XINJE XC3-24T-E

XINJE XC3-24T-E PLC User Manual

Programmable Logic Controller Instruction Guide

1. Introduction and Overview

This manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of the XINJE XC3-24T-E Programmable Logic Controller (PLC). The XC3-24T-E is a robust industrial control device designed for various automation tasks, featuring a compact design and versatile connectivity options.

It is equipped with 14 digital inputs (DI) and 10 digital outputs (DO) with transistor output, suitable for AC220V or DC24V power supply systems. This PLC supports advanced programming capabilities and communication protocols, making it an ideal solution for modern industrial automation.

2. Product Features

- Integrated 14 Digital Inputs (DI) and 10 Digital Outputs (DO) with Transistor output.
- Flexible power supply options: AC220V or DC24V.
- Expandable with additional expansion modules and BD boards for increased I/O or specialized functions.
- Built-in Real-Time Clock (RTC) for time-based operations.
- Supports power-off retentive memory, ensuring data integrity during power interruptions.
- Capable of basic logic control and complex data operations.
- Advanced functionalities including high-speed counting, pulse output, and exterior interruption handling.
- Supports C language function blocks for custom programming.
- Features free switching for I/O points, enhancing configuration flexibility.
- Supports free protocol communication and standard MODBUS communication for seamless integration with other devices.

3. Setup and Installation

3.1. Power Supply Connection

The XC3-24T-E PLC supports both AC220V and DC24V power inputs. Ensure the correct voltage is supplied to the designated power terminals. Refer to the wiring diagram on the device for specific terminal assignments. Always disconnect power before making any connections.

3.2. Input/Output Wiring

Connect your sensors and input devices to the 14 Digital Input (DI) terminals and your actuators and output devices to the 10 Digital Output (DO) transistor terminals. Pay close attention to polarity for DC circuits and ensure proper current ratings are observed for all connected devices.

3.3. Communication Ports

- **COM 1 (RS-232):** Used for connecting to a host machine or Human Machine Interface (HMI) for programming, debugging, and data exchange.
- **COM 2 (RS-485/RS-232):** Supports network communication or connection to intelligent instruments, inverters, and other industrial devices.
- **COM 3 (BD Extensional Communication Port RS-232/RS485):** An additional port for extending communication capabilities.

3.4. Physical Installation

The PLC can be installed using M3 screws for fixed mounting or by utilizing a DIN46277 (35mm width) guide rail. Ensure the installation location is stable, well-ventilated, and free from excessive vibration or electromagnetic interference.

3.5. Grounding

Proper grounding is crucial for the safe and reliable operation of the PLC. Implement the third type of grounding. **Never perform common grounding with a strong power system**to prevent electrical hazards and interference.

4. Operating Instructions

4.1. Programming the PLC

The XC3-24T-E supports programming in both instruction list and ladder diagram modes. User programs have a capacity of 8000 steps. Programming is typically performed via the COM 1 (RS-232) port using compatible PLC programming software on a host machine.

4.2. Program Operation Modes

The PLC operates in two primary program modes:

- **Circulation Scanning Mode:** The PLC continuously scans and executes the user program from start to finish.
- **Timing Scanning Mode:** Program execution is synchronized with specific time intervals.

The dispose speed for program execution is approximately 0.5 microseconds, ensuring rapid response times for control applications.

4.3. Data Retention

The PLC utilizes FlashROM for power failure holding, meaning user programs and critical data are retained even if power is lost, ensuring system integrity and minimizing downtime.

4.4. Timers and Counters

The PLC includes a comprehensive set of timers and counters for precise control:

- **Timers (T):** 620 points available.
  - 100mS timer: Set time 0.1~3276.7 seconds
  - 10mS timer: Set time 0.01~327.67 seconds
  - 1mS timer: Set time 0.001~32.767 seconds
- **Counters (C):** 635 points available.
  - 16 bits counter: Set value K0~32767
  - 32 bits counter: Set value K0~2147483647

Data Registers (D) provide 8512 characters for storing operational data.

5. Maintenance

To ensure the longevity and reliable operation of your XINJE XC3-24T-E PLC, adhere to the following maintenance guidelines:

- **Environmental Conditions:** The PLC is designed to operate within an environment temperature range of 0°C to 6°C and an ambient humidity of 5% to 95% (non-condensing). Operating outside these ranges may affect performance and lifespan.
- **Cleaning:** Regularly clean the exterior of the PLC with a soft, dry cloth. Avoid using abrasive cleaners or solvents. Ensure ventilation openings are free from dust and debris to prevent overheating.
- **Connection Checks:** Periodically inspect all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or system failures.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates that may improve performance or address known issues. Follow update procedures carefully.
- **Power Supply Stability:** Ensure a stable and clean power supply. Fluctuations or noise in the power supply can impact PLC operation.

6. Troubleshooting

This section provides general guidance for common issues. For complex problems, consult the XINJE technical support or a qualified technician.

6.1. Indicator Lights

Observe the status indicator lights on the PLC front panel:

- **PWR (Power):** Should be steadily lit when power is supplied correctly. If off, check power connections and source.
- **RUN:** Indicates the PLC is in run mode and executing the program. If off or blinking, the PLC may be in stop mode or encountering an issue.
- **ERR (Error):** If lit, an internal error or program error has occurred. Refer to the programming software for detailed error codes and diagnostics.

6.2. Common Issues

- **PLC Not Powering On:** Verify the power supply voltage matches the PLC's requirements (AC220V or DC24V). Check all power wiring for secure connections and continuity.
- **Inputs Not Responding:** Check wiring to input devices. Ensure sensors are correctly powered and functioning. Verify input addresses in the PLC program match physical connections.
- **Outputs Not Activating:** Check wiring to output devices. Ensure actuators are correctly powered and functioning. Verify output addresses and logic in the PLC program. Check for overload or short circuits on output terminals.
- **Communication Problems:** Verify cable connections (RS-232/RS-485). Ensure communication parameters (baud rate, data bits, parity, stop bits) are correctly configured in both the PLC and the connected device (e.g., HMI, PC).
- **Program Errors:** If the ERR light is on, connect to the PLC with programming software to identify the specific error. Common errors include syntax errors, logic faults, or memory issues.

7. Specifications

Category	Item	Specifications
General	Insulation Voltage	Above DC 500V 2Mohm
	Noise Resistance	1000V 1uS pulse for 1 minute
	Environment Temperature	0°C ~ 6°C
	Ambient Humidity	5% ~ 95% (non-condensing)
	Installation	M3 screw fixed or DIN46277 (35mm width) guide rail installation
	Grounding	The third type grounding (Never perform common grounding with strong power system)
	Program Operation Mode	Circulation scanning mode, timing scanning mode
	Program Mode	Instructions and ladder chart

Category	Item	Specifications
Performance	Dispose Speed	0.5us
	Power Failure Holding	FlashROM
	User Program Capacity	8000 steps
	I/O Points	14 input points, 10 output points
	Output Format	Transistor
	Power Supply	AC220V/DC24V
	Interior Coil Points (M)	8512 points
	Timer (T) Points	620 points
Timer (T) Specification	100mS timer: set time 0.1~3276.7 seconds 10mS timer: set time 0.01~327.67 seconds 1mS timer: set time 0.001~32.767 seconds	
Counter (C) Points	635 Points	
Counter (C) Specification	16 bits counter: Set value K0~32767 32 bits counter: Set value K0~2147483647	
Data Register (D)	8512 characters	

8. Product Images

Figure 8.1: Angled view of the XINJE XC3-24T-E PLC, showing the input/output terminals and status indicators.

Figure 8.2: Top-down view of the XINJE XC3-24T-E PLC, highlighting the terminal blocks and model labeling.

Figure 8.3: The XINJE XC3-24T-E PLC alongside its retail packaging, showing the product box and included documentation.

9. Warranty and Support

Specific warranty terms and detailed support contact information for the XINJE XC3-24T-E PLC are not available in the provided product data. For warranty claims, technical assistance, or further inquiries, please refer to the documentation included with your purchase or contact the vendor or manufacturer directly.

It is recommended to retain your proof of purchase for any warranty-related matters.

Related Documents - XC3-24T-E

	XINJE XC Series PLC Hardware Manual This comprehensive hardware manual provides detailed specifications, features, and installation guidelines for the XINJE XC Series Programmable Logic Controllers (PLCs), including XC1, XC2, XC3, XC5, and XCM models. It covers CPU configurations, expansion modules, communication ports, and programming capabilities for industrial automation applications.

	[XINJE XC Series PLC Hardware User Manual] Comprehensive user manual for XINJE XC series PLC hardware, detailing product specifications, system structure, input/output wiring methods, and maintenance procedures for various CPU units and expansion modules.
	[Xinje XD Series PLC Hardware Manual: XD3, XD5, XDM Models] Comprehensive hardware manual for Xinje XD series PLCs, covering XD3, XD5, and XDM models. Includes specifications, wiring, system structure, operation, and maintenance details for industrial automation.
	[XINJE XD3/XDM Series PLC User Manual and Instruction Guide] Comprehensive user manual and instruction guide for the XINJE XD3/XDM series PLC, detailing programming languages, instructions, functions, communication, and applications for industrial automation. Covers PLC features, soft components, basic and applied instructions, HSC, pulse output, communication, PID control, and more.
	[Xinje XD Series PLC Fast Manual: Specifications and Usage] A comprehensive guide to the Xinje XD Series PLC, detailing its specifications, electrical characteristics, installation, wiring, and operational usage. Covers various models and their features for industrial automation.
	[XINJE XS Series PLC Hardware User Manual] Comprehensive hardware user manual for XINJE XS series Programmable Logic Controllers (PLCs), covering XSDH, XS3, and XSLH models, specifications, installation, and operation.