DEWIN IRAYIYEBQ-GS109481-01-dewzzq-01

DeWin 7.5kW 380V Three-Phase VFD Frequency Converter User Manual

1. Introduction

This manual provides essential information for the safe and efficient operation of your DeWin 7.5kW 380V Three-Phase Variable Frequency Drive (VFD) Frequency Converter. Please read this manual thoroughly before installation, operation, or maintenance to ensure proper usage and prevent potential hazards.
The DeWin VFD is designed for precise motor speed control in various industrial applications. It features a robust design with a 485 communication port, offering strong load capacity, stability, and durability. The double-layer board configuration (power board + main board) ensures stable performance. It provides continuous and stable pure sine wave output with a built-in AVR stabilizer, utilizing IPM and IGBT module design for high efficiency, low heat generation, and automatic protection.
Key Features:

- Integrated 485 communication port for enhanced connectivity.
- Advanced IPM and IGBT module design for high efficiency and stable output.
- Built-in AVR stabilizer for continuous pure sine wave output.
- User-friendly interface with one-key adjustment for parameter debugging.
- High-definition screen display for intuitive data monitoring.
- Comprehensive protection functions: overvoltage, undervoltage, overcurrent, overload, overheating, power module protection, grounding, short circuit, and stall protection.

Applications: This VFD is suitable for a wide range of applications including fans, water pumps, CNC machine tools, ball mills, injection molding machines, crushers, conveyor belts, and textile equipment.

2. Safety Information

WARNING: Risk of electrical shock. Always read the user manual before operation. Wait at least 10 minutes after removing power before servicing the device to allow capacitors to discharge.
Proper installation and operation are crucial for safety. Only qualified personnel should install, operate, and maintain this equipment. Failure to follow safety instructions can result in serious injury or death.

- Ensure the power supply is disconnected before any wiring or maintenance.
- Verify correct voltage and current ratings before connecting the VFD.

- Proper grounding is essential to prevent electrical shock.
- Do not operate the VFD in wet or damp conditions.
- Keep the VFD clear of flammable materials.
- Do not touch internal components while the VFD is powered or recently powered.

3. Product Overview

The DeWin VFD is designed for industrial motor speed control, featuring a compact and durable housing.

Figure 3.1: Front view of the DeWin 7.5kW 380V VFD Frequency Converter, showing the control panel and warning label.

The device features a clear digital display and an intuitive button panel for easy configuration and monitoring.

Figure 3.2: Product information table detailing the model, material, color, and electrical specifications of the VFD.

The physical dimensions of the VFD are important for planning installation space.

Figure 3.3: Dimensions of the DeWin VFD, showing a width of 125mm, height of 220mm, and depth of 63mm.

4. Setup and Installation

4.1 Mounting

The DeWin VFD can be installed using either a wall-mounted or cabinet-mounted method. Ensure adequate ventilation around the unit to prevent overheating, as it is air-cooled with fan control.

4.2 Wiring Instructions

Correct wiring is critical for the safe and proper functioning of the VFD. Refer to the diagrams below for terminal connections. Always ensure power is disconnected before wiring.

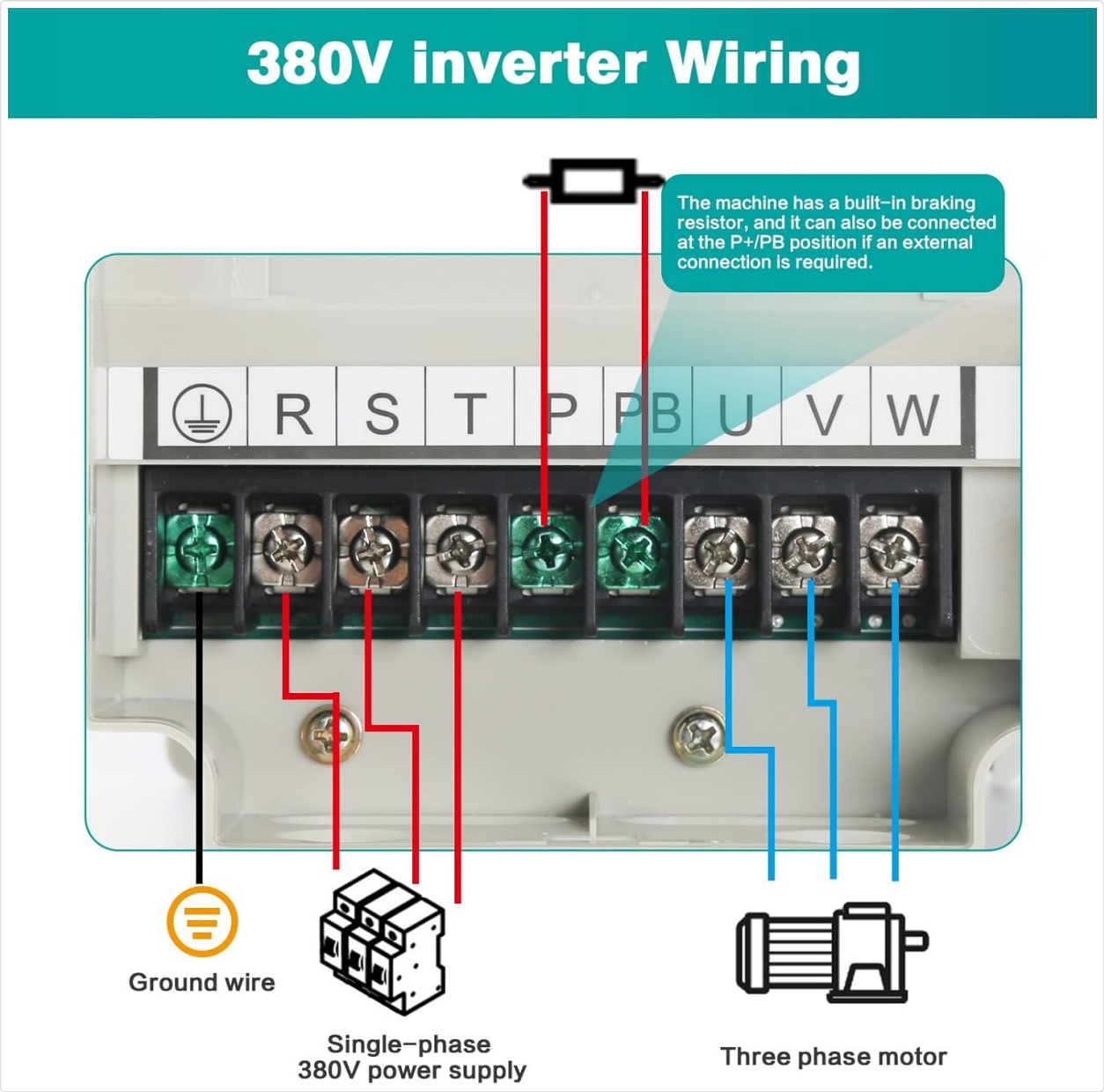

Figure 4.1: Wiring terminals for the 380V inverter. Connections include Ground (E), R, S, T for single-phase 380V power supply, and U, V, W for the three-phase motor. P+ and PB terminals are for an optional built-in braking resistor or external connection.

Terminal Descriptions:

- **E (Ground):** Connect to the main ground wire.
- **R, S, T:** Connect to the three-phase 380V power input.
- **P+, PB:** For braking resistor connection. The machine has a built-in braking resistor; an external connection can be made at P+/PB if required.
- **U, V, W:** Connect to the three-phase motor terminals.

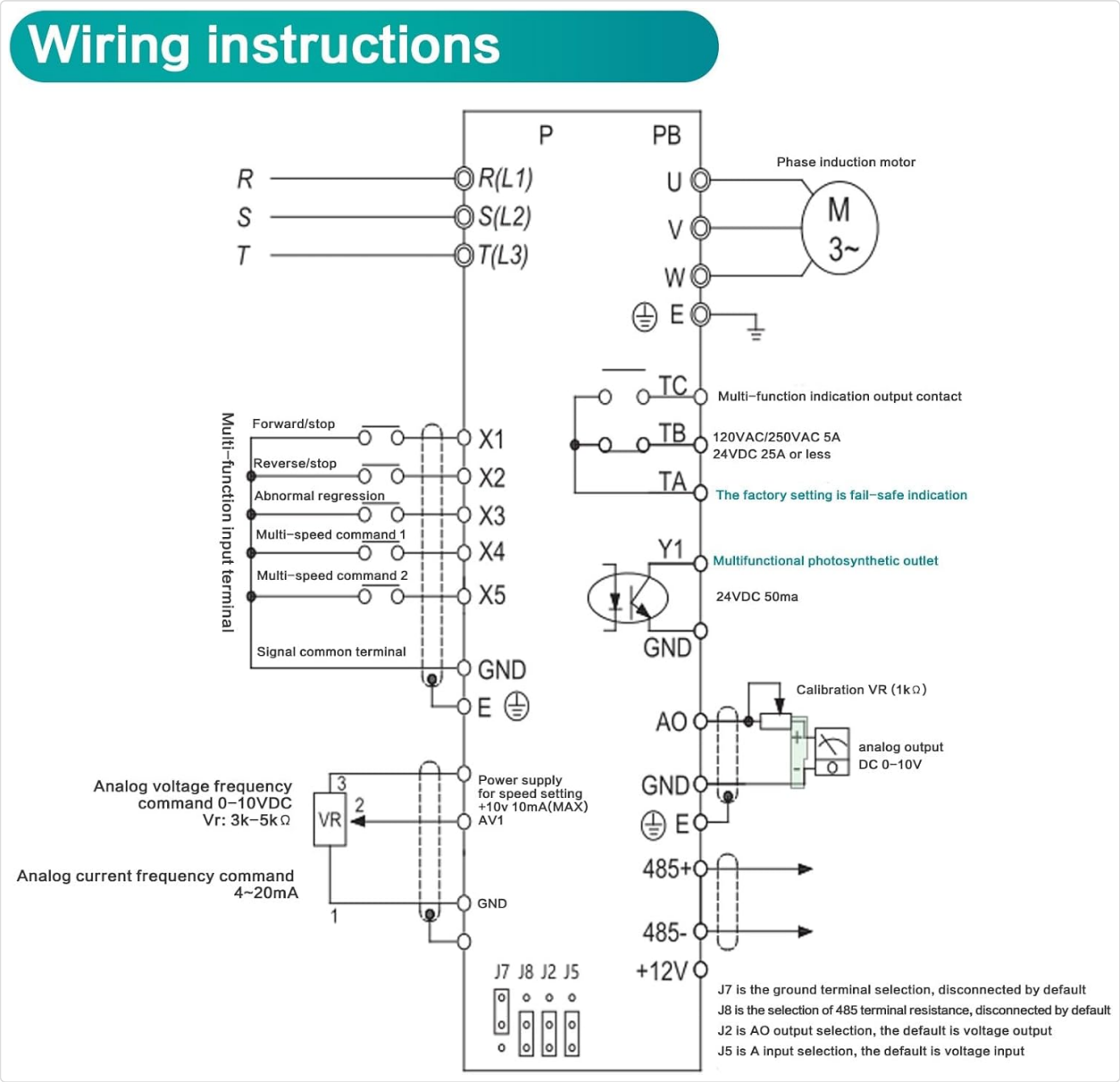

Figure 4.2: Detailed wiring diagram showing power input (R, S, T), motor output (U, V, W), multi-function input terminals (X1-X5, GND), multi-function output contacts (TC, TB, TA), multifunctional photosynthetic outlet (Y1), analog voltage/current frequency command inputs (VR, 4-20mA), and 485 communication ports.

Detailed Wiring Diagram Explanation:

- **Power Input (R, S, T):** Connect to the three-phase AC power supply.
- **Motor Output (U, V, W):** Connect to the three-phase induction motor.
- **Multi-function Input Terminals (X1-X5, GND):** Used for external control signals such as Forward/Stop, Reverse/Stop, Abnormal regression, Multi-speed commands (1 and 2).
- **Multi-function Output Contacts (TC, TB, TA):** Relay outputs for status indication (e.g., 120VAC/250VAC 5A or 24VDC 25A). Factory setting is fail-safe indication.
- **Multifunctional Photosynthetic Outlet (Y1):** Provides 24VDC 50mA output.
- **Analog Voltage Frequency Command (0-10VDC):** Connect to VR (3k-5kΩ) for voltage control.
- **Analog Current Frequency Command (4-20mA):** Connect to terminals 1 and 2 for current control.
- **485 Communication Ports (+12V, 485+, 485-, GND):** For RS485 communication. J7 is the ground terminal selection (disconnected by default). J8 is the selection of 485 terminal resistance (disconnected by default). J2 is AO output selection. The default is voltage output. J5 is A input selection. The default is voltage input.

5. Operating Instructions

5.1 Control Panel Overview

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

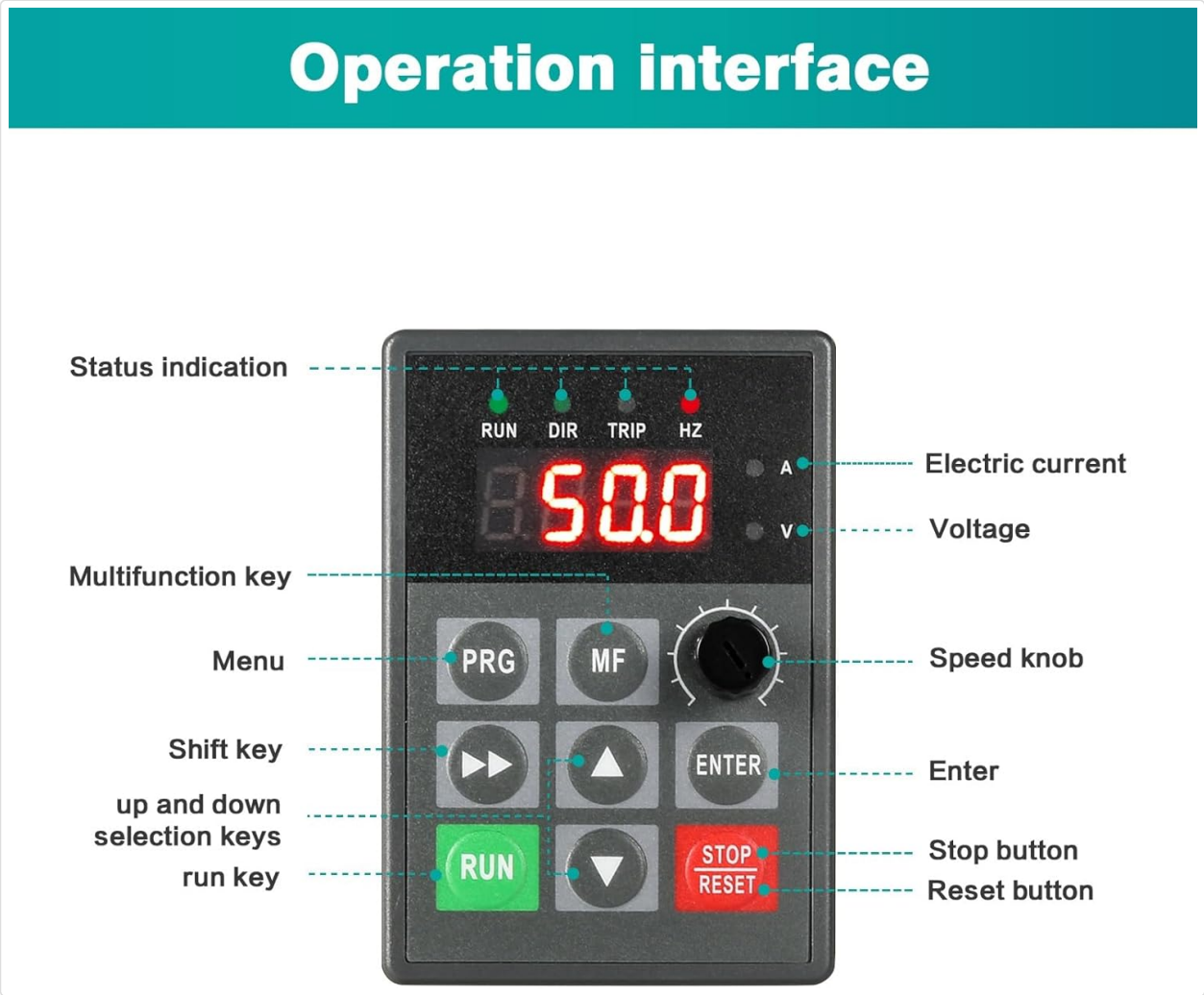

Figure 5.1: The VFD operation interface, highlighting the status indicators, digital display, multifunction key, menu button, shift key, up/down selection keys, run key, stop/reset button, speed knob, electric current display, and voltage display.

Control Panel Elements:

- **Status Indication (RUN, DIR, TRIP, HZ):** LEDs indicating operation status, direction, fault, and frequency unit.
- **Digital Display:** Shows frequency, voltage, current, and parameter values.
- **PRG (Program) Key:** Enters/exits parameter setting mode.
- **MF (Multifunction) Key:** Used for various functions depending on the mode.
- **Speed Knob:** Adjusts the output frequency/motor speed.
- **ENTER Key:** Confirms selections or parameter changes.
- **Shift Key (>>):** Moves cursor or shifts digits during parameter editing.
- **Up/Down Selection Keys (▲/▼):** Navigates through menus or adjusts parameter values.
- **RUN Key:** Starts the motor.
- **STOP/RESET Key:** Stops the motor or clears fault indications.
- **A (Electric Current):** Indicator for current display.

- **V (Voltage):** Indicator for voltage display.

5.2 Speed Adjustment

The VFD allows for stepless speed regulation from 0 to 999Hz, providing precise control over motor speed.

Figure 5.2: The speed adjustment knob on the VFD control panel, used for stepless speed regulation.

To adjust the motor speed, simply rotate the speed knob. The high-definition screen will display the real-time frequency, voltage, and current, making adjustments intuitive.

5.3 Parameter Debugging

The VFD's parameter debugging is designed for ease of use. You can switch to specific operational models with a one-key adjustment feature. Refer to the detailed parameter list in the full technical manual for advanced configurations. The high-definition screen provides clear and intuitive data during parameter adjustments.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your DeWin VFD. Always disconnect power and wait 10 minutes before performing any maintenance.

- **Cleaning:** Periodically clean the VFD's exterior and ventilation openings to prevent dust accumulation, which can hinder cooling. Use a soft, dry cloth. Do not use liquid cleaners.
- **Inspection:** Regularly inspect 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.
- **Fan Check:** Verify that the cooling fan is operating correctly and is not obstructed.

7. Troubleshooting

This section provides general guidance for common issues. For complex problems, consult a qualified technician.

- **VFD Not Powering On:** Check the input power supply and all wiring connections. Ensure the circuit breaker is not tripped.
- **Motor Not Running:** Verify that the RUN command is active. Check motor wiring and ensure no fault codes are displayed on the VFD. Confirm motor parameters are correctly set.
- **Overcurrent/Overload Fault:** Check for mechanical overload on the motor. Verify motor current ratings match VFD settings. Inspect motor and load for any obstructions.
- **Overvoltage/Undervoltage Fault:** Check the input power supply voltage. Ensure it is within the VFD's specified range.
- **Overheating Fault:** Ensure adequate ventilation around the VFD. Clean any dust from the heatsink and fan. Check ambient temperature.
- **Display Errors:** If the display shows unusual characters or no information, try resetting the VFD by cycling power. If the issue persists, contact support.

Always refer to the specific fault codes and their meanings in the comprehensive technical manual for detailed troubleshooting steps.

8. Technical Specifications

Below are the detailed technical specifications for the DeWin 7.5kW 380V Three-Phase VFD Frequency Converter (Model: IRAYIYEBQ-GS109481-01-dewzzq-01).

Specification	Value
Brand	DEWIN
Model Number	IRAYIYEBQ-GS109481-01-dewzzq-01
Rated Input Voltage	Three-phase 380V
Rated Output Voltage	Three-phase 380V
Rated Power	7.5kW
Output Current	17A
Factory Frequency	50Hz

Specification	Value
Output Frequency Range	0-999Hz
Material	Flame-retardant ABS plastic
Color	White
Installation Method	Wall-mounted, Cabinet-mounted
Cooling Method	Air-cooled, with fan control
Protection Class	IP20
Control Mode	V/F closed loop
Output Voltage Regulation Method	PAM control
Product Dimensions (L x W x H)	32.4 x 24.7 x 17 cm (approximate package dimensions)
Item Weight	2.62 Kilograms
Country of Origin	China

9. Warranty and Support

Information regarding the product warranty and specific customer support contacts is not available in the provided product data. Please refer to the product packaging or the seller's website for warranty details and customer service contact information.