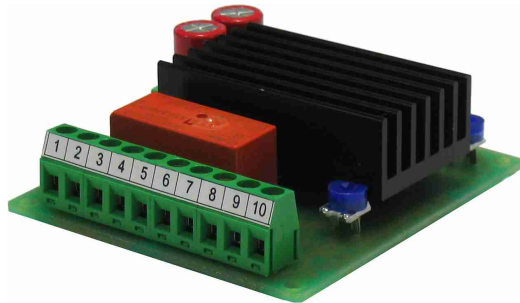


# EM-174A DC MOTOR DRIVER



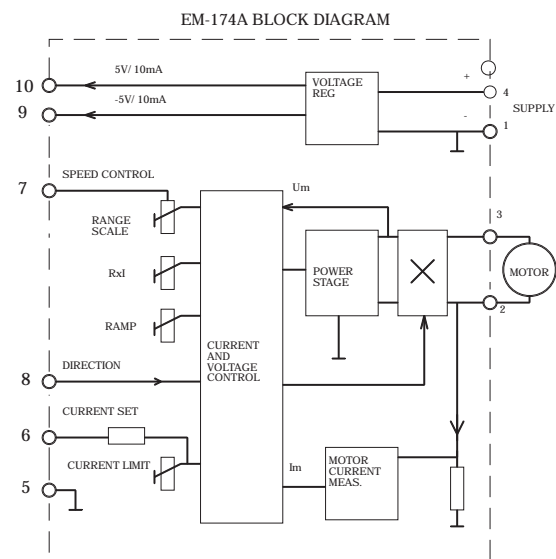
## FEATURES:

- Bidirectional
- No brake
- Controlled direction change
- $\pm 10$  V or 0...10 V control
- Soft start ramp
- Adjustable current limit
- Load compensation
- High efficiency
- High peak loading
- Rail base fittable

EM-174A motor driver is designed for DC-motor speed control. The unit regulates motor voltage so non regulated supply voltage is well suited. A load affecting the motor rpm can be compensated with an adjustable load compensation ( RxI ). Potentiometer or direct voltage signal can be used to give the speed control value. Rotation direction changes when control value turns negative or if control signal is applied to direction input. The unit has reference positive and negative signal for potentiometer use, in other words potentiometer can also be used to drive both directions, motor stops at potentiometer middle position. Set value range can be scaled with range trim. At direction change the controller waits for motor to stop before driving in opposite direction. This avoids current peaks at direction change. The current limit can be set with a trim or direct voltage signal to protect the motor and mechanics in jam situations. Startup speed can be limited with so called ramp, which slowly rises the motor voltage in a desired way. Ramp time is set with a trim. EM-174A can be optimised for 12 or 24 V supply use.

## TECHNICAL DATA

Supply	12-32 Vdc
Over voltage protection	40 V
Idle current	app. 30 mA
Driving current	8 A continuous ( $T_a < 50^\circ\text{C}$ ) 12 A peak (50 / 50 %)
Motor voltage	0-15 (12 V setting) 0-29 (24 V setting)
Current limit	adj. 0-12 A
Cur. lim. volt. control	0-5 V (0-12 A)
Ramp time	adj. 0-3 s
Voltage loss	1 V ( $I_m = 8$ A)
Operating frequency	25 kHz
Aux. voltages	-5 V and +5 V (10 mA)
Control pot.	1-50 kohm
Control volt. range	$\pm 5$ V or $\pm 10$ V
Direction change	0-5 V or 0-10 V "backwards" @ $U_{in} = 4-30$ V "forward" @ $U_{in} = 0-1$ V or open impedance 10 kohm
Operating temp ( $T_a$ )	-20...+70°C
Dimensions	(65x73x30) mm
Weight	approx. 80 g



# 9A!%+( 5 'CD9F5H-B; 'BGFH I 7H-CBG

Supply should be filtered 12-32Vdc,  
max. ripple <30% on full load.  
ATT. Wrong supply polarity can damage the driver.  
ATT. Driver has no internal fuse.

## SETTINGS AND ADJUSTMENTS

Set all trims to center position. Choose motor voltage range: with <15 voltages choose 12 V and with greater voltages choose 24 V range. Speed set value can be given with potentiometer or using a direct voltage signal 0-5 V ... 0-10 V. Acceleration and deceleration ramp is set with trim. In 0-3 s time unit drives from zero to full speed or from full speed to zero.

Compensation adjustment: set motor on to a low rpm, add compensation until motor starts twitching and then reduce compensation until twitching ends. After this motor loading can be tested for steady motor run.

Current limit can be set to 0-12 A, current limit can also be set using direct 0-5 V voltage signal or potentiometer. If the external control is used, turn the inbuilt current limit trim to 0-position.

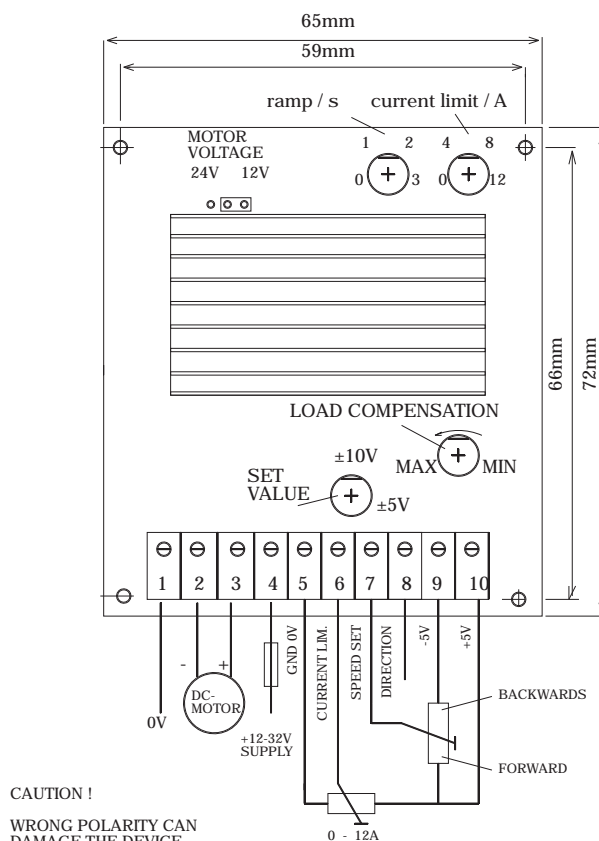
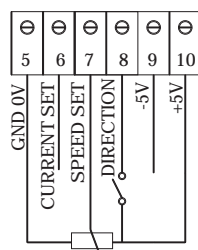
### EXAMPLE 1 (BESIDE)

SPEED, DIRECTION AND CURRENT ARE SET WITH POTENTIOMETERS.

### EXAMPLE 2

SPEED CONTROL WITH POTENTIOMETER.

DIRECTION CHANGE WITH SWITCH.



CAUTION !

WRONG POLARITY CAN DAMAGE THE DEVICE.

CHOOSE FUSE ACCORDING TO USE (1-16 A)

### EXAMPLE 3

CONTROLS WITH VOLTAGES

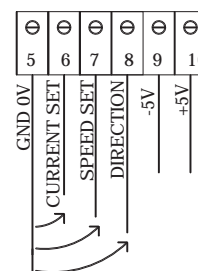
ALL VOLTAGES WITH RESPECT TO GND (0 V)

CURRENT 0-5 V (0-12 A)

SPEED 0-5 V OR 0-10 V

±5 V OR ±10 V

DIRECTION 4-30 V = BACKWARDS



NOTICE!! IF CURRENT CONTROL IS USED, TURN CURRENT LIMIT TRIM TO MIN POSITION.

