

# Motor Speed Controller

5A 24V 125W



Basic Model  
SMD 5 DC

## Features

- DC-motor speed control
- Tacho or armature feedback
- One quadrant drive
- Easy to adjust
- Small size

## Quick reference data

- Supply voltage 10-30V=
- Max output voltage 2V below supply
- I<sub>max</sub> motor cont. 5A
- Reference input Potentiometer 10kΩ
- Ambient temp. 0-40°C

SMD is designed for use with most types of PM-DC-motors with a maximum voltage of 24V and continuous current to 5A.

SMD is switched in contradiction to linear mode drives. This gives the drive a high conversion efficiency and thereof small losses. Additional cooling is not necessary.

SMD has the following functions: speed setpoint input, tacho interfacing, armature feedback, RxI compensation, current limit etc.

The SMD can optionally be delivered in special executions.

Here are some related examples from our product line.



SMD 1 DD, 1A version



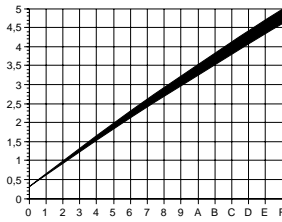
SMD 5 AC, mains version



SMD 5 DH, euroboard

## Adjustment

**1) Current limit.** Read the maximum allowed current for your motor from its marking plate or from the manufacturers catalogue. Set the  $I_{max}$  dial to an appropriate value from the graph.



Choose a lower value to protect your motor, or a slightly higher value to get more power (but shorter lifetime).

**2) Feedback.** There are two basic methods for feedback resulting in different speed accuracy:

a) If you are using armature feedback, set the **ROTOR/TACHO** switch in position A and turn the **RxI** potentiometer up until the motor becomes unstable i.e. starts hunting or vibrating, and then adjust the potentiometer down about 10%.

b) Or, if you are using tacho feedback, set the **ROTOR/TACHO** switch in position B and adjust the **FB** potentiometer until the motor follows a speed input change correctly.

**3) Speed reference.** There are three basic ways of controlling the speed:

a) Connect a 10k $\Omega$  potentiometer to terminals 10-11-12. Adjust the maximum speed with the  $n_{max}$  potentiometer.

b) Link terminals 10 and 11 and set the desired speed with the  $n_{max}$  potentiometer only.

c) Use an external speed control voltage signal connected to terminals 11 and 12.

For a more detailed description of how to connect and adjust the SMD, refer to the users manual.

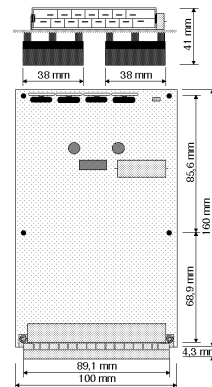
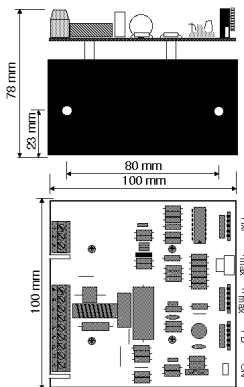
### List of connections:

TB	Abbr.	Function	Comment
	AC	Live	Only on mains versions.
	AC	Neutral	Only on mains versions.
4	+PWR	+Power supply input	Unregulated 24VDC output on mains versions.
5	0VPWR	-Power supply input	Unregulated 24VDC output on mains versions.
6	A+	+Motor output	
7	A-	-Motor output	
8	T+	Tacho feedback input	Use of tacho is optional.
9	T-	Tacho feedback input	0V reference
10	+6V	+6V output	for external potentiometer
11	SPEED	speed input	Connect to TB10 for $n_{max}$ -pot speed control.
12	0VCMD	speed input	0V reference

Note that the negative power supply and the 0V reference are separate and may not be linked.

	min	typ	max	unit	comment
DC supply voltage	10		30	VDC	For e.g. 12 and 24 Volt motors.
Current limit max	4,6	4,8	5,0	A	
Reference pot	5	10	100	k $\Omega$	
External speed control voltage		6	30	VDC	
Speed accuracy:					
Armature		5		$\pm\%$ rpm	Dependant of load characteristics.
Tacho		0,5		$\pm\%$ rpm	Dependant of tacho, often better.
Motor resistance range	0		2,2	$\Omega$	For RxI compensation
Tacho voltage			100	V	

Special executions are available on request.



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SMD 5 DC  
SMD 5 DE  
SMD 5 DH