

FBT V350-4T0015

SIMPHOENIX V350 Series VFD Instruction Manual

Model: V350-4T0015

[Introduction](#)

[Safety](#)

[Overview](#)

[Setup](#)

[Operation](#)

[Maintenance](#)

[Troubleshooting](#)

[Specifications](#)

[Warranty & Support](#)

1. INTRODUCTION

This manual provides essential information for the safe and efficient installation, operation, and maintenance of the SIMPHOENIX V350 series closed-loop vector inverter, model V350-4T0015. This Variable Frequency Drive (VFD) is designed for precise motor control in various industrial applications, including machine tools, textile machinery, road construction machinery, cable machinery, and petrochemical processing. Please read this manual thoroughly before using the product.



2. SAFETY INSTRUCTIONS

Observe all safety precautions to prevent personal injury or equipment damage. Improper installation or operation can lead to severe consequences.

- **Electrical Hazard:** Ensure power is disconnected before installation, wiring, or maintenance. Only qualified personnel should perform electrical work.
 - **Grounding:** Always connect the VFD to a proper ground.
 - **Capacitor Discharge:** Wait at least 10 minutes after power-off for internal capacitors to discharge before touching terminals. Verify voltage with a multimeter.
 - **Environment:** Install the VFD in a clean, dry, well-ventilated area, free from corrosive gases, dust, and direct sunlight.
 - **Motor Compatibility:** Ensure the motor's voltage and current ratings are compatible with the VFD.
 - **Emergency Stop:** Implement an external emergency stop circuit independent of the VFD control.
-

3. PRODUCT OVERVIEW

3.1 Key Features

- **High Torque Performance:** Achieves up to 200% start torque at zero speed in closed-loop vector mode and 180% in open-loop vector mode.
- **User Interface:** Standard 5-digit two-line LED panel display; LCD keypad optional.
- **Real-time Monitoring:** Vivid display for monitoring power, running time, input/output current, voltage, and failure records.
- **High Frequency Operation:** Supports running modes up to 1000Hz.
- **Parameter Simplification:** Built-in system and application macros simplify parameter settings.
- **Flexible Speed Control:** Programmable 16-stage speed running, with adjustable running time, acceleration, deceleration, and direction for each stage.
- **Virtual I/O:** Software virtual I/O function for flexible configuration, reducing external interference and simplifying wiring.
- **Protection Functions:** Abundant warning and protection features for safe operation.

3.2 Components

The V350 series VFD typically consists of:

- **Control Panel:** For parameter setting and status display.
 - **Power Terminals:** For connecting input power and motor.
 - **Control Terminals:** For external control signals (e.g., start/stop, speed reference, fault output).
 - **Heat Sink and Fan:** For cooling the internal components.
-

4. SETUP AND INSTALLATION

4.1 Mounting

Mount the VFD vertically on a non-flammable surface, ensuring adequate clearance for ventilation. Avoid mounting in direct sunlight or near heat sources. Maintain specified clearances above, below, and to the sides of the unit for proper airflow.

4.2 Wiring

All wiring must comply with local and national electrical codes. Use appropriate wire gauges and ensure all connections are secure.

1. **Power Input (R, S, T):** Connect the 380V AC power supply to the R, S, T terminals. Ensure correct phase sequence.
2. **Motor Output (U, V, W):** Connect the motor to the U, V, W terminals. Do not connect power factor correction capacitors or surge suppressors between the VFD and the motor.
3. **Grounding (PE):** Connect the PE terminal to a reliable earth ground.
4. **Control Terminals:** Wire control signals (e.g., start/stop, analog speed reference, digital inputs) according to your application requirements and the VFD's terminal diagram. Refer to the detailed wiring diagram in the full product manual for specific terminal assignments.

4.3 Initial Power-Up

Before applying power, double-check all wiring connections. Power on the VFD and observe the display. If any fault codes appear, refer to the troubleshooting section.

5. OPERATING INSTRUCTIONS

5.1 Control Panel Operation

The VFD features a 5-digit two-line LED display and a keypad for parameter setting and monitoring. Common buttons include:

- **RUN/STOP:** Starts and stops the motor.
- **PROG/DATA:** Enters/exits parameter setting mode and confirms data.
- **UP/DOWN Arrows:** Navigates through parameters and adjusts values.
- **SHIFT:** Moves cursor during parameter editing.

5.2 Basic Parameter Settings

Key parameters to configure for initial operation include:

- **Motor Rated Frequency:** Set to the motor's nominal frequency (e.g., 50Hz or 60Hz).
- **Motor Rated Voltage:** Set to the motor's nominal voltage (e.g., 380V).
- **Motor Rated Current:** Set to the motor's nominal current.
- **Acceleration Time:** Time taken for the motor to accelerate from 0Hz to maximum frequency.
- **Deceleration Time:** Time taken for the motor to decelerate from maximum frequency to 0Hz.

- **Control Mode:** Select between open-loop vector, closed-loop vector, or V/F control based on application requirements.

Refer to the detailed parameter list in the comprehensive manual for advanced settings and specific parameter codes.

6. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your VFD.

- **Cleaning:** Periodically clean the VFD's exterior and ventilation openings to prevent dust accumulation. 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.
- **Ventilation:** Ensure cooling fans are operating correctly and that airflow around the unit is unobstructed. Replace fans if they become noisy or stop working.
- **Capacitor Check:** For long-term reliability, electrolytic capacitors may require inspection or replacement after several years of operation. This should be performed by qualified service personnel.

7. TROUBLESHOOTING

This section provides solutions for common issues. For persistent or complex problems, contact technical support.

Fault Code/Symptom	Possible Cause	Solution
OV (Overvoltage)	Input voltage too high, regenerative braking.	Check input voltage. Increase deceleration time. Install braking resistor if necessary.
OC (Overcurrent)	Motor overload, short circuit, rapid acceleration/deceleration.	Check motor load. Inspect motor and wiring. Increase acceleration/deceleration time.
OL (Overload)	Motor or VFD overload.	Reduce motor load. Check motor current settings. Ensure proper ventilation.
UV (Undervoltage)	Input voltage too low.	Check input power supply voltage.
Err (External Fault)	External fault input activated.	Check external control circuit and devices connected to fault input terminals.

8. SPECIFICATIONS

Technical specifications for the SIMPHOENIX V350-4T0015 VFD:

Parameter	Value
-----------	-------

Parameter	Value
Brand	FBT (SIMPHOENIX)
Model	V350-4T0015
Input Voltage	380V AC
Rated Power	1.5KW
Control Method	Closed-loop vector, Open-loop vector, V/F control
Output Frequency Range	Up to 1000Hz
Display	5-digit two-line LED panel
Manufacturer	FBT
ASIN	B08QVWYYLT
Date First Available	Dec 17 2020

9. WARRANTY AND SUPPORT

This product is covered by a standard manufacturer's warranty against defects in materials and workmanship. The specific duration and terms of the warranty may vary. Please retain your proof of purchase for warranty claims.

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact your authorized dealer or the manufacturer's customer support. Provide your product model number (V350-4T0015) and serial number when seeking support.