DM456-V-24 步进驱动器

DM456-V-24 STEPPER MOTOR DRIVER

ZZMOTOR



概述

DM456-V-24是模拟量调速产品，可同时接两个电机实现同步调速功能。其外接24V启动和方向信号控制电机的启动和反转，电机运行速度通过外接10K电位器调节，最大运行速度通过拨码选择设置。DM456-V-24驱动采用类伺服的控制原理，将矢量控制技术、内置微细分技术、自适应滤波技术融为一体，极大地优化了步进电机的性能，低中高速运行都很平稳，噪音小。精确、平滑的纯正弦电流矢量控制技术有效的减少了电机发热。其性价比极高，能够满足绝大多数场合的应用需要。DM456-V-24驱动器的正常驱动电压范围在DC24~50V，适配峰值电流在5.6A以下，外径42~86mm的两相混合式步进电机。

特点

- ●全新32位DSP技术
- ●可驱动4、6、8线两相步进电机
- ●内置微细分
- ●精密电流控制使电机发热大为降低
- ●静止时电流自动减半
- ●便于安装
- ●光隔离差分信号输入
- ●脉冲响应频率最高可达200kHz（更高可改）
- ●低振动低噪声
- ●具有过压、欠压、缺相等保护功能

电气、机械和环境指标

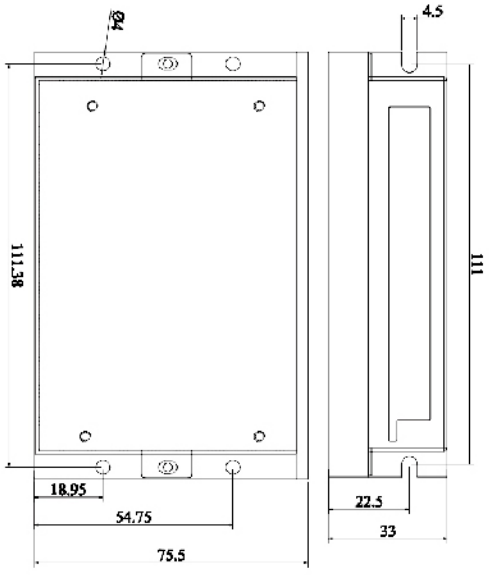
电气指标

说明	DM456-V-24			
	最小值	典型值	最大值	单位
输出电流	1.0	-	5.6	A
输入电源电压	24	36	50	VDC
控制信号输入电流	7	10	16	mA
步进脉冲频率	0	-	200	kHz
绝缘电阻	50			MΩ

使用环境及参数

冷却方式		自然冷却、风扇散热
使用环境	场合	不能放在其他发热的设备旁，要避免粉尘、油雾、腐蚀性气体，湿度太大及强振动场所，禁止有可燃气体和导电灰尘
	温度	0~50°C
	湿度	40~90%RH
	振动	10~55Hz/0.15mm
保存温度		-20°C~65°C

机械安装图



DM456-V-24 步进驱动器

DM456-V-24 STEPPER MOTOR DRIVER

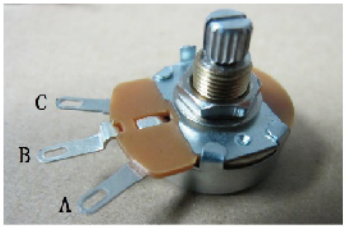
ZZMOTOR

驱动器接口和接线

控制信号接口

名称	功能	说明
OPTO	控制信号(ENA、DIR)公共端	接+24V信号
DIR-	方向信号输入负端	当ENA-有效，DIR-也有效时，电机反转
ENA-	启动信号输入负端	当ENA-有效时，电机启动运行
+3.3V	接电位器A端口	电位器A端和C端接线可互换， 具体的客户可根据现场实际应用进行接线
AIN	接电位器B接口	
GND	接电位器C接口	

注：电位器接口示意图如下所示：



强电接口

名称	功能	说明
GND	直流电源负端	DC24~50V，推荐+24V、+36V
+VDC	直流电源正端	
A+、A-	电机A相输出端	接电机A相线圈，注意相序
B+、B-	电机B相输出端	接电机B相线圈，注意相序

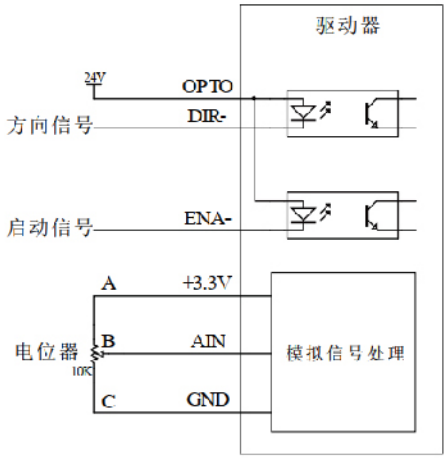
状态指示

绿色LED为电源指示灯，当驱动器接通电源时，该LED常亮；当驱动器切断电源时，该LED熄灭。

红色LED为故障指示灯，当出现故障时，该指示灯以3秒为周期循环闪烁；当故障被用户消除时，红色LED常灭。红色LED在3秒内闪烁次数代表不同的故障信息，具体关系如下表所示：

序号	闪烁次数	红色LED闪烁波形	故障说明
1	2		过压故障（电压>DC50V）
2	3		欠压故障（电压<DC20V）
3	5		电机开路（缺相）

控制信号接口电路



DM456-V-24 步进驱动器

DM456-V-24 STEPPER MOTOR DRIVER

ZZMOTOR



OVERVIEW

DM456-V-24 is an analog speed control product . It can connect two motors at the same time to achieve synchronous speed control. Its external 24V start and direction signals control the start and reverse of the motor. The motor speed is adjusted by an external 10K potentiometer, and the maximum speed is set by the dial selection. DM456-V-24 driver adopts servo-like control principle, integrating vector control technology, built-in micro-segmentation technology and adaptive filtering technology, which greatly optimizes the performance of stepper motors. It runs smoothly at low, medium and high speeds with low noise. Accurate and smooth pure sinusoidal current vector control technology effectively reduces motor heating. It has a very high cost-effectiveness and can meet the application needs of most occasions. The normal driving voltage range of the DM456-V-24 driver is DC24~50V, and it is suitable for two-phase hybrid stepper motors with a peak current below 5.6A and an outer diameter of 42~86mm.

FEATURES

- New 32-bit DSP technology
- Can drive 4, 6, 8-wire two-phase stepper motor
- Built-in micro-segmentation
- Precise current control greatly reduces motor heating
- The current automatically reduces to half when stationary
- Easy to install
- Optically isolated differential signal input
- Pulse response frequency up to 200kHz (higher frequency can be adjusted)
- Low vibration and low noise
- With overvoltage, undervoltage, phase loss and other protection functions

ELECTRICAL, MECHANICAL AND ENVIRONMENTAL INDICATORS

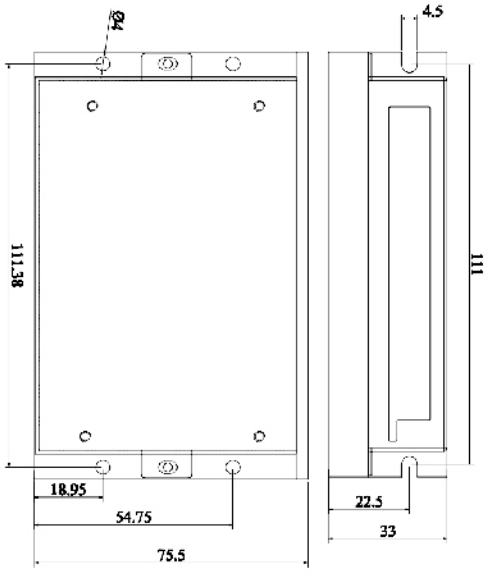
ELECTRICAL SPECIFICATIONS

Illustrate	DM456-V-24			
	Minimum	Typical Value	Maximum	Unit
Output Current	1.0	-	5.6	A
Input power voltage	24	36	50	VDC
Control signal input current	7	10	16	mA
Step pulse frequency	0	-	200	kHz
Insulation resistance	50			MΩ

USE ENVIRONMENT AND PARAMETERS

Cooling method		Natural cooling, fan cooling
Usage Environment	occasion	Do not place it near other heating equipment. Avoid dust, oil mist, corrosive gas, high humidity and strong vibration. Flammable gas and conductive dust are prohibited.
	temperature	0~50°C
	humidity	40~90%RH
	vibration	10~55Hz/0.15mm
Storage temperature		-20°C~65°C

MECHANICAL INSTALLATION DRAWING



DM456-V-24 步进驱动器

DM456-V-24 STEPPER MOTOR DRIVER

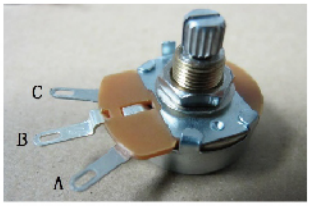
ZZMOTOR

Driver interface and wiring

Control signal interface

Name	Function	Illustrate
OPTO	Control signal (ENA, DIR) common terminal	Connect to +24V signal
DIR-	Direction signal input negative terminal	When ENA- is valid and DIR- is also valid, Motor reverse
ENA-	Start signal input negative terminal	When ENA- is valid, Motor start-up
+3.3V	Connect potentiometer A port	The wiring of the A and C ends of the potentiometer are interchangeable, and specific customers can make wiring according to actual on-site applications.
AIN	Connect potentiometer B interface	
GND	Connect potentiometer C interface	

Note: The potentiometer interface diagram is as follows:



Strong power interface

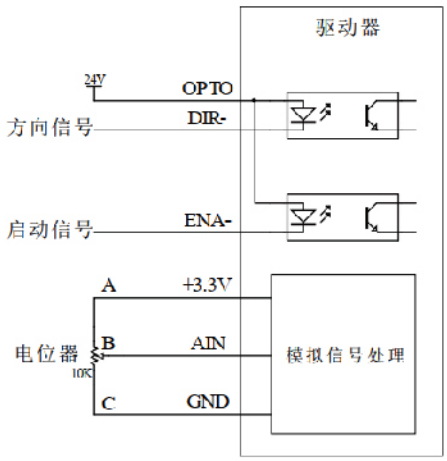
Name	Function	Illustrate
GND	DC power supply negative terminal	DC24~50V, recommended +24V, +36V
+VDC	DC power supply positive terminal	
A+、A-	Motor A phase output terminal	Connect the motor A phase coil, pay attention to the phase sequence
B+、B-	Motor B phase output terminal	Connect the motor B phase coil, pay attention to the phase sequence

Status Indicator

The green LED is the power indicator light. When the driver is powered on, the LED is always on; when the driver is powered off, the LED is off. The red LED is a fault indicator. When a fault occurs, the indicator flashes in a cycle of 3 seconds. When the fault is eliminated by the user, the red LED goes out. The number of times the red LED flashes in 3 seconds represents different fault information. The specific relationship is shown in the following table:

Serial number	Number of flashes	Red LED flashing waveform	Fault Description
1	2		Overvoltage fault (voltage>DC50V)
2	3		Undervoltage fault (voltage<DC20V)
3	5		Motor open circuit (phase loss)

Control signal interface circuit



EC57-K02总线型开闭环一体步进驱动器

EC57-K02 BUS-TYPE OPEN & CLOSED LOOP INTEGRATED STEPPER MOTOR DRIVER

ZZMOTOR



概述

EC57-K02总线型开闭环一体步进驱动器采用EtherCAT总线通讯接口，将EtherCAT从站技术、矢量控制技术、内置微细分技术、自适应滤波技术、闭环控制技术融为一体，实现了步进系统的实时控制与实时数据传输，优化了步进电机的性能：中低速具有极佳的平稳性和超低噪声；高速力矩得到极大提升，扩展了步进电机的速度应用范围；平滑、精确的纯正弦电流矢量控制技术有效的减小了电机发热。EC57-K02总线型开闭环一体步进驱动器已完美支持倍福、欧姆龙、正运动、汇川、信捷等多家主站控制系统，并且已经广泛应用于纺织、机器人、锂电设备、3C电子等行业。

特点

- ●新一代 32 位 ARM 技术，性价比超高、平稳性佳、噪声、振动性能优越
- ●采用EtherCAT从站技术，支持CIA301以及CIA402子协议，支持CSP、PV、PP、HM模式
- ●用户可以通过ethercat总线或者串口通讯的方式设置电流、细分及锁机电流大小
- ●内置单轴控制器功能：用户可以通过总线设置同步位置模式、速度模式、位置模式、回原点模式
- ●5路光电隔离可编程输入接口， 接收外部控制信号， 实现驱动器限位， 原点，急停等功能
- ●内置微细分
- ●内置电机参数设定
- ●静止时可设置任意电流减流比例
- ●电流设定方便
- ●具有过压、欠压等保护功能
- ●平稳性佳，噪音，振动性能优越
- ●支持位置控制、速度控制等模式
- ●纯正弦电流矢量控制有效降低电机发热
- ●3路光电隔离可编程输出接口，输出驱动器状态及控制信号
- ●设有任意细分调节，可以随意更改细分
- ●闭环可以设置超差报警警戒值
- ●低频小细分时具有极佳的平稳性
- ●电压范围：DC 20-50V

电气、机械和环境指标

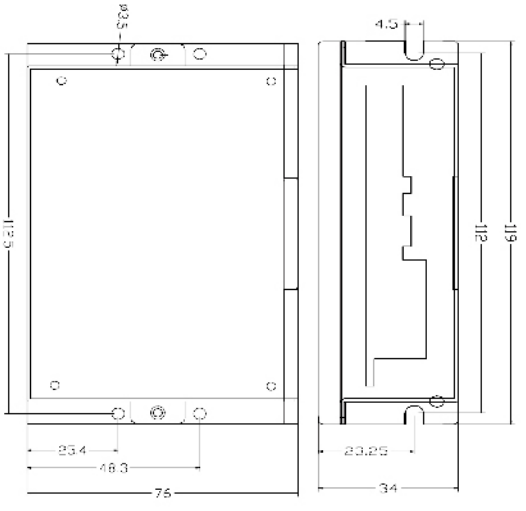
电气指标

说明	EC57-K02			
	最小值	典型值	最大值	单位
输出电流	0	-	6.0	A
输入电源电压	20	36	50	VDC
控制信号输入电流	7	10	16	mA
绝缘电阻	50			MΩ

使用环境及参数

冷却方式		自然冷却、风扇散热
使用环境	场合	不能放在其他发热的设备旁，要避免粉尘、油雾、腐蚀性气体，湿度太大及强振动场所，禁止有可燃气体和导电灰尘
	温度	-25°C~55°C
	湿度	40~90%RH
	振动	10~55Hz/0.15mm
保存温度		-20°C~65°C

机械安装图



EC57-K02总线型开闭环一体步进驱动器

EC57-K02 BUS-TYPE OPEN & CLOSED LOOP INTEGRATED STEPPER MOTOR DRIVER

ZZMOTOR

驱动器接口和接线

名称		功能	说明
拨码开关SW1-4		设置开闭环模式、电流、电机旋转方向	SW1：驱动器开闭环选择
			SW2-3：电流选择
			SW4：方向切换
ALM		警报指示灯	过流，过压，缺相，EEPROM烧写出错闪烁
PWR		电源指示灯	通电正常时灯亮
ECAT IN/OUT		EtherCAT通讯口	ECAT IN：进　ECAT OUT：出
IN/OUT	Xcom	单端输入口公共端接正有效	接阳极
	Ycom	单端输出口公共端兼容共阴共阳	兼容共阴共阳两种接法
	X0	单端输入口	低速数字信号输入接口
	X1		
	X2		
	X3		
	X4		
	Y0	单端输出口	低速数字信号输出接口
	Y1		
	Y2		
UART	3.3V	串口通讯	串口下载COE参数
	GND		
	RXD		
	TXD		
ENCODER	ENZ+	编码器接口	Z信号电平检测
	ENZ-		
	ENB+		接编码器A、B信号，注意线序
	ENB-		
	ENA+		
	ENA-		
	VCC	编码器电源接口	编码器5V供电电源正端
	GND		编码器5V供电电源负端
MOTOR	A+	电机接口	二相步进电机接线口，若为闭环电机，需注意线序
	A-		
	B+		
	B-		
VDC	VDC	电源接口	开关电源DC20-50V
	GND		

EC57-K02总线型开闭环一体步进驱动器

EC57-K02 BUS-TYPE OPEN & CLOSED LOOP INTEGRATED STEPPER MOTOR DRIVER

ZZMOTOR



OVERVIEW

EC57-K02 Bus-type Open & Closed Loop Integrated Stepper Motor Driver adopts EtherCAT bus communication interface, integrating EtherCAT slave technology, vector control technology, built-in micro-segmentation technology, adaptive filtering technology, and closed-loop control technology, realizing real-time control and real-time data transmission of the stepper system, and optimizing the performance of the stepper motor: medium and low speeds have excellent stability and ultra-low noise; high-speed torque is greatly improved, expanding the speed application range of the stepper motor; smooth and precise pure sinusoidal current vector control technology effectively reduces motor heating. EC57-K02 bus-type open-closed loop integrated stepper driver has perfectly supported many master control systems such as Beckhoff, Omron, Positive Motion, Inovance, Xinjie, etc., and has been widely used in textile, robotics, lithium battery equipment, 3C electronics and other industries.

FEATURES

- New Generation 32-bit ARM technology, high cost performance, good stability, excellent noise and vibration performance
- Adopt EtherCAT slave technology, support CIA301 and CIA402 sub-protocols, support CSP, PV, PP, HM modes
- Users can set the current, subdivision and lock current through ethercat bus or serial communication
- Built-in single-axis controller function: users can set synchronous position mode, speed mode, position mode, and homing mode through the bus
- 5-way opto-isolated programmable input interface, Receive external control signals, Realize drive limit, Origin, emergency stop and other functions
- Built-in micro-segmentation
- Built-in motor parameter setting
- Any current reduction ratio can be set when stationary
- Convenient current setting
- With overvoltage, undervoltage and other protection functions
- Good stability, excellent noise and vibration performance
- Support position control, Speed control etc.
- Pure sinusoidal current vector control effectively reduces motor heating
- 3-way opto-isolated programmable output interface, output driver status and control signals
- With arbitrary subdivision adjustment, you can change the subdivision at will
- Closed loop can set out-of-tolerance alarm value
- Excellent stability at low frequencies and small subdivisions
- Voltage Range: DC 20-50V

ELECTRICAL, MECHANICAL AND ENVIRONMENTAL INDICATORS

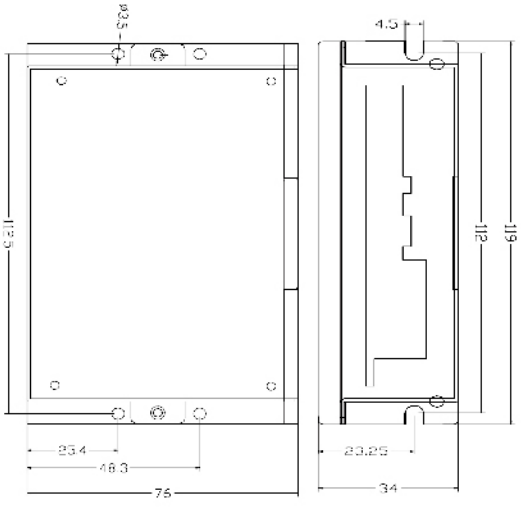
ELECTRICAL SPECIFICATIONS

Illustrate	EC57-K02 bus open and closed loop stepper driver			
	Minimum	Typical Value	Maximum	Unit
Output Current	0	-	6.0	A
Input power voltage	20	36	50	VDC
Control signal input current	7	10	16	mA
Insulation resistance	50	-	-	MΩ

USE ENVIRONMENT AND PARAMETERS

Cooling method		Natural cooling, fan cooling
Usage Environment	occasion	Do not place it near other heating equipment. Avoid dust, oil mist, corrosive gas, high humidity and strong vibration. Flammable gas and conductive dust are prohibited.
	temperature	-25°C~55°C
	humidity	40~90%RH
	vibration	10~55Hz/0.15mm
Storage temperature		-20°C~65°C

MECHANICAL INSTALLATION DRAWING



EC57-K02总线型开闭环一体步进驱动器

EC57-K02 BUS-TYPE OPEN & CLOSED LOOP INTEGRATED STEPPER MOTOR DRIVER

ZZMOTOR

Driver interface and wiring

Control signal interface

Name		Function	Illustrate
Dip switch SW1-4		Set open/closed loop mode, current, motor rotation direction	SW1: Driver open/closed loop selection
			SW2-3: Current selection
			SW4: Direction switch
ALM		Alarm indicator light	Overcurrent, overvoltage, phase loss, EEPROM programming error flashes
PWR		Power indicator	The light is on when the power is normal
ECAT IN/OUT		EtherCAT communication port	ECAT IN: ECAT OUT:
IN/OUT	Xcom	Single-ended input common port Correct connection is effective	Connect to anode
	Ycom	Single-ended output common port Compatible with common cathode and common anode	Compatible with both common cathode and common anode connection
	X0	Single-ended input	Low-speed digital signal input interface
	X1		
	X2		
	X3		
	X4		
	Y0	Single-ended output	Low-speed digital signal output interface
	Y1		
	Y2		
UART	3.3V	Serial communication	Download COE parameters via serial port
	GND		
	RXD		
	TXD		
ENCODER	ENZ+	Encoder interface	Z signal level detection
	ENZ-		
	ENB+		Connect encoder A and B signals, pay attention to the line sequence
	ENB-		
	ENA+		
	ENA-		
	VCC	Encoder power interface	Encoder 5V power supply positive terminal
	GND		Negative terminal of encoder 5V power supply
MOTOR	A+	Motor interface	Two-phase stepper motor wiring port, if it is a closed-loop motor, please pay attention to the line sequence
	A-		
	B+		
	B-		
VDC	VDC	Power interface	Switching power supply DC20-50V
	GND		

HS1-57交直流脉冲型闭环步进驱动器

HS1-57 AC/DC PULSE TYPE CLOSED-LOOP STEPPER MOTOR DRIVER

ZZMOTOR



概述

HS1-57交直流脉冲型闭环步进驱动器是最新推出的一款，采用最新专用电机控制数字信号处理器，是一种先进的运动控制设备，结合了传统的步进驱动器和闭环反馈系统的优势。它能够提供更高的精度、更大的扭矩输出以及更低的驱动噪声。HS1-57预留了刹车输出控制功能，在工作电压范围内，可稳定输出约DC24V电压，用户可直接接入刹车的电源线(注意区分正负)，中间不需要外接继电器等器件，可以极大地方便用户使用。HS1-57带串口调试功能，通讯采用MINI USB接口，用户可通过PC端上位机调试软件设置细分、电流、工作模式等多种参数，极大地丰富了产品的实用功能，能够满足绝大多数场合的应用。

特点

- ●体积小，便于安装
- ●预留了刹车输出控制接口，不需要继电器中间控制
- ●新一代32位DSP技术，平稳性佳、兼容性强、性价比高
- ●外置拨码设置驱动器细分、初始方向、报警极性、算法、平滑系数
- ●光隔离差分信号输入
- ●内置微细分，低速平稳性极佳
- ●脉冲响应频率最高可达200kHz（更高可改）
- ●细分设定范围400-60000（可通过上位机设置任意微细分）
- ●精密电流控制使电机发热大幅降低
- ●低振动低噪声
- ●具有过压、超差等报警保护功能
- ●输入电压范围：DC 24V~50V/AC 18V~36V

电气、机械和环境指标

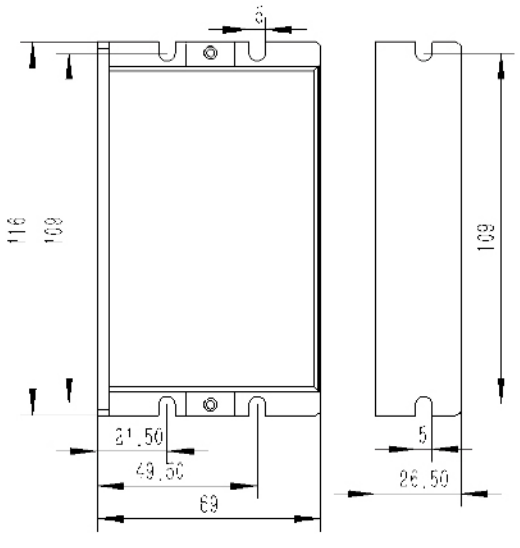
电气指标

说明	HS1-57			
	最小值	典型值	最大值	单位
输入直流电源电压	24	24	50	VDC
输入交流电源电压	18	18	36	VAC
控制信号输入电流	7	10	16	mA
步进脉冲频率	0	-	200	kHz
绝缘电阻	50			MΩ

使用环境及参数

冷却方式		自然冷却、风扇散热
使用环境	场合	不能放在其他发热的设备旁，要避免粉尘、油雾、腐蚀性气体，湿度太大及强振动场所，禁止有可燃气体和导电灰尘
	温度	0~50°C
	湿度	40~90%RH
	振动	10~55Hz/0.15mm
保存温度		-20°C~65°C

机械安装图



HS1-57交直流脉冲型闭环步进驱动器

HS1-57 AC/DC PULSE TYPE CLOSED-LOOP STEPPER MOTOR DRIVER

ZZMOTOR

驱动器接口和接线

控制信号接口

名称	功能
PU+ PU-	脉冲控制信号：+5V-+24V均可驱动，上升沿有效，每当脉冲由高变低时，电机走一微步。 为了可靠响应脉冲信号，脉冲宽度应大于2.5μs。
DR+ DR-	方向控制信号：+5V-+24V均可驱动，高/低电平信号。为保证电机可靠换向，方向信号应先于脉冲信号至少50μs建立。
EN+ EN-	使能控制信号：+5V-+24V均可驱动，高/低电平信号。用于使能或禁止电机的运行。当EN+接+5V，EN-接低电平时， 驱动器将切断电机各相的电流使电机处于自由状态，此时步进脉冲不被响应。当不需用此功能时，使能信号端悬空即可。 另外，EN端还可用于清除超差报警信号。

输出信号接口

名称	功能
AM+ AM-	报警信号输出：过压、位置超差报警发生时，报警信号输出有效；最大驱动电流50mA。

刹车控制接口（预留）

名称	功能
BK+ BK-	刹车控制信号输出：当发生过压、位置超差报警时，BK端口输出信号有效，控制刹车抱闸； 此功能暂作预留，若您有此方面的需求，请与本公司联系后添加。

编码器接口

名称	功能
PB+、PB-	编码器B相输入接口，需注意线序。
PA+、PA-	编码器A相输入接口，需注意线序。
VCC	编码器5V供电电源正端。
GND	编码器5V供电电源负端。

强电接口

名称	功能
V+/AC1、V-/AC2	电源输入，DC24V~50V/AC18V~36V
A+、A-、B+、B-	两相步进电机接线口，需注意线序

烧录调试接口

HS1-57驱动的串口通讯接口采用MINI USB接口，可以通过本公司提供的专用调试线经USB转TTL串口转换工具连接至PC机，禁止带电插拔！通过在PC端，客户可以设置所需要的参数，如电流、细分、工作模式等，具体可看上位机软件界面。

端子号	符号	名称	说明
1	NC	-	内部使用
2	NC	-	内部使用
3	GND	串口通讯地	0V
4	NC	-	内部使用
5	NC	-	内部使用
6	NC	-	内部使用
7	RXD	串口接收端	
8	TXD	串口发送端	

HS1-57交直流脉冲型闭环步进驱动器

HS1-57 AC/DC PULSE TYPE CLOSED-LOOP STEPPER MOTOR DRIVER

ZZMOTOR



OVERVIEW

The HS1-57 AC/DC Pulse Type Closed-Loop Stepper Motor Driver, using the latest dedicated motor control digital signal processor, is an advanced motion control device, combining the advantages of traditional stepper drivers and closed-loop feedback systems. It provides higher accuracy, greater torque output, and lower drive noise. HS1-57 has reserved the brake output control function, which can stably output about DC24V voltage within the working voltage range, and users can directly access the brake power line (pay attention to distinguish positive and negative), and there is no need for external relays and other devices in the middle, which can greatly facilitate users' use. HS1-57 with serial debugging function, communication using MINI USB interface, users can set subdivision, current, working mode and other parameters through PC PC debugging software, greatly enrich the practical function of the product, can meet the vast majority of applications.

FEATURES

- Small size, easy to install
- The brake output control interface is reserved, and the relay intermediate control is not required
- The new generation of 32-bit DSP technology has good stability, strong compatibility and high cost performance
- External dip sets drive segmentation, initial direction, alarm polarity, algorithm, smoothing factor
- Optical isolation of differential signal input
- Built-in micro division, low speed stability is excellent
- Pulse response frequency up to 200kHz (higher can be changed)
- Subdivision setting range 400-60000 (can be set by the host computer)
- Precision current control greatly reduces motor heating
- Low vibration and low noise
- It has alarm protection functions such as overpressure and overdifference
- Input voltage range: DC 24V~50V/AC 18V~36V

ELECTRICAL, MECHANICAL AND ENVIRONMENTAL INDICATORS

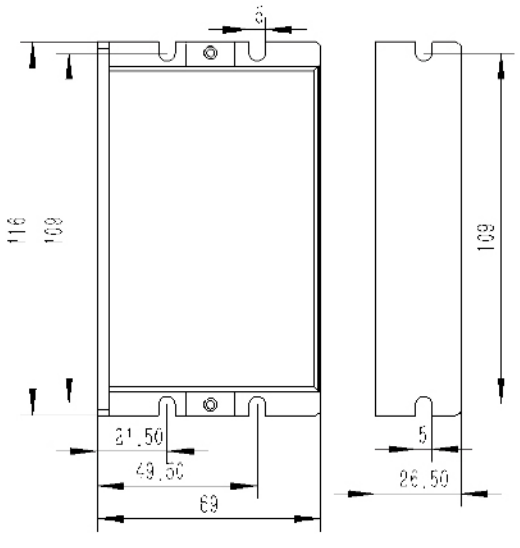
ELECTRICAL SPECIFICATIONS

Illustrate	HS1-57			
	Minimum	Typical Value	Maximum	Unit
Input DC power supply voltage	24	24	50	VDC
Input AC power supply voltage	18	18	36	VDC
Control signal input current	7	10	16	mA
Step pulse frequency	0	-	200	kHz
Insulation resistance	50			MΩ

USE ENVIRONMENT AND PARAMETERS

Cooling method		Natural cooling, fan cooling
Usage Environment	occasion	Do not place it near other heating equipment. Avoid dust, oil mist, corrosive gas, high humidity and strong vibration. Flammable gas and conductive dust are prohibited.
	temperature	0~50°C
	humidity	40~90%RH
	vibration	10~55Hz/0.15mm
Storage temperature		-20°C~65°C

MECHANICAL INSTALLATION DRAWING



HS1-57交直流脉冲型闭环步进驱动器

HS1-57 AC/DC PULSE TYPE CLOSED-LOOP STEPPER MOTOR DRIVER

ZZMOTOR

Driver interface and wiring

Control signal interface

Name	Function
PU+ PU-	Pulse control signal: +5V-+24V can be driven, rising edge is effective, every time the pulse changes from high to low, the motor takes a microstep. In order to reliably respond to the pulse signal, the pulse width should be greater than 2.5μs.
DR+ DR-	Direction control signal: can be driven by +5V-+24V, high/low level signal. To ensure reliable commutation of the motor, the direction signal should be established at least 50μs before the pulse signal.
EN+ EN-	Enable control signal: +5V-+24V can be driven, high/low level signal. Used to enable or disable the operation of the motor. When EN+ is connected to +5V and EN- is connected to a low level, the driver will cut off the current of each phase of the motor to put the motor in a free state, and the step pulse will not be responded to at this time. When this function is not needed, the enable signal terminal can be left floating. In addition, the EN terminal can also be used to clear the out-of-tolerance alarm signal.

Output signal interface

Name	Function
AM+ AM-	AM+ alarm signal output: When overvoltage, position out-of-tolerance alarm occurs, the alarm signal output is effective; Maximum driving current 50mA.

Brake control interface (reserved)

Name	Function
BK+ BK-	Brake control signal output: when overvoltage, position out of the alarm, the BK port output signal is effective, control brake lock; This function is temporarily reserved, if you have this need, please contact the company to add.

Encoder interface

Name	Function
PB+、PB-	Encoder B phase input interface, please pay attention to the line sequence.
PA+、PA-	Encoder A phase input interface, please pay attention to the line sequence.
VCC	Encoder 5V power supply positive terminal.
GND	Encoder 5V power supply negative terminal.

Strong power interface

Name	Function
V+/AC1、V-/AC2	Power input range：DC24V~50V/AC18V~36V
A+、A-、B+、B-	Two phase stepper motor wiring port, need to pay attention to the line sequence

BURN DEBUG INTERFACE

The serial port communication interface of HS1-57 driver adopts MINI USB interface, which can be connected to PC through USB to TTL serial port conversion tool through the special debugging cable provided by our company. It is forbidden to plug and unplug when live! Through the PC side, the customer can set the required parameters, such as current, subdivision, working mode, etc., the specific can see the PC software interface.

Terminal No.	Symbol	Name	Illustrate
1	NC	-	Internal Use
2	NC	-	Internal Use
3	GND	Serial port	0V
4	NC	-	Internal Use
5	NC	-	Internal Use
6	NC	-	Internal Use
7	RXD	Serial port receiver	
8	TXD	Serial port transmitter	

RSA86E-485总线型开闭环步进驱动器

RSA86E-485 BUS-TYPE OPEN & CLOSED LOOP STEPPER MOTOR DRIVER

ZZMOTOR



概述

RSA86E-485总线型开闭环步进驱动器是最新推出的带串口调试功能的数字式混合步进伺服驱动器，集成了MODBUS-RTU标准协议规范，通讯网口采用标准的RJ45接口，用户可通过上位机调试软件设置细分、电流、速度、工作模式等多种参数，极大地丰富了产品的实用功能，能够满足大多数场合的应用需要。485总线型开闭环步进驱动器采用类伺服的控制原理，兼容了开环步进和伺服系统的双重优点，采用最新32位DSP控制技术，极大地提升了步进系统的性能。中低速都具有极佳的平稳性和超低噪声，高速力矩也得到极大提升，扩展了步进电机的速度应用范围。平滑、精确的纯正弦电流矢量控制技术有效的减小了电机发热，且其兼容性强、性价比高，能够满足绝大多数场合的应用。

特点

- ●新一代32位DSP技术，平稳性佳、兼容性强、性价比高
- ●支持开闭环模式切换
- ●支持速度模式、位置模式、多段位置模式及回原点模式
- ●电流、锁机电流、细分、PI等参数都可通过主站设置及查询
- ●采用RS485总线，带隔离，支持标准MODBUS-RTU协议
- ●拨码SW1-5设置驱动器通讯地址，可支持31个设备，更多可通过主站设置
- ●11路光电隔离可编程输入接口，接收外部控制信号，实现驱动器使能，启停，限位等功能
- ●5路光电隔离可编程输出接口，输出驱动器状态及控制信号，如报警、到位、回原点完成等功能
- ●内置微细分，低速平稳性极佳
- ●具有过流、过压、欠压、缺相、超差等保护功能
- ●纯正弦电流矢量控制有效降低电机发热
- ●交直流通用，电压范围：AC20~50V/DC24V~70V

电气、机械和环境指标

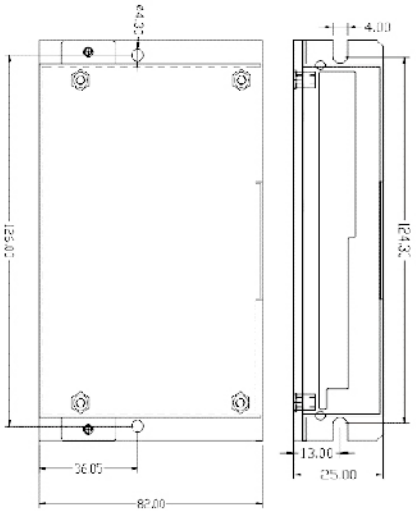
电气指标

说明	RSA86E-485			
	最小值	典型值	最大值	单位
输出电流	0	-	6.0	A
输入电源电压	20	-	50	VAC
	24	36	70	VDC
控制信号输入电流	7	10	16	mA
绝缘电阻	50			MΩ

使用环境及参数

冷却方式		自然冷却、风扇散热
使用环境	场合	不能放在其他发热的设备旁，要避免粉尘、油雾、腐蚀性气体，湿度太大及强振动场所，禁止有可燃气体和导电灰尘
	温度	-25°C~55°C
	湿度	40~90%RH
	振动	10~55Hz/0.15mm
保存温度		-20°C~65°C

机械安装图



RSA86E-485总线型开闭环步进驱动器

RSA86E-485 BUS-TYPE OPEN & CLOSED LOOP STEPPER MOTOR DRIVER

ZZMOTOR

驱动器接口和接线

拨码开关

名称	功能	说明
拨码开关 SW1-SW10	设置地址、波特率、开闭环模式、 电流、终端电阻选择	SW1-SW5：驱动器地址设置
		SW6：波特率设置
		SW7：开闭环模式设置
		SW8-SW9：开闭环电流大小设置
		SW10：120终端电阻有效位

RS485通讯接口

名称	定义
1	RS485-B
2	RS485-A
3	NC
4	NC
5	RS485-GND
6	NC
7	NC
8	NC

输出信号接口

名称		说明	功能
Output	Y0-Y4	单端输出口	低速数字信号输出接口
	YCOM	单端输出口公共端兼容共阴共阳	兼容共阴共阳两种接法

输入信号接口

名称		说明	功能
Input	X0-X10	单端输入口	低速数字信号输入接口
	XCOM	单端输入口公共端接正有效	接正+24V信号

编码器输入信号接口

名称		说明	功能
Encoder	EB+、EB-	编码器接口	接编码器A、B信号，注意线序
	EA+、EA-		
	+5V	编码器电源接口	编码器5V供电电源正端
	GND		编码器5V供电电源负端

电机控制输出接口

名称		功能
Motor	A+、A-、B+、B-	两相步进电机接线口，若为闭环电机，需注意线序

电源输入接口

名称		功能
VAC/VDC	AC1/DC+、AC2/DC-	电源输入，AC20V~50V/DC24V~70V

RSA86E-485总线型开闭环步进驱动器

RSA86E-485 BUS-TYPE OPEN & CLOSED LOOP STEPPER MOTOR DRIVER

ZZMOTOR



OVERVIEW

RSA86E-485 Bus-type Open & Closed Loop Stepper Motor Driver is the latest digital hybrid stepper servo driver with serial port debugging function. MODBUS-RTU Standard protocol specifications, the communication network port adopts standard RJ45 Interface, users can set the subdivision, electrical The various parameters such as flow, speed, working mode, etc. have greatly enriched the practical functions of the product and can meet the application needs of most occasions. 485 The bus-type open-loop and closed-loop stepper driver adopts a servo-like control principle, which combines the advantages of open-loop stepper and servo systems. Up to date 32BitDSP Control technology has greatly improved the performance of the stepper system. It has excellent stability and ultra-low noise at both medium and low speeds, and high speed. The torque is also greatly improved, expanding the speed application range of the stepper motor. Smooth and precise pure sine current vector control technology effectively reduces. It reduces the heat of the motor, has strong compatibility and high cost performance, and can meet the application needs of most occasions.

FEATURES

- New generation 32BitDSP technology, good stability, strong compatibility, high cost performance
- Support open-loop and closed-loop mode switching
- Support speed mode, position mode, multi-segment position mode and homing mode
- Current, lock current, subdivision, PIParameters such as these can be set and queried through the master station
- Use RS485 Bus, with isolation, supports standard MODBUS-RTU protocol
- Dial SW1-5 Set the driver communication address to support 31 Devices, more can be set via the master station
- 11 opto-isolated programmable input interfaces receive external control signals to implement driver enable, start/stop, limit and other functions
- 5-way photoelectric isolation programmable output interface, output driver status and control signals, such as alarm, arrival, return to origin completion, etc.
- Built-in micro-segmentation, excellent low-speed stability
- With over-current, over-voltage, under-voltage, phase loss, over-difference and other protection functions
- Pure sinusoidal current vector control effectively reduces motor heating
- Universal AC and DC, voltage range: AC20~50V/DC24V~70V

ELECTRICAL, MECHANICAL AND ENVIRONMENTAL INDICATORS

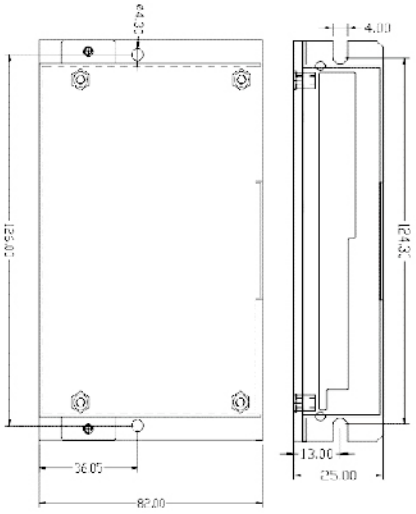
ELECTRICAL SPECIFICATIONS

Illustrate	RSA86E-485			
	Minimum	Typical Value	Maximum	Unit
Output Current	0	-	6.0	A
Input power voltage	20	-	50	VAC
	24	36	70	VDC
Control signal input current	7	10	16	mA
Insulation resistance	50	-	-	MΩ

USE ENVIRONMENT AND PARAMETERS

Cooling method		Natural cooling, fan cooling
Usage Environment	occasion	Do not place it near other heating equipment. Avoid dust, oil mist, corrosive gas, high humidity and strong vibration. Flammable gas and conductive dust are prohibited.
	temperature	-25°C~55°C
	humidity	40~90%RH
	vibration	10~55Hz/0.15mm
Storage temperature		-20°C~65°C

MECHANICAL INSTALLATION DRAWING



RSA86E-485总线型开闭环步进驱动器

RSA86E-485 BUS-TYPE OPEN & CLOSED LOOP STEPPER MOTOR DRIVER

ZZMOTOR

Driver interface and wiring

Dip switch

Name	Function	Illustrate
Dip switch SW1-SW10	Set the address, baud rate, open and closed loop mode, current, terminal resistance selection	SW1-SW5: Drive address setting
		SW6: Baud rate setting
		SW7: Open/closed loop mode setting
		SW8-SW9: Open and closed loop current size setting
		SW10: 120 Terminal resistance effective bit

RS485 Communication interface

Pinout	Definition
1	RS485-B
2	RS485-A
3	NC
4	NC
5	RS485-GND
6	NC
7	NC
8	NC

Output signal interface

Name		Illustrate	Function
Output	Y0-Y4	Single-ended output	Low-speed digital signal output interface
	YCOM	Single-ended output common port Compatible with common cathode and common anode	Compatible with both common cathode and common anode connection

Input signal interface

Name		Illustrate	Function
Input	X0-X10	Single-ended input	Low-speed digital signal input interface
	XCOM	Single-ended input common port Correct connection is effective	Connect +24V signal

Encoder input signal interface

Name		Illustrate	Function
Encoder	EB+、EB-	Encoder interface	Connect encoder A, B signal, pay attention to the line sequence
	EA+、EA-		
	+5V	Encoder power interface	Encoder 5V power supply positive terminal
	GND		Encoder 5V power supply negative terminal

Motor control output interface

Name		Function
Motor	A+、A-、B+、B-	Two-phase stepper motor connection port, if it is a closed-loop motor, pay attention to the line sequence

Power input interface

Name		Function
VAC/VDC	AC1/DC+、AC2/DC-	Power input, AC20V~50V/DC24V~70V