

User Manual for DMD402A

(Manual Version 1.2)



Features:

- Dual H-bridge, Pulse width modulated current control, chopping at 20 KHz
- TTL compatible and optically isolated input
- Max Step/rev. up to 51200
- Input Voltage 14-40 VDC
- Switch selectable motor current 0.25 – 2.0A/phase
- Over current protection
- CE compliant

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1. Electrical Specifications

T_j=25°C

Parameters	Min.	Typical	Max.	Unit
Output Current	0.25	-	2.0	A
Power Supply	14	32	40	VDC
Logic Current	6	10	30	mA
Pulse Frequency	0	-	200	KHz
Pulse Active-low	5	-	-	μs
Isolation Resistance	500	-	-	MΩ
Approx. Net Weight	-	0.26	-	Kg

2. Operation Environment

Condition	Caution	Avoid dust and corrosive air/oil
	Temp.	0°C ~ +50°C
	Humidity	Under 90% RH
	Vibration	5.9m/s ² Max
Storage Temperature		-20°C ~ +65°C

3. Micro-step Setting

Micro-step	Step/rev. (1.8° Motor)	SW5	SW6	SW7	SW8
1	200	off	off	off	off
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

NOTE:

Please shut down and re-apply power after micro-step setting is changed!

4. Pins

Pin	Description
B-	Motor Phase B
B+	
A-	Motor Phase A
A+	
DC+	Power Supply, +14~40VDC, including voltage fluctuation and EMF voltage.
DC-	Power Ground
ENA-	This signal is used for enabling/disabling the driver. Active-high for enabling the driver (optical-isolation is not through), Active-low for disabling the driver (optical-isolation is through).
ENA+	
Dir-	This Active-high/low signal is used for determining the rotate direction of motor. Please note that rotation direction is also related to the connection of motor wires.
Dir+	
Pul-	One step ahead when the pulse rising edge is active. Step distance is subject to the micro-step.
Pul+	

5. Output Current Setting

5.1 Dynamic Current

Peak Current (A)	SW1	SW2	SW3
0.25	on	on	on
0.5	off	on	on
0.75	on	off	on
1.0	off	off	on
1.25	on	on	off
1.5	off	on	off
1.75	on	off	off
2.0	off	off	off

5.2 Standstill Current

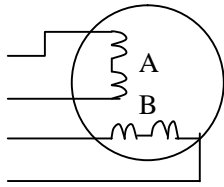
SW4 defines the standstill current.

Status “off” is to set the standstill current as the half of dynamic current.

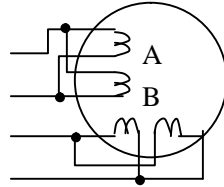
Status “on” is to set the standstill current as same as the dynamic current.

6. Wiring Connections

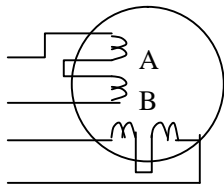
6.1 to the Stepping Motor



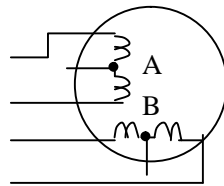
4-lead



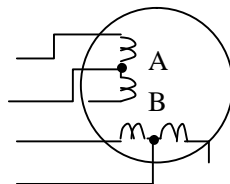
8-lead (Parallel)



8-lead (Series)



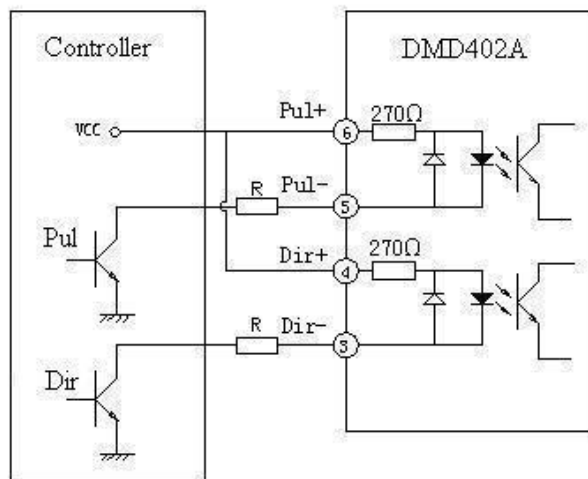
6-lead (for Higher Torque)



6-lead (for Higher Velocity)

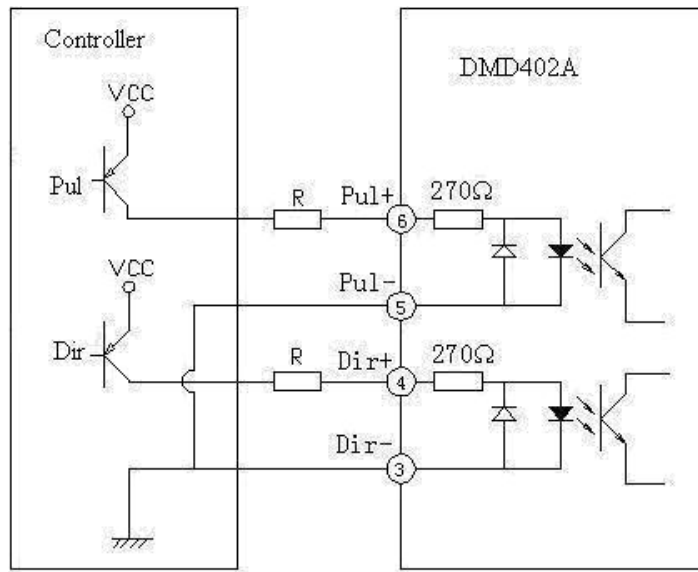
6.2 to the Controller

6.2.1 Common Anode



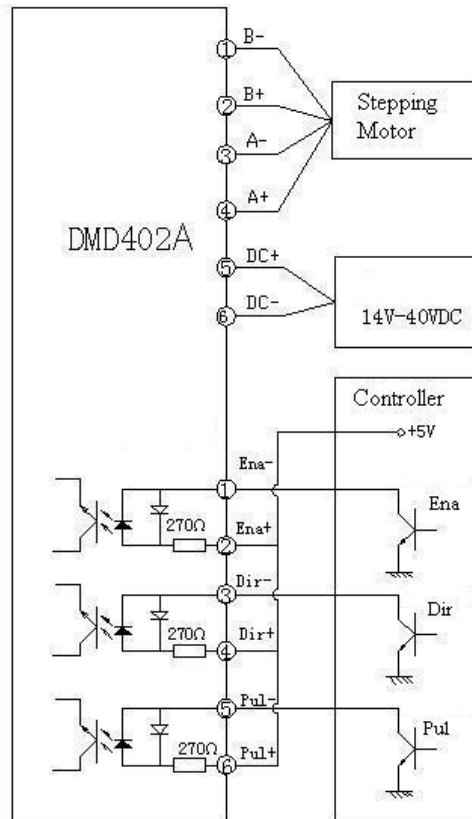
VCC=5V R=0
 VCC=12V, R=1KΩ (≥1/8W)
 VCC=24V, R=2KΩ (≥1/8W)

6.2.2 Common Cathode

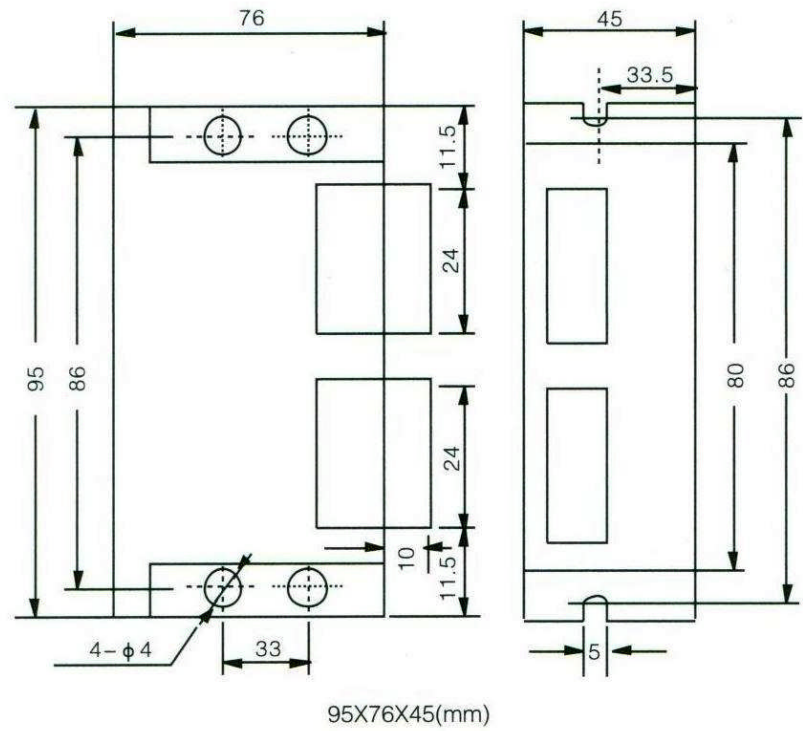


VCC=5V R=0
 VCC=12V, R=1KΩ (≥ 1/8W)
 VCC=24V, R=2KΩ (≥ 1/8W)

6.3 Typical System



7. Mechanical Structure (unit: mm)



8. Sequence Chart of Control System

