ESXSWYDR ZT-280

ESXSWYDR VFD 380V 3.0KW-4hp AC Drive Inverter Instruction Manual

Model: ZT-280

1. Introduction

This manual provides essential information for the safe and efficient operation of your ESXSWYDR VFD (Variable Frequency Drive) 380V AC Drive Inverter. This device is designed for controlling the speed of three-phase induction motors, featuring a dual display panel and robust protection functions. Please read this manual thoroughly before installation, operation, or maintenance to ensure proper usage and prevent damage or injury.

2. Safety Precautions

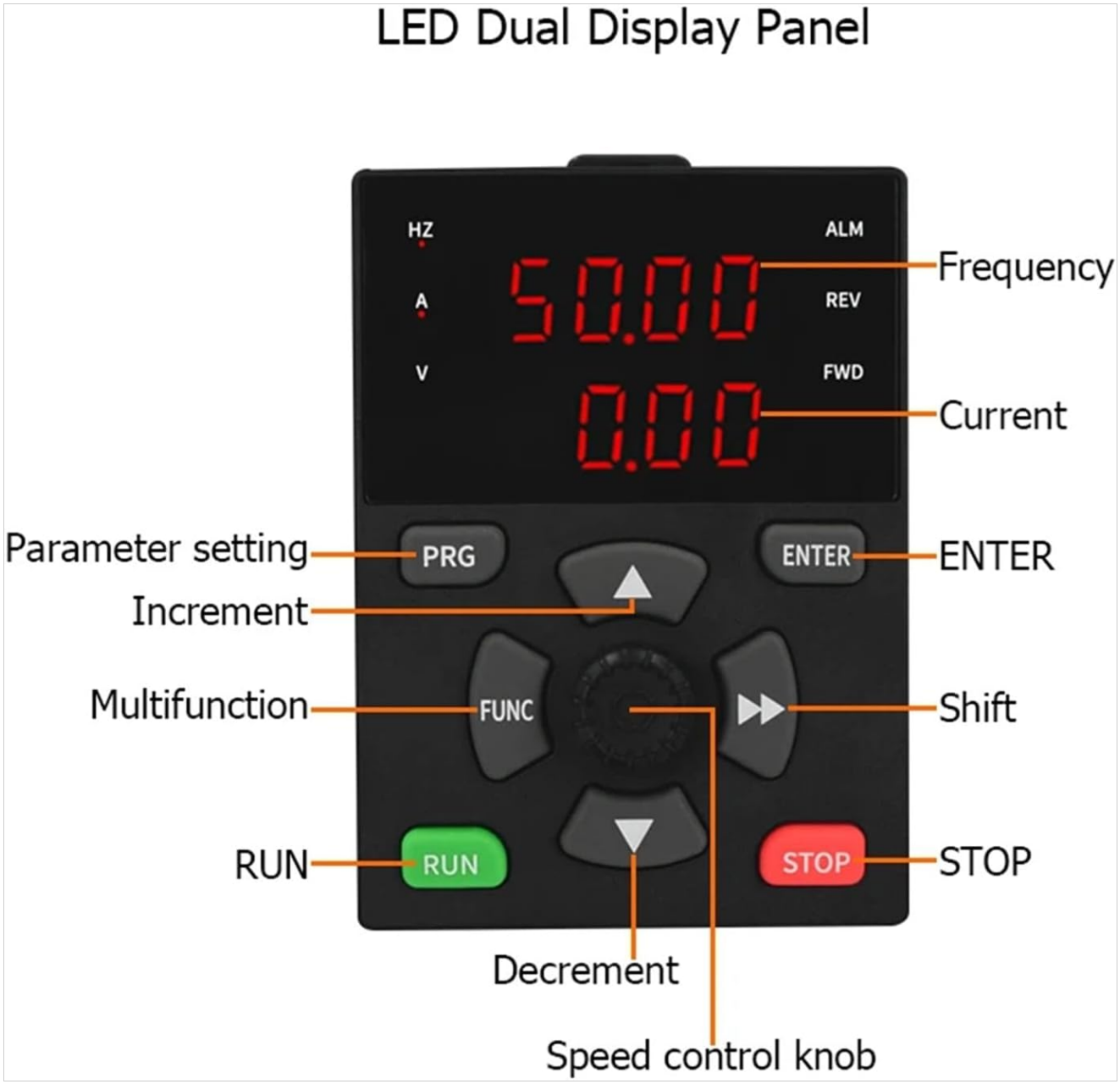
Failure to follow these safety instructions may result in serious injury or equipment damage. Always prioritize safety.

- For single-phase motors, it is recommended to remove the motor capacitor before connecting to the VFD.
- Ensure the selected power supply voltage matches the VFD's input voltage specification.
- Always disconnect the input power before performing any wiring.
- Wiring should only be performed by a qualified professional electrical engineer.
- Ensure the grounding terminal is properly connected to earth ground.
- Disconnect power from the main circuit before any inspection or maintenance.
- If required, connect the braking resistor strictly according to the provided wiring diagram.
- Do not touch the VFD terminals when power is applied, as they carry dangerous high voltage.
- Do not alter wiring or disassemble terminals while the unit is powered on.
- Do not modify the inverter without explicit authorization from the manufacturer.

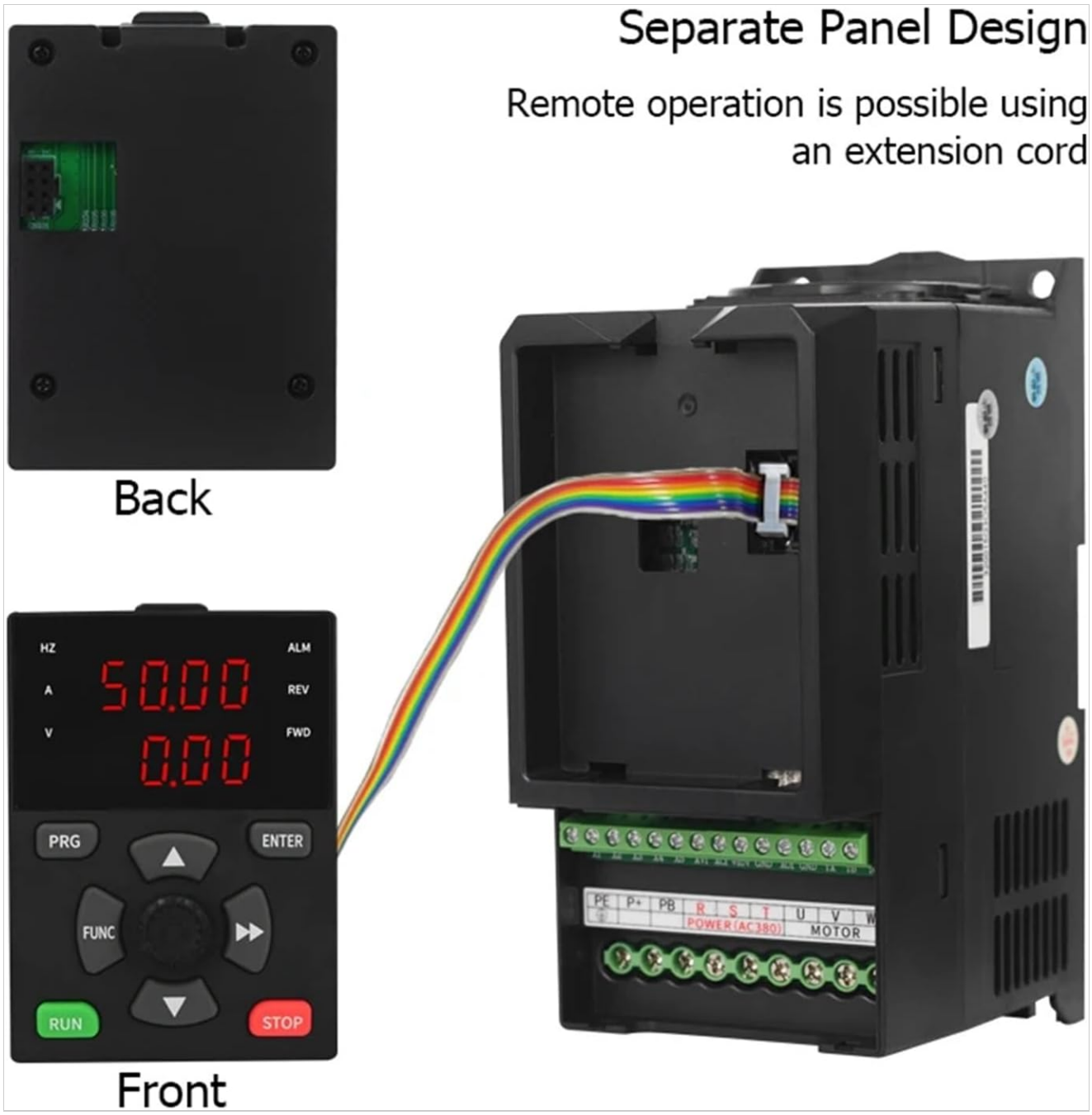
3. Product Features

- **Dual Display Panel:** Features an LED dual display for clear monitoring of frequency and current.
- **Powerful Cooling Fan:** Equipped with a robust cooling fan and shell fence design for rapid heat dissipation, ensuring stability and continuous operation.

- **Separate Panel Design:** Allows for remote operation using an extension cord, enhancing flexibility in installation.
- **Multiple Control Modes:** Supports V/F control, sensorless vector control, integrated PID control, and integrated RS485 communication.
- **Comprehensive Protection:** Includes protection against overcurrent, overvoltage, overheating, undervoltage, module failure, short circuit, and more.



LED Dual Display Panel: An image showing the VFD's control panel with an LED dual display. Labels indicate 'Frequency', 'Current', 'Parameter setting (PRG)', 'Increment', 'Multifunction (FUNC)', 'RUN', 'STOP', 'Decrement', 'Shift', 'ENTER', and 'Speed control knob'.



Separate Panel Design: This image illustrates the VFD's separate panel design, showing the front control panel detached from the main unit, connected by an extension cord. This allows for remote operation.

Powerful Cooling Fan: A view of the VFD's cooling fan, designed for rapid heat dissipation to ensure product stability, safety, and continuous operation.

4. Specifications

4.1. Technical Index

Input:

- Voltage: 1-phase AC200V-240V, 50/60Hz (for specific models).
- Logic Input: X1-X5 (functions include forward/reverse, jog, multi-speed, frequency UP/DOWN feed).
- Analog Input: AVI: 0-10 V / 0-20 mA (selectable via jumper caps).

Output:

- Voltage: Single-phase AC0-240V (for specific models).

- Frequency: 0~400Hz.
- Analog Output: AO1: 0-10V (selectable via jumper caps).
- Relay Output: TA/TB/TC (one normally open, one normally closed).
- Open Collector Output: 1 way, Y.

Control Mode: V/F control, sensorless vector control, integrated PID control, integrated RS485.

Protection Functions: Overcurrent, overvoltage, overheating, undervoltage, module failure, short circuit, electrical thermal relay, input and output phase default, internal memory failure, abnormal motor parameter setting, etc.

4.2. General Specifications

Model Number: ZT-280

Output Frequency: 0-400Hz

Output Power Range: 0.4KW - 7.5KW (specific model 3.0KW-4hp)

Type: AC-DC-AC

Product Weight: Approximately 50 Grams (Note: This may vary by specific model/variant)

Brand: ESXSWYDR

Manufacturer: ESXSWYDR

Country of Origin: China

Input Voltage	Output Voltage	Power	Output current	Overall dimension L*W*H (mm)
1ph AC220V AC200V-240V 50/60Hz	3ph AC220V AC0-240V 0-400Hz	0.4KW	2.1A	170*79*127
		0.75KW	3.8A	
		1.5KW	7A	
		2.2KW	9A	187*86*144
		3.0KW	13A	216*101*151
		4.0KW	15A	237*111*168
		5.5KW	20A	
3ph AC220V AC200V-240V 50/60Hz	3ph AC220V AC0-240V 0-400Hz	0.4KW	2.1A	170*79*127
		0.75KW	3.8A	
		1.5KW	7A	
		2.2KW	9A	187*86*144
		3.0KW	13A	216*101*151
		4.0KW	15A	237*111*168
		5.5KW	20A	
3ph AC380V AC340V-440V 50/60Hz	3ph AC380V AC0-440V 0-400Hz	0.4KW	1.5A	170*79*127
		0.75KW	2.1A	
		1.5KW	3.8A	
		2.2KW	5.1A	187*86*144
		3.0KW	7.1A	
		4.0KW	9A	216*101*151
		5.5KW	12.6A	
		7.5KW	16.1A	237*111*168

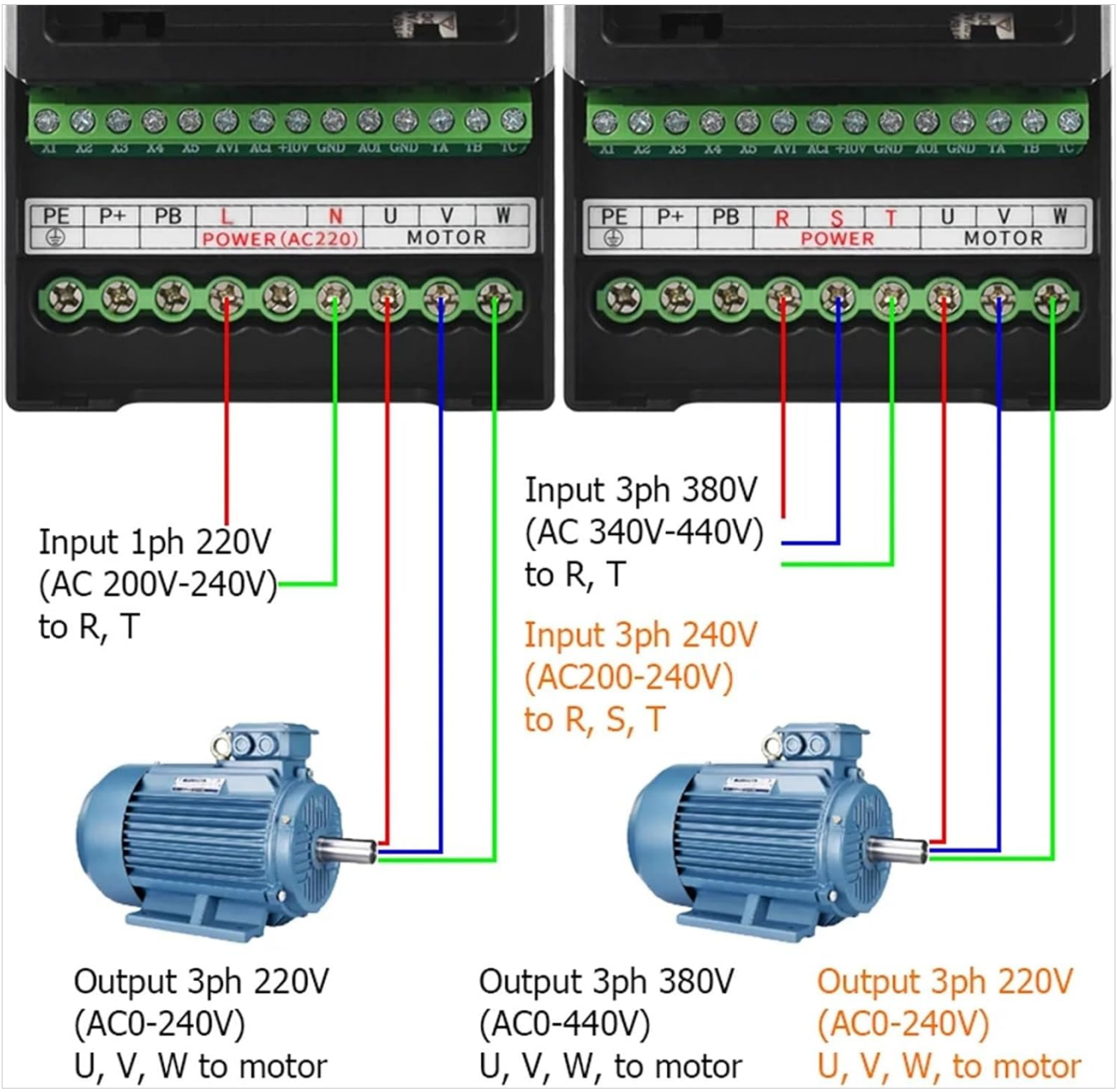
Technical Specifications Table: This table details the input voltage, output voltage, power, output current, and overall dimensions (L*W*H in mm) for various VFD models, including single-phase and three-phase input options.

5. Installation and Wiring

Proper installation and wiring are crucial for the safe and correct operation of the VFD. Refer to the wiring diagram and ensure all connections are secure and comply with local electrical codes.

5.1. Wiring Diagram

The diagram below illustrates typical wiring configurations for different input voltages and motor types. Always ensure power is disconnected before making any connections.



Wiring Diagram: A detailed diagram illustrating various wiring configurations for the VFD, including connections for 1-phase 220V input, 3-phase 380V input, and 3-phase 240V input to different motor types. It shows connections to terminals PE, P+, PB, L, N, U, V, W, R, S, T.

5.2. Terminal Connections

- **Input Power (L, N or R, S, T):** Connect the appropriate AC power supply according to the VFD's specifications and your motor's requirements.

- **Motor Output (U, V, W):** Connect these terminals directly to the three-phase motor.
- **Ground (PE):** Connect to a reliable earth ground. This is critical for safety.
- **Control Terminals (X1-X5, AVI, AO1, TA/TB/TC, Y):** These are for external control signals, analog inputs/outputs, and relay outputs. Refer to the detailed product manual for specific functions and jumper settings.
- **Braking Resistor (P+, PB):** If a braking resistor is used, connect it between P+ and PB terminals.

6. Operating Instructions

The VFD features an intuitive control panel for setting parameters and controlling motor operation.

6.1. Control Panel Overview

The LED dual display shows real-time operational data such as frequency and current. Buttons are provided for parameter setting, increment/decrement, multifunction, run, stop, shift, and enter.

6.2. Basic Operation

1. **Power On:** After ensuring all wiring is correct and secure, apply power to the VFD.
2. **Parameter Setting (PRG):** Press the 'PRG' button to enter parameter setting mode. Use the increment/decrement arrows to navigate through parameters and adjust values. Press 'ENTER' to confirm.
3. **Start Motor (RUN):** Press the 'RUN' button to start the motor. The display will show the operating frequency and current.
4. **Stop Motor (STOP):** Press the 'STOP' button to halt motor operation.
5. **Speed Control:** Use the speed control knob or the increment/decrement arrows to adjust the motor speed (frequency) during operation.
6. **Multifunction (FUNC):** The 'FUNC' button provides access to additional functions. Refer to the detailed product manual for specific functionalities.

7. Maintenance

Regular maintenance helps ensure the longevity and reliable operation of your VFD.

- **Cleaning:** Keep the VFD clean and free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquid cleaners.
- **Fan Inspection:** Periodically check the cooling fan for proper operation and ensure air vents are not obstructed. Clean any dust buildup on the fan blades.
- **Terminal Check:** Regularly inspect all wiring terminals for tightness and signs of corrosion. Retighten if necessary.
- **Environmental Conditions:** Ensure the VFD is operated within its specified environmental conditions (temperature, humidity, vibration) to prevent premature failure.
- **Professional Service:** For any internal inspection or repair, contact qualified service personnel.

8. Troubleshooting

This section provides general guidance for common issues. For complex problems, consult a professional or the manufacturer.

- **VFD does not power on:** Check the input power supply, circuit breaker, and all power connections. Ensure the voltage matches the VFD's specification.
- **Motor does not run:** Verify that the 'RUN' command is active. Check motor wiring (U, V, W) and ensure the motor is not overloaded or mechanically jammed. Review VFD parameters for correct settings.

- **Overcurrent/Overload fault:** Check for motor overload, short circuits in motor wiring, or incorrect motor parameters. Reduce load or adjust acceleration/deceleration times.
- **Overvoltage/Undervoltage fault:** Check the input power supply voltage. Overvoltage can occur during deceleration; consider adding a braking resistor if not already installed.
- **Overheating fault:** Ensure the cooling fan is operating correctly and that the VFD's ventilation is not obstructed. Check ambient temperature.
- **Display shows error code:** Refer to the detailed product manual for a list of error codes and their corresponding troubleshooting steps.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase.