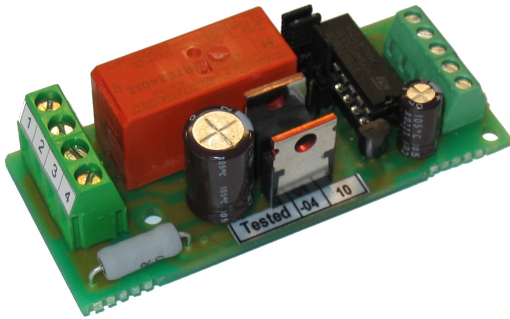


# 9 A!% ) 'DCG#CB=B; '8 F=J9F '%&' &JXW



## FEATURES

- small in size
- low cost
- pos. accuracy. typ.  $\pm 1\%$
- good efficiency  $>92\%$
- for motors 5-200W
- start- and stop-ramp
- overload protected
- selectable current limit
- rail base mountable

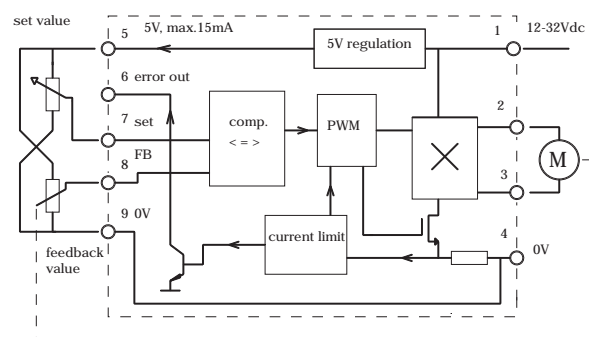
EM-165 is a low cost positioning driver. It has an inbuilt servo amplifier and a power stage for controlling a dc-motor. It is suitable for driving a spindle motor equipped with feedback potentiometer. EM-165 is best suited for slow and medium speed systems with a transitional period of 2...30s (from end to end). The current limit is settable and can be used to limit the torque of the motor. Current trip feature will shut down the driver in fault situation, if either current is on the limit for over 2s, or if it takes more than 30s to reach the set value. In fault situation the error output will be activated. Reactivation from the trip situation is done by applying a reverse control command.

Positioning is done by giving a new set value using the set value potentiometer or voltage signal 0-5V. The driver compares the feedback value to the set value and starts to drive the motor towards the set value. When these values begin to approach each other, the driver will slow down, and when the values are identical the motor stops. EM-165 is small sized and easy to install. It is possible to use screw fastening or install the driver in to a rail with a rail mounting base which is available as an accessory. The power stage is equipped with self recovery overload and over current protection, but the use of an external fuse is recommended.

## TECHNICAL DATA

Operating voltage	12-32Vdc
Idle current	< 40mA
Protections	overheat (self recovery), short circuit approx. 30A
Load capacity	5A continuous 8A 15s "on", 15s "off" 12A 5s "on", 15s "off"
Current limit	2, 4, 7, ja 12A settable
Accuracy	typ. $\pm 1\%$ of range
Input ranges	0-5V ( pin 7 & 8 )
Input impedance	>1Mohm
Pot.recommendation	1...100kohm.
Ref. voltage pin-5	5V ( max. 15mA )
Error out	NPN -open coll. 30V / 50mA
Efficiency	> 92%
Operating temp.	-20...60°C
Dimensions	72.5x31.0x24.0mm
Weight	approx. 40g

BLOCK DIAGRAM EM-165



## OPERATING INSTRUCTIONS EM-165

### IMPORTANT !

Supply voltage must be filtered 12-32 VDC with less than 20% ripple.

Choose the fuse according to the application ( max. 15A ).  
Check the polarity before connecting.

### SETTINGS

#### CURRENT TRIP ( DRIVE SHUT DOWN )

The current trip function is activated with jumper named "I-trip". If current trip is activated the driver will be shut down and the error output will appear in the following cases:

- overcurrent situation for over 2s
- positioning takes longer than 30s.

If the current trip is not activated, the driver will not be shut down, but the error output will operate in the same manner as in activated mode.

#### CURRENT LIMIT ( MOTOR TORQUE LIMIT )

There are four settable current limit values. Attached the map of the values and settings.

### TAKING ON DUTY

Connect the wiring and make sure, that the current limit is set according to the application (not too high!). Switch the power on. The system should now find right position and follow the adjustment of the set value potentiometer.

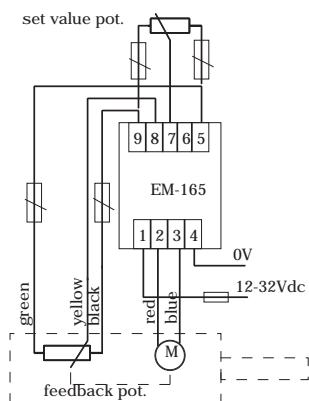
If system only moves from end to end, or jam to the other end. Try to switch the motor wires ( pin 2 & 3 ). Check also all other wiring.

If system is working o.k. but working direction is wrong. Switch both, motor wires ( pin 2 & 3 ) and the feedback potentiometer wires ( pin 5 & 9 ) at the same time.

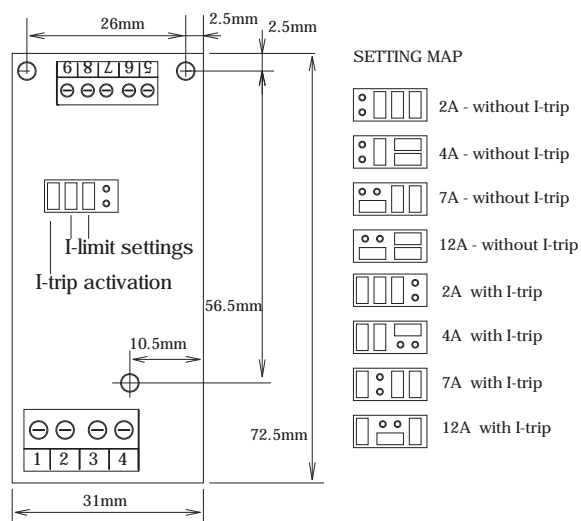
If is needed to adjust the system range, it is possible to add serial trims or resistors to the potentiometer wiring.

### APPLICATION 1

Driver working with spindle motor equipped with potentiometer. Adjust trims can be added for range trimming, if needed.



Spindle motor equipped with potentiometer, LINAK LA12

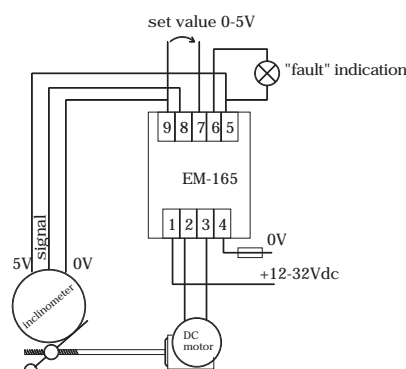


### CONNECTION TERMINALS

1. Supply 12-32Vdc
2. Motor
3. Motor
4. Supply 0V, gnd
5. 5V-out, exitation for pots. max. 15mA
6. error-out NPN OPEN-COLL. max. 50mA
7. Set value input, 0-5V or potentiometer
8. Feedback input 0-5V or potentiometer
9. 0V, signal gnd

### APPLICATION 2

Device drives angularly adjustable table. Feedback is coming from 0-5V inclinometer. Set value is 0-5V voltage signal.



Inclinometer Bosch 0280 122 201 + gearmotor

