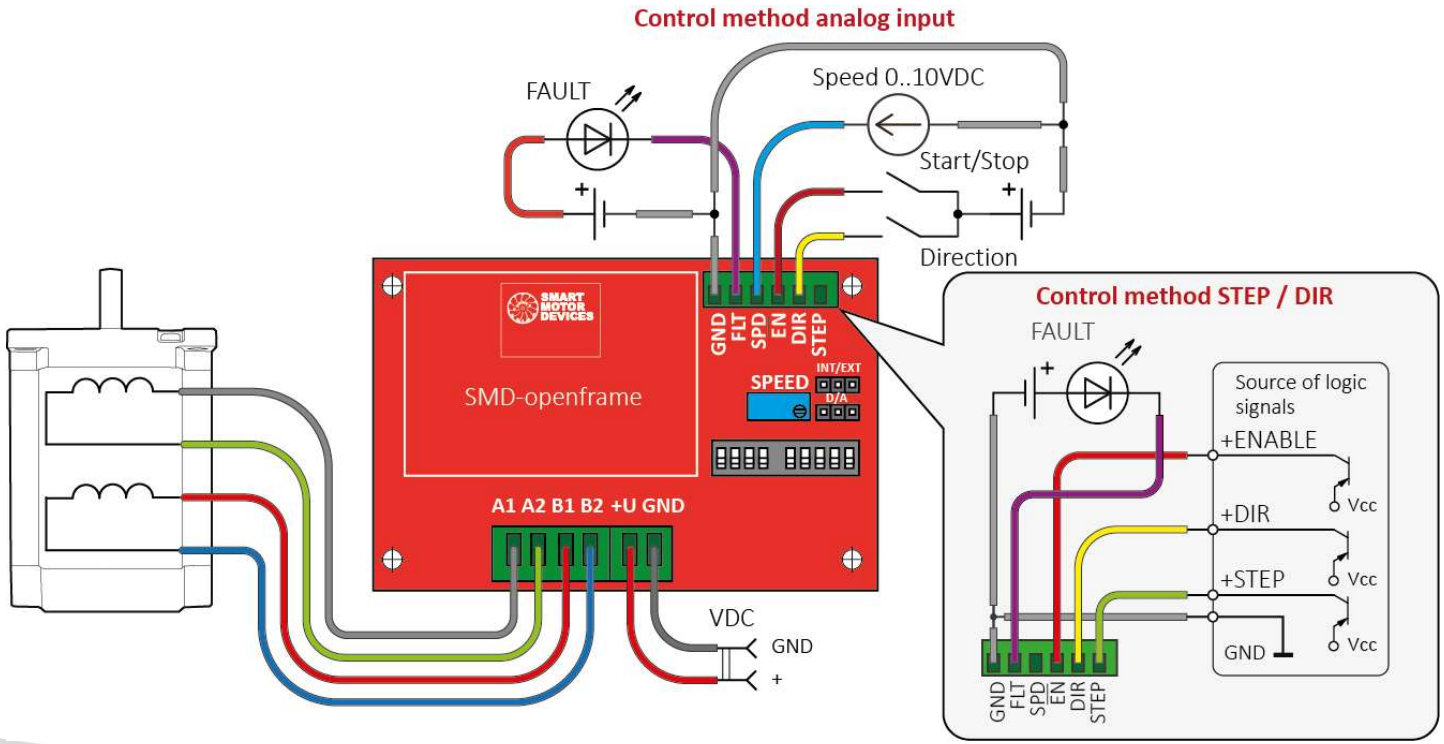
Technical parameters

- Voltage, VDC: **12 – 24 (48) VDC**
- Max. current per phase, A: **1.3 (5.0) - 2.8 (8.0)**
- Microstepping: **1/1 - 1/128**
- Control methods:
  - **STEP / DIR**
  - **Analog input**

* - In parentheses, the parameters of the driver with a current of 8.0A

Open frame stepper motor driver

Example of connect



Carrier kit stepper motor driver

- SMD-1.6
- SMD-2.8
- SMD-4.2
- SMD-8.0

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Stepper motor driver SMD-1.6 (4.2)* carrier kit

Description

- Stepper motor driver **SMD-1.6** and **SMD-4.2** with DIN clamp is manufactured in an open case.
- A frameless version of the driver is also supplied.
- The driver is compact and lightweight and implemented with small in size open housing.
- The operation of the stepper motor with the driver is characterized by low vibration and noise.

* - In parentheses, the parameters of the driver with a current of 4.2A

Stepper motor driver SMD-1.6 (4.2)* open frame

Technical parameters

- Voltage, VDC: **12 – 24 (48)**
- Max. current per phase, A: **0.1 (2.7) - 1.6 (4.2)**
- Microstepping: **1/1 - 1/128**
- Control methods:
  - **STEP / DIR**
  - **Analog input**

* - In parentheses, the parameters of the driver with a current of 4.2A

Stepper motor driver SMD-2.8 (8.0)* open frame

Description

- The **SMD-2.8 (8.0)** stepper motor drivers with DIN clamp is manufactured in an open case, with a clamp for mounting on a DIN rail.
- The drivers is compact and lightweight and implemented with small in size open housing.
- The operation of the stepper motor with the driver is characterized by low vibration and noise.

* - In parentheses, the parameters of the driver with a current of 8.0A

Stepper motor driver SMD-2.8 (8.0)* open frame

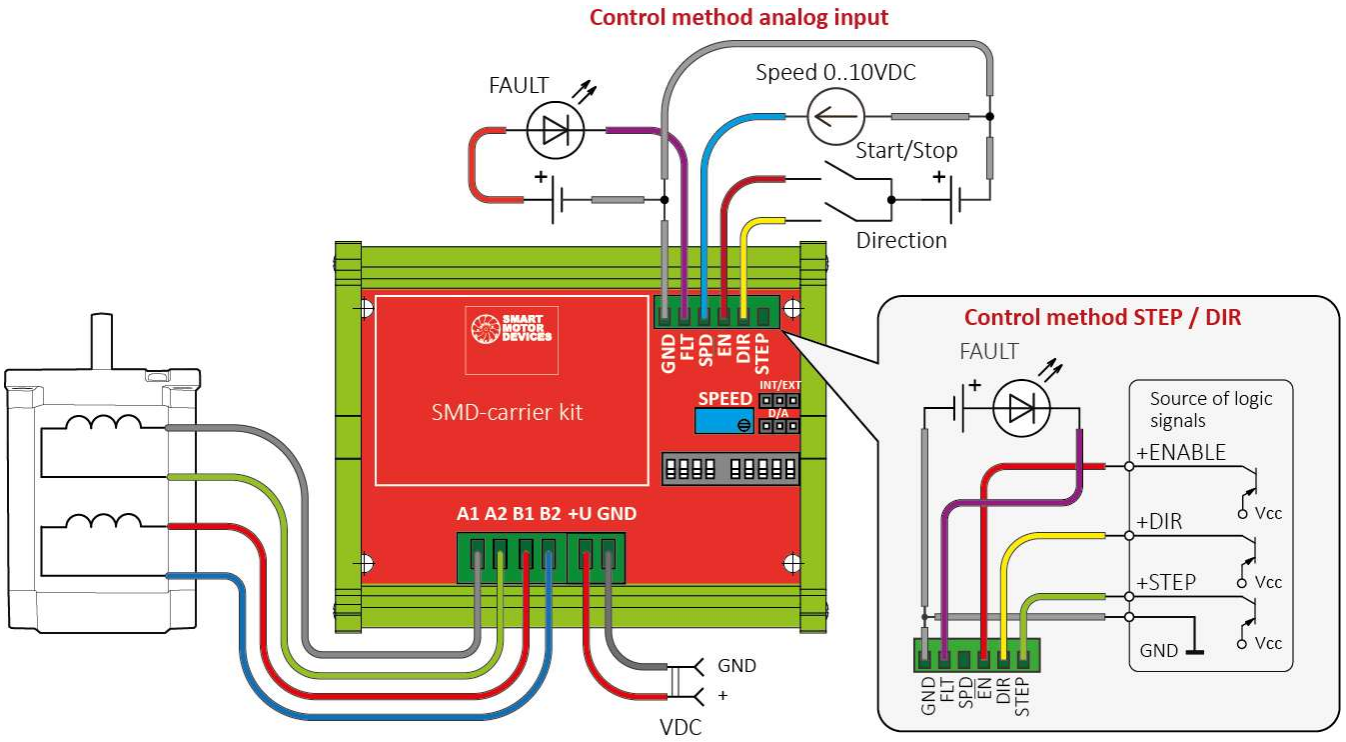
Technical parameters

- Voltage, VDC: **12 – 24 (48) VDC**
- Max. current per phase, A: **1.3 (5.0) - 2.8 (8.0)**
- Microstepping: **1/1 - 1/128**
- Control methods:
  - **STEP / DIR**
  - **Analog input**

* - In parentheses, the parameters of the driver with a current of 8.0A

Open frame stepper motor driver

Example of connect



Stepper motor drivers with mounting on a DIN rail

- SMD-1.6DIN
- SMD-2.8DIN
- SMD-4.2DIN ver.3
- SMD-8.0DIN ver.3

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Stepper motor driver SMD-1.6 (2.8)* DIN

Description

Stepper motor driver STEP / DIR

- The driver is intended for small size stepper motors with current per phase up to **1.6 (2.8) A**.
- The control method is standard **STEP / DIR**.
- The driver provides smooth and exact positioning.
- Holding motor current can be reduced in order to make lower heating and energy save, this function can be switched on or off by a customer.

* - In parentheses, the parameters of the driver with a current of 2.8A

Stepper motor drivers SMD-1.6 (2.8)* DIN

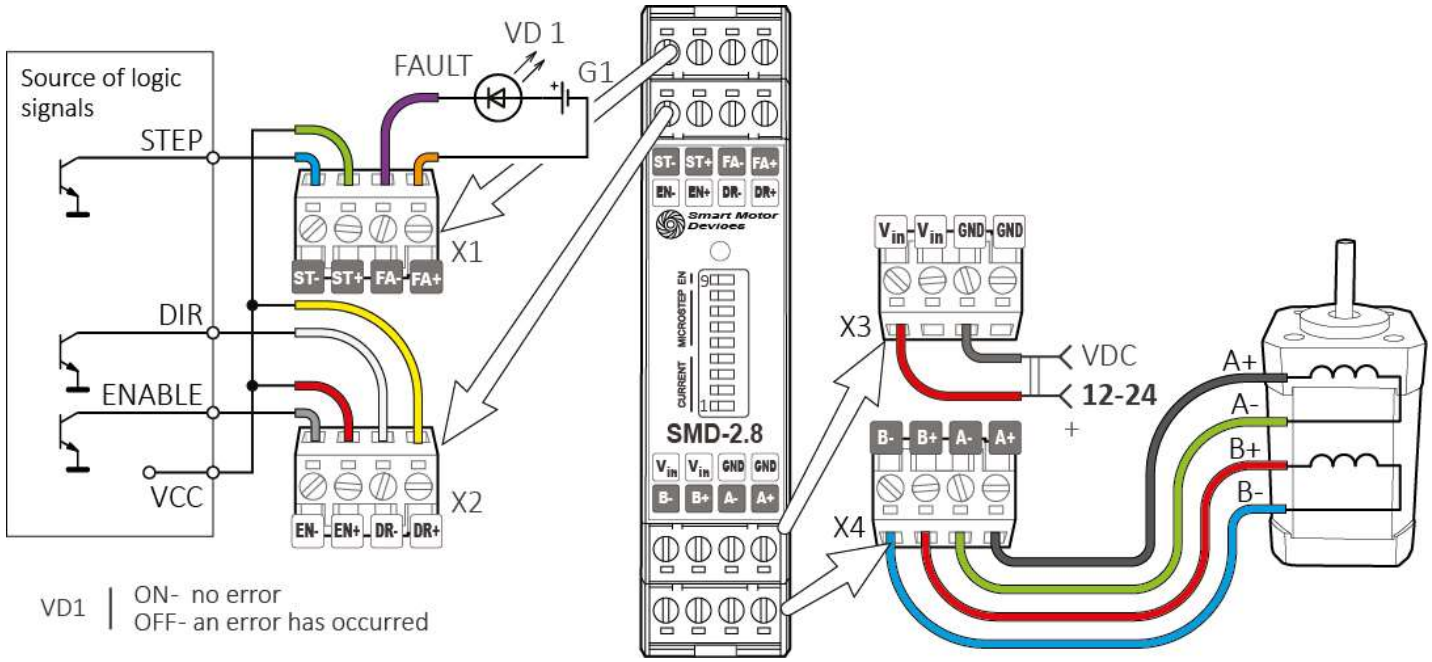
Technical parameters

- Voltage: **12 - 24 VDC**
- Max. current per phase, A: **0.1 (1.3) - 1.6 (2.8)**
- Microstepping: **1/1 - 1/256**
- Control methods: **STEP/DIR**
- Size: **116x100x23 mm**

* - In parentheses, the parameters of the driver with a current of 2.8A

Stepper motor drivers SMD-1.6 (2.8)* DIN

Connecting example



Stepper motor drivers SMD-4.2 (8.0) DIN ver.3

Description

- The stepper motor driver is designed to control motors with current per phase up to **4.2 (8.0)** A.
- This model provides 2 control methods: **STEP/DIR** positioning and **analog speed control**.
- The controller provides an excellent motor dynamics and high torque performance.

* - In parentheses, the parameters of the driver with a current of 8.0A

Stepper motor drivers SMD-4.2 (8.0) DIN ver.3

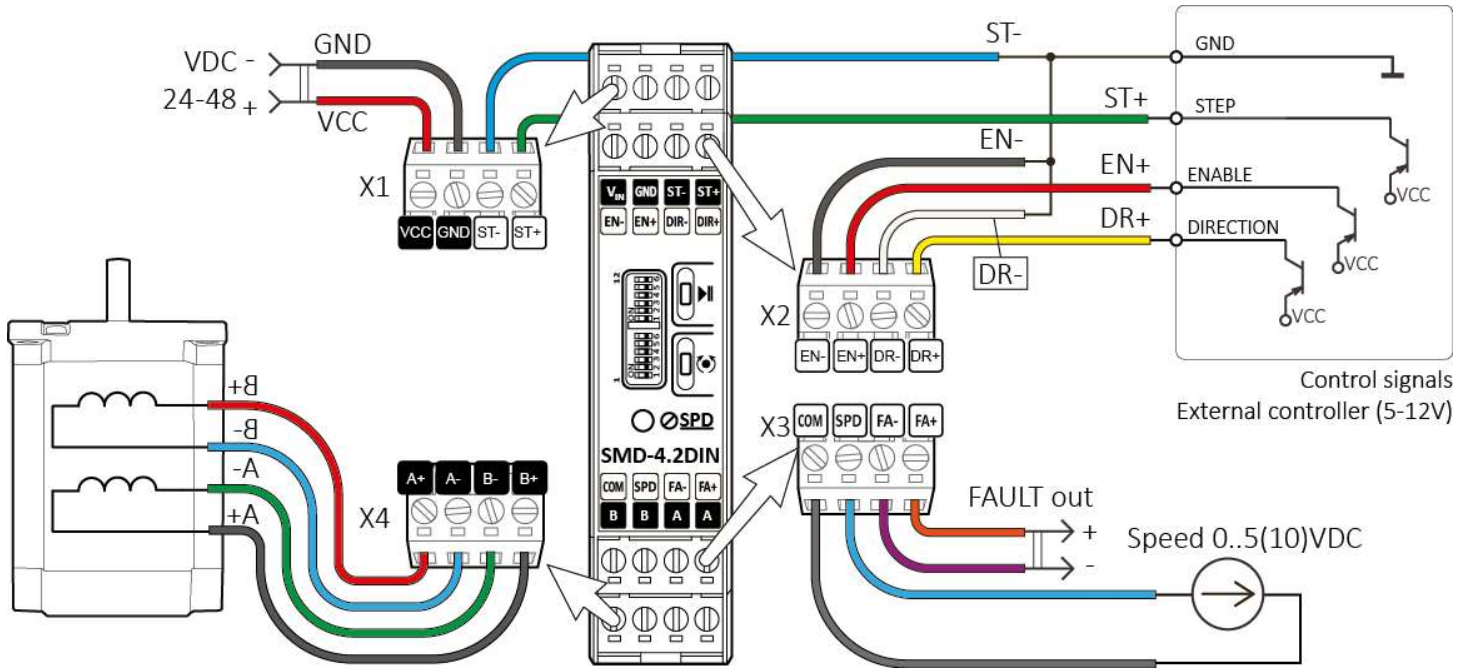
Technical parameters

- Voltage: **12 - 48 VDC**
- Max. current per phase: **0.1 - 4.2 A**
- Microstepping: **1/1 - 1/128**
- Control methods: **0...5VDC, STEP/DIR, const speed**
- Size: **116x100x23 mm**

* - In parentheses, the parameters of the driver with a current of 8.0A

Stepper motor driver SMD-4.2DIN ver.2

Connecting example



Programmable stepmotor controllers

- SMSD-1.5Modbus ver.3
- SMSD-4.2Modbus
- SMSD-8.0Modbus
- SMSD-230Modbus
- SMSD-4.2LAN
- SMSD-8.0LAN

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Stepper motor controllers SMSD-1.5Modbus ver.3 and SMSD-4.2 (8.0)Modbus

Description

- **SMSD-1.5 Modbus version 3, SMSD-4.2 Modbus** and **SMSD-8.0 Modbus** are programmable stepper motor controllers with advanced functionality.
- The devices can be controlled using a PLC via the **Modbus RTU/ASCII** protocol, as well as work independently in accordance with the user program.
- These controllers provide a microstep from **1/1** to **1/256**.
- The conversion function ensures a **smooth transition** from microstep mode to full step mode at a given speed, thereby maintaining torque at high speeds.
- Overheating **protection** is provided.

Stepper motor controllers SMSD-1.5Modbus ver.3 and SMSD-4.2 (8.0)Modbus

Technical parameters

- Voltage:
  - SMSD-1.5Modbus v.3 **12 - 36 VDC**
  - SMSD-4.2M (8.0)Modbus **12 - 48 VDC**
- Current per phase:
  - SMSD-1.5Modbus v.3: **0.15 – 4.2 A**
  - SMSD-4.2Modbus: **1.0 – 4.2 A**
  - SMSD-8.0Modbus **2.8 – 8.0 A**
- Microstepping: **1/1 - 1/128**
- Control methods: **program, potentiometer, STEP/DIR**
- Interfaces: **USB, RS485 (Modbus ASCII/RTU)**

Stepper motor controller **SMSD-230Modbus** (In development)

Description

- **SMSD-230Modbus** are programmable stepper motor controllers with advanced functionality.
- The devices can be controlled using a PLC via the **Modbus RTU/ASCII** protocol, as well as work independently in accordance with the user program.
- These controllers provide a microstep from **1/1** to **1/256**.
- The conversion function ensures a **smooth transition** from microstep mode to full step mode at a given speed, thereby maintaining torque at high speeds.
- Overheating **protection** is provided.

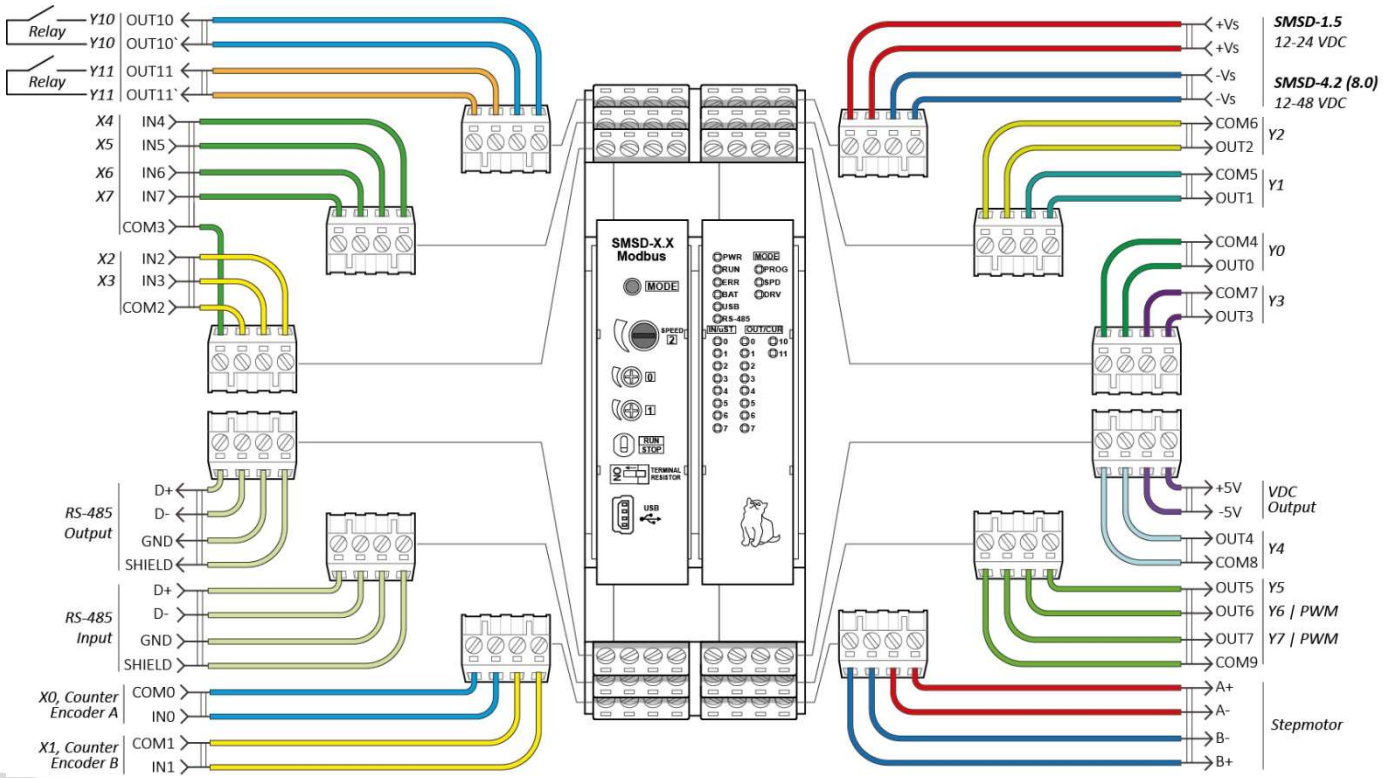
Stepper motor controller **SMSD-230Modbus** (In development)

Technical parameters

- Voltage:
  - **110-230 VAC**
  - **70 - 200 VDC**
- Current per phase: **2.8 – 8.0 A**
- Microstepping: **1/1 - 1/128**
- Control methods: **program, potentiometer, STEP/DIR**
- Interfaces: **USB, RS485 (Modbus ASCII/RTU)**

Stepper motor controllers SMSD-1.5Modbus ver.3 and SMSD-4.2 (8.0)Modbus

Connecting example



Stepper motor controllers SMSD-4.2LAN and SMSD-8.0LAN

Description

Stepper motor controllers

SMSD-4.2LAN and SMSD-8.0LAN can be controlled by commands via **Ethernet TCP/IP**, so it can be connected to a local network, which makes it possible to control the drive remotely.

The controllers provides 5 control methods: **real-time control by commands, program mode, STEP/DIR**, analog speed or position control.

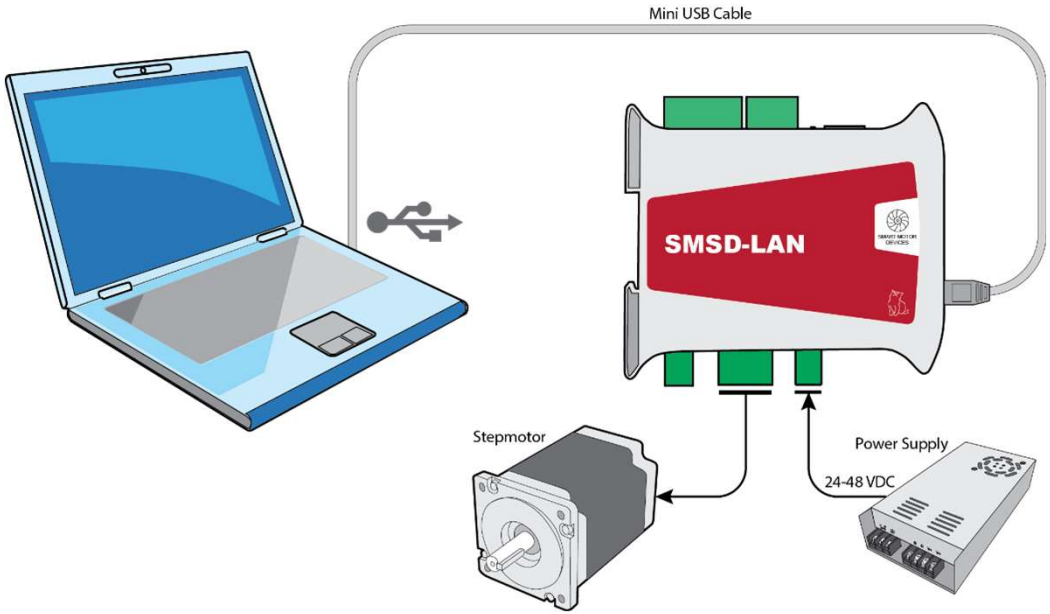
Stepper motor controllers SMSD-4.2LAN and SMSD-8.0LAN

Technical parameters

- Voltage: **24 - 48 VDC**
- Max.current per phase:
  - SMSD-4.2LAN: **0.1 – 4.2 A**
  - SMSD-8.0LAN: **1.0 – 8.0 A**
- Microstepping: **1/1 - 1/128**
- Control methods: **program, 0..5VDC, STEP/DIR**
- Interfaces: **Ethernet TCP/IP, USB**

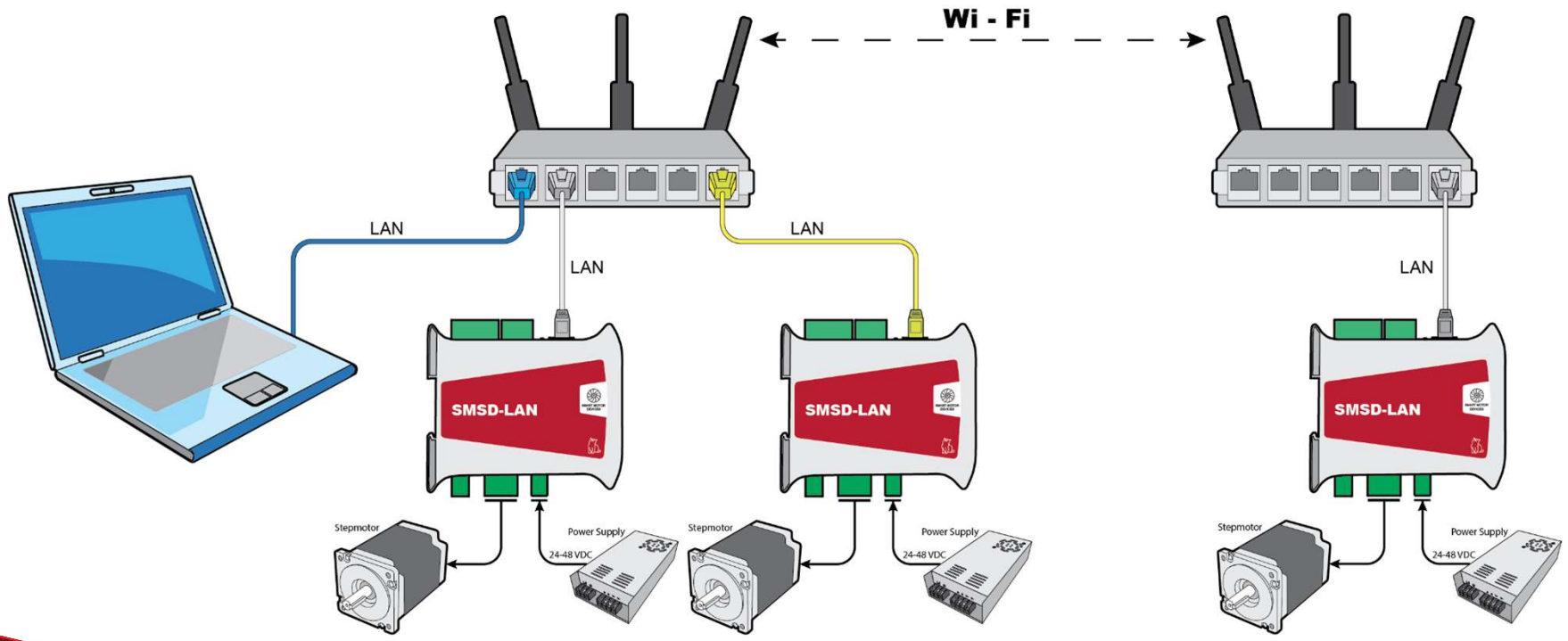
Remote control via computer USB port

SMSD-4.2 (8.0) LAN



Remote control through Ethernet

SMSD-4.2 (8.0) LAN

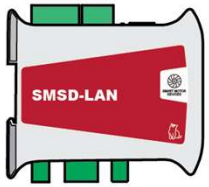


Operation mode

SMSD-4.2 (8.0) LAN

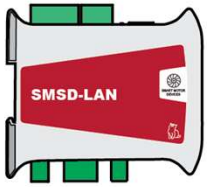
Local network
Ethernet or USB

LAN
USB

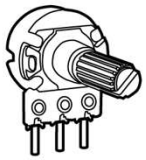


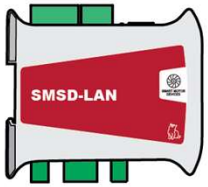
Program executing

4 independent
executing
program



Analog control

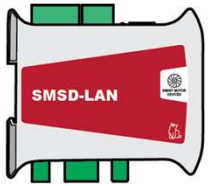




Driver

External controller

Signals of
STEP, DIRECTIONS
and ENABLE



LD3 – Linear actuators

- LD3-12(24)-05-K3
- LD3-12(24)-10-K3
- LD3-12(24)-20-K3
- LD3-12(24)-30-K3
- LD3-12(24)-40-K3

Linear actuators **LD3**

Description

- **LD3** series linear actuators with different gear ratios (from 1/5 to 1/40) have a compact design that is suitable for various applications requiring limited installation space, such as opening windows or gates, adjustable seat tilt and medical devices. The drive can be equipped with built-in Hall sensors.
- Supply voltage 12 or 24 volts DC
- **BMD** and **BMSD** series controllers can be used to control the position

Linear actuators LD3

Technical parameters

LD3 - XX - YY - K3

XX Voltage
12 - 12VDC
24 - 24VDC

Protection class
IP65

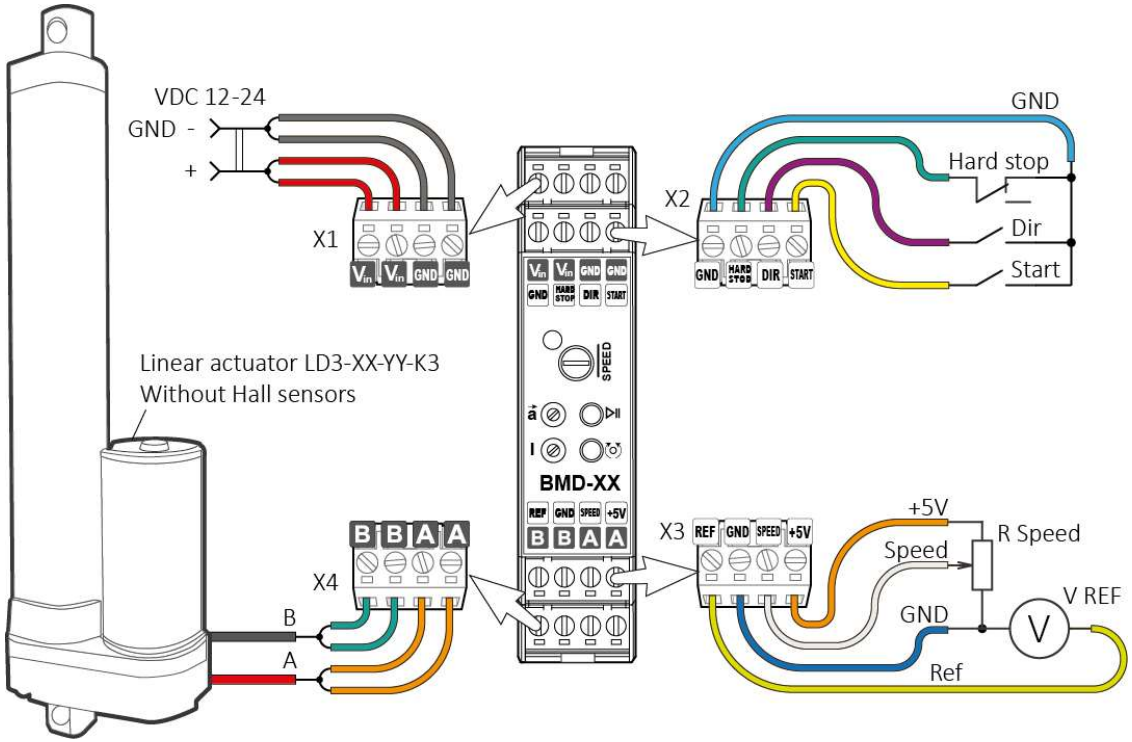
Stroke: 50 - 300mm
Available stroke length: 50mm, 100mm, 150mm, 200mm, 250mm, 300mm

YY	Ratio	Force, N	Full load speed, mm/s
05	1/5	150	36.5
10	1/10	250	23.5
20	1/20	500	12.3
30	1/30	800	7.6
40	1/40	1000	5.5

Hall sensor - optional
Positioning signal feedback - 2 Hall sensors

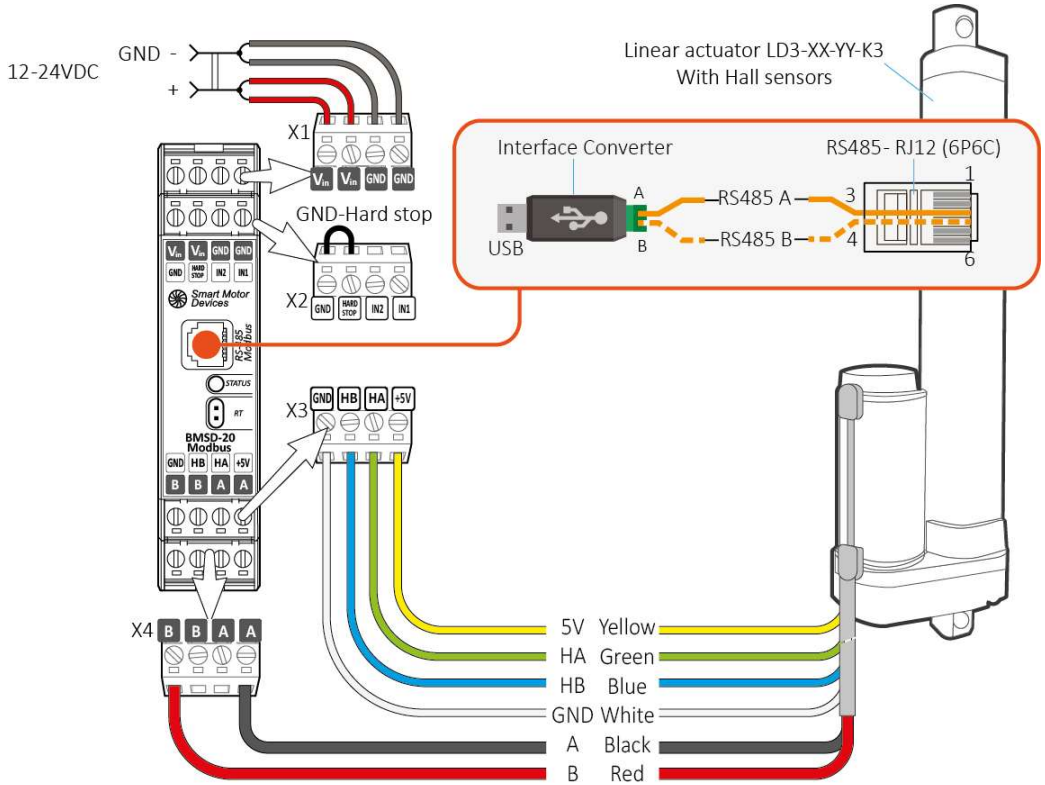
Linear actuators LD3 Without Hall sensors (Standard)

Connecting example



Linear actuators LD3 With Hall sensors

Connecting example



The end

SMART MOTOR DEVICES