RMCS-1060

NEMA24 HIGH-PERFORMANCE DC LOW VOLTAGE SERVO MOTOR 10KGCM W/T 200W DRIVER

User Manual

Thank you for using our company's pulse type DC low voltage servo motor.

Before using this product, please be sure to read this manual carefully to understand the necessary safety information, precautions, and operating methods.

Wrong operation may cause extremely serious consequences.

statement

The design and manufacture of this product do not have the ability to protect personal safety from threats from mechanical systems. Users are advised to design and manufacture the mechanical systems.

Consider safety protection measures during the manufacturing process to prevent accidents caused by improper operations or product anomalies.

Due to product improvements, the contents of this manual may change without prior notice.

Our company will not assume any responsibility for any modification of the product by the user.

When reading, please pay attention to the following markings in the manual:

⚠	NOTE: Calls your attention to important points in the text.
⚠	CAUTION: Indicates that incorrect operation may result in personal injury and equipment damage.

The content described in this user manual only applies to the following models:

model	Motor length L (mm)
IDS60-P01A	94
IDS60-P02A	112

1 Overview

1.1 Product introduction

This product uses Cortex-M4 core high-performance 32-bit microcontroller and low internal resistance MOS to ensure excellent torque utilization of the motor.

At the same time, the heat and vibration of the motor are reduced, and the heat is 30% lower than that of ordinary products, effectively extending the service life of the motor.

The driver has built-in position and alarm output signals to facilitate detection and control by the host computer. Built-in over-tolerance, over-under voltage, over-temperature, etc.

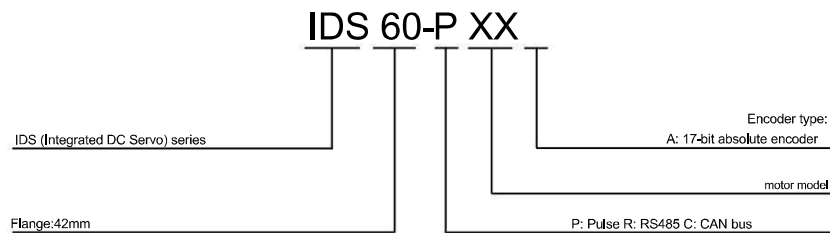An alarm function can ensure the safe operation of processing equipment.

1.2 Features

• Cortex-M4 core high-performance 32-bit microcontroller.

• 17-bit absolute encoder.

•The highest impulse response frequency can reach 200KHz.

• Built-in protection functions such as over-current, over-voltage, over-temperature, and over-tolerance effectively ensure the safe use of the equipment.

• The integrated design of the drive motor is easy to install, takes up little space, and has simple wiring.

• With anti-reverse connection function.

• Equipped with a brake resistor interface to prevent damage to the motor's electric brake.

• Using low internal resistance MOS, the heat generation is reduced by 30% compared with ordinary products.

1.3 Application areas

Medical equipment, logistics and transportation, new energy, industrial automation and textile machinery and other fields.

1.4 Product naming rules

IDS 60-P XX

IDS (Integrated DC Servo) series

Flange:42mm

P: Pulse R: RS485 C: CAN bus

motor model

Encoder type:
A: 17-bit absolute encoder

2 Performance indicators

2.1 Electrical characteristics

Drive parameters	minimum value	Rating	maximum value
Input supply voltage (V)	16	twenty four	48
Logic input voltage (V)		5	5
Logic input current (mA)	10	10	50
Pulse frequency (KHz)			200

2.2 Usage environment

envirnmental factor	Environmental indicators
cooling method	Natural cooling or forced cooling
Use occasions	Avoid dust, oil and corrosive gases Try to stay away from other heating devices The presence of flammable gases and conductive dust is prohibited
Operating temperature	0ÿÿ+50ÿ
environment humidity	ÿ85%RH (no condensation)
shock	5.9m/s² max
storage temperature	-25ÿÿ+70ÿ

3 installation

3.1 Installation dimensions

side   front
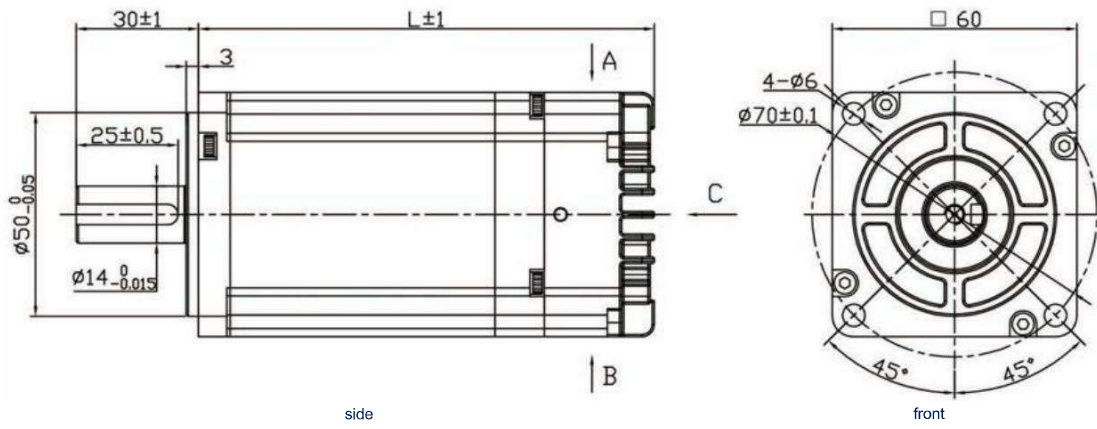
Installation dimension drawing (unit: mm)

3.2 Installation method

This product needs to be installed on a stable base with cold air circulating to facilitate motor heat dissipation. If the installation is uneven

Stability will cause the internal parts of the motor to vibrate and be damaged during operation.

The central axis of rotation of the motor must be aligned without large errors.

If necessary, install a fan close to the driver to force heat dissipation to ensure that the driver operates within a reliable operating temperature range.

4 drive ports and wiring

4.1 Wiring diagram
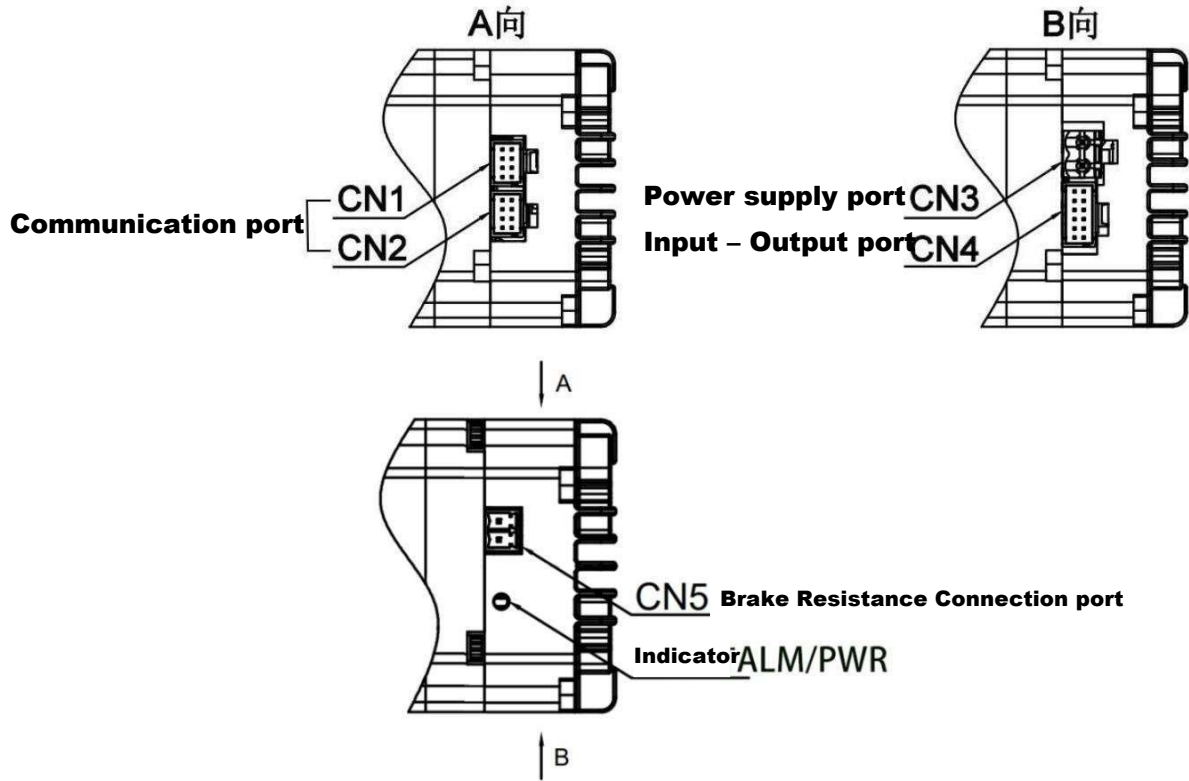
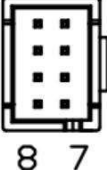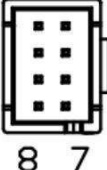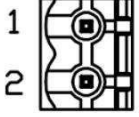

Driver wiring diagram

⚠ careful:

- Personnel involved in wiring must have professional capabilities.

- It is prohibited to operate while the power is on.

- Wiring can only be carried out after the installation is firm.

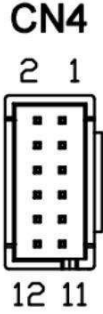- The input voltage cannot exceed 48V.

4.2 Port definition

4.2.1 Communication port

port	Pin name		content
CN1	1	-	reserve
	2	-	reserve
	3	-	reserve
	4	-	reserve
	5	COM	Serial communication public terminal
	6	5V	Serial communication power supply
	7	RXD	Serial communication receiving end
	8	TxD	Serial communication sending end
CN2	1	-	reserve
	2	-	reserve
	3	-	reserve
	4	-	reserve
	5	COM	Serial communication public terminal
	6	5V	Serial communication power supply
	7	RXD	Serial communication receiving end
	8	TxD	Serial communication sending end

4.2.2 Power port

port	Pin name		content
CN3	1	GND	Negative terminal of power supply connection
	2	VCC	Positive terminal of power supply connection
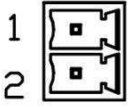
4.2.3 Input/output ports

port	Pin name		content
CN4 2 1 12 11	1	ALM+	Alarm signal positive terminal
	2	ALM-	Alarm signal negative terminal
	3	READY+	In place signal positive terminal
	4	READY-	Negative terminal of signal in place
	5	DIN+	Input signal positive terminal
	6	DIN-	Input signal negative terminal
	7	ENA+	Enable signal positive terminal
	8	ENA-	Enable signal negative terminal
	9	DIR+	Direction signal positive terminal
	10	DIR-	Direction signal negative terminal
	11	PUL+	Pulse signal positive terminal
	12	PUL-	Pulse signal negative terminal

⚠ Note: The motor default subdivision is 1000. Can be set via serial communication.

4.2.4 Braking resistor wiring port

port	Pin name		content
CN5 1 2	1	RB+	Braking resistor wiring positive terminal
	2	RB-	Negative terminal of brake resistor wiring

4.3 Control signal connection

4.3.1 Input signal

All signals are photoelectrically isolated and controlled by constant current, supporting 5~24V voltage input, and the current must be greater than 10mA.

Independent common anode connection method

Independent common cathode connection method
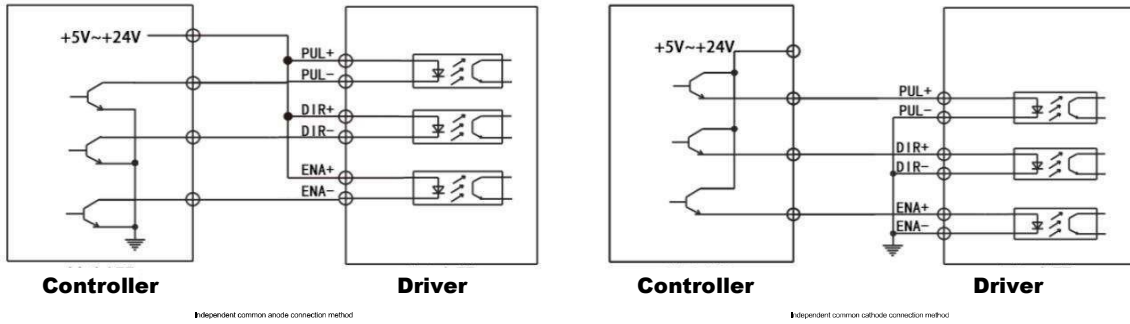
4.3.2 Output signal

The output signal requires an external pull-up voltage. It is recommended to connect a resistor R with a resistance of 10kÿ for pull-up 24V, and it is recommended to connect a resistor R for pull-up 12V.

R has a resistance of 5kÿ and a pull-up of 5V. It is recommended to connect the resistor R with a resistance of 1kÿ.
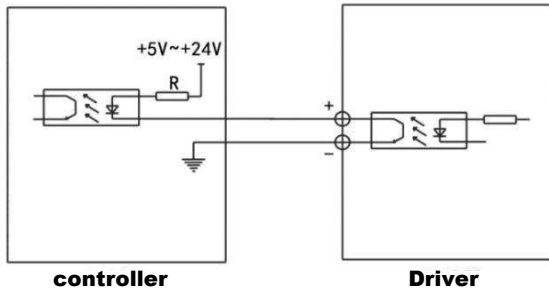
Output signal wiring diagram

5 Motor and technical specifications

5.1 Motor specifications

The motor specifications corresponding to the IDS60-P series motor driver are as shown in the following table:

model	Motor specifications
IDS60-P01A	60BLS01
IDS60-P02A	60BLS02

5.2 Technical specifications

parameter	unit	60BLS01	60BLS02
power	W	200	400
Rated voltage VDC		twenty four	48
Rated current	A	11.5	11.5
Rated speed Rpm		3000	3000
Rated torque Nm		0.63	1.27
Body length Mm		94	112

⚠ Note: When installing the motor, it is strictly prohibited to knock the motor back cover to avoid damaging the encoder.

6 Alarm information

After the driver alarms, the alarm indicator light on the back cover flashes different times according to the fault type. The specific number of flashes and processing methods are

The formula is shown in the following table:

Alarm indication fault code	status description	reset		reason
Flashes 1 time 0x2212 Hardware overcurrent	does not recover			Check whether the motor load is too large Or the motor selection is incorrect
Flashes 2 times 0x3211 The power supply voltage is too high and automatically recovers.				The input voltage is higher than the allowed value Or the input power supply is unstable
Flashes 3 times 0x3221 The power supply voltage is too low and automatically recovers.				The input voltage is lower than the allowed value Or the input power supply is unstable
Flashes 4 times 0x8311 overload			Automatic recovery	checks whether the motor load is too large
Flashes 5 times 0x4201 The temperature is too high. Automatic recovery. Check whether the working environment is too hot.				
Flashes 6 times 0x8611 Out of tolerance			Automatic recovery	Check whether the motor load is too large Or the input pulse frequency is too high and the motor cannot reach respond when
Flashes 7 times 0x7121	When reading EEPROM An error occurred		Do not restore	Internal parameters are abnormal and need to be restored to factory settings. Or the EEPROM is damaged
Flashes 9 times 0x2211 The motor is stalled and automatically recovers. Check whether the motor load is too large.				
Flashes 10 times 0x7310 Software overcurrent	automatic recovery			Check whether the motor load is too large Or the motor selection is incorrect
Flashes 12 times 0x2212 The motor overspeeds and does not recover. The actual motor speed is greater than the overspeed fault threshold.				
Flashes 14 times 0x3211 Encoder failure does not recover				Encoder failure or damage