QNK 2.2kw220v

QNK 2.2KW 220V Variable Frequency Drive (VFD) Instruction Manual

Model: 2.2kw220v

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of your QNK 2.2KW 220V Variable Frequency Drive (VFD). Please read this manual thoroughly before using the product and retain it for future reference. The QNK VFD is designed to convert single-phase or three-phase 220V AC input into a three-phase 220V AC output, allowing for precise speed control of compatible motors, such as those found in CNC spindle applications.



Image 1.1: The QNK 2.2KW 220V VFD unit, showing the main body, detachable control panel, and an included extension cable.

2. Safety Information

WARNING: Risk of Electric Shock. Improper installation or operation can lead to serious injury or death. Always follow safety precautions.

- Ensure the power supply is disconnected before any installation, wiring, or maintenance.
- Wait at least 5 minutes after disconnecting power for internal capacitors to discharge before touching any components.
- This VFD supports an external resistor. If your motor has a heavy load, select a VFD with a higher power level or consult for model selection.
- The VFD cannot be used as a power source for other equipment or to drive a motor with a supply voltage lower than 80V.
- Do not connect the VFD’s output terminals with capacitive loads.
- For heavy equipment like cranes or compressors, choose a VFD with a larger power output (e.g., a 5.5 Kw motor should be connected to a 7.5 Kw VFD).
- If a generator powers the VFD, ensure the generator's output voltage level is within +/-15%.
- Installation and wiring should only be performed by qualified personnel.

3. Product Features

- **Power Specifications:** Input: 1-phase/3-phase 220 VAC (+/- 15%), 0-11 A, 50/60 Hz. Output: 3-phase 220 VAC, 0-11A, 0-2,000 Hz.
- **Quiet Operation:** Utilizes PMW control technology and component compatibility design for low-noise operation and reduced electromagnetic interference.
- **Control Modes:** Supports V/F Control and Vector Control. Frequency setting modes include digital setting, analog setting, serial communication (RS485 with MODBUS), and PID setting for precise control.
- **Enhanced Safety & Durability:** Features multiple protective functions including overload, fuse, over-voltage (DC voltage >400V), under-voltage (DC voltage <200V), restart, stall, short circuit, and overheat protection. Constructed with copper coil internals and a non-flammable exterior.
- **Efficient Heat Dissipation:** A multi-grid design provides ample cooling space between electronic components and the case, ensuring fast heat dissipation and preventing dust and water mist from entering the circuit board.
- **Wide Application:** Suitable for various equipment such as Spindle Motors, CNC Routers, Milling Machines, Pumps, Compressors, and Grinders.



Image 3.1: Illustration of the VFD's internal features, including a powerful cooling fan, high-performance design, and multiple capacitors for stability.



Image 3.2: Visual representation of the VFD's comprehensive protection mechanisms, including overload, overheat, over-voltage, low-voltage, fuse, stall, short circuit, and reset protection.

4. Setup and Installation

4.1. Physical Installation

Mount the VFD in a location that is dry, well-ventilated, and free from excessive dust, corrosive gases, or direct sunlight. Ensure adequate clearance around the unit for proper airflow and heat dissipation. Refer to the dimensions below for mounting considerations.

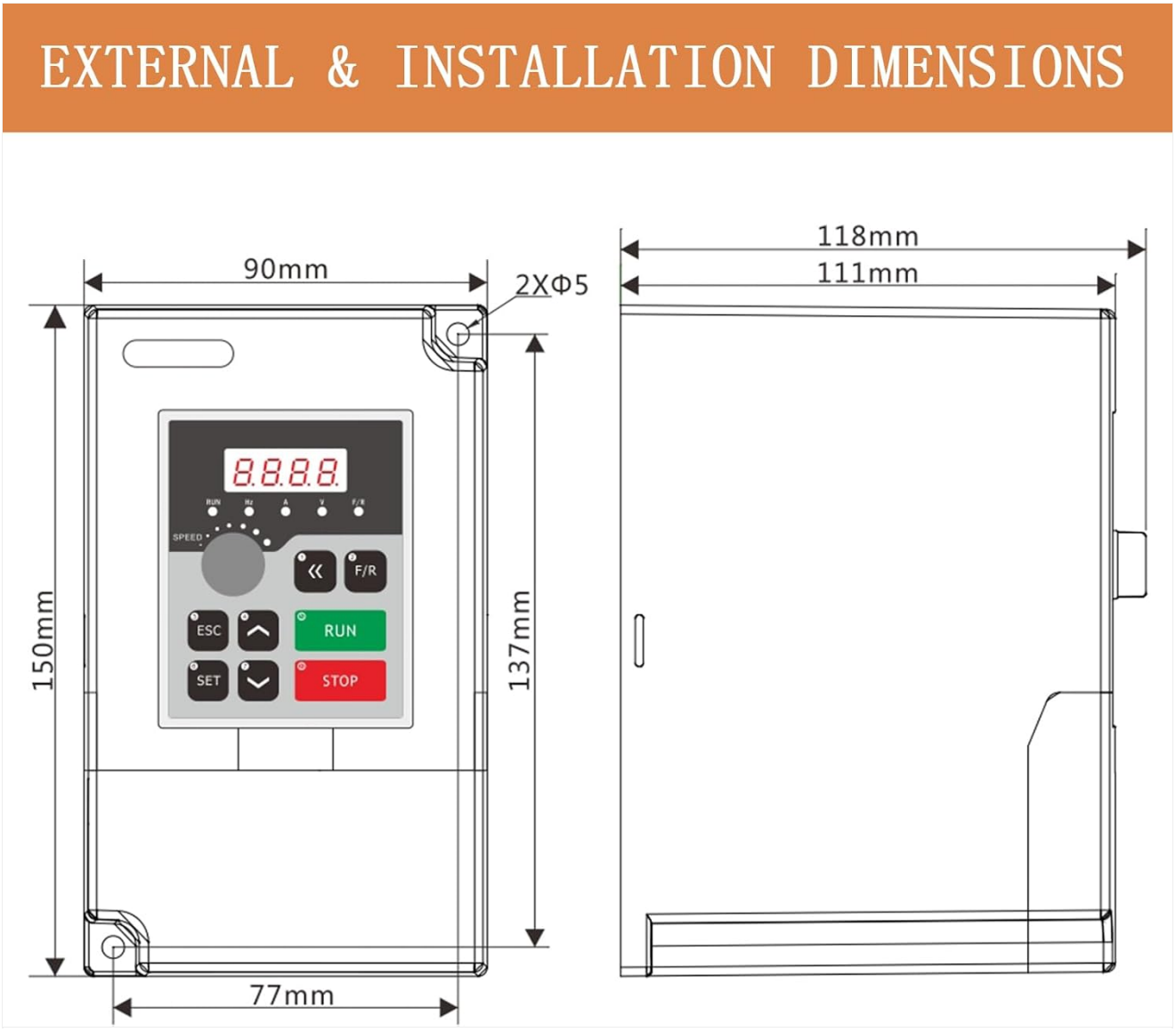


Image 4.1: Detailed external and installation dimensions of the VFD unit, showing measurements in millimeters for mounting purposes.

4.2. Wiring Connections

All wiring must comply with local electrical codes and standards. Use appropriate wire gauges for the VFD's power rating. Ensure all connections are secure to prevent loose contacts and potential hazards.

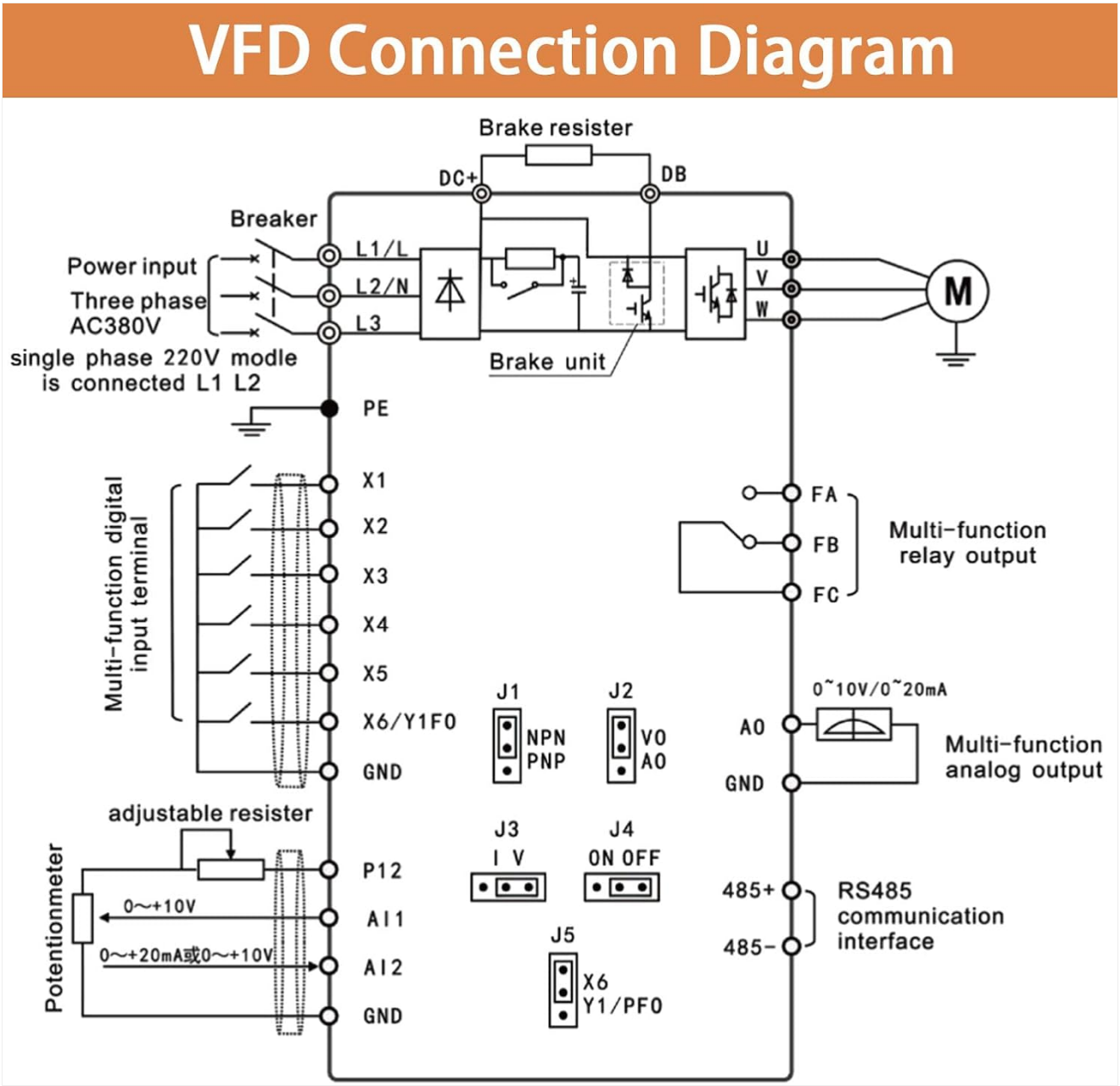


Image 4.2: Comprehensive VFD connection diagram illustrating terminals for power input (single or three-phase), motor output (U, V, W), brake resistor, multi-function digital inputs (X1-X6), analog inputs (AI1, AI2), multi-function relay output (FA, FB, FC), and RS485 communication interface.

Key Connection Points:

- **Power Input (L1/L, L2/N, L3):** Connect your 220V AC power supply here. For single-phase 220V, connect to L1 and L2/N.
- **Motor Output (U, V, W):** Connect these terminals directly to your 3-phase motor.
- **Brake Resistor (DC+, DB):** Optional connection for external braking resistor.
- **Ground (PE):** Essential for safety. Connect to a reliable earth ground.
- **Control Terminals (X1-X6, AI1, AI2, etc.):** Used for external control signals such as start/stop, speed adjustment (potentiometer), and communication.

5. Operating Instructions

5.1. Control Panel Overview

The VFD features a user-friendly control panel for monitoring and adjusting parameters. The panel can be detached and extended using the provided cable for remote operation.

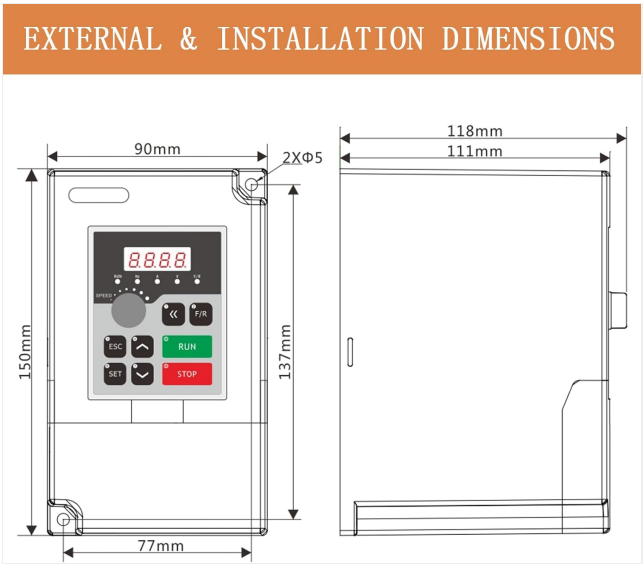


Image 5.1: The VFD unit demonstrating the detachable control panel feature, allowing for flexible placement and ease of access.



Image 5.2: An internal view of the VFD, with the control panel removed, revealing the main circuit board and internal components.

5.2. Button Functions



Control Panel Button Functions

Button Icon	Button's Name	Function Description

Button Icon	Button's Name	Function Description
SET	SET	Access menu, select parameter, confirm parameter.
ESC	ESC	Return to previous menu or exit.
UP Arrow	UP	Modify and select parameters (increase value).
DOWN Arrow	DOWN	Modify and select parameters (decrease value).
Left/Right Arrows	SHIFT	Monitor different operation statuses and switch digit place.
F/R	DIR	Change the running direction of the motor.
Green RUN	RUN	Initiate run command.
Red STOP	STOP	Stop command or abnormal reset command.

Image 5.3: The VFD control panel with a corresponding table detailing the function of each button.

5.3. Basic Operation

1. **Power On:** Ensure all wiring is correct and secure. Apply power to the VFD. The display will illuminate.
2. **Parameter Setting:** Use the **SET** button to enter the parameter menu. Navigate through parameters using the **UP** and **DOWN** arrows. Use the **SHIFT** button to move between digits when setting numerical values. Press **SET** again to confirm changes.
3. **Start Motor:** Press the **RUN** button to start the motor.
4. **Adjust Speed:** Use the rotary knob on the control panel or the **UP** and **DOWN** arrows to adjust the motor speed (frequency).
5. **Change Direction:** Press the **F/R** button to toggle the motor's rotation direction.
6. **Stop Motor:** Press the **STOP** button to halt the motor.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your VFD.

- **Cleaning:** Periodically clean the VFD's exterior and ventilation openings to prevent dust accumulation, which can hinder heat dissipation. Use a soft, dry cloth. Do not use liquid cleaners.
- **Connection Checks:** Regularly inspect all wiring connections for tightness and signs of wear or corrosion.

Re-tighten as necessary.

- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent damage.
- **Fan Inspection:** Check the cooling fan for proper operation and ensure it is free from obstructions.

7. Troubleshooting

If the VFD displays an error code or exhibits unexpected behavior, refer to the following general troubleshooting steps. For specific error codes and advanced diagnostics, consult the detailed operation manual provided with the product or contact customer support.

- **No Power/Display:** Check the input power supply and all power connections. Ensure the VFD is properly grounded.
- **Motor Not Running:** Verify that the RUN command is active. Check motor wiring and ensure motor parameters are correctly set in the VFD. Confirm there are no active fault conditions.
- **Overload/Overcurrent:** Reduce the motor load. Check for mechanical issues with the motor or driven equipment. Verify motor parameters (e.g., rated current) are correctly set.
- **Overvoltage/Undervoltage:** Check the input power supply voltage. Ensure it is stable and within the VFD's specified range.
- **Overheat:** Ensure adequate ventilation around the VFD. Clean any dust from cooling fins and fans. Reduce ambient temperature if possible.
- **Parameter Setting Issues:** If parameters cannot be changed, ensure the VFD is in stop mode and not locked. Refer to the manual for parameter access levels.

8. Specifications

Specification	Value
Manufacturer	QNK
Model Number	2.2kw220v
Item Weight	3.65 pounds
Product Dimensions	3.5 x 4.6 x 5.9 inches
Size	2.2KW(3HP 220V)
Color	Black
Style	2.2KW 3HP 220V
Material	Copper
Power Source	220v
Voltage	220 Volts
Wattage	2.2 KW
Item Package Quantity	1
Display Style	LCD or LED

Specification	Value
Special Features	Ergonomic
Included Components	VFD
Recommended Uses For Product	Workshop

9. Customer Support

If you encounter any error codes, have questions regarding operation, or require assistance with this product, please do not hesitate to contact our customer support team. We are committed to providing prompt assistance within 24 hours.

For further information or to visit our official store, please refer to the brand link:

QNK Official Store

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question