BMD-12 BUILT-IN DC BRUSH MOTOR SPEED CONTROLLER

BMD-12 is a built-in speed controller for small and medium size DC brush motors. The controller provides smooth start and braking, speed regulation and stabilization without an encoder.

Load compensation and speed stabilization of motors without an encoder are implemented using information about the back EMF of the motor.

BMD-12 is equipped with a fully-featured PID controller. The coefficients of the PID are available for editing via Modbus (connection to a PC via USB). Independent settings for proportional, integral and differential coefficients allow achieving ideal drive operation for any operating speeds and loads.

Speed control modes

- speed control by a potentiometer without stabilization;
- speed control by a potentiometer and speed stabilization by back EMF;
- setting the speed by parameters via USB without stabilization;
- setting the speed by parameters via USB, with speed stabilization.

It is possible to set the target motor speed either by a potentiometer knob or through a software (connection to a PC via USB).

Technical parameters

- Operating voltage: 12 – 24 VDC
- Current limit adjustment range: 0.5 - 12 A
- Motor power: up to 300 W
- Short circuit protection: 5.5 – 17A
- Motor PWM frequency: 18 kHz
- Communication interface: USB
- Speed stabilization method: BEMF

Description of Built-in DC brush motor speed controller BMD-12

BMD-12 is designed for speed control and stabilization of a motor without encoder. Adjustable current limit provides overload protection.

BMD-12 is made as an electronic device without a case and is intended for embedding into a panel. The device is convenient to use for operator control panels of various devices.

Motor overload protection

The controllers BMD-12 have adjustable motor overload protection. The user can set the required maximum motor current value up to 12A. The function can be used both to protect the motor from current overload and to protect the mechanics from exceeding the permissible torque.

Software setting of operating parameters

Operation parameters can be controlled and adjusted via USB. The software is provided with the device. The software allows to adjust the control mode, target speed and target back EMF values, acceleration and braking ratio, and also to configure the PID parameters for the speed stabilization mode.
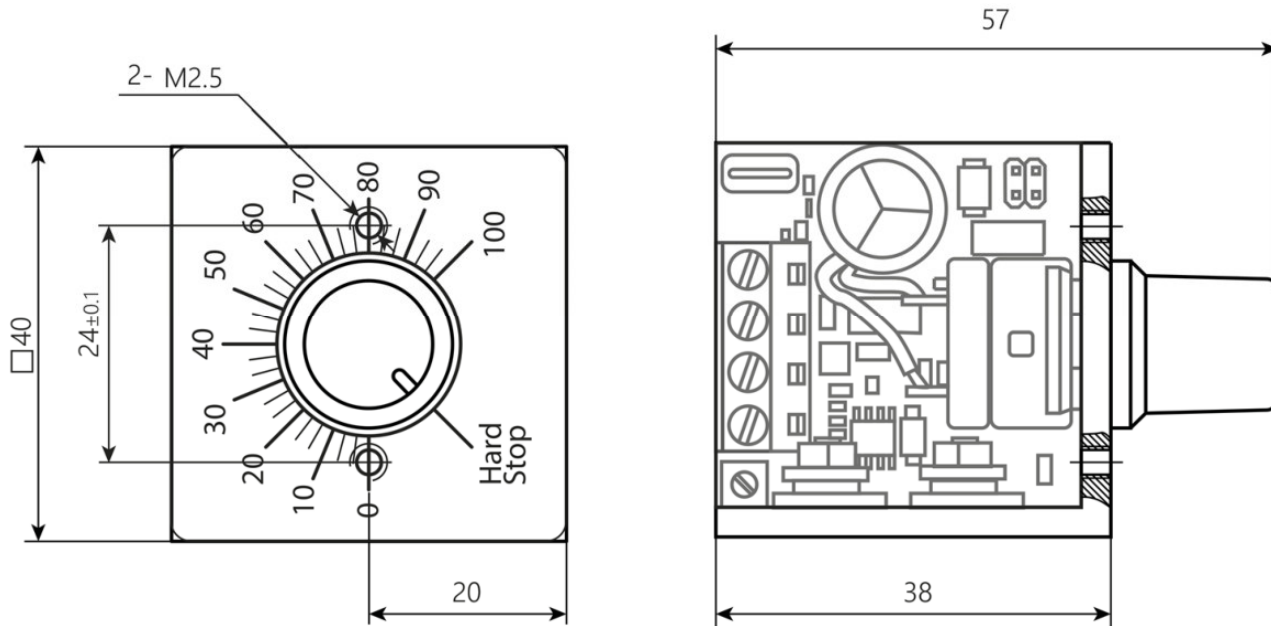
SMART MOTOR DEVICES
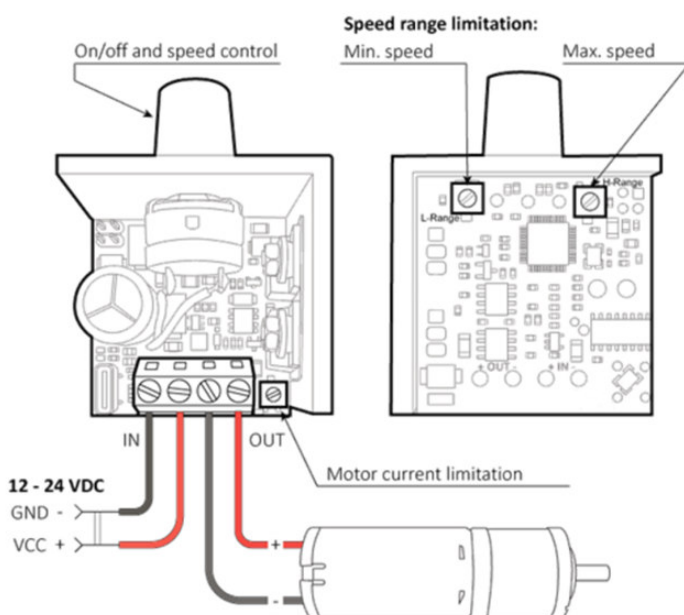DRIVERS AND CONTROLLERS FOR ELECTROMOTORS

Load compensation and speed stabilization

The compensation function allows stabilizing the motor speed regardless of the load on the motor shaft. An external encoder on the motor is not required, the speed is stabilized by using the back EMF measured during motor rotation.

Dimension of Built-in DC brush motor speed controller BMD-12

Wiring diagram and control elements layout

SMART MOTOR DEVICES
DRIVERS AND CONTROLLERS FOR ELECTROMOTORS