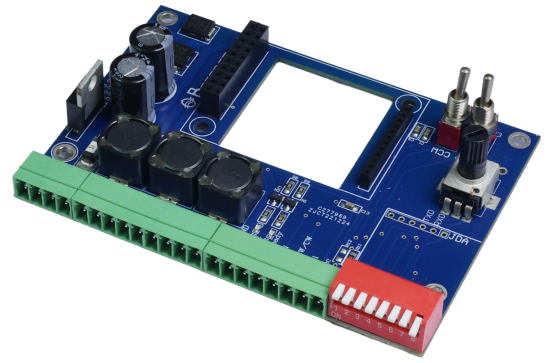


Eval Board D30/5/4Q-M2



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.

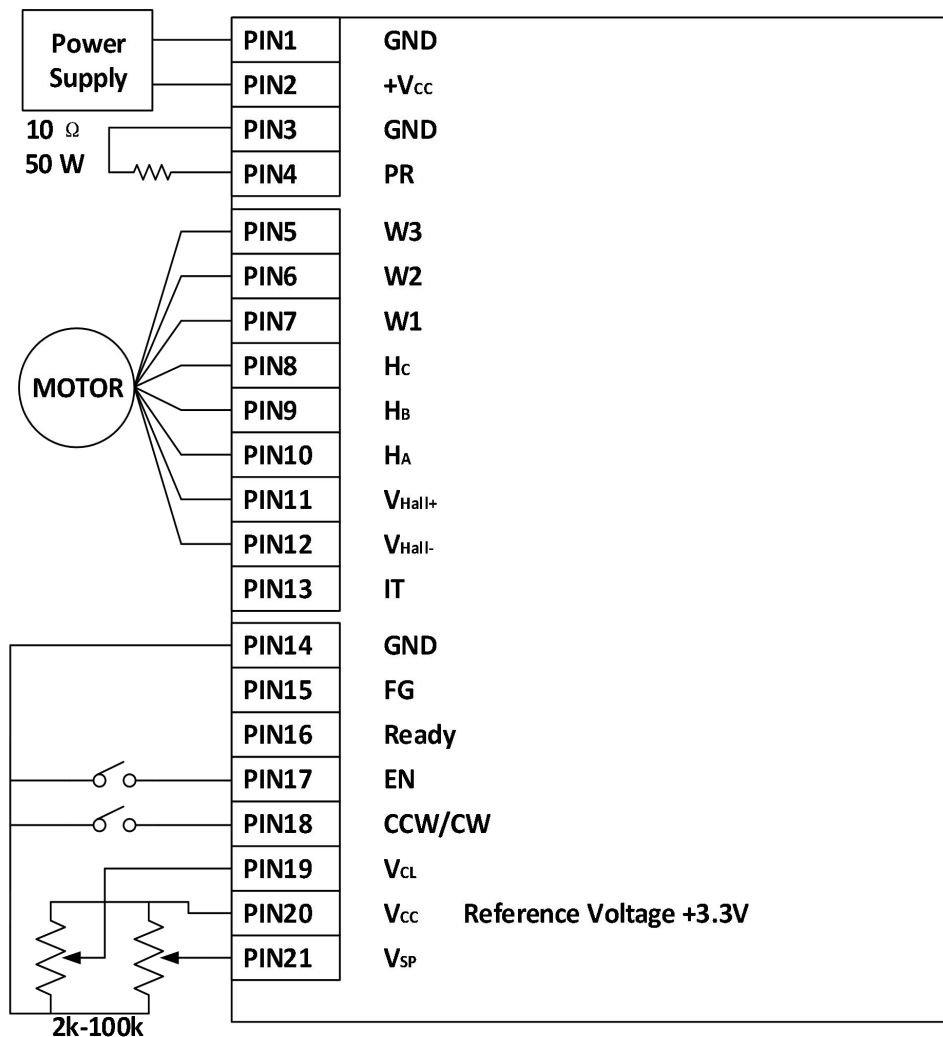
Together with the -E2 drivers, they were designed to control Boreasa blowers.

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 VDC power supply interface
- Reverse polarity protection

Typical hookup drawing:




Pin assignment D30/5/4Q-M2:

Pin	Signal	Description
1	GND	Ground
2	+V _{CC}	Supply voltage 12 to 30 VDC
3	GND	Ground
4	PR	Connect the brake resistor
5	W	Motor winding 3
6	V	Motor winding 2
7	U	Motor winding 1
8	H _C	Hall sensor C
9	H _B	Hall sensor B
10	H _A	Hall sensor A
11	V _{Hall+}	+10 VDC output to Hall sensors, max. 35 mA
12	V _{Hall-}	Hall GND
13	IT	Motor internal temperature

Pin	Signal	Description
14	GND	Ground
15	FG	Motor speed monitor digital output, 3.3 V
16	Ready	Status indication digital output, 3.3 V
17	EN	Enable input (+2.4 to +15 V) or open collector
18	CCW/CW	Direction input
19	V _{CL}	Set peak current limit input
20	V _{CC}	Reference voltage output +3.3 V
21	V _{SP}	Speed control input, 0 to +3.0 V

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	DIP1 is connected to DigIN1 of the E2 driver;
	DIP3	DIP2 is connected to DigIN2 of the E2 driver;
	DIP4	DIP3 is connected to DigIN3 of the E2 driver;
	DIP5	DIP4 is connected to DigIN4 of the E2 driver;
	DIP6	DIPx is turned on, which is equal to the low level of the DigINx pin.
	DIP7	DIPx is turned off, which is equal to the high level of the DigINx pin.
	DIP8	Control Mode

Current limit:

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

Control mode:

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

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

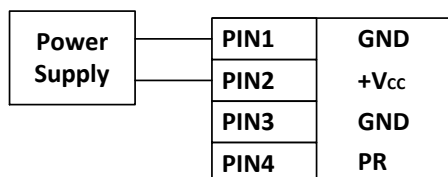
LED signals:

D1	Meaning
ON	Ready
OFF	Error

Recommended Initial Settings for Boreasa Blowers:

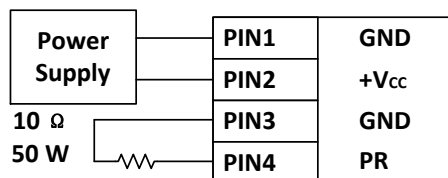
Basic Connections:

1Q Driver:



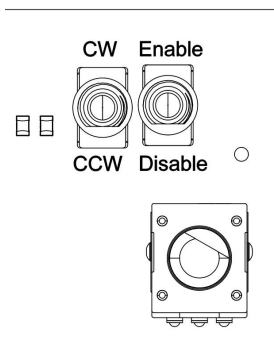
4Q Driver:

Brake resistor must be connected.



Switches and Potentiometer:

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



ATTENTION:

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

Mother board schematic:

