SMART MOTOR DEVICES
DRIVERS AND CONTROLLERS FOR ELECTROMOTORS

BMD-20DIN-VER.2

DC-motorstyrning

BMD-20DIN-VER.2
DC speed controller 12-24V, 0.2-20 A

- 12-24 V DC
- Upp till 20 A kont (Peak 30 A)
- Inkapslad och med DIN-skenefäste
- Justerbar hastighet med intern/extern potentiometer
- Analog speed control - 0…5 V, -10…10 V, 5…20 mA, PWM

Produktbeskrivning

TEKNISK DATA

Analog ingång	0…5 V, -10…10 V, 4…20 mA, PWM
Max. kontinuerlig ström	20 A
Peakström	(5s) 30 A
Tillverkare	Smart Motor Devices

Funktioner

Hastighetsreglering	Ja
Impuls/kontinuerligt läge	Ja
Mjukstart/stop	Ja
Potentiometerstyrd hastighet	Ja
Strömgräns justerbar	Ja
Ändra rotationsriktning (CW/CCW)	Ja

Dimensioner & vikt

Mått längd x bredd x höjd	116x23x100 mm
Vikt	200 g

## Speed control with built-in "SPEED" potentiometer

Additional connections are not required for the speed control if the built-in "SPEED" potentiometer is used. The extreme clockwise position of the potentiometer corresponds to the maximum rotation speed of the DC brush motor. The extreme counterclockwise position of the regulator corresponds to the minimum speed of the motor.
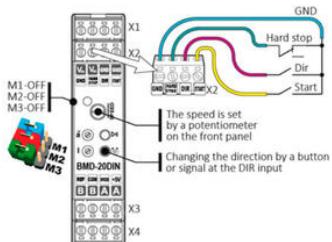
The speed is set by a potentiometer on the front panel

Changing the direction by a button or signal at the DIR input

DC brush motor speed control using an internal potentiometer. Connection diagram

## Speed control with external potentiometer

In the case of using an external potentiometer for DC brush motor speed regulation, the maximum speed corresponds to the extreme position of the regulator when 5 VDC is applied to the SPEED input. The minimum rotation speed corresponds to the position of the potentiometer when 0 VDC is applied to the SPEED input. Recommended resistance range of the external potentiometer is 2.2 ... 4.7 kOhm.
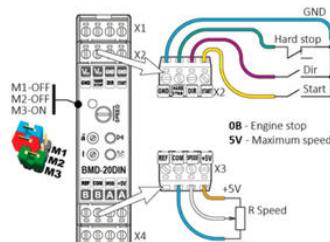
0B - Engine stop
5V - Maximum speed

R Speed

DC brush motor speed control using an internal potentiometer. Connection diagram

## Speed control with analog voltage signal 0...5 VDC

When using an external analog voltage signal 0...5 VDC for DC brush motor control, the rotation speed is proportional to the voltage level at the "SPEED" input. The maximum motor speed corresponds to a signal voltage of 5 VDC, the minimum speed corresponds to a signal voltage of 0 VDC.

0V - motor stop
5V - Maximum speed

0...5 V
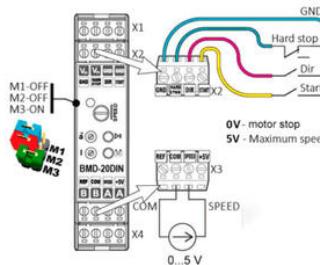
DC brush motor speed control using analog voltage signal 0...5 VDC. Connection diagram

## Speed and direction control with analog voltage signal -10...+10 VDC

When speed is controlled by an analog signal of -10...+10VDC, the minimum speed (motor stop) corresponds to a signal level of 0 VDC, the maximum speed in the forward direction corresponds to a signal level of +10 VDC. The maximum speed in the reverse direction corresponds to a signal level of -10 VDC. This type of DC brush motor speed control is standard for most industrial control systems.

0V - motor stop
10 V - maximum forward speed
-10 V - maximum speed in the opposite direction

-10V...+10V
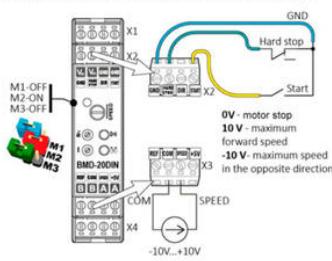
DC brush motor speed control using analog voltage signal -10...+10 VDC. Connection diagram

Speed control with analog signal 4...20 mA

When DC brush motor speed is controlled by a current analog signal of 4...20 mA, the maximum speed corresponds to a signal of 20 mA, the minimum rotation speed corresponds to a signal of 4 mA. Speed control using an analog current signal has several advantages that are fundamentally important for industrial systems: high noise immunity, signal transmission accuracy, and independence of the signal quality from the line length.


Changing the direction by a button or signal at the DIR input

4mA- engine stop
20mA- maximum speed
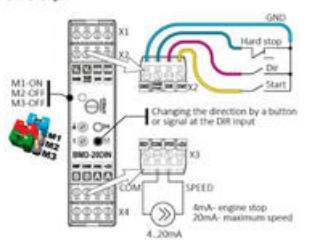
4...20mA

DC brush motor speed control using analog signal 4...20 mA. Connection diagram

Current loop. Sensor with passive output

Sensor
4-20mA
+U
COM   SPEED
External power supply
+10...30V
GND

Current loop. Sensor with active output

Sensor
COM
4-20mA
+VCC
COM   SPEED
External power supply
+10...30V
GND

Speed control with duty ratio of an external PWM signal

The DC brush motor rotation speed can be regulated by an external PWM signal with a frequency of 50 Hz. The minimum speed (motor stop) corresponds to a pulse duration of 1540 µs. The maximum forward rotation speed corresponds to a pulse duration of 544 µs. The maximum rotation speed in the reverse direction corresponds to a pulse duration of 2400 µs.


50 Hz
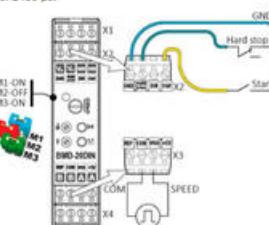
DC brush motor speed control using external PWM signal. Connection diagram

Maximum forward speed — 20ms, 0.544ms
Motor stop — 20ms, 1,540ms
Maximum speed in the opposite direction — 20ms, 2,400ms
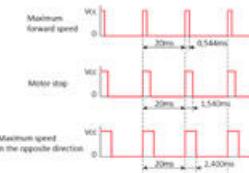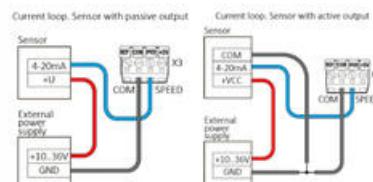
DC brush motor speed controller. Oscillogram of the PWM control signal

Dimensions of the DC brush motor speed controller BMD-20DIN ver.2
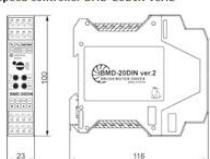
Connection of the DC brush motor speed controller BMD-20DIN ver.2

VDC 12-24V
GND -