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NDNCZDHC AT904-4KW

NDNCZDHC AT904-4KW Single Phase to 3 Phase Converter User Manual

Model: AT904-4KW

1. Introduction

This manual provides essential information for the safe and efficient operation of the NDNCZDHC AT904-4KW Variable Frequency Drive (VFD). This device converts single-phase power to three-phase power, enabling precise speed control for 380V three-phase motors up to 4KW (6HP).

Safety Information

- **Risk of injury and electric shock:** Always ensure power is disconnected before installation or maintenance.
- **Reliable grounding:** Ensure proper earth connection to prevent electrical hazards.
- **Output connection:** Never connect AC power to the output terminals (U, V, W).
- **Capacitor discharge:** Wait for the internal capacitors to discharge completely after power off before handling.

2. Product Overview and Features

The AT904-4KW VFD is designed for general-purpose applications, offering robust control and protection features for various motor-driven systems.



Figure 2.1: Front view of the AT904-4KW Variable Frequency Drive. This image shows the overall compact design of the unit, suitable for various industrial and home applications.

Key Features:

- **Multi-Stage Control:** Features 8-stage programmable control for multi-stage speed management, offering multiple operation modes, simple PLC operation, and options for torsion or speed control modes.
- **Analog Input/Output:** Includes standard RS485 RTU mode with multiple analog input/output options: 0-5V, 0-10V, 4-20mA, and 0-20mA.
- **Constant Pressure Water and Wind:**Utilizes PID control for constant pressure water supply and wind pressure control, ensuring environmental protection, energy savings, low noise, and minimal electromagnetic interference.
- **Stepless Regulation and Energy Saving:** Provides low-frequency, energy saving with stepless speed regulation and multiple motor protection methods.
- **Various Protection:** Equipped with protection features against overcurrent, overvoltage, undervoltage, module failure, overheating, short circuits, input/output phase loss, abnormal motor parameter adjustments, and includes an electronic thermal relay.

3. Specifications

Parameter	Value
Item Type	Variable Frequency Drive
Model	AT904-4KW
Maximum Output Current	20A
Adapted Motor Power	4KW (6HP)
Filter	Built-in filter
Application	General purpose
Control Mode	V/F open loop
Appearance	ABS plastic shell
Product Size	Approx. 25 x 18 x 16.5cm / 9.8 x 7.1 x 6.5in

4. Setup and Installation

Wiring Instructions

Follow these steps carefully for proper installation and wiring:

1. **Motor Compatibility:** Select a compatible 380V three-phase motor with a power rating less than 4KW and adjustable speed.
2. **Power and Motor Connection:** Connect the power supply and the three-phase motor according to the wiring diagram provided below. Ensure all connections are secure and correctly polarized.
3. **Grounding:** Always ensure the unit is properly grounded to prevent electrical hazards.





Figure 4.1: Internal wiring terminals of the AT904-4KW VFD. This image illustrates the connection points for the power input, motor output, and control signals.

Initial Power-Up

After wiring, power on the device. The motor speed and direction (CW/CCW) can be adjusted using the control knob and buttons on the panel.

5. Operating Instructions

The AT904-4KW VFD features an intuitive control panel for easy operation.



Figure 5.1: Close-up view of the AT904-4KW VFD control panel. This image highlights the display, rotary knob, and control buttons for operation and programming.

Basic Operation

- **Start/Stop:** Use the designated RUN and STOP buttons on the panel to start and stop the motor.
- **Speed Adjustment:** The rotary knob allows for stepless speed regulation of the connected motor.
- **Direction Control:** The panel includes controls for clockwise (CW) and counter-clockwise (CCW) rotation.

Advanced Functions

- **Mode Selection:** Refer to the detailed user manual (included in the package) for selecting appropriate

operation modes based on application scenarios. This includes multi-stage control, torsion control, and speed control modes.

- **Analog Input/Output:** Utilize the RS485 RTU mode and various analog input/output options (0-5V, 0-10V, 4-20mA, 0-20mA) for integration with external control systems.
- **PID Control:** The built-in PID control function is ideal for applications requiring constant pressure water supply or wind pressure control.

6. Maintenance

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

- **Cleaning:** Keep the VFD clean and free from dust and debris. Use a soft, dry cloth for cleaning the exterior. Do not use liquid cleaners.
- **Ventilation:** Ensure adequate ventilation around the unit to prevent overheating. Regularly check that cooling vents are not obstructed.
- **Connection Checks:** Periodically inspect all wiring connections for tightness and signs of wear or corrosion.
- **Environmental Conditions:** Operate the VFD within its specified environmental conditions (temperature, humidity) to prevent damage.

7. Troubleshooting

The AT904-4KW VFD incorporates multiple protection features to safeguard the unit and connected motor. If an issue occurs, the unit may display an error code or shut down.

Protection Features:

- Overcurrent protection
- Overvoltage protection
- Undervoltage protection
- Module failure detection
- Overheating protection
- Short circuit protection
- Input/output phase loss detection
- Abnormal motor parameter adjustment detection
- Electronic thermal relay

General Troubleshooting Steps:

- **No Power:** Check the power supply connection and ensure the circuit breaker is on.
- **Motor Not Running:** Verify motor wiring, ensure the VFD is in RUN mode, and check for any error codes on the display.
- **Abnormal Noise/Vibration:** Inspect motor and load for mechanical issues. Check VFD parameters for correct motor settings.
- **Overload Trip:** Reduce the load on the motor or check for mechanical binding. Verify motor current limits in VFD settings.

For specific error codes and advanced troubleshooting, consult the comprehensive user manual provided with the product.

8. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your purchase or contact the seller directly. You can also visit the official NDNCZDHC store for more product information and support resources: NDNCZDHC Store.

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