

DQ2722MA is a new-generation digital 2-phase stepper motor driver based on DSP control. The driver combines advanced DSP control technique and unique control circuit. The driver voltage is AC110-230V and driver current is below 7.0A. The driver can be used for types of 2-phase stepper motor with external diameter 86-130mm. The driver adopts circuit similar to servo control, so the motor can run smoothly with little vibration and noise. And the maximum positioning accuracy could reach 40,000 steps/rev. The product is widely used in big and medium-sized CNC equipment with higher resolution, such as engraving machine, medium-sized CNC machine tool, computer-controlled embroidery machine, packing machine, etc.

- High performance, low price
- The driver features 16-grade micro-stepping with equal angular degree and constant torque; the highest resolution may reach 40,000 steps/rev.
- The highest response frequency can reach 500Kpps
- When the step-by-step impulse has halted for over 100ms, the coil current will automatically reduce to half of the set value, to effectively reduce motor warming.
- Photoelectric isolation signal input/output
- Driver current from 1.0A / phase to 7.0A / phase, adjustable with 16 grades
- Single power input, voltage range: AC 110V to 230V
- Phase memory function (when the input has stopped unexpectedly or powered off, the driver will automatically memorize motor phase at that time.)
- I/O signal, the driver uses photoelectric isolation technique and signal level is 5V ~ 24V, compatible
- Function of pulse smooth technique makes the motor run stably at low speed. The level of smooth can be adjusted.
- It features motor inductance adjustment function, giving full play to the adaptive motor.



2H Microstep driver  
DQ2722MA

Current Table (Peak=RMSx1.4)

DP-1				RMS (A)	Peak
D1	D2	D3	D4		
OFF	OFF	OFF	OFF	1.0	1.4
OFF	OFF	OFF	ON	1.5	2.1
OFF	OFF	ON	OFF	2.0	2.8
OFF	OFF	ON	ON	2.3	3.2
OFF	ON	OFF	OFF	2.5	3.5
OFF	ON	OFF	ON	3.0	4.2
OFF	ON	ON	OFF	3.3	4.6
OFF	ON	ON	ON	3.6	5.0
ON	OFF	OFF	OFF	4.0	5.6
ON	OFF	OFF	ON	4.5	6.3
ON	OFF	ON	OFF	5.0	7.0
ON	OFF	ON	ON	5.4	7.6
ON	ON	OFF	OFF	5.8	8.1
ON	ON	OFF	ON	6.2	8.7
ON	ON	ON	OFF	6.6	9.2
ON	ON	ON	ON	7.0	9.8

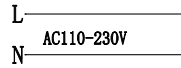
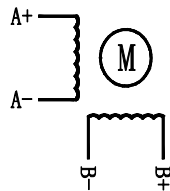
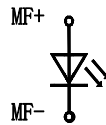
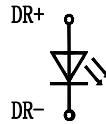
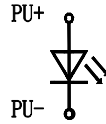
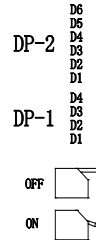
Pulse/rev Table

DP-2				Pulse (s/r)
D1	D2	D3	D4	
ON	ON	ON	ON	200
ON	ON	ON	OFF	400
ON	ON	OFF	ON	800
ON	ON	OFF	OFF	1000
ON	OFF	ON	ON	1600
ON	OFF	ON	OFF	2000
ON	OFF	OFF	ON	3200
ON	OFF	OFF	OFF	4000
OFF	ON	ON	ON	5000
OFF	ON	ON	OFF	6400
OFF	ON	OFF	ON	8000
OFF	ON	OFF	OFF	10000
OFF	OFF	ON	ON	12800
OFF	OFF	ON	OFF	20000
OFF	OFF	OFF	ON	25600
OFF	OFF	OFF	OFF	40000

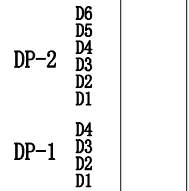
D5	ON	Double pulse model: CW/CCW
	OFF	Single pulse model: PU/DR
D6	ON	Self detect switch: 30r/m
	OFF	Accept external pulse



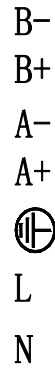
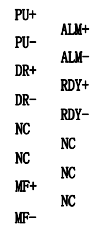
WANTAI ELECTRICAL APPLIANCE CO.,LTD  
www.wantmotor.com



DQ2722MA ○ ○  
POW ALM



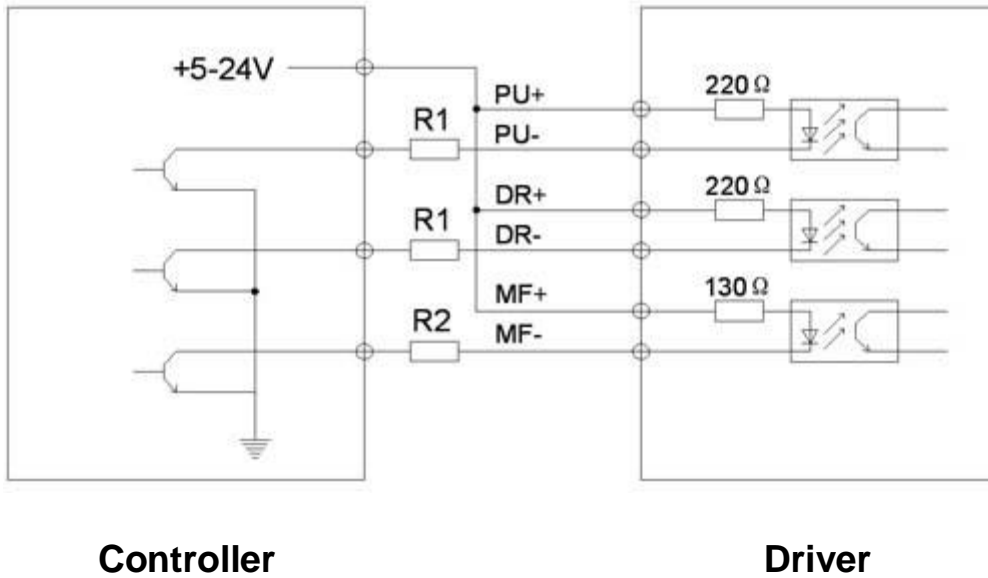
CON1



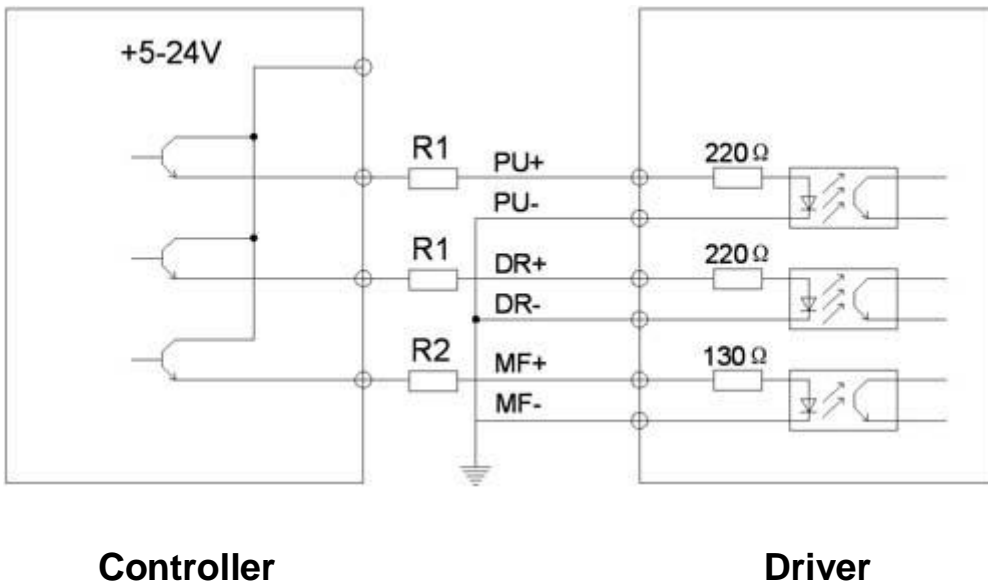
## Port Function

Port definition	Pin number	Mark symbol	Function	Notes	
RS-232	1	RX	Receiving data	Connected to serial port RX of upper computer (function preservation)	
	2	TX	Sending data	Connected to serial port TX of upper computer (function preservation)	
	3	GND	Ground wire	Connected to serial port ground of upper computer (function preservation)	
	4	5V	5V power	Connected to serial port power of upper computer (function preservation)	
Signal port	1	PU+	Positive terminal of input photoelectric isolation signal	Can be driven by +5 V~+24 V	
	2	PU-	DP5 = OFF, PU is step-by-step impulse signal	Falling edge is effective; whenever the impulse drops from high to low, the motor moves one step. Requirements: pulse width > 2.5μS	
			DP5 = ON, PU is positive step-by-step impulse signal		
	3	DR+	Positive terminal of input photoelectric isolation signal	Can be driven by +5 V~+24 V	
	4	DR-	DP5 = OFF, DR is direction control signal	Used to change turning direction of the motor. Requirements: pulse width > 2.5μS	
			DP5 = ON, DR is negative step-by-step impulse signal		
	5	MF+	Positive terminal of input photoelectric isolation signal	Can be driven by +5 V~+24 V	
	6	MF-	The motor release signal	When it is active (at low level), the motor wiring current is turned off, and the driver stops working; the motor is in a free mode.	
7	RDY+	The driver is ready to output positive photoelectric isolation signal.	When the driver is in normal state, ready to receive controller signal, the signal is active (at low level).		
8	RDY-	The driver is ready to output negative photoelectric isolation signal.			
Motor wiring power supply terminal	1	B-	Motor wiring		
	2	B+			
	3	A-			
	4	A+			
	5	⊕	Ground wire		Ground (connected to aluminum cover)
	6	L	Power supply		Power Supply: AC110 ~230V
	7	N			

## Common anode connection of input signal



## Common cathode connection of input signal



## 5

## Current &amp; Micro-step Setting

**Current setting**

The working current of the driver is set by DIP-1 terminal, the working current is normal working output current (note: the current is effective current)

Working current (A)	1.0	1.5	2.0	2.3	2.5	3.0	3.3	3.6	4.0	4.5	5.0	5.4	5.8	6.2	6.6	7.0
D1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON
D2	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON
D3	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON
D4	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON

**Micro-step setting**

The micro-step is set by DIP-2 with 16 levels. The first 4 dip of DIP-2 is for **micro-step setting** and the last 2 dip is for function setting.

The attached table: steps (pulse/rev)

Step No.	200	400	800	1000	1600	2000	3200	4000	5000	6400	8000	10000	12800	20000	25600	40000
D1	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D2	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
D3	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
D4	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
D5	ON, double pulse: PU is positive step pulse signal, DR is negative step pulse signal															
	OFF, single pulse: PU is step pulse signal , DR is direction control signal															
D6	Self-test switch (OFF: receive output pulse ;ON: run at 30rev/min)															

Problem	Possible reason	Measure
Motor not run	No light with "POW" or "ALM" indicator light	To check if the power supply is normal
	"ALM" indicator light is on	To check overcurrent or overheating, motor missing
	The motor shaft is locked, the motor cannot operate.	To check external control signal
	Indicator light shows normal, and the motor shaft is unlocked	To check if MF signal is active
Motor blocked	The max speed is set too high	To lower the max speed
	The time for speeding up is too short	To lengthen the time or increase the pulse filtering constant of the driver
Inaccurate position	The micro-stepping number is not correct	To select the correct micro-stepping number
	Excessive load for the motor	To replace the motor or moderately increase running current of the driver
"Leakage" phenomenon	The driver and motor is not reliably grounded	To reliably ground the driver and the motor
Severe warming of the driver and the motor	Large running current of the driver or bad external thermal conditions	To moderately reduce driver running current or improve ventilation of the driver and the motor

7

## ! Caution

1. The input voltage is lower than AC270V.
2. Falling edge is effective of input pulse signal. If you need the rising edge to be effective, please set inner parameter of the driver.
3. When the driver temperature goes beyond 75 degrees, it will halt working, and the fault indicator ALM will be on. Until the temperature drops to 50 degrees, the driver may resume work after a second-time power-on. In case of such overheat protection, please install heat sink.
4. In case of overcurrent (short circuit of load), the fault indicator ALM will be on. Please check motor wiring and other fault of short circuit; after the fault is removed, it will resume upon a second-time power-on.
5. In case of no motor, the fault indicator ALM will be on. Please check motor wiring; after the fault is removed, it will resume upon a second-time power-on.