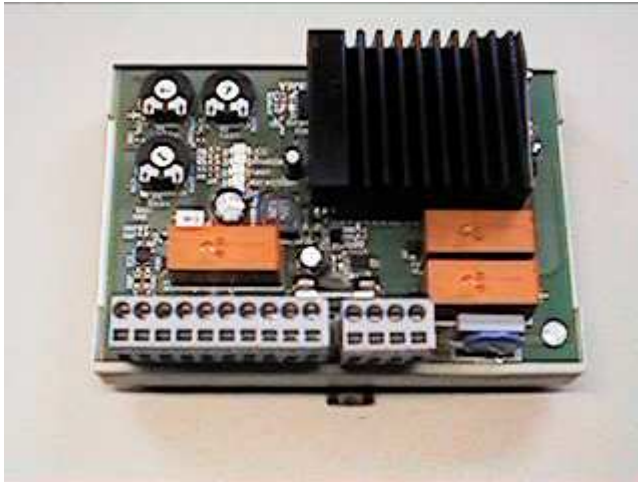# 1Q-DC Motor Driver up to 24V / 4A

Description

This 1Q-DC is a power-motor-driver for DC-motors with an excellent robust performance. Due to its Power-MOS-FET-amplifier it drives typically motors up to 24V/4 A, at maximum load even up to 40 V/5 A.

For universal operation the control interface is clearly simple designed. All these signals are isolated to external electrical potential.

The unit is adaptable to properly operation with three potentiometers only.

Only one power supply is necessary for a correct operation.

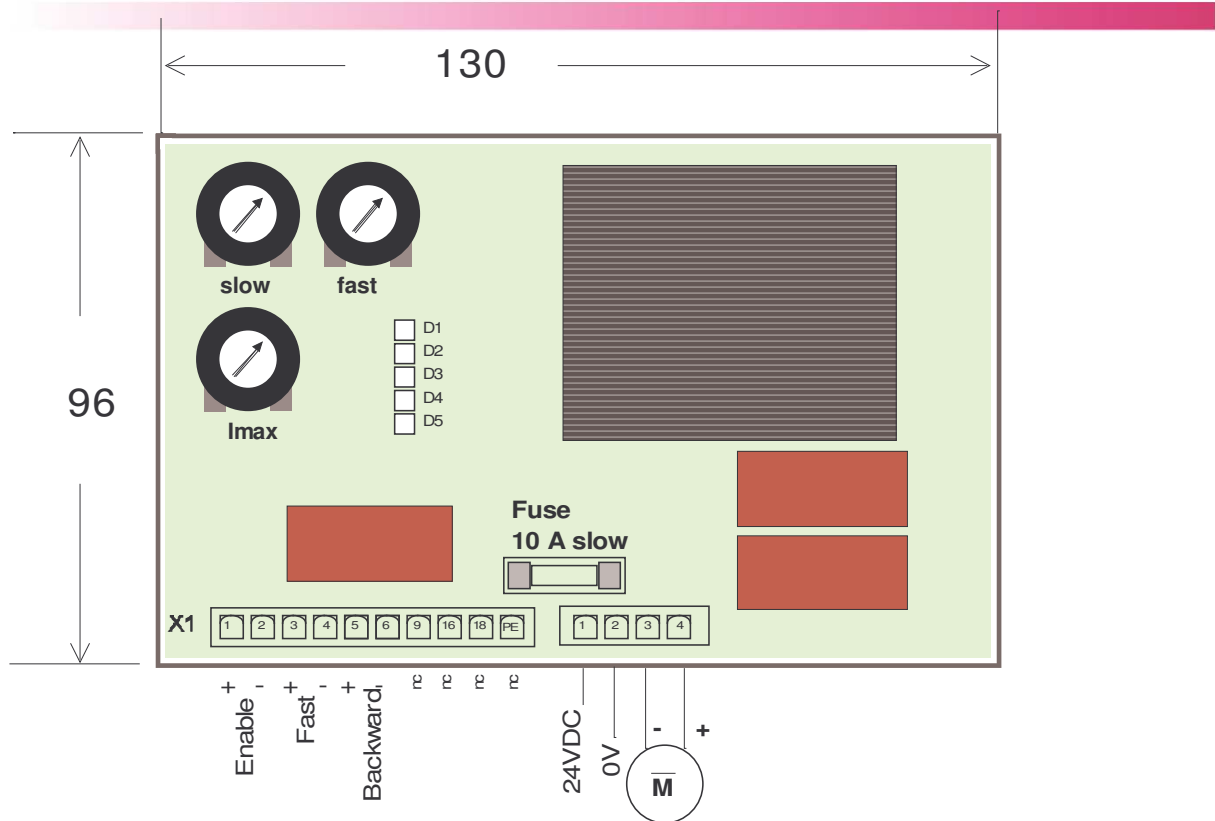## Signals and Potentiometers

24V-signals:
- ♦ Forward / Backward
- ♦ Slow / Fast
- ♦ STOP / Enabled

Potentiometers:
- ♦ Low speed („Slow")
- ♦ High speed („Fast")
- ♦ Current limit („Motor protection")

Indicators:
- ♦ Power on
- ♦ Enable on
- ♦ Fast on
- ♦ Backward on
- ♦ Overcurrent

Installation

You have to use the common valid rules for operation with electronic devices, in particular the relevant European standards .

1. Connect power supply. The logical part of the circuit is protected against reverse polarity with diode.

2. Connect motor. To avoid an uncontrolled motion, please connect no control signals. By exchanging the two motor wires the motor reverses.

3. Connect "**Enable**" input. As soon as the Enable-input goes to high the motor runs with slow speed. By turning the pot "**Slow**" to right the speed increases.

4. Connect input "**Fast**". As soon as the input goes to high, the pot „**Fast**" is activated. By turning the pot to right the speed increases..

5. The reversing of rotation direction is allowed only while motor stands still. During motion actually it is possible, but the direction relay will be stressed and will fail too soon.

6. Connect input "**Backward**". As soon as the input goes to high the rotation direction reverses. Then after enabling the motor will run backward.

7. The intention of the current limitation is the protection of overloading the motor. By turning the pot "**current limit**" to right the maximum motor current increases.

   Coarse adjustment: It is possible to adjust coarse during motor running. Please increase the motor load to maximum and turn the pot until motor power fits.

   Fine adjustment if necessary: At first step, please connect a current meter in the motor wires. Blocking the motor causes the maximum current. Now it is possible to adjust the correct current turning the pot.

   Please watch your motor and avoid unacceptable overheating.

Technical Data

Housing dimensions	130 x 96 x 69 mm, rail mounting
Power supply	U_{in} = 24 VDC (20 – 40 V) / > 5A
Inputs	
- Enable (opto isolated)	low ≤ 3 V, high ≥ 10 V, ca. 10 mA low =not enabled, high = enabled, motor runs
- Fast (relay input)	low ≤ 10 V, high ≥ 18 V, 30 mA low =low speed, high = high speed
- Backward (relay input)	low ≤ 10 V, high ≥ 18 V, 30 mA low =forward, high = backward
Outputs	no
Temperature range	up to 50°C ambient temperature

Pinning Connector -X1 (Control)

Nr	Assignment
1	Enable +
2	Enable -
3	Fast +
4	Fast -
5	Backward +
6	Backward -
7	nc (not connected)
8	Nc
9	Nc
10	Nc

Pinning Connector –X2 (Motor)

Nr	Assignment
1	24V
2	GND
3	Motor+
4	Motor-

Indicators
(LED = light emitting diode)

LED	Notation
D1	Vcc on
D2	Motor enabled
D3	Signal „Fast" on
D4	Signal „Backward" on
D5	Current limit exceeded