Yanmis SKI780

Yanmis SKI780 Mini VFD Variable Frequency Drive User Manual

Model: SKI780 (220VAC 2.2kW)

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Yanmis SKI780 Mini VFD Variable Frequency Drive. This device is designed for precise motor control in various industrial applications, including textile equipment. Please read this manual thoroughly before use to ensure safe and efficient operation.

Important Safety Information

WARNING: Electrical shock hazard. Installation and maintenance should only be performed by qualified personnel.

- Always disconnect power before installation, wiring, or maintenance.
- Ensure proper grounding to prevent electrical shock.
- Do not operate the VFD with damaged wiring or if it has been exposed to moisture.
- Verify input voltage matches the VFD's specifications (220VAC for this model).
- Keep children and unauthorized personnel away from the device during operation.
- Observe all local and national electrical codes.

The device features a "DANGER 5 min" warning, indicating that residual voltage may be present for up to 5 minutes after power disconnection. Always wait for this period before touching internal components.

Key Features

- V/F control, vector control, and output torque control capabilities.
- Integrated communication interface for external control.
- Built-in speed potentiometer and external panel support.
- Integrated synchronous control and proportional synchronization control.
- Six speed control modes with automatic execution.
- Multiple running commands or frequency channels selectable.
- Partial or full key locking function (analog potentiometer unlock).
- Two high-configuration outputs (normally open/closed relay) with 100 optional modes.
- Six opto-isolated digital inputs with 100 optional modes.
- Three analog inputs and one analog output channel.
- Textile pendulum frequency function, suitable for textile equipment.
- Built-in user-defined timer/counter.
- Integrated PID adjustment function for closed-loop control of temperature, pressure, and tension.
- Zero-speed torque output (0-100% adjustable) with zero-speed brake function.

Technical Specifications

Parameter	Value
Model	SKI780
Rated Input Voltage	AC 1PH 220V ±15%
Rated Output Voltage	AC 3PH 0V-220V
Output Power	2.2 kW
Rated Input Current	23 A
Rated Output Current	10 A
Control Mode	Current Vector
Output Voltage Regulation Mode	PWM Control
Input Frequency Range	47Hz-63Hz
Output Frequency Range	0Hz-400Hz
Dimensions (L x W x H)	142 mm x 85 mm x 110 mm (5.6 x 3.3 x 4.3 inches)
Weight	Approx. 1 kg
Certifications	CE

Product Overview

The Yanmis SKI780 Mini VFD features a compact design with an intuitive control panel and robust terminal connections for reliable operation.

Figure 1: Front Panel and Terminals

This image displays the front of the VFD, highlighting the digital display, operational buttons, and clearly labeled input (L, N) and output (U, V, W) terminals. The "DANGER 5 min" warning is also visible.

Figure 2: Side View with Product Label

The side view reveals the product label, which includes critical information such as the model number (SKI780-2D2G-1), power rating (2.2kW), input voltage (AC 1PH 220V), output voltage (AC 3PH 0-220V), and serial number (H00220100024).

Figure 3: Product Dimensions

This image provides the physical dimensions of the VFD: 142mm (5.6 inches) in length, 85mm (3.3 inches) in width, and 110mm (4.3 inches) in height, aiding in installation planning.

Figure 4: Rear View with Mounting Mechanism

The rear view illustrates the integrated DIN rail mounting clip, allowing for easy and secure installation within electrical cabinets.

Setup and Installation

1. Mounting

- Mount the VFD vertically on a DIN rail within an electrical enclosure. Ensure adequate ventilation space around the unit (at least 10cm clearance on all sides) for heat dissipation.
- Avoid mounting in direct sunlight, high humidity, or dusty environments.

2. Wiring Connections

Refer to the terminal labels on the VFD and the wiring diagram provided in the full product documentation (not included here) for precise connections. Ensure all connections are secure and correctly polarized.

- **Power Input (L, N):** Connect the single-phase 220VAC power supply to the 'L' and 'N' terminals.
- **Motor Output (U, V, W):** Connect the three-phase motor leads to the 'U', 'V', and 'W' terminals.
- **Ground (PE):** Connect the protective earth ground to the 'PE' terminal. This is crucial for safety.
- **Control Terminals:** Utilize the digital inputs (DI), analog inputs (AI), and relay outputs (TA, TB, TC) for external control signals, speed potentiometers, and status indications as required by your application.

Always double-check all wiring before applying power.

Operating Instructions

1. Control Panel Overview

The VFD features a digital display and several buttons for configuration and operation:

- **Digital Display:** Shows frequency, current, voltage, and parameter settings.
- **PROG:** Enters/exits parameter setting mode.
- **M-FUN:** Multi-function key, often used for quick access to common functions or menu navigation.
- **SHIFT <<:** Shifts cursor position during parameter editing or changes display mode.
- **RUN:** Starts motor operation.
- **STOP/REST:** Stops motor operation or resets faults.
- **Up/Down Arrows:** Adjust parameter values or navigate menus.
- **ENTER:** Confirms parameter settings or enters sub-menus.
- **Speed Potentiometer:** Adjusts motor speed directly when enabled.

2. Basic Operation

1. **Power On:** Apply power to the VFD. The display will illuminate.
2. **Parameter Setting (Initial Setup):**
    - Press **PROG** to enter parameter setting mode.
    - Use the **Up/Down Arrows** to navigate through parameter groups and individual parameters.
    - Press **ENTER** to select a parameter for editing.
    - Use **Up/Down Arrows** to change the value. Use **SHIFT <<** to move the cursor.
    - Press **ENTER** to save the new value.
    - Press **PROG** again to exit parameter setting mode.

    Note: Refer to the detailed programming manual (not included) for a complete list of parameters and their functions. Common parameters include motor rated frequency, maximum output frequency, acceleration/deceleration times, and control mode selection.
3. **Starting the Motor:**
    - Ensure all safety precautions are observed.
    - Press the **RUN** button on the control panel. The motor will start and accelerate to the set frequency.

4. **Stopping the Motor:**
    - Press the **STOP/REST** button. The motor will decelerate and stop.
5. **Adjusting Speed:**
    - If the internal potentiometer is enabled, rotate it to adjust the output frequency and motor speed.
    - If external control (e.g., analog input) is configured, adjust the external signal source.

Maintenance

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

- **Cleaning:** Periodically clean the VFD's exterior with a soft, dry cloth. Ensure ventilation openings are free from dust and debris. 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:** Maintain the operating environment within specified temperature and humidity ranges.
- **Fan Check:** Ensure the cooling fan (if present) is operating correctly and not obstructed.

Always disconnect power and wait for the "DANGER 5 min" period to elapse before performing any maintenance.

Troubleshooting

This section provides solutions to common issues. For complex problems, contact technical support.

Problem	Possible Cause	Solution
VFD does not power on.	No input power; incorrect wiring; blown fuse.	Check power supply, verify wiring, inspect fuses.
Motor does not run when RUN is pressed.	Incorrect control mode setting; motor wiring error; VFD in fault state.	Check parameter settings (e.g., P00.01 for run command source), verify motor connections, check for fault codes on display and reset.
Motor runs at incorrect speed.	Incorrect frequency setting; potentiometer not calibrated; external speed command issue.	Adjust frequency setting, calibrate potentiometer, check external control signal.
VFD displays an error code.	Overcurrent, overvoltage, undervoltage, overload, overheating, etc.	Note the error code, refer to the full manual for specific fault descriptions and remedies. Press STOP/REST to clear faults after addressing the cause.
Unusual noise from VFD or motor.	Loose connections; motor bearing issue; VFD parameter mismatch.	Check all connections, inspect motor, review VFD parameters (e.g., carrier frequency).

Warranty and Support

For warranty information and technical support, please refer to the documentation included with your purchase or contact Yanmis customer service. Ensure you have your product model (SKI780) and serial number (H00220100024) available when seeking support.
For additional resources and detailed programming guides, please visit the official Yanmis website or consult online communities dedicated to VFDs.