LCRHLCNC 60CST-A1C01330, HTNC-C30S-L15A-RABN-B

LCRHLCNC 60CST-A1C01330 400W AC Servo Motor and HTNC-C30S-L15A-RABN-B AC Servo Drive User Manual

Model: 60CST-A1C01330, HTNC-C30S-L15A-RABN-B

1. Product Overview

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your LCRHLCNC 400W AC Servo Motor and AC Servo Drive system. Please read this manual thoroughly before use.

Figure 1: Complete LCRHLCNC 400W AC Servo Motor and Drive Kit. This image displays the AC servo motor, AC servo drive, driver resistance, control line, encoder wire, power line, and RS485 cable included in the product package.

1.1 Included Components

The product package typically includes the following items:

- 1x 400W AC Servo Motor (Model: 60CST-A1C01330)
- 1x AC Servo Drive (Model: HTNC-C30S-L15A-RABN-B)
- 1x Driver Resistance
- 1x Control Line (T3X-T5A)
- 1x Encoder Wire (BM-TH-80A1-A3.0F)
- 1x Power Line (DL-TH-60-A3.0D)
- 1x RS485 Cable

2. Safety Precautions

Always observe the following safety precautions to prevent injury to personnel and damage to equipment.

- Ensure power is disconnected before installation or maintenance.
- Only qualified personnel should perform installation and wiring.
- Verify correct voltage and current ratings before connecting power.
- Avoid touching rotating parts during operation.
- Ground the equipment properly to prevent electrical shock.
- Do not operate the motor or drive in environments exceeding specified temperature, humidity, or vibration limits.

3. Setup and Installation

3.1 Mounting

Mount the servo motor and drive securely on a stable surface, ensuring adequate ventilation for heat dissipation. Avoid mounting in direct sunlight or near heat sources.

3.2 Wiring Connections

Refer to the wiring diagram below for proper connection of all components. Incorrect wiring can lead to malfunction or damage.

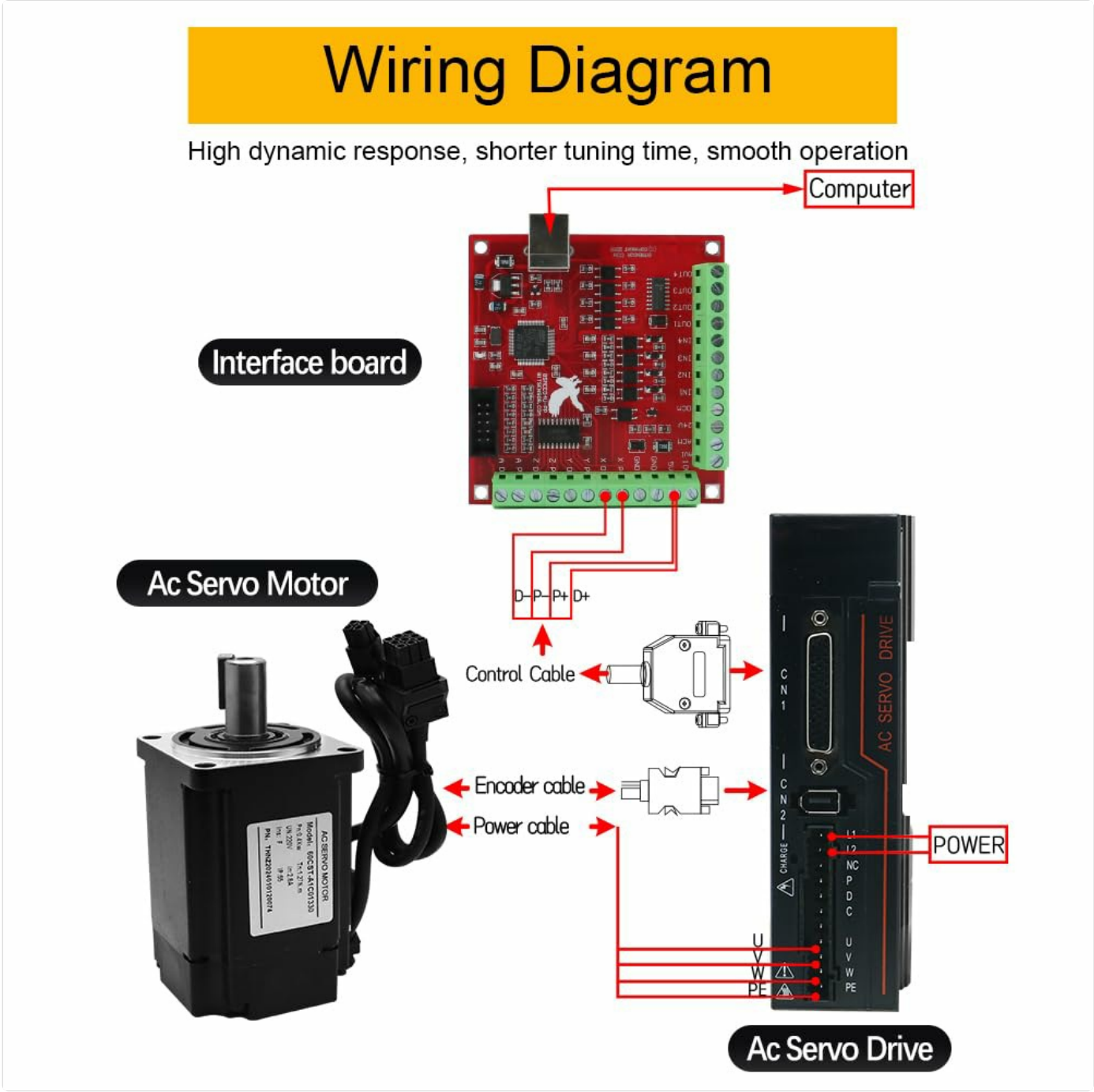

Figure 2: Wiring Diagram. This diagram illustrates the connections between the AC Servo Motor, AC Servo Drive, control cable, encoder cable, power cable, and an interface board connected to a computer.

1. **Power Connection:** Connect the power line (DL-TH-60-A3.0D) to the AC Servo Drive's power input (typically labeled L1, L2, L3 or U, V, W for three-phase, or L, N for single-phase, and PE for ground). Ensure the voltage matches the drive's specifications (220V).
2. **Motor Connection:** Connect the AC Servo Motor to the AC Servo Drive using the motor power cable. Match the phase connections (U, V, W) correctly.
3. **Encoder Connection:** Connect the encoder wire (BM-TH-80A1-A3.0F) from the servo motor to the encoder input port on the AC Servo Drive. This provides feedback for precise motor control.
4. **Control Signal Connection:** Connect the control line (T3X-T5A) from your control system (e.g., PLC, motion controller) to the control input terminals on the AC Servo Drive. This typically includes pulse, direction, and enable signals.
5. **RS485 Communication:** Connect the RS485 cable to the designated RS485 port on the drive for communication with a host controller or PC for parameter setting and monitoring.

6. **Driver Resistance:** Connect the driver resistance as indicated in the wiring diagram, typically to the braking resistor terminals, to dissipate regenerative energy during deceleration.

4. Operating Instructions

4.1 Initial Power-Up

After completing all wiring, double-check connections. Apply power to the AC Servo Drive. Observe the drive's status indicators for any error codes. If no errors are present, the system is ready for configuration.

4.2 Parameter Configuration

Use the RS485 interface and appropriate software (provided by the manufacturer or a compatible utility) to configure the servo drive parameters. Key parameters include:

- Motor type and encoder resolution
- Control mode (position, speed, torque)
- Gain settings (P, I, D) for optimal performance
- Overcurrent, overvoltage, undervoltage protection limits

Refer to the detailed programming manual for the HTNC-C30S-L15A-RABN-B drive for comprehensive parameter settings.

4.3 Test Run

Perform a low-speed test run without load first. Gradually increase speed and load while monitoring motor behavior and drive status. Adjust parameters as needed to achieve desired performance and stability.

5. Maintenance

Regular maintenance ensures the longevity and reliable operation of your servo system.

5.1 Cleaning

Keep the motor and drive free from dust and debris. Use a soft, dry cloth for cleaning. For the motor, its design offers protection against dust and water splashes.

Figure 3: Dustproof and Waterproof Design. The servo motor features a spray-painted body surface, providing protection against dust and water splashes, enhancing durability in various industrial environments.

5.2 Inspection

- Periodically check all wiring connections for tightness and signs of wear or damage.
- Inspect the motor shaft and bearings for smooth rotation and unusual noise.
- Ensure cooling fans on the drive (if present) are clean and operating correctly.
- Monitor the operating temperature of both the motor and drive.

6. Troubleshooting

This section outlines common issues and potential solutions. For complex problems, contact technical support.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Motor does not rotate	No power, incorrect wiring, drive error, motor brake engaged.	Check power supply, verify wiring, check drive status indicators, ensure brake is released.
Motor vibrates excessively	Improper gain settings, mechanical imbalance, loose mounting.	Adjust servo gain parameters, check mechanical coupling, tighten mounting bolts.
Drive displays an error code	Overcurrent, overvoltage, encoder error, communication error.	Refer to the drive's specific error code manual for detailed diagnosis and resolution.
Loss of position accuracy	Encoder issue, loose coupling, incorrect tuning.	Check encoder wiring and functionality, inspect mechanical coupling, re-tune servo gains.

7. Specifications

Key technical specifications for the LCRHLCNC 400W AC Servo Motor and HTNC-C30S-L15A-RABN-B AC Servo Drive system:

7.1 AC Servo Motor (60CST-A1C01330)

- **Rated Power:** 400W
- **Rated Torque:** 1.27 N.m
- **Rated Current:** 2.8A
- **Rated Voltage:** 220V
- **Protection Class:** IP65 (Dustproof and Waterproof)
- **Dimensions (LxWxH):** Approximately 16 x 6 x 17 cm
- **Weight:** Approximately 2.99 kg

Figure 4: High Power Copper Core Motor. This image highlights the internal construction of the servo motor, featuring a copper core coil, precision cold-rolled steel sheet, and full ball bearings for efficient power, fast heat dissipation, and stable output.

7.2 AC Servo Drive (HTNC-C30S-L15A-RABN-B)

- **Input Voltage:** 220V AC
- **Communication Interface:** RS485
- **Control Type:** High Precision Magnetic Servo Driver

8. Application Scenarios

The LCRHLCNC servo system is suitable for a wide range of industrial automation applications requiring precise motion control.

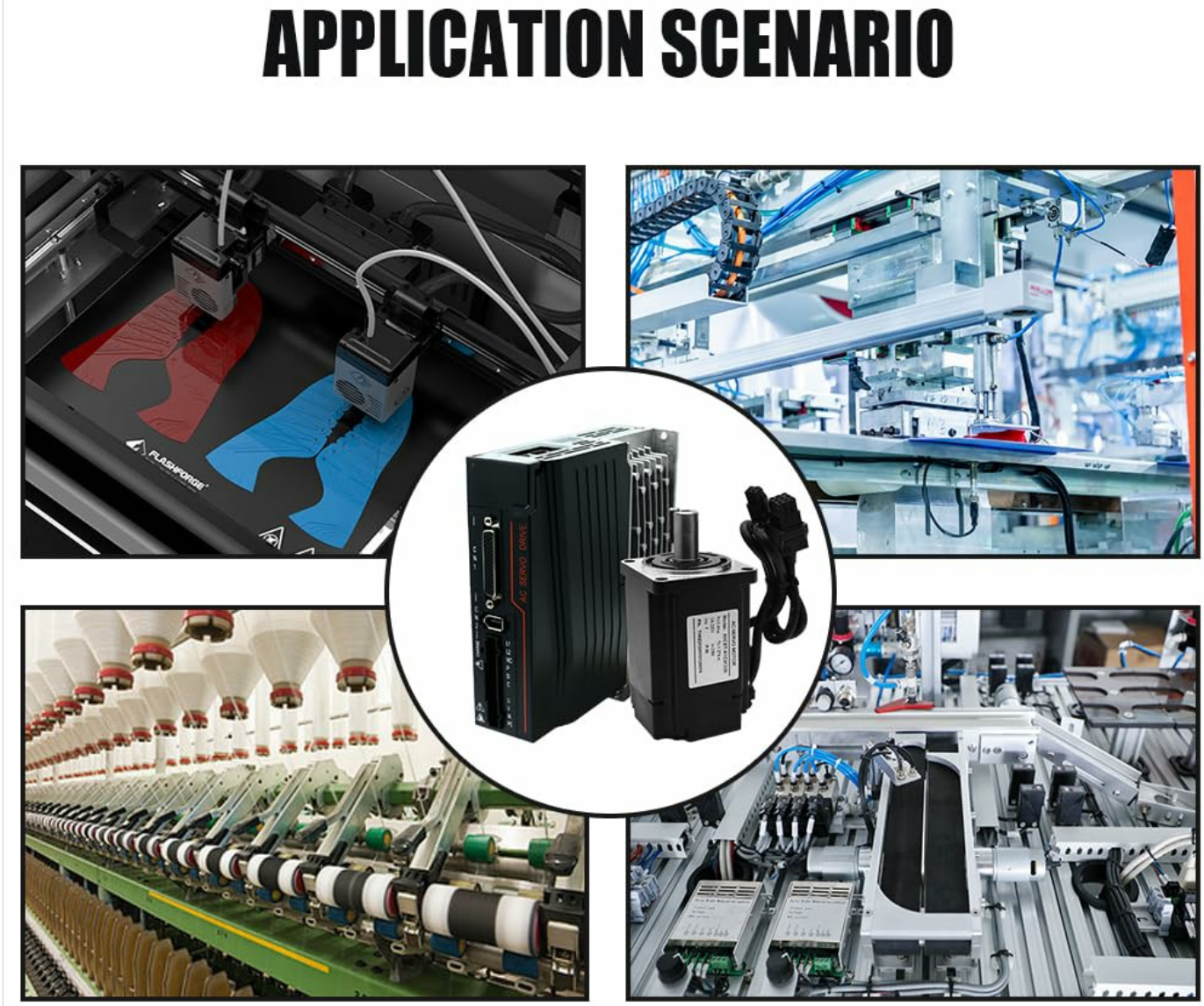

Figure 5: Application Scenarios. This image displays various industrial settings where the servo motor and drive system can be utilized, including 3D printing, automated assembly lines, textile machinery, and other precision manufacturing processes.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your vendor or LCRHLCNC customer service. Ensure you have your product model numbers and purchase date available when contacting support.
Manufacturer: Lishui Hengli Automation Technology Co., Ltd.