

DM3722M is internationally applicable 3-phase high voltage stepper motor driver, which is controlled by DSP chip. The combination of software algorithm and 3-phase driving modules is even more advanced than AC servo driver. The users can set parameters like current, micro steps, pulse input mode and etc through four buttons. The LED screen can display and memorize the value automatically. DM3722M has already been widely applied in engraving machine,CNC,computerized embroidery machine, plasma/flame cutting machine, sunglasses production, fireworks making, packaging machine and etc. It is becoming recognized and well reputed among users by relying on the specifications of wide application, high reliability/stability and low price.



Specifications

- ★ 5V-24V signal voltage compatible, no need to connect resistance to limit current if signal voltage is 24V.
- ★ MAX response frequency up to 250Kpps.
- ★ 42-Switch micro steps, MAX resolution up to 60,000.
- ★ Output current 1.2-7.0A RMS adjustable.
- ★ Locking current adjustable (5%-100% of running current)
- ★ Single power input: AC90V-AC250V, 50/60Hz
- ★ With LED display and four buttons to set working current, locking current, micro steps, filter constant and etc.
- ★ Matching value selectable for motor inductance to make sure the driver matches motors from different suppliers.
- ★ Users can select to show pulse number or motor running speed in LED screen.
- ★ Low noise,high stability and reliability, competitive price.

NOTE: If users need to take place of Q or DQ series, just advise four basic parameters: 1. running current; 2. locking current; 3. micro steps; 4. motor inductance Then we can set the above parameters in advance in DM driver for you.

Function Table

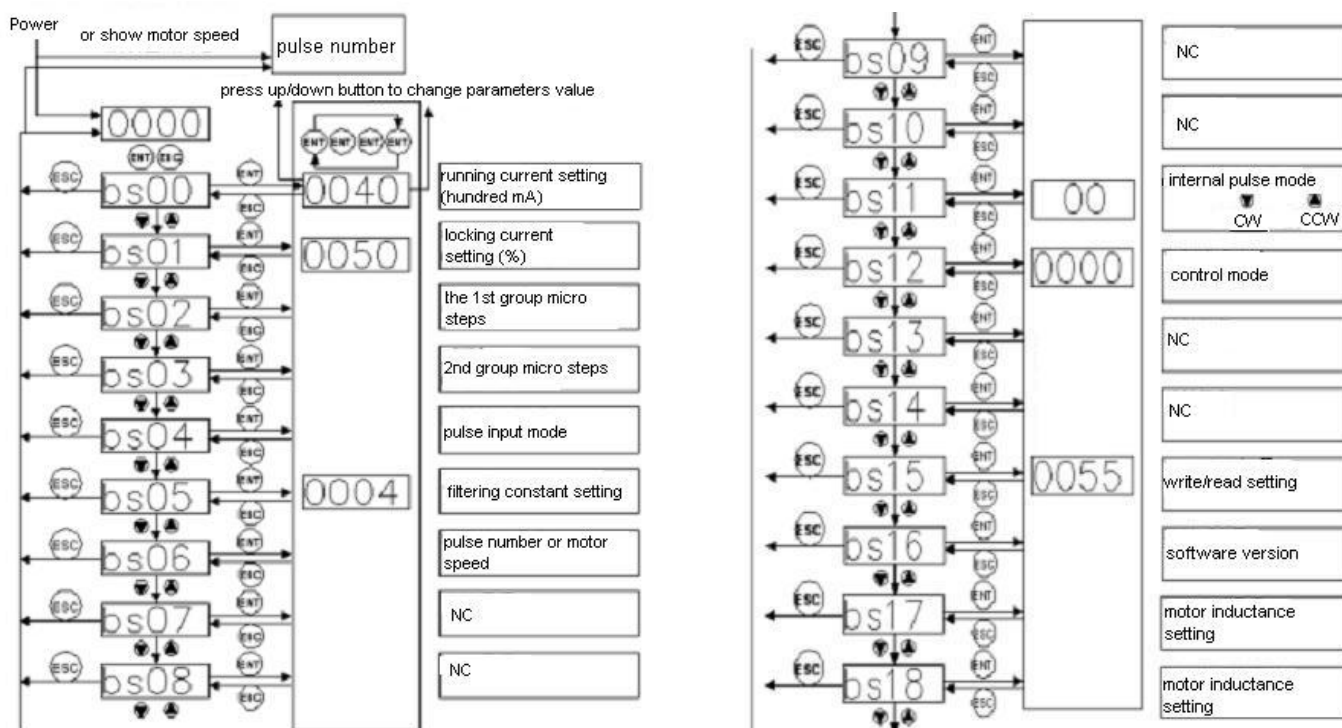
Function	Content
Self-test function	No need to input pulse signal but directly through buttons to control motor to check if driver and motor is normal.
Micro steps change	High/low subdivision can be changed freely. (Refer to parameter BS02, BS03 Setting)
Pulse input modes choosing	Two pulse input modes for optional. (single/double pulse input)
Rising/falling edge choosing	Two pulse valid input for option. Rising edge or falling edge (the default is pulse valid at falling edge)
Phase memory function	Automatically memorized motor phase if pulse stops 3 seconds.
Protection function	Protection of over-current, over-voltage, over-heat, phase short circuit and overload.

Status display	To show pulse number or motor running speed.
42-switch micro steps	200,300,400,500,600,800,900,1000,1200,1500,1600,1800,2000,2400,2500,3000,3200,3500,3600,4000,4200,4500,4800,5000,6000,6400,7200,8000,9000,9600,10000,12000,12800,14400,20000,24000,25600,30000,40000,50000,51200,60000

Parameters Diagram

Status and parameters can be set via the LED screen and four buttons. (Note: Please long press “ENT” for 3 seconds after entering parameter setting menu.)

After the driver is powered up, please long press “ENT” for 3 seconds first, and then press  to display the next. Details as below:



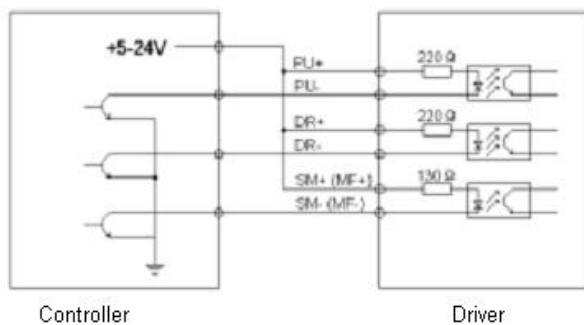
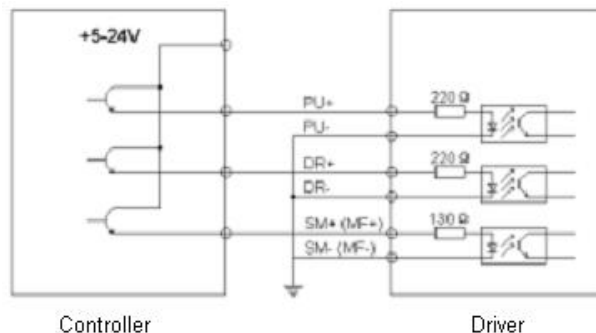
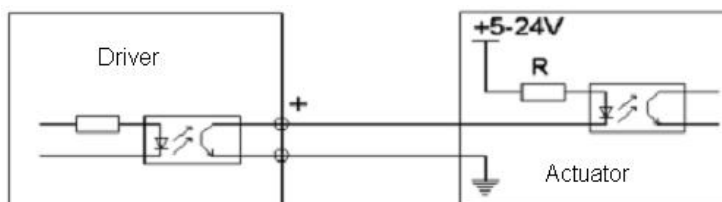
Parameters Table

Item	No.	Name & Function	Initial Value	Unit	Setting Range
0	BS00	To set running current of motor	0040	Hundred MA	0012-0070
1	BS01	To set locking current of motor.	50% of the working current	%	5%-100%
2	BS02	The 1st group micro steps. Please choose this group when SM signal input is in high level.. 200E means 200*100=20000 pulse/R	1000	Pulse/R	200-600E

3	BS03	The 2nd group micro steps. Please choose this group when SM signal input is in low level.. 4000 means 4000 pulse/R	2000	Pulse/R	200-600E
4	BS04	To choose pulse input mode. 0000: CW/CCW pulse control mode, pulse valid at rising edge. 0001: pulse+direction control mode, pulse valid at rising edge. 0002: CW/CCW pulse control mode, pulse valid at falling edge. 0003: pulse+direction control mode, pulse valid at falling edge.	0003		0000-0003
5	BS05	Driver pulse filter constant. The smoothing effect upon external pulse is stronger if the value is set bigger. And the high-speed function is also better. However, the driver response time is longer too. If PC gives opposite direction with previous instruction, please delay BS05 setting time and then give opposite direction instruction. When the value is 0, there is no smoothing function.	0004		0000-0006
6	BS06	0000: LED displays pulse number 0001: LED displays motor running speed.	0000		0000-0001
7	BS07	NC			
8	BS08	NC			
9	BS09	NC			
10	BS10	NC			
11	BS11	Self-test mode. Using up and down button to CW/CCW rotate and press "ENT" to stop.	00		
12	BS12	0000: external pulse input mode 0001: internal self-test control mode	0000		0000-0001
13	BS13	NC			
14	BS14	NC			
15	BS15	read/write setting 0055: BS00-BS18 parameters readable and changeable; Other value: BS00-BS18 only readable, BS15 changeable	55		0-9999
16	BS16	Software version 2b10			
17	BS17	Motor inductance setting (1)	22		1-200
18	BS18	Motor inductance setting (2)	100		1-9999

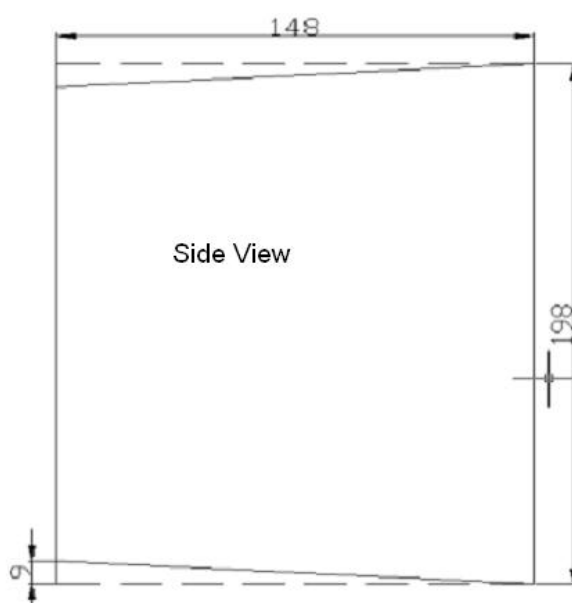
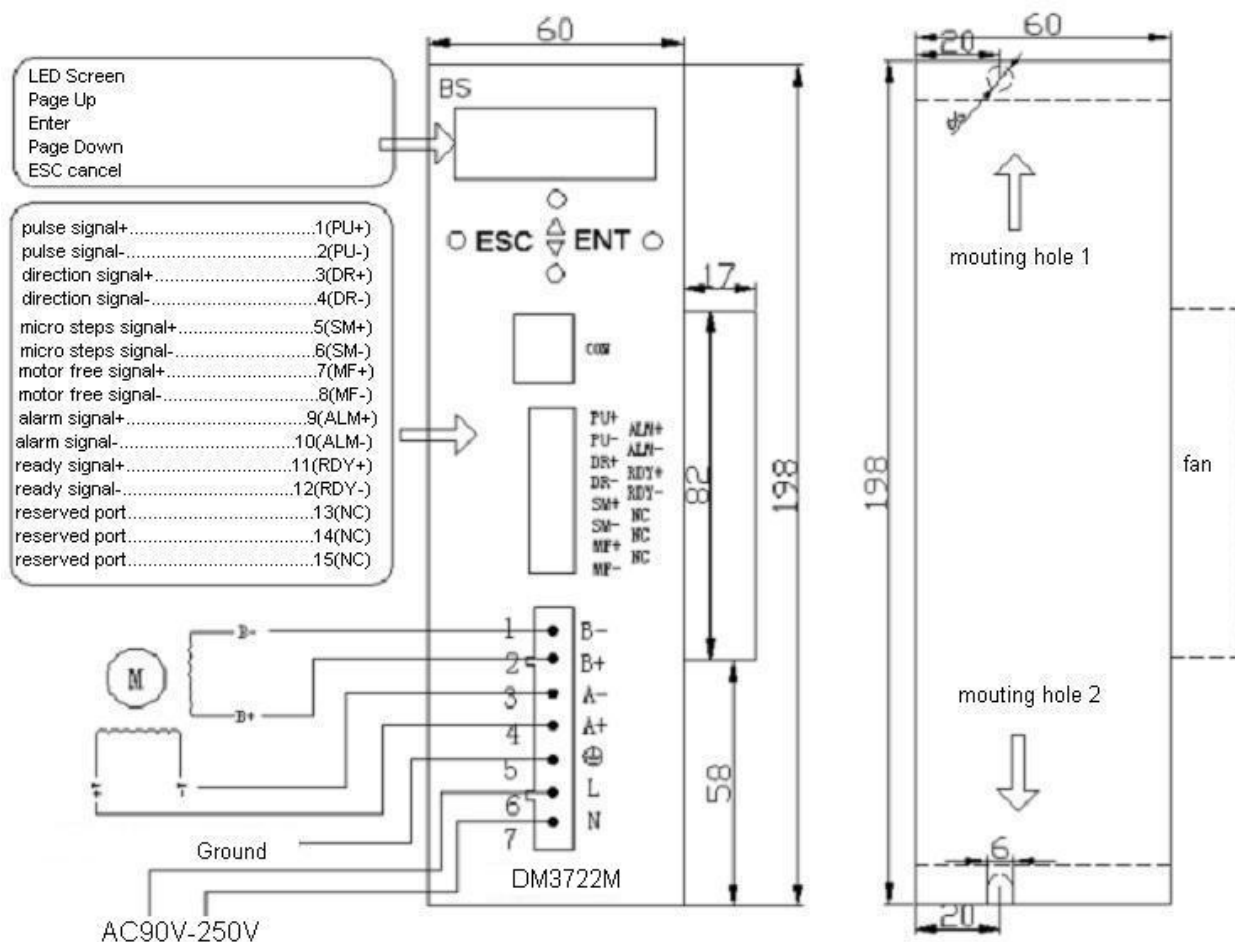
I/O Signals

All input signals are optically isolated. To guarantee the reliable running of the built-in high-speed optocoupler, the driving current to control the signal is required to be 15mA at least. The driver is compatible with 5V/24V signal voltage, no need to connect R to limit current.

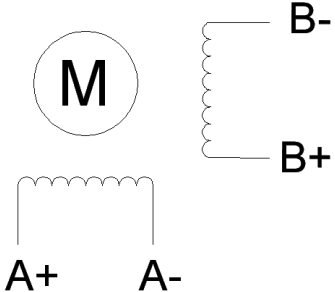
Common Anode Connection for Signal Input**Common Cathode Connection for Signal Input****Signal Output**

The driver outputs the signals through optocoupler. The max driving current can be 50mA. RDY, ALM signal output.

Installing Dimension & Ports Description (unit: mm)



Lead Pin Function Table

Terminal	Pin	Symbol	Function	Note
DB15	1	PU+	Stepper pulse signal +	5V-24V signal voltage compatible, no need to connect R to limit current if 24V.
	2	PU-	BS04=1、3, PU is stepper pulse signal	Each time pulse level changes, the motor moves one step. The input resistance is 220 Ω . Both 5V and 24V signal voltage can drive, no need to connect R to limit current if 24V. Pulse width >2.5 μ S
			BS04=0、2, PU is CW stepper pulse signal	
	3	DR+	Direction signal +	5V-24V compatible, no need to connect R to limit current if 24V.
	4	DR-	BS04=1、3, DR is Direction signal	Applied to change motor rotating direction. Input resistance is 220 Ω . Both 5V and 24V signal voltage can drive, no need to connect R to limit current if 24V. Pulse width >2.5 μ S
			BS04=0、2, DR: CCW stepper pulse signal	
	5	SM+	Setting micro steps signal+	Both 5V and 24V signal voltage can drive, no need to connect R to limit current if 24V. Low level: BS03 micro steps High level: BS02 micro steps
	6	SM-	Setting micro steps signal-	
	7	MF+	Motor free signal+	5V-24V compatible
	8	MF-	Motor free signal-	Low level is valid, the current will be cut off and the driver stops working and in free state.
	9	ALM+	Alarm signal+	The driver outputs fault signal if over-current or over-heat. The signal is valid.(low level)
	10	ALM-	Alarm signal -	
	11	RDY+	Ready output signal +	The driver works normally and is ready to receive control signal. The signal is valid. (low level)
	12	RDY-	Ready output signal -	
	13、14、15	NC	NC	NC
Power Terminal & Motor Wiring	1	B-	Motor Wiring	
	2	B+		
	3	A-		
	4	A+		
	5	PE	Ground	Ground
	6、7	L、N	Power Supply	Power Input: AC90~250V

Alarm Mode

The fault signal is sent via LED screen. If any error occurs, the LED indicator will display alarm information. And it will not disappear even after repowered up. The motor is in power-off state and driver will not accept any command.

Display	Content	Solution
AL01	No motor connected or motor fault occurs.	Cut off the power to check motor connection and see if motor works normally.
AL02	Driver is over heating (above 75 degrees)	Cut off the power to help driver down to ordinary temperature.
AL03	Over current	Cut off the power and check if motor is short-circuited.
AL04	Module protection	Cut off the power and check if motor is short-circuited.

Possible Problems & Solutions Table

Problems	Possible Cause	Solution
Motor stopped	LED indicator does not light	Check power supply
	LED indicates alarm information.	Refer to “Alarm Mode” at Chapter Four.
	Driver control mode does not match.	Choose matching control mode.
	Motor spindle is locked and motor does not work.	Check external control signal.
	LED displays normally, motor spindle is not locked.	Check if MF signal is valid.
Motor Screechy	Running current of the driver does not match motor rated current.	Set running current to be rated current.
	Accelerating time is too short.	Lengthen the accelerating time or increase the constant value of pulse wave filtering.
	The max speed is over-set.	Reduce Max speed.
Inaccurate Position	The Micro steps set incorrectly.	Choose correct micro steps.
	The motor load is too heavy.	Change the motor or appropriately increase driver running current.
Invalid Button	Button does not give response when driver is running.	Cut off external pulse signal and press the button again.
Electric Leakage	Not reliably grounded.	Make the driver/motor reliably grounded.
Driver/Motor Over-heat	Heavy running current or terrible external heat sinking condition	Appropriately reduce running current or improve the ventilation and heat dissipation.