

M820 Microstepping Driver



Features

- High performance, low cost
- Supply voltage up to +80VDC
- Inaudible 20 KHz chopping frequency
- TTL compatible and optically isolated input signals
- Automatic idle-current reduction
- Mixed-decay current control for less motor heating
- 14 selectable resolutions up to 512,00 steps/rev
- Suitable for 2-phase and 4-phase stepping motors
- Over-current, over-voltage protection
- Small size: 119*97 * 31(mm)

Introduction

The M820 is a high performance microstepping driver based on one of the most advanced technologies in the world today. It's suitable for driving any 2-phase and 4-phase hybrid step motors. By using advanced bipolar constant-current chopping technique, they can output more speed and power from the same motor compared with traditional drivers, such as L/R drivers. Its 3-state current control technology allows coil current to be well controlled with relatively smaller current ripple and results in less motor heating.

Applications

It's specially designed for high speed and relatively low load applications, such as high speed semiconductor manufacturing equipments, vision & photocomposition automation equipments, and so on.

Electrical Specifications (T_j=25°C)

Parameters	M820			
	Min.	Typical	Max.	Unit
Peak Output Current	0.65	-	1.75	Amps
Supply voltage	+24	+68	+80	VDC
Logic signal current	7	10	16	mA
Pulse input frequency	0	-	300	Khz
Isolation resistance	500	-	-	MΩ

Mechanical Specifications (Unit: mm, 1 inch=25.4 mm)

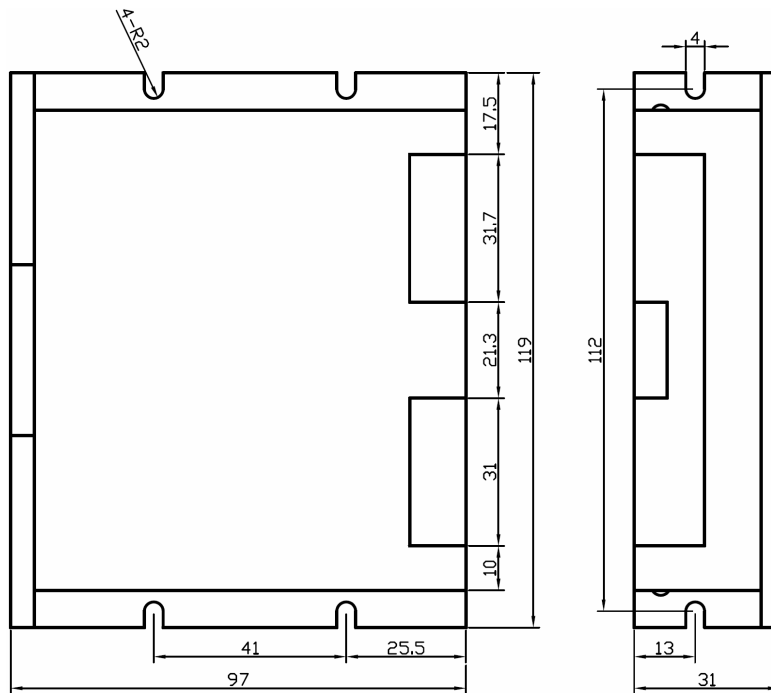


Figure 1: Mechanical specifications

Pin Assignment and Description

Control Signal Connector P1 pins

Pin Function	Details
PUL + (+5V)	Pulse signal: This input represents pulse signal, active at each upward-rising edge. 4-5V when PUL-HIGH, 0-0.5V when PUL-LOW. For reliable response, pulse width of PUL-LOW should be longer than 1.2μs. Series connect resistors for current-limiting when +12V or +24V used.
PUL- (PUL)	
DIR+ (+5V)	DIR signal: This signal has low/high voltage levels, representing two directions of motor rotation. For reliable motion response, direction signal should be sent to the driver 5μs before the first pulse of reversal rotation. 4-5V when DIR-HIGH, 0-0.5V when DIR-LOW.
DIR- (DIR)	
ENA+ (+5V)	<u>Enable signal:</u> This signal is used for enabling/disabling the driver. High level (NPN control signal, PNP and Differential control signals are on the contrary, namely Low level for enabling.) for enabling the driver and low level for disabling the driver. Usually left UNCONNECTED (ENABLED) .
ENA- (ENA)	

Power connector P2 pins

Pin Function	Details
GND	DC power ground.
+V	DC power supply, +24VDC – +80VDC, Including voltage fluctuation and EMF voltage.
A+, A-	Motor coil A (leads A+ and A-).
B+, B-	Motor coil B (leads B+ and B-)

Microstep Resolution Selection

The M820 uses an 8-bit DIP switch to set microstep resolution, and motor operating current as shown in figure 2.

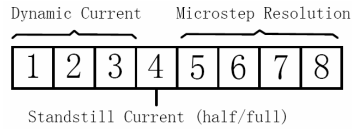


Figure 2: DIP switch assignment

Microstep resolution is set by SW5, 6, 7, 8 of the DIP switch as shown in the following table:

Microstep	ustep/rev.(for 1.8°motor)	SW5	SW6	SW7	SW8
2	400	ON	ON	ON	ON
4	800	ON	OFF	ON	ON
8	1600	ON	ON	OFF	ON
16	3200	ON	OFF	OFF	ON
32	6400	ON	ON	ON	OFF
64	12800	ON	OFF	ON	OFF
128	25600	ON	ON	OFF	OFF
256	51200	ON	OFF	OFF	OFF
5	1000	OFF	ON	ON	ON
10	2000	OFF	OFF	ON	ON
25	5000	OFF	ON	OFF	ON
50	10000	OFF	OFF	OFF	ON
125	25000	OFF	ON	ON	OFF
250	50000	OFF	OFF	ON	OFF

Current Setting

Output current is set by SW1, 2, 3 of the DIP switch as shown in the following table:

Peak Output Current (A)	SW1	SW2	SW3
0.65	ON	ON	ON
0.8	OFF	ON	ON
0.95	ON	OFF	ON
1.1	OFF	OFF	ON
1.3	ON	ON	OFF
1.45	OFF	ON	OFF
1.6	ON	OFF	OFF
1.75	OFF	OFF	OFF

Typical Connection

A typical connection of the M820 is shown as figure 3.

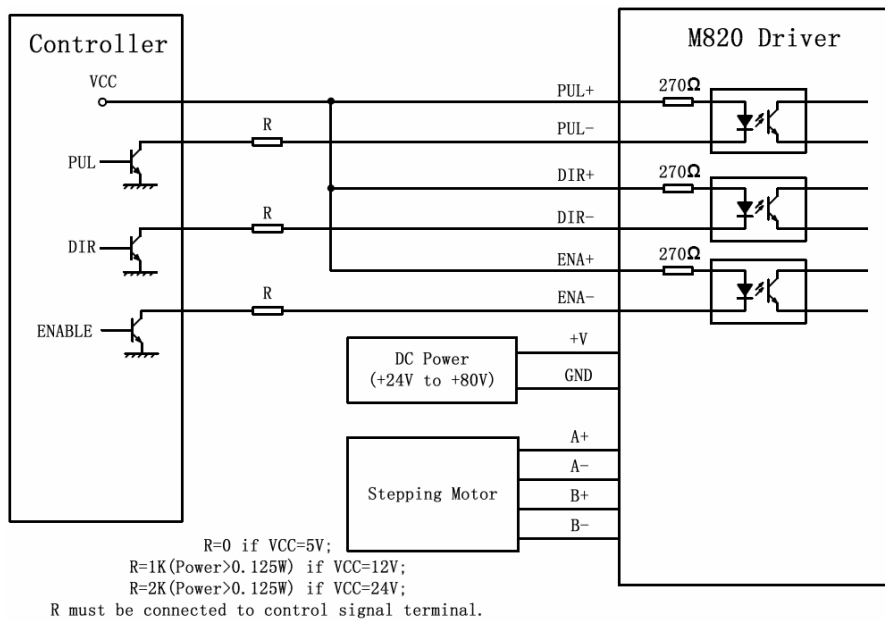


Figure 3: Typical connection

See "User's Manual for M880/M840" for more information. If you need a M820 with CW/CCW controllable function, please specify this requirement when ordering the M820, for normal M820 drivers don't support this function.