

## General Description

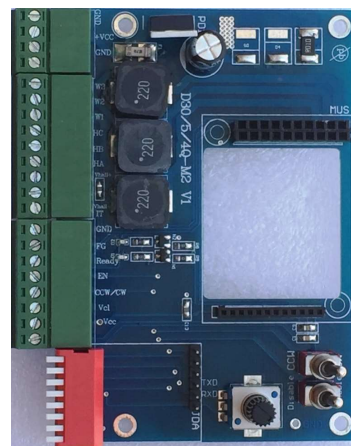
The D30/5/4Q-M2 evaluation board is designed to work with the D30/x/xQx-E2 series drivers (referenced below as -E2 drivers). It is designed for interfacing the driver with the customer electronics, power supplies and measuring equipment and is very handy for limited volume production or to allow the testing of systems before the customer's electronics is ready.

Together with the -E2 drivers, they were designed to control Boreasa blowers.

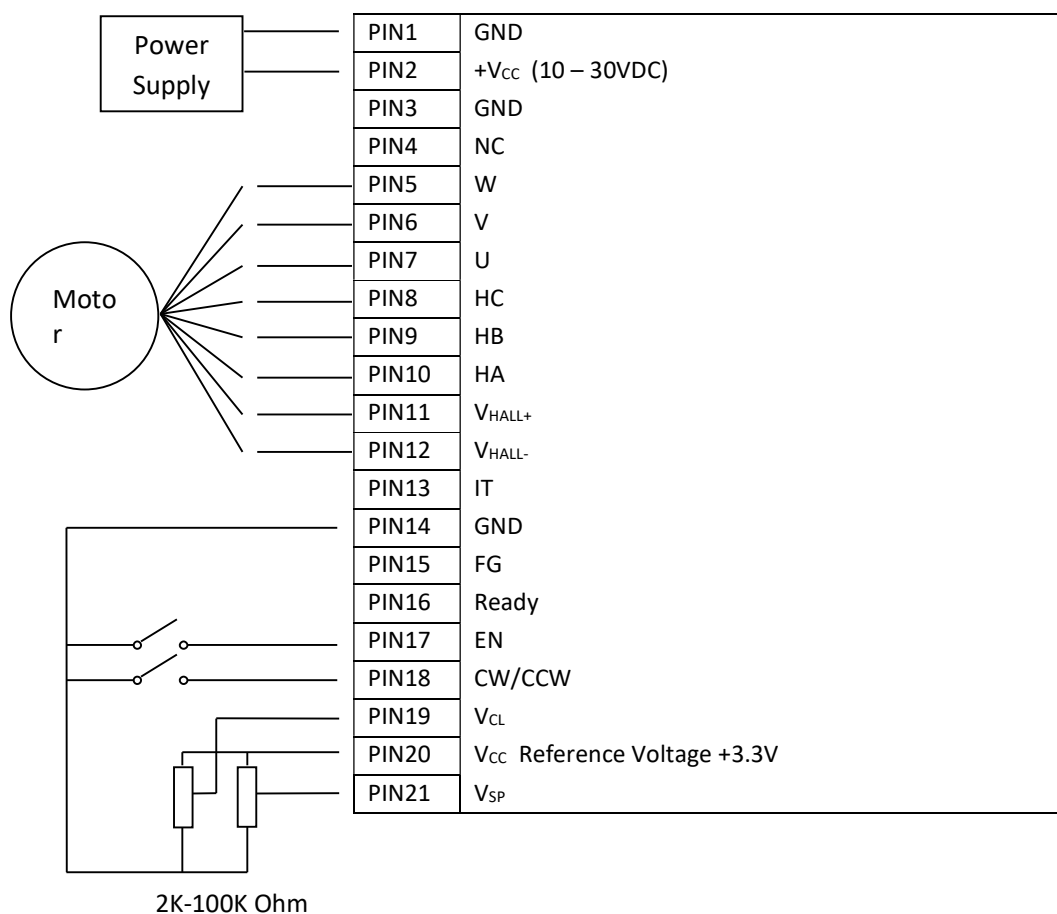
For more details about the -E2 drivers, refer to the D30/x/xQx-E2 literature.

## Features:

- Drives one BLDC motor (up to 30 V and 10 A)
- Speed and Current limiting modes
- Designed for Boreasa blowers, but suitable for various motor requirements
- Robust 30 V<sub>DC</sub> power supply interface
- Reverse polarity protection



## Typical Hookup Drawing:




**Pin assignment:**

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	14	GND	Ground
2	+V <sub>CC</sub>	Supply voltage 12 to 30 V <sub>DC</sub>	15	FG	Motor speed monitor digital output, 3.3 V
3	GND	Ground	16	Ready	Status indication digital output, 3.3 V
4	NC	Not in use	17	EN	Enable input (+2.4 to +15 V) or open collector
5	W	Motor winding 3	18	CW/CCW	Direction input
6	V	Motor winding 2	19	V <sub>CL</sub>	Set peak current limit input
7	U	Motor winding 1	20	V <sub>CC</sub>	Reference voltage output +3.3 V
8	H <sub>C</sub>	Hall sensor C	21	V <sub>SP</sub>	Speed control input, 0 to +3.0 V
9	H <sub>B</sub>	Hall sensor B			
10	H <sub>A</sub>	Hall sensor A			
11	V <sub>HALL+</sub>	+10 V <sub>DC</sub> output to Hall sensors, max. 35 mA			
12	V <sub>HALL-</sub>	Hall GND			
13	IT	Motor internal temperature			

For more details on signals, please refer to -E2 driver literature.

**DIP switch setting:**

Interface diagram	SWITCH	Description
	DIP1	Different daughter boards have different definitions, please check the corresponding daughter board software manual.
	DIP2	
	DIP 3	
	DIP 4	
	DIP 5	Current limit setting
	DIP 6	
	DIP 7	
	DIP 8	Set value speed

**Current limit setting:**

DIP5	DIP6	DIP7	Current limit (D30/5/xQx-E2)	Current limit (D30/7.5/xQx-E2)
ON	ON	ON	0.5 A	0.75 A
ON	ON	OFF	1.0 A	1.5 A
ON	OFF	ON	2.5 A	3.75 A
ON	OFF	OFF	4.0 A	6.0 A
OFF	ON	ON	5.5 A	8.25 A
OFF	ON	OFF	7.0 A	10.5 A
OFF	OFF	ON	8.5 A	12.75 A
OFF	OFF	OFF	10.0 A	15.0 A

Set value speed:

DIP8	Set value speed
ON	Internal potentiometer
OFF	External potentiometer (2K-100k) or voltage

**Note: when the DIP8 is ON, the PIN21 must be disconnected.**

### LED Signals:

D1	Meaning
ON	Ready
OFF	Error

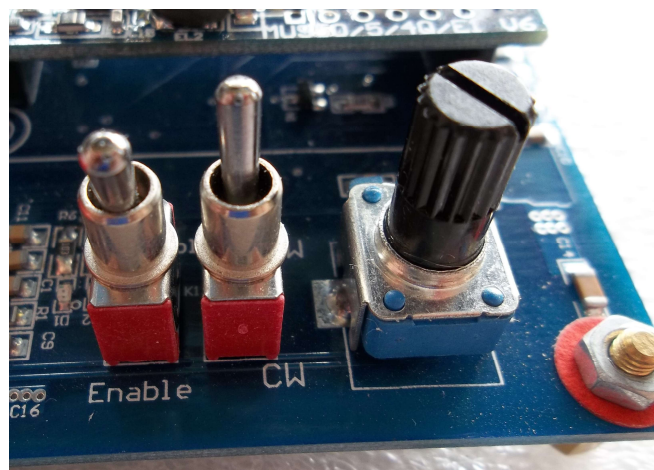
### Recommended Initial Settings for Boreasa Blowers:

#### Basic Connections:



#### Switches and Potentiometer:

- ENABLE SWITCH: ON
- CW / CCW: CCW
- POTENTIOMETER: ALL THE WAY UP



### ATTENTION:

The TVS will breakover and discharge when the bus voltage is over 30V. So the power supply voltage **HAS TO BE** lower than 30VDC.

### Mother board schematic:

