DPLC Programmable Logic Controller User Manual

Version：V1.1 (2026/01/14)

Contents

Safety Matters

To prevent injury to people and damage to equipment, the following matters to be observed are declared as follows:

Please be sure to read and observe the "Safety Matters" before use.

Please be sure to use this product in an environment that meets the design specifications.

Please be sure to follow all safety matters in the product labels and manual instructions.

Mandatory Contents

Install this product on non-combustible materials such as metal.

Set the product in a place with less dust and where it will not come into contact with water, oil, etc.

Installation and wiring work must be performed by personnel with electrical engineering qualifications.

Installation personnel must be familiar with product installation requirements and related technical data.

Movement, installation, wiring, and inspection of this product must be carried out after cutting off the power supply and confirming that there is no danger of electric shock.

Please follow the steps stipulated in the Electrostatic Discharge (ESD) prevention measures and wear an electrostatic wrist strap for operations such as wiring

Cables should be connected securely, and energized parts must be effectively insulated with insulating materials.

Prohibited Contents:

Do not place combustible materials around this product.

Do not place this product around heating elements such as heaters or large wire-wound resistors.

Do not use this product in environments with corrosive or flammable gases or near combustible substances.

Do not use this product in places with severe vibration or shock.

Do not use this product while cables are submerged in oil or water.

Do not perform wiring work while the power is on.

Do not perform wiring and equipment operation with wet hands.

Do not reach your hands into the interior of this product.

Chapter 1 Product Information

1.1 System Introduction

The DPLC series is a new generation of programmable logic controller PLC developed by Mean Well Control. The product programming complies with the IEC61131-3 standard. Users can perform complex logic programming operations on the DPLC controller through dedicated software and allow real-time monitoring of the program running in the controller.
The DPLC controller can flexibly and efficiently execute automation tasks in the low-end range and is an ideal choice for various small and medium-sized industrial applications in standalone equipment and production lines.

Performance Features:
Supports 1 channel of Modbus-485 communication interface, 1 channel of Ethernet interface.
Supports extension modules (connected via 485) to expand input/output points, up to a maximum of 32x8 DI/DO points.
Supports analog input.
Supports 4 channels of 100K PWM output and 4 channels of 100K high-speed counters.
Programming language: Follows the industry specifications formulated by the PLCopen international organization, based on IEC61131-3 international programming. Standard programming languages: Function Block Diagram (FBD), Ladder Diagram (LD),Instruction List (IL), Structured Text (ST), Sequential Function Chart (SFC).

1.2 Product Model

This document mainly involves the product models as shown in the figure below:

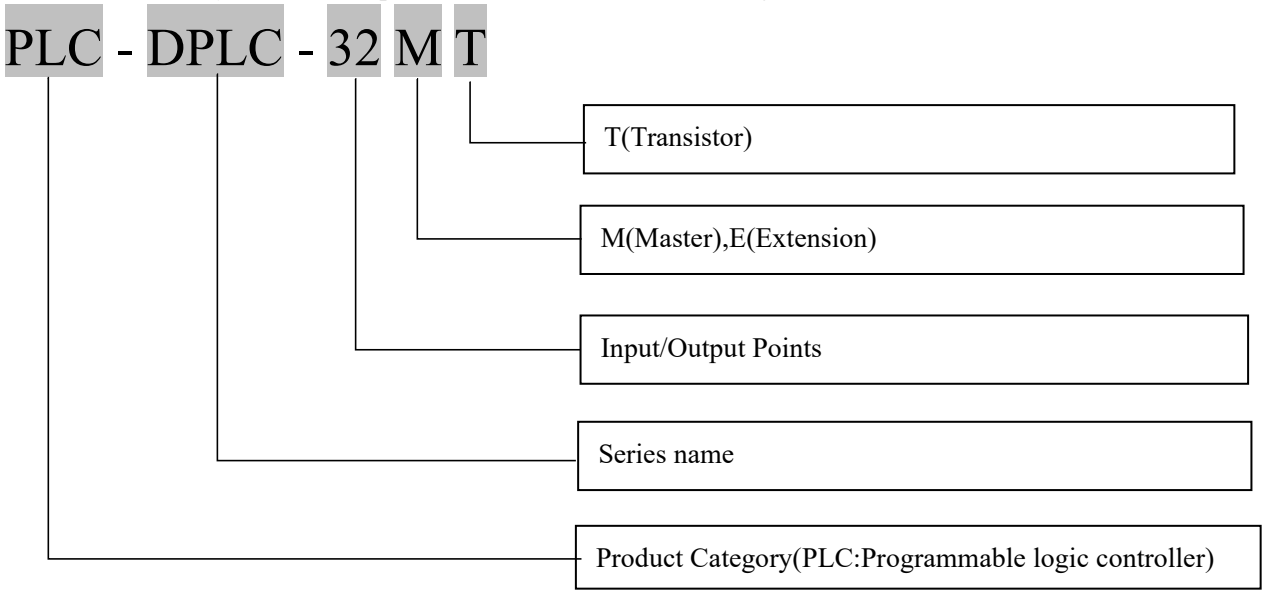


Figure 1-1 Product Model Explanation

Product Model	Product Description
DPLC-32MT	Programmable Logic Controller PLC) 16xDI, 16xDO, 2xAI, 1xRS485, 1xLAN, 1xUSB
DPLC-32ET	Programmable Logic Controller PLC Extension Unit) 16xDI, 16xDO, 4xAI

1.3 Product Appearance

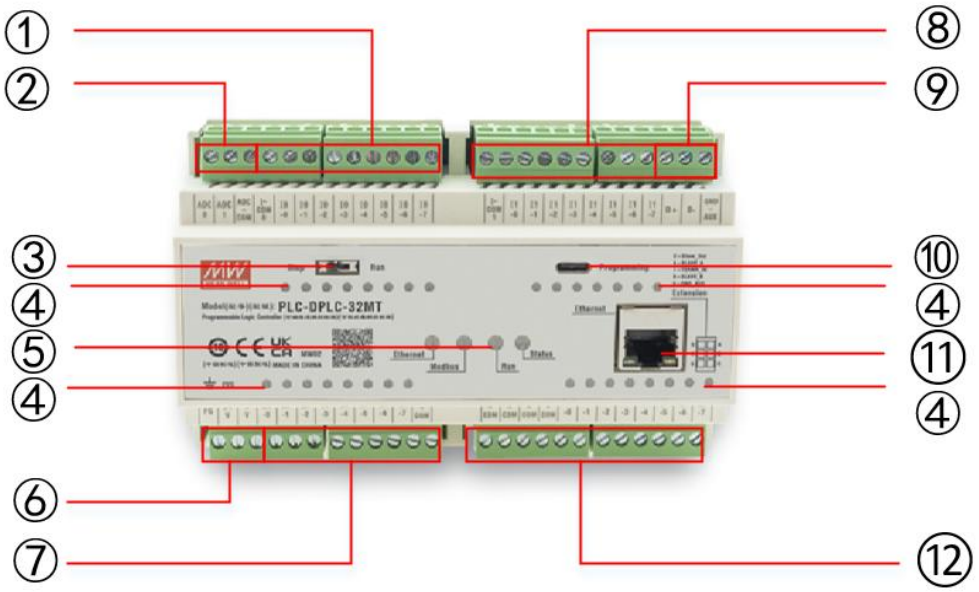


Figure 1-2 Product Component Diagram

No.	Name	No.	Name
①	DI Terminals：I0.0~I0.7	⑦	DO Terminals: Q0.0~Q0.7
②	AI Terminals: ADC0~ADC1	⑧	DI Terminals: I1.0~I1.7
③	Start/Stop Switch	⑨	Communication Terminal: RS485
④	Input/Output Indicator Lights	⑩	USB Port
⑤	System Indicator Lights	⑪	RJ45 Terminal, Ethernet Communication
⑥	Power Input Terminal	⑫	DO Terminals: Q1.0~Q1.7)

1.4 Technical Specifications

Item		DPLC-32MT	DPLC-32ET
General Specs	Program Capacity	512KB	/
	Programming Method	IEC61131-3 international programming (LD, FBD, IL, ST, SFC)	
	Serial Comm.	1 channel, RS485	/
	IO Extension	Max Extension Units: 7 Max Extended IO Points: 224	/
Input Specs	Digital Input DI	Normal DI Input: 16 Ch., I0.0-I1.7, 4 High-speed 4-channel Input Current: 2.1mA Input ON, Input Voltage: >15V Input OFF, Input Voltage: <5V	Normal DI Input: 16 Ch. I2.0-I3.7 High-speed 4-channel Input Current: 2.1mA Input ON, Input Voltage: >15V Input OFF, Input Voltage: <5V
		High-speed Input: 4 Ch., I1.0-I1.3 Input ON, Input Voltage: >15V Input OFF, Input Voltage: <5V Max Input Freq: 4 groups 100kHz Single group 200K	High-speed Input: 4 Ch., I3.0-I3.3 Input ON, Input Voltage: >15V Input OFF, Input Voltage: <5V Max Input Freq: 4 groups 100kHz Single group 200K
	Analog Input	2 Ch., Input Range: 0~10V Input Impedance: ≥100KΩ Resolution: 12bit	4 Ch., Input Range: 0~10V Input Impedance: ≥100KΩ Resolution: 12bit
Output Specs	Digital Output DO	Normal DO Channels: 16 Ch., Q0.0-Q1.7 Output Voltage Level: 20.4-28.8V DC Isolation Method: Isolation IC Output Type: Transistor Sink Output Rated Output Current: 0.5A/Single Channel	Normal DO Channels: 16 Ch., Q2.0-Q3.7 Output Voltage Level: 20.4-28.8V DC Isolation Method: Isolation IC Output Type: Transistor Sink Output Rated Output Current: 0.5A/Single Channel
		High-speed PWM Output Channels: 4 Ch., Q0.0-Q0.3 Output Voltage Level: 20.4-28.8V DC Isolation Method: Isolation IC Output Type: Transistor Sink Output Rated Output Current: 0.5A/Single Channel Max Output Freq: 100kHz	Q2.0-Q2.3 (High-speed PWM Output Channels: 4 Ch., Q2.0-Q2.3) Output Voltage Level: 20.4-28.8V DC Isolation Method: Isolation IC Output Type: Transistor Sink Output Rated Output Current: 0.5A/Single Channel Max Output Freq: 100kHz
Power Specs	Input Power	Rated Voltage: 24V DC (±15%)	
		Rated Current: 1.5A @ 24V DC	
	Power Input Protection	Supports reverse connection protection	

Structure Installation & Environment	Size	L*W*H: 144 x 90 x 58.3 mm	(L*W*H: 144 x 90 x 60.3 mm
	Installation Method	DIN Rail Installation	
	Temperature	Working Temp：0 ~ +55℃；Storage Temp：-40 ~ +70℃	

Chapter 2 Mechanical Installation

2.1 Module Dimensions

The DPLC module includes 4x12 PIN terminal block interfaces, a start/stop slide switch, a USB interface, indicator lights, an RJ45 Ethernet interface, and an extension unit interface.

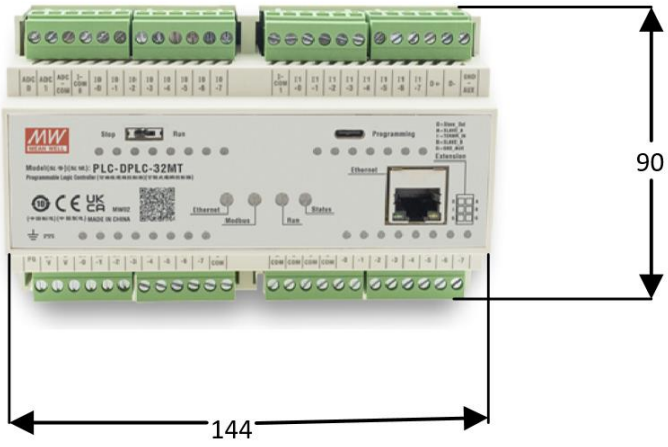


Figure 2-1 DPLC Top View Dimensions Diagram

2.2 Module Installation

2.2.1 Installing DIN Rail

DPLC series controllers need to be installed using a DIN rail. Install the DIN rail inside the control cabinet, and then fix the controller module onto the DIN rail.

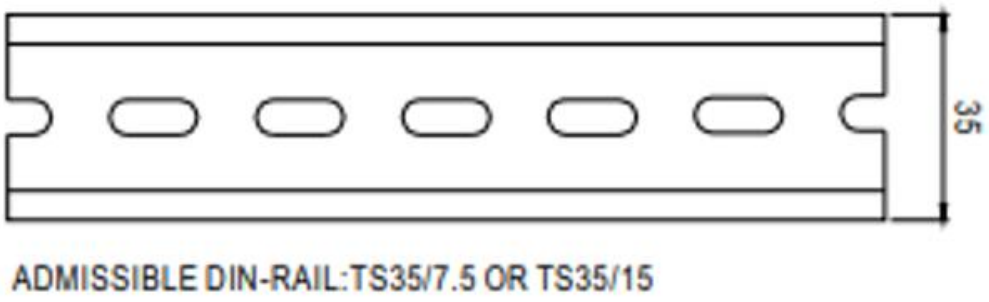


Figure 2-3 Din Rail size diagram

When installing the rail, please reserve enough space according to the controller dimensions

Rail Installation Steps:

1. Use a tape measure to measure the installation distance inside the control cabinet and reserve installation space.
2. Place the rail at the installation point, use a level to adjust the angle, and mark the drilling positions.
3. Use a hand drill to drill holes.
4. Use bolts to install and fasten the rail.

2.2.2 Installing Module

DPLC series controller modules do not need screws for fixation; simply fix the latch at the bottom of the controller onto the rail.

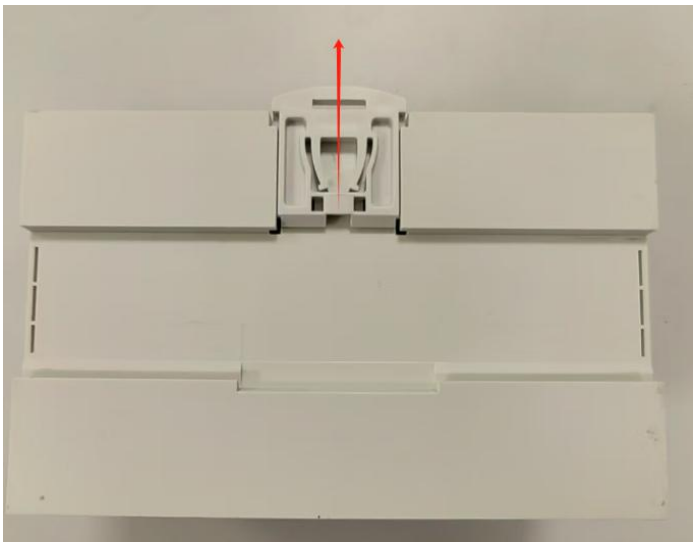


Figure 2-4 Diagram of Opening the Latch

Controller Installation Steps：

1. Push the latch at the bottom of the controller upwards in the direction of the arrow to open the latch.
2. Align the latch notch with the rail track and push the latch downwards.
3. Confirm that the latch has engaged with the rail and the controller is fixed on the rail.

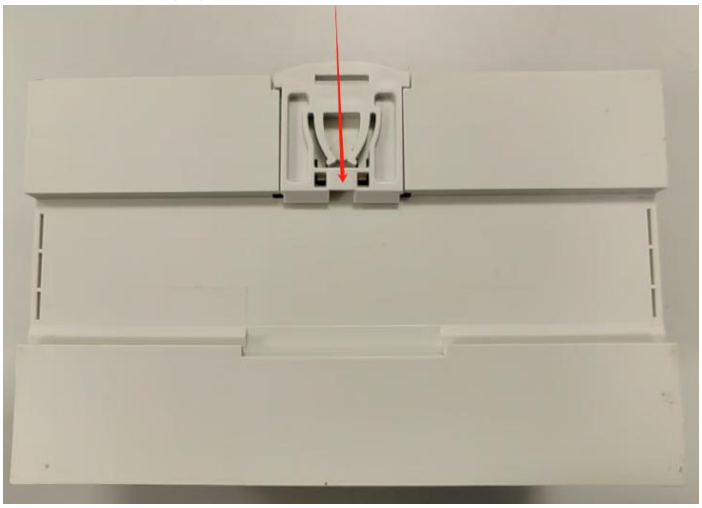
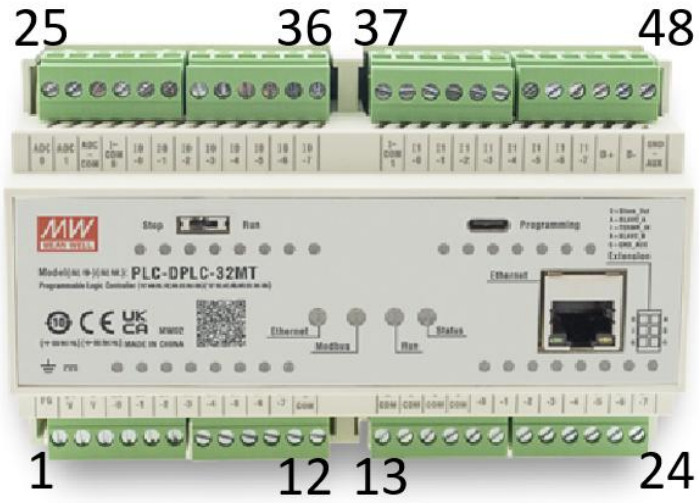


Figure 2-5 Diagram of Fixing the Latch

Chapter 3 Electrical Connection

3.1 Terminal Description

The DPLC terminal names are numbered 1~12, 13~24, 25~36, 37~48 from left to right and from bottom to top.



Terminal Name	Function	Description
1	FG	Frame Ground
2	+24V	Power +24V Input
3	0V	Power Input Reference Ground
4~7	Q0.0~Q0.3	High-speed PWM Output
8~11 ,17~24	Q0.4~Q1.7	Digital Output
12~16	Q-COM	Digital Output Common Ground
25	ADC0	Analog Input Channel 0
26	ADC1	Analog Input Channel 1
27	ADC-COM	Analog Input Common Terminal
28	I-COM0	I0.0~I0.7 Common Terminal
29~36,42~45	I0.0~I0.7,I1.4~I1.7	Digital Input
37	I-COM1	I1.0~I1.7 Common Terminal
38~41	I1.0~I1.3	High-speed Counter Input
46	D+	RS485 Communication Bus
47	D-	RS485 Communication Bus
48	GND-AUX	RS485 Communication Bus Reference Ground

3.2 Wiring Method

The wiring method for the DPLC power supply and IO modules is shown below. Press and hold the white buckle, align and insert into the wiring port, press vertically inward with force, and then release the buckle. The cable can be securely locked in the round hole.

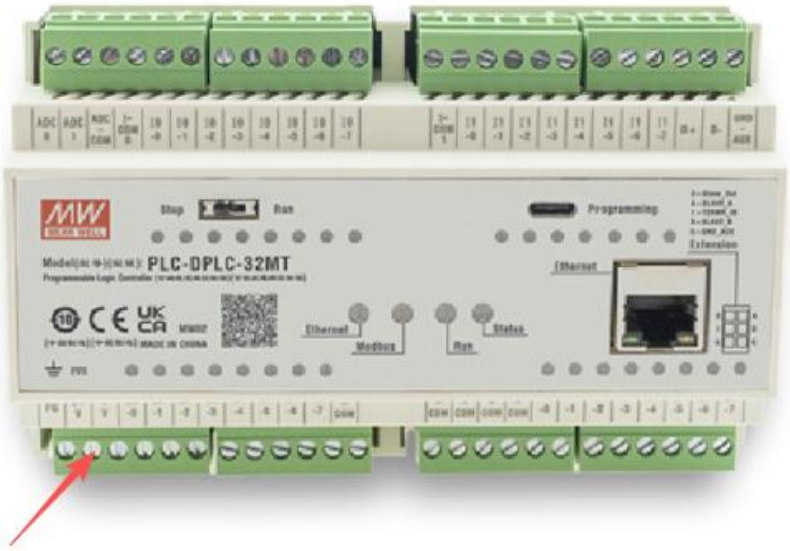
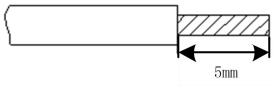


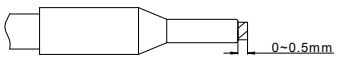
Figure 3-1 DPLC Wiring Method

- The AWG range of acceptable wire for the terminal:
  28AWG ~ 12AWG
- The length of the stripped wire:

Please peel off the insulation of the following wire sizes. If the insulation is peeled off for too long, it may cause a short circuit with the side wire. If the insulation is stripped too short, it may cause the wire to come loose. The wires should be properly wired to avoid being scattered.



Insert the wire into the rod-shaped terminal for crimping. Insert the core part of the wire with the insulating sleeve exposed by about 0 to 0.5mm.



Note： 1. Please use a small flat-head screwdriver (tip thickness: 0.6mm, tip width: 3.0mm). If a screwdriver with a too narrow tip width is used, the terminal block may be damaged

2. The tightening torque should be 3.2 to 4.8 kgf.cm. If the tightening torque is too large, it will cause the screw to slip. If it is too small, it will cause a short circuit or misoperation.

3.3 Wiring Examples

3.3.1 DI Sink Input Wiring

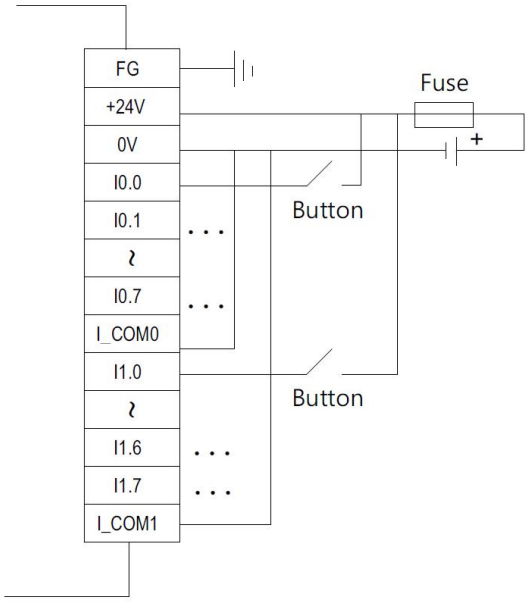


Figure 3-2 Wiring Diagram of DPLC with Sink DI

3.3.2 DI Source Input Wiring

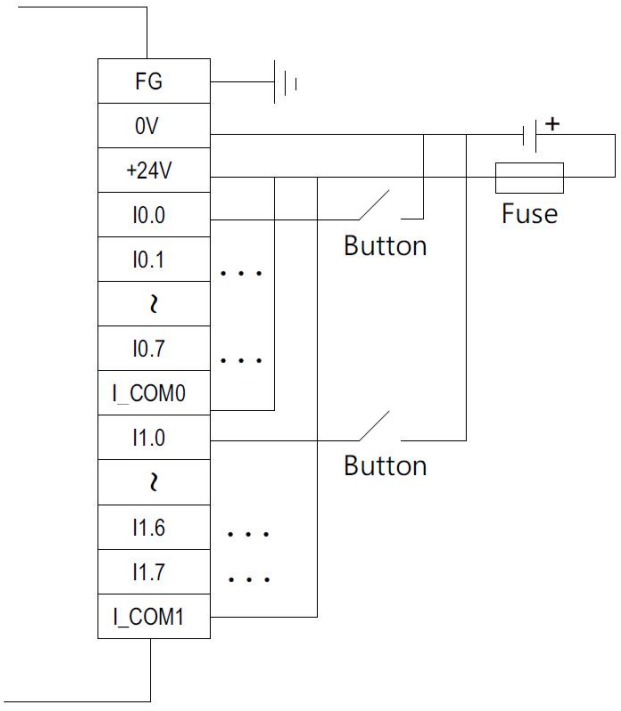


Figure 3-3 Wiring Diagram of DPLC with Source DI

3.3.3 DO Output Wiring

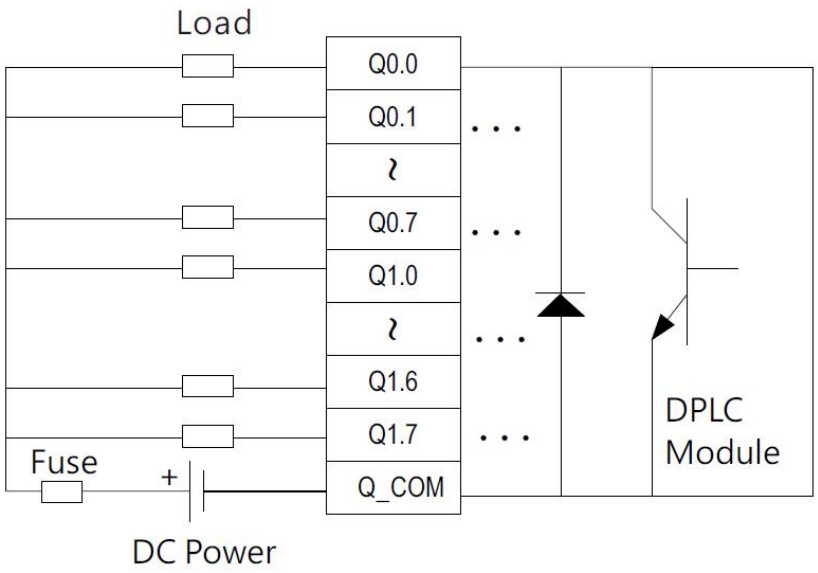


Figure 3-4 DPLC DO Wiring Diagram

3.3.4 AI Input Wiring

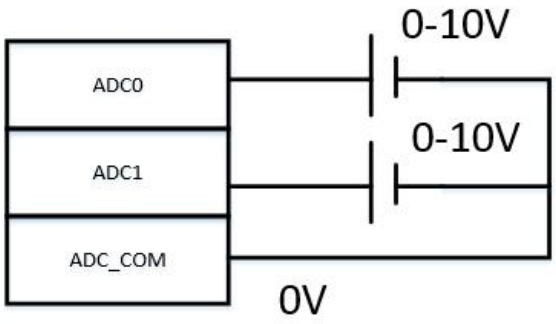


Figure 3-5 AI Wiring Diagram

3.3.5 RS485 Wiring

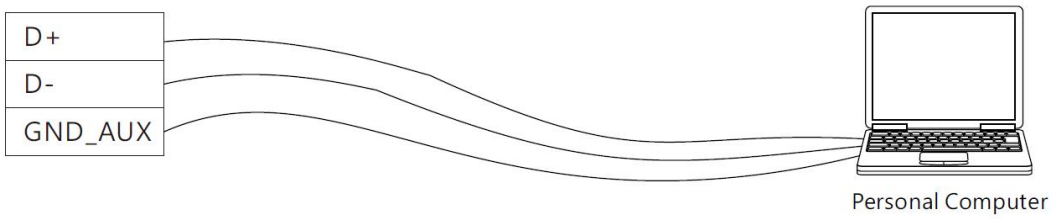


Figure 3-6 RS485 Wiring Diagram

3.3.6 Terminal resistor Wiring

When multiple hosts are connected in parallel for communication, a short PIN must be connected to the CN3 port of the first and last host.

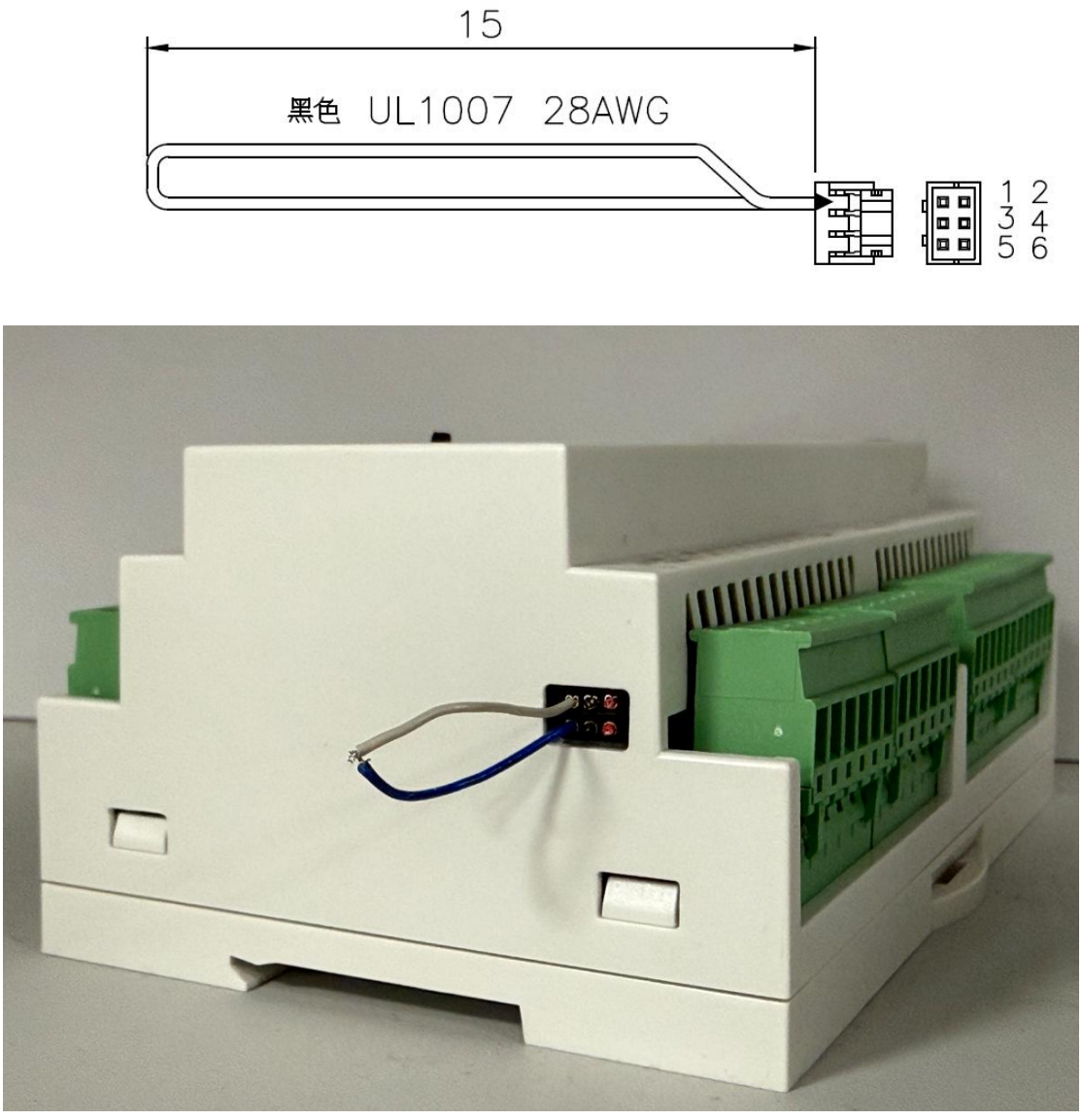


Figure 3-7 Terminal resistor Wiring Diagram

Chapter 4 Power-on Commissioning

After the system wiring is completed, power on and complete the self-check, switch the start/stop switch to RUN to start the controller. You can observe the running status of the controller through the status indicator lights.

4.1 Indicator Light Description

Master LED Light Description:

Light	Green	Orange	Red
Status Light	Solid on: System abnormal Flashing: Storage action	/	/
Run Light	Solid on: Normal work Flashing: stop status	Solid on: Extension unit disconnected Flashing: Burning program	Solid on: Program execution abnormal
Modbus Light	Solid on: Communicating	/	Solid on: Communication abnormal
Ethernet Light	Solid on: Communicating	/	Solid on: Communication abnormal

Extension Unit:

Light	Green	Orange	Red
Run Light	Addressing judgment completed	Solid on: Judging addressing	Solid on: Communication abnormal

4.2 Common Problem Handling

4.2.1 Power supply faults

Fault phenomenon: The PLC indicator light is not on and it cannot be started.

1. Unstable power supply voltage (too high/too low), power failure or reversed positive and negative connections.

2. The terminal block is loose

Treatment method:

1. Check whether the input voltage is within the rated range (20.4 to 28.8VDC).

2. Re-tighten the power cord terminals, check for short-circuit points and repair them.

4.2.2 Input/output (I/O) failure

Fault phenomena: No response to the input signal, no action of the output device, abnormal indicator light.

Common causes：

1. Input side issues: Broken circuit, poor contact of contacts.

2. Output side issues: Load overload (such as MOS burnout), short circuit of external devices.

3. Hardware failure of the I/O module (such as channel burnout).

Treatment method:：

1. Input fault troubleshooting: Use a multimeter to check if the signal is normal

2. Check whether the input terminal wiring is loose or broken.

3. Check whether the output line is short-circuited or grounded. The backup channel can be temporarily replaced.

4.2.3 Communication failure

Fault phenomenon: Communication between the PLC and the upper computer, touch screen or other devices is interrupted.

Common causes

1. Communication cables are damaged (such as broken wires, damaged shielding layers).

2. The communication port configuration is incorrect (baud rate and station number are inconsistent).

3. Interference signals (such as those not grounded or with high-power devices nearby).

Treatment method:：

1. Check the physical connection: Replace the communication cable and make sure the plug is tight.

2. Check the communication parameters (such as Modbus address, RS485 wiring polarity).

3. Add shielding measures, lay communication lines and power lines separately, and ensure proper grounding.

If the controller still cannot work after the above checks are completed and confirmed to be correct, please refer to the table below and analyze according to the control working status.

Phenomenon	Possible Cause	Countermeasure
RUN light keeps flashing green	Run switch is not in ON position	Switch the switch to the ON position
RUN light keeps flashing orange	The number of extension unit addresses used in the program does not match the actual number	Check how many extension unit addresses are used in the program, and make it consistent with the number of actually connected extension units
Modbus light solid red	Modbus port wiring error	Check if the wiring is correct
Ethernet light solid red	Ethernet port connection error	Check if the network cable is connected correctly

Revision History

Version	Date	Reason
V0.0	2025/03/07	Create document
V1.0	2025/05/19	Update product photos
V1.1	2026/01/14	1. Add terminal wire specifications; 2. Add frequently asked questions for handling.