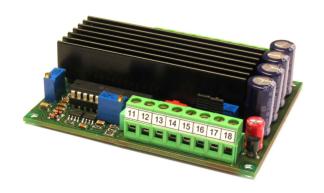
Powermec

PM-206 BRUSHLESS MOTOR CONTROLLER 12-36V 10A



FEATURES:

- Three phase output
- Continuous speed adjustment
- Reversing
- Braking
- ±10V control option
- Hall sensor supply and input
- 60° or 120° commutation
- Settable / controllable current limit
- Fault output
- Open or closed loop activity
- High efficiency
- Rail base mountable

EM-206 is a DC-motor controller that is designed for brushless motors with hall sensor feedback. The unit has a mosfet-type high efficiency power stage. EM-206 can be connected to motors using 60° or 120° commutation. The unit is equipped with standard controls, such as speed, stop, reversing and braking. Mechanical installation can be done with screws or by using a rail mounting base.

There are two control options. Direct control (open loop) sets motor voltage in proportion to control voltage, as with a standard DC-motor. Frequency locked control (closed loop) uses hall sensor feedback for speed set besides commutation set. This way a precise speed control is attained. Closed loop response can be altered so that the adjustment remains stabile in given application. Speed control signal can be scaled with trimmers.

Current limit restricts motor torque when motor current exceeds set value. Current limit can be set with a trimmer or with external signal. Fault output indicates the operation of the current limit. EM-206 is protected against surge voltage and overheating (excess load). The unit requires an external fuse.

As an option, EM-A1 expansion card can be installed, this makes it possible to control EM-206 with ±10V signal.

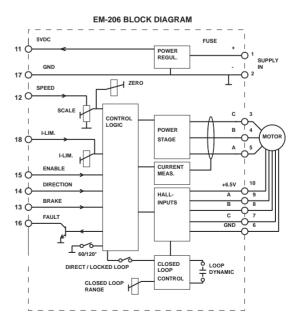
TECHNICAL DATA:

Supply voltage Over voltage protect. Idle current Motor current

Current limit Current limit input

Thermal protection Voltage loss Control voltage Control potentiometer Control voltage output Hall voltage output Digital control

Control Input impedance Fault output Dimensions Weight 12...36 Vdc 39Vdc approx. 50mA 10A rms 15A 50/50% 0...15A 0-5V corresponds to 0-15A (input imp. 10k) 120°C (heat sink) 0.8V @ Im=10A 0-10V (0-5V adjustable) 2-10k 5V (max 10mA) $6.5\dot{V}$ "high" @ Uin=3...30V "low" @ Uin=0...1V or open NPN open coll. 30V 10mA 89x73x25mmapprox. 130g



EM-206 OPERATING INSTRUCTIONS

Operating voltage 12-36V filtered, with less than 20% ripple. An external supply fuse is recommeded, suitable values 1-12A.

Speed control set with voltage or potentiometer. Range is adjustable with SCALE and ZERO trim. The recommeded pot. value is 2-10k, the control voltage signal should be 0-5V or 0-10V. There is option for $\pm 10V$ control input if EM-A1 is assembled. Otherwise use two jumpers.

Speed input impedance of is 100kohm.
Speed control mode NORMAL or CLOSED LOOP is selected with SW1.

Normal speed control: Motor acts like a normal DC-motor without feedback.

Closed loop control: The control unit uses a hall sensor signal to regulate motor speed.

Accuracy of the motor rpm is typically $\pm 1\%$ in this mode.

The useable rpm range in closed loop mode is selected with "CLOSED LOOP

RANGE" trimmer.

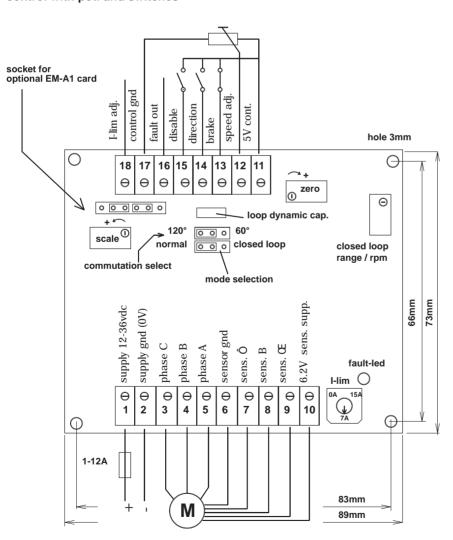
The loop dynamic behaviour can be changed with LOOP DYNAMIC

CAPASÎTOR. The capasitor is asembled to socket, and it is easily exchanged.

Recommended value is 47nF...1000nF.

Current limit adjust (I-LIM) limits the motor current (torque). Normally current limit is set with I-lim trimmer. If external I-lim control voltage is preferred, I-lim trim must be set to minimum, and control pin 18 connected to a potentiometer or a voltage signal of 0-5V (adj. range 0-15A). Input impedance of pin 18 is 10kohm.

Connection example: control with pot. and switches



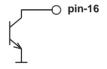
FAULT-output is pulled down and FAULT LED is lighted if at least one of the following conditions occurs:

undervoltage

current limit

· sensor fault

disable input selected



Brake input: Brakes if "low";

pin 13 connected to GND or

open (brake has higher priority than disable). This function shortcircuits motor wiring.

Direction in: "high" voltage 4-30V

pin 14 for reverse

Disable in: "high" voltage 4-30V

disables output (motor pin 15

freewheeling)