Stepper Motor Driver

Two-phase digital stepper driver

CL57

◆ Product Features

▶ Using unique algorithm, low heat generation, high torque

▶ Voltage range: DC18-DC90V

▶ 16 grades of subdivision, can be customized according to customer requirements

▶ Signal input 5 ~ 24V compatible, no external series resistance required

▶ The highest response frequency is 400KHz

▶ The torque attenuation is small, and the maximum speed can reach 3000rmp

▶ External alarm and in-position output port are convenient for monitoring and control

▶ Intelligently adjust current, reduce power consumption at low load, and increase torque at high load

▶ The effective current can be set through the DIP switch to adapt to different motors

▶ DIP switch sets single and double pulse, factory default pulse + direction control

▶ The pulse delay is set by the DIP switch, the factory default is 40ms

▶ Excellent high-speed performance and rigidity, perfect integration of the advantages of servo and stepping.
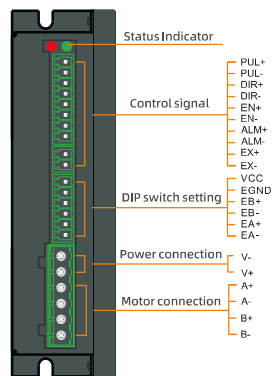
◆ Typical application

Mainly used for engraving machines, special industrial sewing machines, wire stripping machines, marking machines, cutting machines, laser imagesetters, plotter CNC machine tools, glue dispensers, screw machines and other automation equipment and instruments.
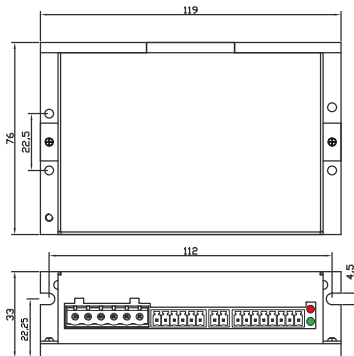
◆ Summary

CL57 adopts the latest digital integrated motor control chip and applies vector closed-loop control technology to completely overcome the problem of open-loop stepper motor lost steps, and can also significantly improve the high-speed performance of the motor, reduce the heat level of the motor and reduce the vibration of the motor. , thereby improving the processing speed and accuracy of the machine and reducing the energy consumption of the machine. In addition, when the motor is continuously overloaded, the driver will output an alarm signal, which has the same reliability as the AC servo control system, and is compatible with 57 and 60 closed-loop stepper motors. The traditional stepper drive scheme is easy to upgrade, and the cost is much lower than the traditional AC servo. The system is a very cost-effective motion control product.

◆ Driver wiring diagram

Status Indicator
Control signal — PUL+ / PUL- / DIR+ / DIR- / EN+ / EN- / ALM+ / ALM- / EX+ / EX-
DIP switch setting — VCC / EGND / EB+ / EB- / EA+ / EA-
Power connection — V- / V+
Motor connection — A+ / A- / B+ / B-

◆ Installation size (Unit: mm)

◆ DIP setting

Number of subdivisions	2	4	8	16	32	64	128	256	5	10	20	25	40	50	100	200
pulse/rev	400	800	1600	3200	6400	12800	25600	51200	1000	2000	4000	5000	8000	10000	20000	40000
Sw1	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Sw2	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
Sw3	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Sw4	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Sw5 : motor rotation direction setting   OFF=clockwise   ON=counterclockwise

Sw6 : single and double pulse setting   OFF=pulse+direction   ON=double pulse

SW7, SW8 pulse delay setting

pulse delay(ms)	0	4	20	40
Sw7	ON	OFF	ON	OFF
Sw8	ON	ON	OFF	OFF

◆ Indicator light and interface description

Sign	Function	Annotation
PWR/FLT	Voltage and fault indicators	Voltage and fault indicator green light flashes: the drive is normal, no pulse signal is received; the green light is always on: the pulse signal is received, the motor is rotating; one red and one green: overcurrent or interphase short circuit fault; two red and one green: no motor detected Or motor wiring error; three red and one green: overvoltage fault; four red and one green: undervoltage fault; five red and one green: tracking error out of tolerance fault.
PUL+	Pulse input signal photoelectric isolation positive terminal	Pulse signal voltage 3.3~24V can be driven
PUL-	Pulse input signal photoelectric isolation negative terminal	The falling edge is valid, and the motor takes one step every time the pulse changes from high to low. Pulse width greater than 2.5 microseconds
DIR +	Direction input signal photoelectric isolation positive terminal	Pulse signal voltage 3.3~24V can be driven
DIR-	Direction input signal photoelectric isolation negative terminal	Used to change the direction of the motor.The falling edge is valid, and the motor takes one step every time the pulse changes from high to low. Pulse width greater than 2.5 microseconds
EN+	Enable input signal photoelectric isolation positive terminal	Enable signal voltage 3.3~24V can be driven
EN-	Enable input signal photoelectric isolation negative terminal	When it is valid (low level), the motor coil current is turned off, the motor is in a free state and the alarm signal is cleared.
ALM+	Alarm signal output positive terminal	When the red light flashes, the alarm signal is valid (the output optocoupler is turned on). ALM+ is connected to the pull-up resistor to the positive pole of the output power supply, ALM- is connected to the negative pole of the output power supply, and the maximum driving current is 10mA.
ALM-	Alarm signal output negative terminal	
EX+	In-position signal output positive terminal	When the driver completes the given pulse, the in-position signal is valid (the output optocoupler is turned on). EX+ is connected to the pull-up resistor to the positive pole of the output power supply, EX- is connected to the negative pole of the output power supply, the maximum driving current is 10mA.
EX-	In-position signal output negative terminal	
VCC	Encoder power supply is positive	Encoder 5V power supply positive terminal
EGND	Encoder power ground	Encoder power ground
EB+	Encoder phase B input positive terminal	Connect to the positive input of the B channel of the encoder
EB-	Encoder phase B input negative terminal	Connect to the negative input of the B channel of the encoder
EA+	Encoder A phase input positive terminal	Connect to the positive input of the A channel of the encoder
EA-	Encoder A phase input negative terminal	Connect to the negative input of channel A of the encoder
V-	Drive power supply negative	EA drive power supply negative
V+	Drive power positive	Drive power positive, 18-90VDC
A+	Motor wiring A+	
A-	Motor wiring A-	
B+	Motor wiring B+	
B-	Motor wiring B-	

⚠ Notice：

1. Please ensure that the wiring of the motor and the encoder is correct, otherwise the motor will alarm when it is powered on and receives pulses.

2. When the motor is installed, it is strictly forbidden to knock the back cover of the motor to avoid damage to the encoder.