

EM-115 DC-MOTOR CONTROL UNIT

12-36V 25A 4-QUAD.



FEATURES:

- Small size
- Four quadrant drive
- High efficiency >92%
- Motor range 50-500W
- Rail mounting base fittable
- Adjustable current limit
- Adjustable ramp

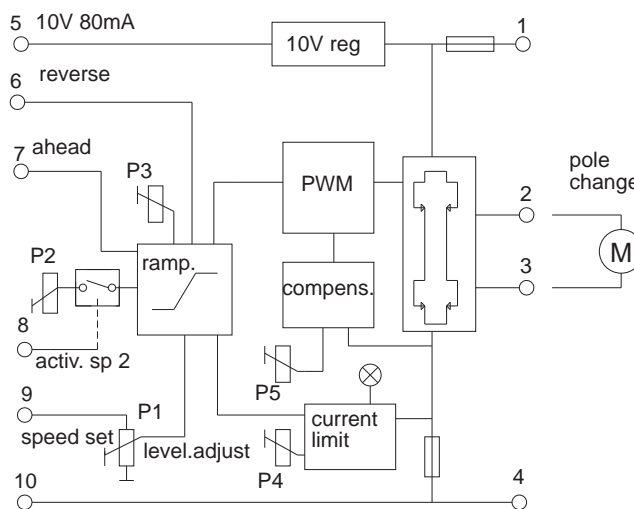


Tel.: (+34) 902 450 160
 Fax: (+34) 902 433 088
ermec@ermec.com
www.ermec.com

EM-115A motor control unit is designed for big permanent magnet DC-motors. The power control is done with PWM method (Pulse Width Modulation). This facilitates high efficiency and small temperature losses. Due a high switching frequency the unit operates quietly. A battery or a filtered DC-supply will do as a power source. The maximum output given by the unit depends on the install. When pushing the unit to its limits sufficient air ventilation has be taken care of. The unit operates in 4-quadrants so it drives and brakes in both directions. The braking is done with regenerative way feeding braking energy back to power supply. When a battery isn't used as a power source the braking energy will be feed to the internal resistance of the motor. The motor rpm can be set either with potentiometer, trim or external voltage signal. The output acceleration ramp and current limit are set with trims, the current limit is indicated with a red led. A load affecting the motor rpm can be eliminated with a compensation trim. The power stage is protected against voltage peaks, overload and temporary shortcuts. Even the incorrect polarity does not damage the unit as long as a fuse of recommended range is used.

TECHNICAL DATA:

Supply voltage	12...36 Vdc
Idle current	< 50mA
Recommended fuse	5-30A
Control potentiometer	1k...50k
Load capacity	25A RMS 50A mom. (5s)
Motor voltage	0-30V
Control voltage range	0-5V or 0-10V
Voltage loss /V	<1V when Im=25A
Current limit	4...50A
Operating frequency	approx. 21kHz
Ahead control	>4V "on" <1V "off"
Input impedance	pins 6,7 and 8 = 10kohm pin 9 = 100kohm
Efficiency	>92%
Operating temp.	-10...50 °C
Dimensions	107*107*45 mm
Weight	approx. 270 g



ERMEC, S.L. BARCELONA
 C/ Francisc Teixidó, 22
 E-08918 Badalona
 (Spain)

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 Fax: (+34) 902 433 088
info@ermec.com
www.ermec.com

ERMEC, S.L. MADRID
 C/ Sagasta, 8, 1ª planta
 E-28004 Madrid
 (Spain)

PORTUGAL
portugal@ermec.com
 BILBAO
bilbao@ermec.com

EM-115 OPERATING AND CONNECTING INSTRUCTIONS

IMPORTANT !!

Check polarity before connecting!
Use filtered 12-36VDC (ripple <20%)
as operating voltage.

When motor current exceeds constantly 20A
proper air ventilation must be taken care of
not to let the ambient temperature raise
over 50°C.

CONTROLS

P1-maximum level.
Use to set maximum level.

P2-2nd step speed set
When using 2-step speed mode use P2 to
set speed2.

P3-acceleration / braking ramp.
Use ramp speed adj. to obtain smooth
starting and running. The right value
can be found just by testing the set.

P4-current limit.
The operation of the current limit is indicated
by a red led next to the trim. Use it to set
maximum current used by the motor, in other
words torque.

P5-compensation
Use the trim to compensate a load affecting
the motor rpm. Set the motor rpm to approx.
50%, turn ccw until the motor starts to twitch,
then turn carefully backwards til the twitching ends.

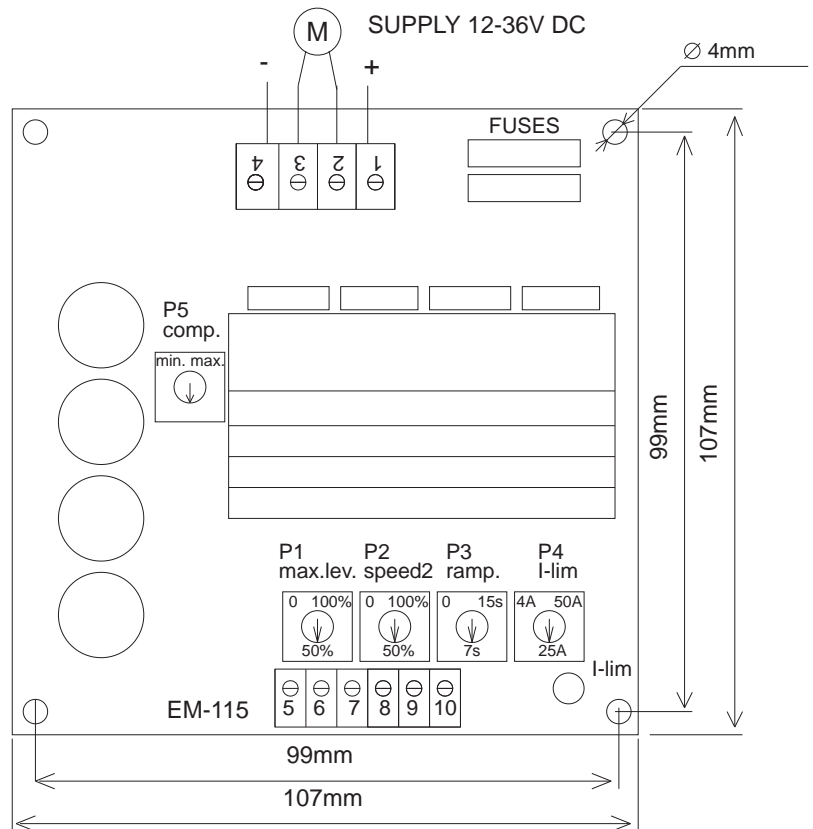
FUSE

The fuse type is ATO 5-30A, regarding to
the operating solution.

Continuous rpm control,
set with pot.meter, adjust
range with P1.
Switch to ahead.
Switch to change direction.

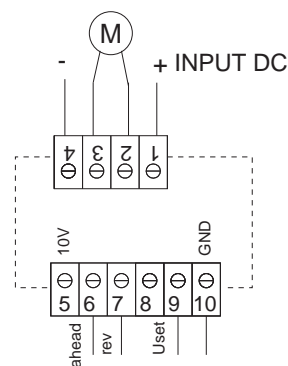
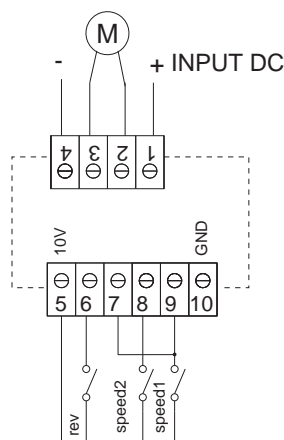
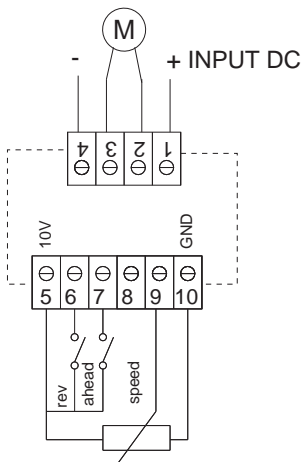
2-step speed mode
(run / positioning)
P1-speed1, P2-speed2
Activation with speed1
& speed2.

Continuous rpm control,
set with voltage, adjust
range with trim P1.
Reverse and ahead with
TTL, CMOS or 0-24V signal.



TERMINALS

1. Supply voltage 12-36V
2. Motor out +
3. Motor out -
4. Supply voltage 0V gnd
5. Control voltage approx. 10V 80mA
6. Reverse (master)
7. Ahead
8. 2-step speed activation
9. Speed / pot. meter input
10. 0V gnd



Forward, OFF 0-1V, ON 4-30V
Reverse, OFF 0-1V, ON 4-30V
Speed (Uset) 0-5V or 0-10V at 0-100%



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