

DEWIN RDABCRYRA-GS99825

DEWIN 2.2KW 220V Variable Frequency Drive (VFD) Inverter User Manual

Model: RDABCRYRA-GS99825

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your DEWIN 2.2KW 220V Single-Phase Input, Three-Phase Output Variable Frequency Drive (VFD) Inverter. Please read this manual thoroughly before installation, operation, or maintenance to ensure proper usage and to prevent damage to the equipment or injury to personnel.

The DEWIN VFD is designed to control the speed and torque of three-phase asynchronous motors, offering precise control and energy efficiency for various industrial applications.

2. SAFETY INFORMATION

WARNING: Electrical shock hazard. Only qualified personnel should perform installation, wiring, and maintenance.

- Always disconnect power before performing any work on the VFD or connected equipment.
- Ensure proper grounding of the VFD and motor.
- Do not touch electrical components immediately after power disconnection, as residual voltage may be present. Wait at least 10 minutes for capacitors to discharge.
- Verify that the input voltage matches the VFD's specifications.
- Protect the VFD from moisture, dust, and corrosive gases.
- Do not operate the VFD with damaged cables or components.

3. KEY FEATURES

- **Multiple Control Algorithms:** Supports VF control for induction motors, open-loop magnetic flux vector control, standard open-loop control for permanent magnet synchronous motors, and open-loop vector control. Provides 150% starting torque at 0.5 Hz (sensorless vector control) for high torque, high precision, and wide speed control range.
- **Rapid Current Limiting Function:** Prevents frequent overcurrent alarms by quickly limiting current within a

protected range during sudden load peaks or disturbances.

- **Torque Limiting Function:** Limits torque within a preset maximum range if the reference torque value exceeds the machine's maximum loadable torque, ensuring optimal system protection and mechanical efficiency.
- **Independent Cooling Channel:** Features a robust cooling fan and independent air duct design for efficient heat dissipation and low noise, ensuring long-term stable operation.
- **User-Friendly Design:** Compact size and a removable front panel facilitate easy installation, operation, and wiring. Screw terminals provide convenient cable connections.



Figure 3.1: DEWIN VFD Inverter highlighting features such as motor protection, energy saving, frequency control, and strong security.

4. TECHNICAL SPECIFICATIONS

Parameter	Value
Model Number	RDABCRYRA-GS99825

Applicable Motor Power	2.2KW
Input Rated Voltage	Single-phase 220V
Input Rated Frequency	50/60Hz
Output Rated Voltage	Three-phase 220V
Output Frequency (Low Frequency Mode)	0-320Hz
Rated Output Current	10A
Material	Flame retardant ABS plastic
Installation Method	Wall-mounted
Protection Level	IP20
Cooling Method	Cooling fan
Item Weight	830 g
Package Dimensions	19 x 17 x 11 cm



Material: Flame retardant ABS plastic

Applicable motor: 2.2KW

Input rated voltage: single phase 220V

Output frequency: low frequency mode: 0~320Hz

Input rated frequency: 50/60Hz

Installation method: wall-mounted

Output rated voltage: three-phase 220V

Protection level: IP20

Rated output current: 10A

Cooling method: cooling fan

Figure 4.1: Physical dimensions and a summary of technical specifications for the DEWIN VFD Inverter.

5. INSTALLATION

5.1 Physical Installation

The DEWIN VFD is designed for wall-mounted installation. Ensure the mounting surface is stable and capable of supporting the unit's weight. Allow adequate clearance around the VFD for proper ventilation, especially for the cooling fan.

Equipped With Radiator

Independent cooling air duct further reduces heat, strong heat dissipation, low noise, ensuring long-term stable operation of the equipment



Figure 5.1: Rear view of the DEWIN VFD Inverter, showing the cooling fan and model information (Model: MS500-2S-2.2G, Power: 2.2KW, Input: 1PH AC220V 50/60Hz, Output: 3PH AC220V 0-320Hz 10A, Serial: JLS0022B21GB25080435).



Figure 5.2: Bottom view of the DEWIN VFD Inverter, showing connection points.

5.2 Wiring Instructions

Refer to the following diagrams for correct wiring of the VFD. Incorrect wiring can lead to equipment damage or safety hazards.

220V inverter Wiring

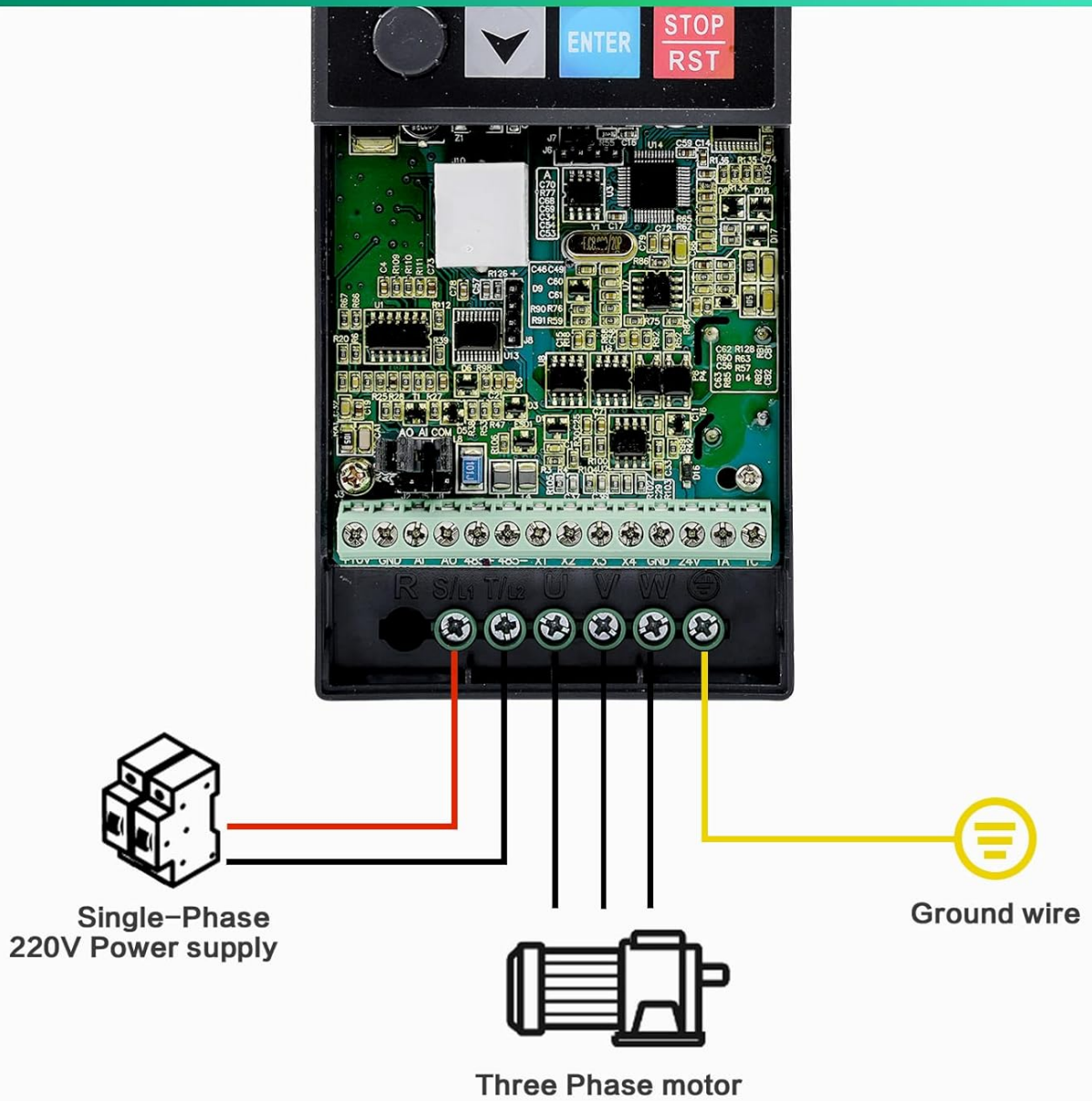


Figure 5.3: Wiring diagram for connecting a single-phase 220V power supply to the VFD and a three-phase motor. Ensure the ground wire is properly connected.

Basic operation Wiring Diagram

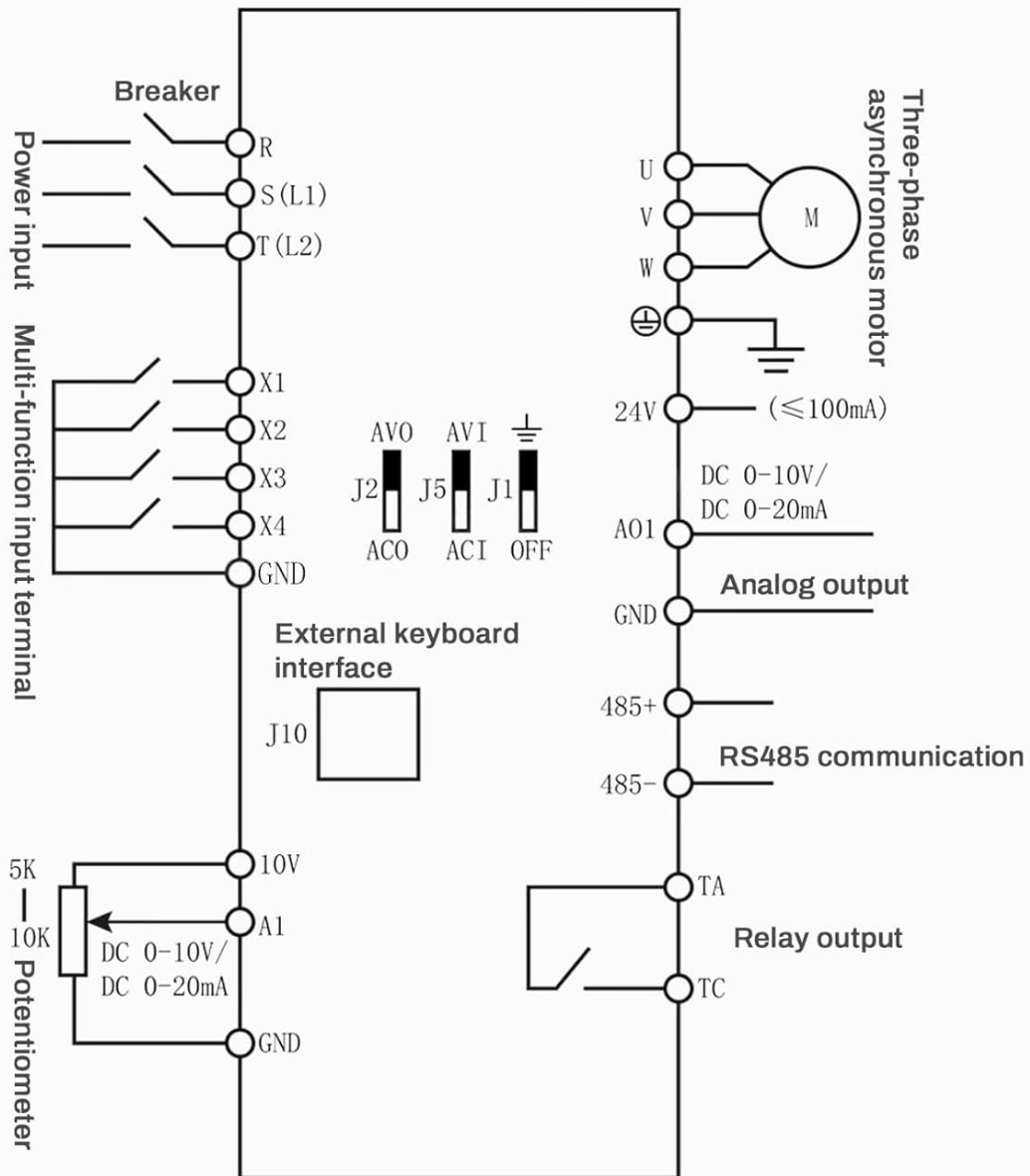


Figure 5.4: Detailed basic operation wiring diagram, including connections for breaker, power input (R, S(L1), T(L2)), multi-function input terminals (X1-X4, GND), external keyboard interface (J10), potentiometer (5K, 10K, 10V, A1, GND), analog output (AO1, GND), RS485 communication (485+, 485-), relay output (TA, TC), and three-phase asynchronous motor (U, V, W, Ground).



Figure 5.5: Overview showing the VFD control panel, connection to household AC 220V electricity via a switch, and wiring to a three-phase asynchronous motor.

6. OPERATING INSTRUCTIONS

6.1 Control Panel Overview

The VFD features an intuitive control panel for easy operation and parameter setting.



Figure 6.1: Detailed view of the VFD control panel, indicating the status display area, numeric up/down keys, frequency setting knob, parameter data setting button (PRG), run key (RUN), and stop/reset button (STOP/RST).

- **Status Display Area:** Shows current operating frequency, voltage, current, and other status indicators.
- **PRG (Program) Button:** Used to enter parameter setting mode and navigate through menus.
- **Up/Down Arrows:** Used to adjust values or navigate menu options.
- **ENTER Button:** Confirms selections or parameter changes.
- **RUN Button:** Starts the motor.

- **STOP/RST Button:** Stops the motor and resets any active alarms.
- **Frequency Setting Knob:** Allows for manual adjustment of the output frequency.

6.2 Basic Operation Sequence

1. **Power On:** Ensure all wiring is correct and secure. Apply single-phase 220V power to the VFD. The display will illuminate.
2. **Set Frequency:** Use the frequency setting knob or the Up/Down arrow keys to set the desired operating frequency.
3. **Start Motor:** Press the **RUN** button to start the motor. The VFD will ramp up to the set frequency.
4. **Stop Motor:** Press the **STOP/RST** button to stop the motor. The VFD will ramp down and stop.
5. **Parameter Adjustment:** Press the **PRG** button to enter the parameter setting menu. Use the Up/Down arrows to navigate and **ENTER** to select and confirm. Refer to the detailed parameter manual (if provided separately) for advanced settings.

7. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of your VFD.

- **Cleaning:** Periodically clean the VFD's exterior and cooling fan vents to prevent dust accumulation, which can hinder heat dissipation. Use a soft, dry cloth. Do not use liquid cleaners.
- **Inspection:** Regularly inspect all wiring connections for tightness and signs of wear or damage. Check for any unusual noises or odors during operation.
- **Environment:** Ensure the operating environment remains within specified temperature and humidity ranges. Avoid exposure to direct sunlight, excessive vibration, or corrosive substances.
- **Fan Check:** Verify that the cooling fan is operating freely and without obstruction.

For any internal maintenance or repairs, contact qualified service personnel.

8. TROUBLESHOOTING

This section addresses common issues you might encounter with the VFD. For complex problems, consult a qualified technician.

8.1 Common Issues and Solutions

Problem	Possible Cause	Solution
VFD does not power on.	No input power; incorrect wiring; internal fault.	Check power supply and circuit breaker. Verify input wiring. If problem persists, contact support.
Motor does not start.	Incorrect frequency setting; motor wiring error; VFD in fault state; parameter misconfiguration.	Check frequency setting. Verify motor wiring (U, V, W). Check VFD display for error codes and reset if necessary. Review parameter settings.
Overcurrent alarm (OC).	Sudden load increase; short circuit in motor or wiring; acceleration time too short.	Reduce load. Check motor and wiring for shorts. Increase acceleration time parameter. Utilize the rapid current limiting function.
Overvoltage alarm (OV).	Input voltage too high; deceleration time too short; regenerative load.	Check input voltage. Increase deceleration time parameter. Consider adding a braking resistor for regenerative loads.

Overheat alarm (OH).	Insufficient ventilation; ambient temperature too high; cooling fan malfunction.	Ensure proper ventilation and clear fan vents. Reduce ambient temperature. Check cooling fan operation.
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If you encounter an issue not listed here or cannot resolve a problem, please contact DEWIN customer support.

9. CUSTOMER SUPPORT

For technical assistance, warranty information, or service inquiries, please contact DEWIN customer support through the retailer where the product was purchased or visit the official DEWIN website.

When contacting support, please have your model number (RDABCRYRA-GS99825) and purchase date available.