

WAC600 Series CPU Module

User's Manual

Wolong Electric Group Co.,Ltd

Preface

OVERVIEW

Thank you for purchasing and using the WAC600 series CPU module produced by Wolong Electric Group Co., Ltd.

This manual mainly introduces the basic parameters of the product, mechanical installation, electrical installation.

Reading object

Persons with specialized knowledge of electrical engineering (qualified electrical engineers or persons with equivalent knowledge).

Conformity Standards

Certification	Directive name		Conformity standard
Name			
		2014/30/EU	24V DC products:
			EN 61131-2
			220V AC products:
	EWIC Directive		EN 61131-2
			EN 61000-3-2
CE certification			EN 61000-3-3
	LVD Directive	2014/35/EU	EN 61010-1
			EN 61010-2-201
		2011/65/EU	
	RoHS Directive	amended by(EU)	EN IEC 63000
		2015/863	
UL/cUL			
Certification		-	-
KCC			
Certification		-	-
EAC Approval		-	-

Version Change Record

No.	Revision Summary	Release	Revision
		Version	Date
1	Created	V1.0	2024.06

About Manual Access

This manual is not shipped with the product, if you need to get the electronic version of the PDF file, you can get it through the following ways:

- Error! Hyperlink reference not valid.Log on to our official website to get product information and technical support as follows: Log on to our official website (www.olimc.com.cn) →Service & Support→Download→Search for keywords and download.₀
- Scan the QR code on the product body with your cell phone to get the product manual.

Warranty Statement

Under normal use, the product failure or damage, our company is responsible for 18 months warranty (from the date of shipment, the bar code on the body shall prevail, there is a contract agreement in accordance with the agreement). If the warranty period exceeds 18 months, maintenance fee will be charged.

Within 18 months, repair costs will be charged for damage to the product caused by the following conditions:

- Damage to the product caused by not operating the product as specified in the manual.
- Damage to the product caused by fire, flood, or abnormal voltage.
- Damage to the product caused by using the product for non-normal functions.
- Damage to the product caused by exceeding the scope of use specified for the product.
- Force majeure (natural disasters, earthquakes, lightning strikes) factors caused by secondary damage to the product.

The relevant service costs are calculated in accordance with the manufacturer's unified standards, and if there is a contract, the principle of contract priority.

For detailed warranty description, please refer to the Product Warranty Card.

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1. Safety precautions

1.1. Security statement

- 1. Please read this manual carefully before handling, installation, operation and maintenance, and follow all safety precautions in the product label and manual. If ignored, it may cause personal injury or equipment damage, or even death.
- 2. The "danger" and "warning" items in the manual do not represent all the safety items that should be observed, but only serve as supplements to all safety precautions.
- 3. This product is used in an environment that meets the requirements of design specifications, otherwise it may cause failure, and functional abnormality or component damage caused by non-compliance with relevant regulations is not within the product quality guarantee scope.
- 4. Our company will not bear any legal responsibility for personal safety accidents and property losses caused by illegal operation of products.

1.2. Security level definition

In order to ensure personal safety and avoid property losses, attention must be paid to the safety signs and tips in this manual.

Safety sign	name	explain
入 危险	danger	Failure to comply with relevant requirements may cause serious personal injury and even death.
警告	warn	Failure to comply with relevant requirements may cause personal injury or equipment damage.

Personnel requirements

Training qualified professionals It means that the staff who operate this equipment must pass professional electrical training and safety knowledge training, be familiar with the steps and requirements of installation, commissioning, operation and maintenance of this equipment, and be able to avoid all kinds of emergencies.

1.3. Safety guidance

General principle					
	•	Only trained and qualified personnel are allowed to carry out relevant operations.			
全 危险	•	It is forbidden to connect wires, check and replace devices when the power supply is connected.			
		Before wiring and inspection, it must be confirmed that all input power supplies have been			
		disconnected.			
	•	The product design is applied to indoor electrical environment with overvoltage level II. Its power			
		supply system should be equipped with lightning protection devices to ensure that lightning			
		overvoltage is not applied to the power input or signal input and output terminals of this product to			

	avoid damaging the equipment.
•	Unauthorized modification of the product is prohibited, otherwise it may cause fire, electric shock or
	other injuries.
•	It is forbidden to drop metal scraps, copper wires, screws, cables and other conductive objects into
	the product.
•	It is forbidden to touch the product with damp objects or body parts, otherwise there is a danger of
	electric shock.

		carry
	•	Choose appropriate handling tools and take mechanical protective measures, such as wearing
1 警告		smash-proof shoes and work clothes, to avoid personal injury.
	•	Ensure that the product does not suffer from physical impact and vibration.

In the design of control system				
	•	Please be sure to design a safety circuit to ensure that the control system can still work safely when		
▲ 在 №		the external power supply fails or the programmable controller fails;		
	•	When the rated load current is exceeded or the load is short-circuited for a long time, the module		
		may smoke or catch fire, and safety devices such as fuses should be set outside.		
	•	Emergency braking circuit, protection circuit, interlock circuit for forward and reverse operation and		
		interlock switches for upper and lower limit positions to prevent machine damage must be set in the		
		external circuit of programmable controller;		
	•	In order to make the equipment run safely, please design external protection circuit and safety		
		mechanism for the output signals related to major accidents;		
	•	The programmable controller CPU may turn off all outputs after detecting its own system		
▲ 截生		abnormality; When some circuits of the controller fail, the output may be out of control. In order to		
		ensure normal operation, it is necessary to design appropriate external control circuits.		
	•	When the relay, transistor and other output units of programmable cONtroller are damaged, its		
		output can not be controlled to be on or OFF;		
	•	Programmable controller is designed and applied to indoor and over-voltage electrical environment,		
		and its power system level should have lightning protection devices to ensure that lightning		
		overvoltage is not applied to the power input, signal input, control output and other ports of		
		programmable controller to avoid damaging equipment.		

		fix
入 危险	•	It is forbidden to install the product on flammable materials, and avoid close contact or adhesion of
		the product to flammable materials.
	•	It is forbidden to run products with damaged or missing components.
	•	Please do not use the programmable controller in the following places: places with dust, oil fume,
		conductive dust, corrosive gas and flammable gas; Exposure to high temperature, condensation,
		wind and rain; There are occasions of vibration and impact. Electric shock, fire and misoperation
		can also lead to product damage and deterioration;

	•	In order to prevent people who do not have relevant knowledge of electrical equipment from
全 警告		touching it by mistake, resulting in equipment damage or electric shock danger, the product should
		be installed in a locked control cabinet with IP20 or above protection. Only personnel who have
		received relevant electrical knowledge and equipment training can operate the control cabinet.
	•	During installation, it is necessary to ensure that the modules are tightly connected and fixed, so as
		to prevent communication failure or falling off during use due to weak connection.
	•	After installation, please check to make sure that there is no obstruction above the vent of the
		product, otherwise it may cause excessive heat inside the product and poor heat dissipation, which

may cause the chip to be burnt and lead to system control failure and misoperation.

	Wiring
▲ 警告	 Before wiring, you must be clear about the type and specification of each interface and power supply, and comply with the relevant standards and requirements to ensure that the system is wired correctly. In order to ensure the safety of personnel and equipment, should be used to adequate wire diameter and specifications of the cable reliable grounding. Control signals and communication signal cables should be wired separately from the power lines and power lines of strong interference. Fix the cables with long distance or large quality.
1 危险	 When wiring operation is performed, all power supplies connected to the product must be disconnected. At the end of installation and wiring, before carrying out power-on operation, check whether the module terminal cover is installed in place to avoid touching the energized terminals which may cause personnel injury, equipment system failure or misoperation. When external power supply is input to the product, please install appropriate protection devices or devices to prevent the product from being damaged due to external power supply failure or over-voltage and over-current phenomena.

	Commissioning and Operation
	Before powering up and running, please make sure to check whether the working environment o
	the product system meets the requirements, and confirm whether corresponding protection circuits
	have been designed to protect the product to work safely even when external equipment fails.
	• It is prohibited to damage the product's output units such as relays and transistors, or their outputs
企 危险	will not be able to be controlled to ON or OFF state.
	• For modules or terminals that require external power supply, safety devices such as fuses or circuit
	breakers should be installed externally to prevent product modules from being damaged by externa
	power supply or equipment failure.
	Be sure to provide an emergency brake circuit, a protection circuit, an interlock circuit for forward
	and reverse operation, and position upper and lower interlock switches to prevent damage to the
	machine in the product's external circuit.
	• To enable safe operation of the equipment, design external protection circuits and safety
	mechanisms for output signals related to major accidents.

•	When the controller system malfunctions, the outputs may not be controlled. To ensure that the
	equipment can be operated properly, design suitable external control circuits.

		Warranty, Maintenance and Component Replacement
	•	It is prohibited for products and components to come into contact with or be accompanied by
		flammable materials.
	•	Before performing product care, maintenance and component operation, all power connected to the
1 危险		product must be disconnected.
	•	Metal shavings, copper wire, screws, cables, and other electrically conductive objects are
		prohibited from entering the interior of the product during servicing, maintenance, and component
		replacement.
	•	During maintenance and component replacement, the product and internal components must be
		protected from static electricity.
Attention	•	Tighten the screws with the appropriate torque.

	Scrap
企 警告	• The components in the product contain heavy metals and must be treated as industrial waste after disposal.
Ŕ	 This product should not be disposed of at random, but should be collected and treated in a special way.

2. Product Specification

2.1. Product Information

Naming rules



Serial	Name	Description
number		
	Product series	WLCxxx:Wolong-PLC series
	(WAC611)	WACxxx: Wolong-PAC series
		Numbers: 1, 2, 3 means this CPU has 1, 2, 3 RJ45 interfaces
2	RJ45 interface (3S)	Letters: A: All RJ45 are independent network ports; S: The first two RJ45 (LAN A, LAN
		B) are switches
3	Serial Interface (3)	3: 3 serial ports (including RS232 and RS485)
(4)	Paakalana tuna (C)	N: No backplane
		G: General-purpose backplane bus, adapted to WL200 series IOs
5	Input IO (16)	16: 16-channel source and drain inputs (high-speed interrupt support)
Ô	$O_{\rm utrout} = O_{\rm utrout}$	16: 16-channel drain-type or source-type outputs (supports clear, hold, and preset
\odot		functions when application stops)
		D: Drain type output
\bigcirc	Output IO type (D)	S: Source type output

Notes:In CPUs without IO in the body, numbers (5), (6) and (7) are ignored as empty.

Product List

Model No.	Order No.	Remarks
WAC611-3S3G1616D	60080263	
WAC611-3S3G1616S	60080163	
WAC612-3A3G1616D	60080264	
WAC612-3A3G1616S	60080164	
WAC621-3S3G1616D	60080266	
WAC621-3S3G1616S	60080166	
WAC622-3A3G1616D	60080267	
WAC622-3A3G1616S	60080167	



Serial Name **Function Description** number CPU body IO output 1 Output signal indicator indication CPU body IO input Input signal indicator 2 indicator Display the current CPU operation status, refer to "Appendix A Fault Code Comparison Digital CPU display 3 tube Table" for details. panel PWR Always on - normal power supply, off - no power supply.

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C

		ERR	Always on - error, off - no error.
		RUN	Always on - program running normally, off - program stop running
(4)	MFK function b	outton	Completes the function of restoring factory settings
5	Type-C interfac	ce	External U disk to update user program
	LAN A Network	(According to the model, some models LAN A and LAN B are switches internally, refer
0	Interface		to the naming specification and technical parameters for details.
		,	Depending on the model, some models have switches inside LAN A and LAN B, and
7	LAN B Network		some models do not have LAN B interfaces, please refer to the naming convention and
			technical specifications of each product.
	LAN C Network	K	Depending on the model, some models do not have LAN C interface, refer to the
0	lnterface		naming convention and technical specifications of each product for details.
	Power supply		Refer to the "Electrical Installation" section for detailed definitions.
9	interface		
(10)	Communication	า	Supports 3-channel serial communication and 1-channel CAN communication, please
	Interface		refer to "Electrical Installation" section for detailed definition.
	CPU body output IO		16-channel drain type or source type output (zero, hold, and preset functions are
U	terminal		supported when the application is stopped)
(1)	CPU body input IO		16-channel source and drain inputs (high-speed interrupt support)
	terminal		
(13)	RUN/STOP switch		Toggle dip switches to control running and stopping of user programs
	MicroSD card		Used for storing user program and user data, upgrading firmware.
(14)	interface		

Note:For detailed description of each IO module component, please refer to each module description.

2.2. Technical Specifications

Basic Specifications

ltem		Specification					
		WAC61	WAC612	WAC621	WAC622		
			3A3G1616X	3S3G1616X	3A3G1616X		
	Program	128M			128M		
Memory	Data	128M		256M			
	Holding	4M	M				
Deufeureene	Bit Computing	0.002us					
Periormanc	Word Arithmetic	0.010us					
e	Floating Point	0.120us					
Programming Languages		ld, st, il, fbd, sfc, cfc					
Registers	Area I	512K					
	Q Area	512K					
	M Area	512K (power-down	hold)				
On-board digital IOs		16-channel source and drain inputs, support 2K high-speed interrupts					

		16-channel drain or source outputs, support clear, hold, preset functions when					
		application stops					
High-speed inputs		None					
High-speed output		None					
Operation Control Capability		Maximum 32 a	xes	Maximum 64 axes			
Pulse axis		None					
EtherCAT axe	s	32 axes		64 axes			
Axis Control C	ycle Typical	2ms cycle 16 a	xes	2ms cycle 32 axes	2ms cycle 32 axes		
Expandabilit	Remote IO site	127					
у	Number of I/O modules	2032	2032				
Hot Standby	Dual power supply redundancy	Support					
Capability	Module hot-swapping	Supported					
	Network Port	3-way (10/100Mbps)	1 channel (100/1000Mbps) 2-way (10/100Mbps)	3-way (10/100Mbps)	1-way (100/1000Mbps) 2-way (10/100Mbps)		
	Switch	2-Port Switch (LANA & LANB)	None	2-Port Switch (LANA & LANB)	None		
Interfaces	Serial Communication s	2xRS485; 1xRS232					
	CAN Communication	1-way					
	Backplane bus	Expandable with 16 WL200 IO modules					
	SD card	Maximum 32GB, can store user program and data, data update, user program update, firmware update					
	USB	Type-C interfac	e, supports user data u	pdate, user program upda	ate, USB-WIFI		
	RTC	Built-in recharg	eable RTC clock battery	/			
	Ethernet	TCP/IP, UDP, 0	OPC UA Server, MQTT,	Socket			
Bus Protocol	EtherCAT	CoE (PDO, SDO) Support for up to 127 slaves					
	Ethernet/IP	EtherNet/IP Sc	EtherNet/IP Scanner, EtherNet/IP Adapter				
	Profinet/IO	Master/Slave					
	CANopen	Master					
	Modbus TCP	Master/Slave					
	Modbus RTU	Master/Slave					
	Free Protocol	Serial Free Protocol					

	Network Passthrough	Serial Network Passthrough	
Visualization		Webvisu (Web Visualization)	
IP rating		IP20	
Dimensions (WxHxD)		60.0x105.0x85.0mm	
Weight		305.0g	

Power supply specifications

ltem	Specification
Terminal input power supply	24V DC (19.2V DC to 33V DC)
rated voltage	
Rated current of terminal input	1A (Maximum value at 24V DC)
power supply	
24V input power protection	Supports short-circuit, reverse connection, over-current (1.1A), over-voltage (33V DC)
Module power consumption	<10W
Power supply redundancy	Support two 24V DC power redundancy
Module hot-swap function	Support

Input Specification

Item	Specification
Input Type	Digital Input
Input way	Source/drain type
Input channels	16 channels
Input voltage level	24V DC±10% (21.6V DC~26.4V DC)
Input Current	8mA (typical at 24V DC)
ON Voltage	≥15V DC
OFF Voltage	≤5V DC
Hardware response time	100us/100us
ON/OFF	
Software Filtering Time	10ms~60ms
Input Impedance	2.73k
Isolation	Digital Isolation
Common mode	16 points/common
Input Motion Indicator	Input indicator lights up when the input is driven.
Input Derating	75% derating at 55°C operation

Output specification

Item	Specification
Output type	Digital output
Output Method	CPUxxxD:Drain type; CPUxxxS:Source type
Output channels	16 channels
Terminal Input Power Supply	24V DC (20.4V DC to 28.8V DC)
Rated Voltage	

Terminal input power supply	10mA (typical at 24V DC)		
rated current			
Output Voltage Rating	24V DC±10% (21.6V DC to 26.4V DC)		
Output load (resistive load)	0.5A/point, 4A/16 points		
Output load (inductive load)	7.2W/point, 50W/16 points		
Output Load (Lamp Load)	5W/point, 40W/16 points		
Hardware response time	<1µs (OFF→ON), <2µs (ON→OFF)		
ON/OFF			
Leakage current when OFF	30µA or less at rated 24V DC voltage		
Maximum voltage drop when	0.05V DC or less		
ON			
Isolation	Digitally isolated		
Common terminal method	16 points/common		
Protection	Short-circuit, over-temperature, over-current, under-voltage, reverse connection		
	protection		
External inductive load	When external inductive loads are connected, the user needs to connect a continuous		
protection	diode.		
Output action display	When the output is driven, the output indicator lights up.		
Output Derating	75% derating at 55°C		

2.3. Environmental specifications

Item	Specification			
Working Ambient	-20°C~55°C			
Temperature				
Working environment humidity	10%~90%RH, no condensation			
Operating environment	No corrosive, flammable gas, conductive dust (dust) is not serious occasions			
Storage temperature and	● -40°C~70°C			
humidity range	• Relative humidity <90%RH, no condensation			
Transportation temperature	● -40°C~70°C			
and humidity range	Relative humidity<95%RH, no condensation			
Altitude	≤3000m			
Pollution level	Class 2			
Immunity	Power line 2kV (IEC 61000-4-4)			
Overvoltage class	II			
EMC immunity class	Zone B, IEC61131-2			
Vibration	IEC60068-2-6			
VIDIATION	5Hz~8.4Hz, 3.5mmp, 8.4Hz~150Hz, 1g, X/Y/Z triaxial, 10 cycles/axial			
Shaak ragiotanga	IEC60068-2-27			
SHOCK LESISTALICE	150m/s2,11ms, ±X/Y/Z six directions, 3 cycles/direction, total 18 cycles			

3. Mechanical Installation

3.1. Installation Preparation

3.1.1. Installation Precautions

Before Installation				
	•	Before installation, please check and ensure that all products are powered off.		
▲ 警告	•	Before installation, please check the overall dimensions of the planned system to ensure that there		
		is enough space to accommodate the module. This module should be installed in the control box		
		with a space of >50.0mm around it to ensure that the hardware working system can dissipate heat		
		well.		

During installation			
	•	When installing, please use parts that meet the requirements, such as screws and spacers.	
警告	•	When installing, please do not drop metal wires, debris, screws and other objects into the interior of	
		the product to avoid short-circuiting, or causing poor heat dissipation.	

After installation					
	•	After installation, make sure the connected communication cables and terminals are firmly			
		connected.			
	•	After installation, make sure that the rail where the module is located is fixed reliably.			
▲ 截生	•	After installation, make sure that the space inside the chassis is separated from the strong and			
		weak wires, neatly planned to avoid disorganization, affecting heat dissipation.			
	•	After installation, please tear off the stickers attached to the module cooling holes, so that the heat			
		dissipation is smooth.			
	•	After installation, please check the air circulation around the module.			

3.1.2. Installation Environment and Location

Before installation, please check, evaluate and confirm that the installation environment meets the operating conditions of all components, including temperature, humidity, dust and corrosion protection.

Environmental Requirements

Environment	Requirements		
	• -20°C~55°C		
Temperature	No drastic change in temperature		
	• Installation in a closed space such as a cabinet, using a fan for ventilation and heat dissipation if		
	necessary.		
Humidity	• Relative humidity of air 5%~95% without condensation		
Humidity	 Relative humidity of air 5%~95% without condensation 		

Location Requirements

Location	Requirement

	•	Free from strong electric field, strong magnetic field and direct suplight
Indoor,	•	
overvoltage Voltage class II	•	No dust, iron powder and other conductive powder, oil mist, salt, organic solvents
	•	No corrosive, flammable gas
	•	No direct vibration and conduction shock to the body.

3.1.3. Installation space

The best installation position for this product is horizontal installation, heat dissipation is designed to be through the natural wind convection mode, in order to ensure normal ventilation and heat dissipation and reserve enough space for wiring, the product should be reserved around the sufficient clearance.



Description: If high temperature heat source equipment (heater, transformer, large resistor, etc.) exists in the vicinity of the product, a clearance of at least 100.0mm should be reserved between the product and the high temperature heat source equipment.

Caution:When installing the product using the vertical optimum mounting method other than the one shown above, use a wire channel or the like to hold the cables during wiring so that the weight of the cables is not exerted on the rail clamps and terminals, causing the product to fall off the DIN rail or the terminals to fall off due to the weight of the cables and thus generating malfunctions.

3.1.4. Product Dimensions

CPU (unit: mm)



IO module (unit: mm)







Dimensions of the product after connecting the cable (unit: mm)



3.2. Installation and Removal

3.2.1. Installation

The module is mounted on DIN rail, and the DIN rail needs to comply with IEC60715 standard.

(35.0mm wide, 1.0mm thick), dimensional information as shown on the right, unit: mm.

Note:The modules are mounted on DIN rails other than those recommended above (especially DIN rail).

rail thickness is not 1.0mm), the DIN rail latch will fail and the

product will not be mounted in place.

The product cannot be mounted in place, which in turn prevents the product from working properly.





Caution:To ensure the strength of the DN rail, it is necessary to install the DIN rail mounting bolts (supplied by the user) within 30.0mm from the end of the DIN rail, and the spacing between the 2 adjacent bolts must be within 200.0mm.

CPU Mounting IO Module

Step 1 Slide the tail plate out of the module connecting rail (the factory default CPU already has the tail plate installed)



Step 2 Align the IO module with the module connection rails of the CPU and push down the IO module until the IO module is fully aligned with the CPU module.



Attention: The module and base latch cannot be left unlocked for a long period of time, otherwise it will cause the latch to fail.

Step 3 Install the tail plate to the end of the last IO module following the method of step 1 (the tail plate must be installed, otherwise the module may not be recognized).



Module mounting to DIN rail



Step 1 Align the IO module DIN slot with the DIN rail, press down on the module until the module DIN slot

snaps into the DIN rail, and press down on the DIN latch to put the module latch in a locked position.

Step 2 Install the DIN rail clips on both ends of the DIN rail to prevent the product from sliding on the DIN rail.



Caution:

- When the module is not installed on the DIN rail, please keep the DIN rail latch in locked status, if it is in unlocked status for a long time, it will cause the latch to fail.
- Before installing the module, if the module exists right end cover plate, you need to remove the right end cover plate before installing, the right end cover plate is installed on the rightmost module, without installing the right end cover plate the module may not work properly.
- After the module installation is completed, you need to make sure that the module and the base latch, the base and the DIN rail latch are in a locked state, otherwise the module may fall off.
- Module installation is completed and then need to install the two ends of the guide rail fixing fittings. The user needs to purchase the DIN rail fixing fittings by himself.

3.2.2. Disassembly

Removing the module from the base

Step 1 Turn the blue latch between the module and the base on the IO module in the direction of the module LED so that the latch is unlocked.



Step 2 Pull the module outward by the module latch until the module is separated from the base.



Caution:

- If the IO module terminals are already wired, it is necessary to remove the IO module terminals before removing the module;
- After the module is removed from the chassis, the latch between the module and the chassis needs to be locked (away from the direction of the IO indicator), leaving it unlocked for a long period of time may cause the latch to fail;

Removing the module from the DIN rail

Step 1 With the help of a screwdriver or other tools, turn the DIN rail latch of the IO module to be disassembled upward so that the DIN rail latch is in an unlocked state, and then pull the module outward to separate the module from the DIN rail by clasping the gripper of the module to be disassembled with your hand.



Caution:

- If the IO module terminals are already wired, it is necessary to remove the IO module terminals before disassembling the module;
- Before removing the module from the DIN rail, make sure that the DIN rail latch is unlocked and the module and base latch are locked, otherwise the module and base will be separated easily;
- After the module is removed from the DIN rail, the DIN rail latch needs to be pressed down and locked, and prolonged unlocking of the DIN rail latch may lead to latch failure;

3.2.3. Hot-swap rule

WAC600 series products support hot plugging and unplugging of modules, which is convenient for users to troubleshoot problems and replace modules. Please follow the following rules during hot plugging and unplugging:

- After all modules are removed at the same time, partial or single modules are not supported to be inserted sequentially.
- After multiple modules are removed, hot insertion of multiple modules at the same time is not supported; a single module must be inserted and recognized normally before the second module can be inserted.

• When more than one module is pulled out consecutively, modules of the corresponding type must be inserted sequentially from left to right, but there is no such restriction if none of the removed modules on the expansion backplane are adjacent to each other. If two adjacent modules are of the same type, after pulling out both modules at the same time, the IO module near the CPU or coupler must be inserted first, otherwise it will be misidentified and the system will not be able to distinguish it.

4. Electrical Installation

4.1. Wiring Requirements

- When wiring, make sure that all external power supplies are turned off.
- After wiring is completed, when powering up or operating the module, verify that the top terminal cover of the module is properly installed. Failure to do so may result in electric shock or incorrect operation.
- When wiring, check the rated voltage and terminal configuration defined in the product specifications to ensure proper and safe wiring. Connecting a power supply that does not match the rating or incorrect product safety wiring may cause a fire or damage the product.
- Tighten the screws to the specified torque. Loose screws may cause a short circuit, fire, or incorrect operation.

Caution:Terminal screws should not be installed too tightly; too tight may cause damage to the screws or modules, dropping, short-circuiting, or malfunctioning.

• Make sure that there are no foreign objects such as metal shavings or wiring remnants in each module. These foreign objects may cause fire, damage, or operational errors.

4.2. Grounding Requirements

Power Cable Grounding

- Proper independent grounding must be used.
- If the grounding point is close to the product, make sure that the grounding cable is secure.

Shielded cable grounding

- Shielded cables must be used for cables transmitting sensitive signals such as analog I/O, RS485, and EtherCAT.
- The grounding point is as close to the module as possible.
- The exposed shielded part of the shielded cable after stripping is grounded to as large an area of the conductive backplane as possible to ensure good contact.

4.3. Cable Selection

The wire lug diameter in the following table is for reference only, and can be reasonably calculated and adjusted separately according to actual use.

Matching material	Applicable wire diameter		Lug Model	Crimping tool
name	National	American		

	standard/mm ²	Standard/AWG		
	0.3	22	E0308	
	0.5	20	E0508	Please select the
Tube Lugs	0.75	18	E7508	appropriate crimping
	1.0	18	E1008	pliers for the crimp.
	1.5	16	E1508	

If other tubular lugs are used, crimp them to the stranded wire with the shape and size requirements shown below.



4.4. Terminal Definition and Wiring

4.4.1. Supply Terminal Definition

24V 24V	Signal Description	Left Side	Right	Signal Description
		Terminal	Terminal	
	Positive DC 24V	24V	24V	DC 24V power supply
	power supply			positive
	24V DC power supply	0V	0V	DC 24V Power
	negative			Negative
	PE Ground	₽	₽	PE ground

Note: The power supply interface realizes power redundancy function internally, and can provide 2 independent 24V DC power inputs to realize power redundancy function, and any one set of power failure will not affect the system operation.

4.4.2. Communication Terminal Definition

Left	Signal Description	Right	Signal Description
Terminal		Terminal	
A1	COM1, RS485 positive	B1	COM1, RS485 negative
A2	COM2, RS485 Positive	B2	COM2, RS485 Negative

	ТХ	COM3, RS232 transmit	RX	COM3, RS232 receive
	SG	Signal Ground	SG	Signal ground
A1 A2 TX SG CH A1 B1 B2 RX SG CL	СН	Network 0, CANH	CL	Network 0, CANL

4.4.3. Native IO Terminal Definition

Input Terminal Definition

Schematic	Left signal	Left Terminal	Right Terminal	Right signal
	100	A0	BO	I10
	101	A1	B1	l11
	102	A2	B2	112
	103	A3	В3	l13
	104	A4	B4	114
A Carden B	105	A5	B5	l15
	106	A6	B6	I16
	107	A7	В7	117
	SS	A8	B8	SS

Drain Output Terminal Definitions

Schematic	Left Signal	Left terminal	Right terminal	Right signal
	Q00	A0	B0	Q10
	Q01	A1	B1	Q11
	Q02	A2	B2	Q12
	Q03	A3	В3	Q13
	Q04	A4	B4	Q14
A THE B	Q05	A5	B5	Q15
	Q06	A6	B6	Q16
	Q07	A7	B7	Q17
	24V	A8	B8	0V

Source Type Output Terminal Definition

Schematic	Left Signal	Left Terminal	Right Side Terminal	Right signal
	Q00	A0	В0	Q10
	Q01	A1	B1	Q11
	Q02	A2	B2	Q12
	Q03	A3	В3	Q13
	Q04	A4	B4	Q14
	Q05	A5	B5	Q15
	Q06	A6	B6	Q16
	Q07	A7	В7	Q17
	24V	A8	B8	0V

4.4.4. Body IO terminal wiring

Input wiring



Drain type output wiring



Source output wiring



5. Communication Connection

WAC600 series products provide a complete range of product models and series, and each model can be seamlessly connected to each other, simplifying the implementation and use of the project.

5.1. CPU module connection

Users can easily connect with computers and HMIs through the Ethernet port of the CPU module by using an Ethernet cable for point-to-point connection. When connecting with the CPU module, please make sure that the IP address of the PC, HMI, etc. is in the same network segment as that of the CPU module, and the factory default IP of LAN A of the WAC600 series CPU module is 192.168.20.80. After connection, you can use the web configuration tool of WAC600 series CPU module to quickly complete the configuration of PLC parameters, please refer to the PLC configuration chapter of this document for detailed operation steps.



5.2. Communication Network

WAC600 series products integrate rich communication interfaces and support various bus protocols. IO communication to GR200-PNS and other devices that support Profinet/IO protocol; RS485, RS232 or CAN communication to other devices, as shown in the diagram below.



5.3. EtherCAT bus connection

The network interface of WAC600 series products supports EtherCAT bus, and the network interface can be configured and EtherCAT slave devices can be added through the configuration and programming software to complete the EtherCAT network.



WAC600 series products can be used in combination with EtherCAT-compliant slaves to realize equipment interconnection and intercommunication.

EtherCAT Specifications

Item	Specification Description	
EtherCAT Protocol	EtherCAT protocol	
Support Services	CoE (PDO, SDO)	
Synchronization method	DC-distributed clocking	
Physical layer	100BASE-TX	
Communication rate	100Mbit/s(100Base-TX)	
Duplex mode	Full duplex	
Topology	Linear topology	
Transmission medium	Shielded cable, see wiring section	
Transmission distance	Less than 100M between two nodes	
Number of slaves	127	
EtherCAT frame length	44 bytes to 1498 bytes	
Process data	Max. 1486 bytes per Ethernet frame	

Wiring

Shielded network cables are recommended for EtherCAT communication and the cable length between the devices must not exceed 100 m. The requirements are as follows.



Signal pin assignment

Pinout	Signal	Signal direction	Signal Description
1	TD+	Output	Data transmission +
2	TD-	Output	Data transmission -
3	RD+	Input	Data reception+
4			Not used
5			Not used
6	RD-	Input	Data Received-
7			Unused
8			Not used

Cables need to be 100% conductivity test, no short circuit, disconnection, misalignment and poor contact

phenomenon, recommended to use the following specifications of the cable

ltem	Specification
Cable Type	Flexible crossover cable, S-FTP, Category 5 Ultra
Meet the standard	EIA/TIA568A, EN50173, ISO/IEC11801
	EIA/TI Abulletin TSB, EIA/TIA SB40-A&TSB36
Wire Cross Section	AWG26
Wire Type	Twisted Pair
Pair	4

5.4. Profinet/IO bus connection

The network interface of WAC600 series products supports Profinet/IO bus, and network interface,

Profinet/IO master and slave devices can be added through configuration and programming software to complete Profinet/IO network networking.



Each PROFINET device in the network is uniquely identified by its PROFINET interface. Each PROFINET interface has the following three key attributes:

- A MAC address (factory default)
- An IP address
- PROFINET device name

The WAC600 series can be used in combination with PROFINET devices to realize device interoperability.

Profinet/IO Specifications

Item	Specification Description
Communication Mode	Profinet/IO
Duplex Mode	Full duplex
Topology	Bus, star, ring, tree, hybrid topology
Physical Layer	100BASE-TX
Communication rate	100Mbit/s (100Base-TX)
Transmission medium	Shielded cable, see wiring section
Transmission distance	Less than 100 M between two nodes

Number of slaves	127

Profinet/IO wiring

Shielded network cable is recommended for Profinet/IO communication, and the cable length between the devices must not exceed 100 meters, with the following requirements.



Signal Pin Assignment

Pins	Signal	Signal direction	Signal Description
1	TD+	Output	Data transmission +
2	TD-	Output	Data Transfer-
3	RD+	Input	Data Receiving+
4			Not used
5			Not used
6	RD-	Input	Data Received-
7			Unused
8			Not used

Cables need to be 100% conductivity test, no short circuit, disconnection, misalignment and poor contact phenomenon, recommended to use the following specifications of the cable

ltem	Specification	
Cable Type	Flexible crossover cable, S-FTP, Category 5 Ultra	
Meet the standard	EIA/TIA568A, EN50173, ISO/IEC11801	
	EIA/TI Abulletin TSB, EIA/TIA SB40-A&TSB36	
Wire Cross Section	AWG26	
Wire Type	Twisted Pair	
Wire Pairs	4	

5.5. RS232, RS485, CANbus connection

Description of RS232 communication

WAC600 series products support RS232 bus, using three signal lines (receive line, transmit line and signal ground line) to quickly realize the full-duplex communication process.

• Communication Specifications Specifications

Item	Description
Number of supported	1 way
channels	
Hardware Interface	2x5PIN terminal TX-transmit data RX-receive data, SG-signal ground
Programming	COM3
Interface	
Isolation Method	Digital isolation
Number of slaves	1
Baud rate	1200~115200bps
Short Circuit	Enhanced ESD protection
Protection	

• Connection Method



RS485 communication description

WAC600 series products support RS485 bus and use three-wire system to complete the communication.

• Communication Specifications

Item	Description
Number of supported	2 channels
channels	
Hardware Interface	2x5PIN terminal A1, B1; A2, B2 SG-signal ground
Programming	COM1, COM2
Interface	
Isolation mode	Digital Isolation
Terminal Resistance	120Ω
Number of slaves	31 slaves
Baud Rate	1200~115200bps
Protection	Short circuit protection

RS485 bus is recommended to be connected with shielded twisted-pair cable, and 120Ω terminal matching resistors are connected at both ends of the bus to prevent signal reflection; the reference ground of all nodes' 485 signals are connected together, and up to 31 nodes are connected with each node branching out at a distance of less than 3m.



• Connection method

Take the first RS485 communication interface as an example.



CANbus communication description

WAC600 series products support CANbus bus, using three-wire system to complete the communication.

• Communication specification

Item	Description
Number of supported	1 channel
channels	
Hardware Interface	2x5PIN terminal CH, CL, SG-signal ground
Programming	Network 0
Interface	
Isolation mode	Digital Isolation
Terminal Resistance	120Ω
Number of connected	63
slaves	
Baud rate	10Kbps, 20Kbps, 50Kbps, 125Kbps, 250Kbps, 500Kbps, 800Kbps, 1Mbps
Protection	Current limiting, overvoltage and ground loss protection (-40 V to 40 V) and thermal shutdown to
	prevent output short circuits

The CANbus bus connection topology is shown below. The CANbus bus is recommended to be

connected with shielded twisted-pair cables, with two 120 Ω termination matching resistors at each end of

the bus to prevent signal reflection (120 Ω termination resistors are already built into the WAC600 series CPUs). The shielding layer is usually grounded reliably at a single point.



Connection Method



6. PLC Configuration

WAC600 series PLC can be configured quickly through the web configuration tool, which greatly improves the ease of use of the PLC.

6.1. Login to web configuration tool

After confirming the correct connection between the PC and PLC network, open the browser on the PC and input the IP (192.168.20.80) and port number (8090) of the factory default LAN A of the CPU:



Enter the default user name/password "admin/admin" to access the web configuration tool.



6.2. CPU Model

You can configure application data redirection to SD card, CPU cold boot self-test time, and view CPU model.

	三 首页 / 系统设置 / CPU型号	
鐙 首页	首页 ● CPU型号 ×	
	应用数据重定向到SD卡 确定 当前CPU型号 OLIMC-PAC-WAC621	
● 网络设置 ~ ~ ~	CPU冷启自检时间(S) 3 [^] 提交	
III CPU型号		
^念 CPU冗余		
③ 时间设置		

1. Application data redirection to SD card: This function can be enabled when user's application and data are too large. When enabled, application programs and data will be migrated to SD card, PLC will read and update application programs and data from SD card, please don't plug and unplug SD card during PLC operation to avoid application data loss.

To enable, check the box, click "OK" and restart the PLC; to cancel the function, remove the check box and restart the PLC.

2、Current CPU model: the specific model of current CPU.

3、CPU Cold Start Self-Test Time: The self-test of various states will be completed within this time when the PLC starts.

6.3. Monitoring Function

1. On the home page of web configuration tool, you can view the error code, CPU occupancy, memory usage, running time, and real-time status of each module channel, where the digital quantity red means TRUE, and blue means FALSE. if there is any error in the module, it will display the current error in real time, Configuration Error means configuration error; Poerr Configuration Error means configuration error; Poerr Exception means power abnormality; Over Current means over current; Channel Error means channel error; Tailboard Exception means tailboard abnormality.



WORD	~ 0	offset (D	Length	256	○ 备份M区数据	○ 还原M区数	据	确定									
0 4001	25 1		50	1	75	1 100	1	125	1	150	1	175	1	200	1	225	1 25	0 1
1 3	26 1		51	1	76	1 101	1	126	1	151	1	176	1	201	1	226	1 25	1 0
2 515	27 1		52	1	77	1 102	1	127	1	152	1	177	1	202	1	227	1 25	2 0
3 515	28 1		53	1	78	1 103	1	128	1	153	1	178	1	203	1	228	1 25	3 0
4 1027	29 1		54	1	79	1 104	1	129	1	154	1	179	1	204	1	229	1 25	4 0
5 5	30 1		55	1	80	1 105	1	130	1	155	1	180	1	205	1	230	1 25	5 0
6 1	31 1		56	1	81	1 106	1	131	1	156	1	181	1	206	1	231	1	
7 1	32 1		57	1	82	1 107	1	132	1	157	1	182	1	207	1	232	1	
8 1	33 1		58	1	83	1 108	1	133	1	158	1	183	1	208	1	233	1	
9 1	34 1		59	1	84	1 109	1	134	1	159	1	184	1	209	1	234	1	
10 1	35 1		60	1	85	1 110	1	135	1	160	1	185	1	210	1	235	1	
11 1	36 1		61	1	86	1 111	1	136	1	161	1	186	1	211	1	236	1	
12 1	37 1		62	1	87	1 112	1	137	1	162	1	187	1	212	1	237	1	
13 1	38 1		63	1	88	1 113	1	138	1	163	1	188	1	213	1	238	1	
14 1	39 1		64	1	89	1 114	1	139	1	164	1	189	1	214	1	239	1	
5 1	40 1		65	1	90	1 115	1	140	1	165	1	190	1	215	1	240	1	
16 1	41 1		66	1	91	1 116	1	141	1	166	1	191	1	216	1	241	1	
17 1	42 1		67	1	92	1 117	1	142	1	167	1	192	1	217	1	242	1	
18 1	43 1		68	1	93	1 118	1	143	1	168	1	193	1	218	1	243	1	
19 1	44 1		69	1	94	1 119	1	144	1	169	1	194	1	219	1	244	1	
20 1	45 1		70	1	95	1 120	1	145	1	170	1	195	1	220	1	245	1	
21 1	46 1		71	1	96	1 121	1	146	1	171	1	196	1	221	1	246	1	
22 1	47 1		72	1	97	1 122	1	147	1	172	1	197	1	222	1	247	1	
23 1	48 1		73	1	98	1 123	1	148	1	173	1	198	1	223	1	248	1	
24 1	10 1		74	1	00	1 124	1	1/0	1	174	1	100	1	224	1	2/0	1	

2. Start/stop the user program.

●首页			
CPU		DIO32	0
	00	DI00 - 🔵	DI01 - 🔵
CDU. Cov		DI02 - 🔵	DI03 - 🔵
CPU: 3%		DI04 - 🔵	DI05 - 🔵
DAM. OW		DI06 - 🔵	DI07 - 🔵
RAM: 9%		DI08 - 🔵	DI09 - 🔵
DOIL		DI10 - 🔵	DI11 - 🔵
ROM: 15%		DI12 - 🔵	DI13 - 🔵
		DI14 - 🔵	DI15 - 🔵
Stop	Run	DQ00 - 🔵	DQ01 - 🔵
		DQ02 - 🔵	DQ03 - 🔵
Debug	Release	DQ04 - 🔵	DQ05 - 🔵
		DQ06 - 🔵	DQ07 - 🔵
Run: Od:C	h:1min	DQ08 - 🔵	DQ09 - 🔵
		DQ10 - 🔵	DQ11 - 🗨
12 KB/S	$\downarrow 2KB/S$	DQ12 - 🔵	DQ13 - 🔵
		DQ14 - 🔵	DQ15 - 🔵
TOKB/S	↓ 0KB/S		ОК

Click "Stop" to stop the user program; Click "Run" to run the user program.

3. Debugging function.

Click "Debug" to enter the debugging mode, and the user program stops. At this time, click the channel of the output module to control the opening/closing of the channel.



Click "Release" to exit the debugging mode, and then click "Run" to run the user program.

CPU	No.	DIO32	0
0	0	DI00 - 🔵	DI01 - 🔵
CDU: 40	-	DI02 - 🔵	DI03 - 🔵
CFU. 4%		DI04 - 🔵	DI05 - 🔵
		DI06 - 🔵	DI07 - 🔵
RAM. 9%		DI08 - 🔵	DI09 - 🔵
		DI10 - 🔵	DI11 - 🔵
ROM: 15%		DI12 - 🔵	DI13 - 🔵
		DI14 - 🔵	DI15 - 🔵
Stop 🤇	Run	DQ00 - 👤	DQ01 - 🔵
		DQ02 - 👤	DQ03 - 🔵
Debug 🤇	Release	DQ04 - 👤	DQ05 - 🗨
		DQ06 - 👤	DQ07 – 👤
Run: Od:Oh	:9min	DQ08 - 👤	DQ09 - 🗨
		DQ10 - 🖊	DQ11 - 🗨
T2KB/S	🖊 4KB/S	DQ12 - 👤	DQ13 -
		DQ14 - 💛	DQ15 - 🗨
TOKB/S	♦ OKB/S		ОК

4. Read, write, back up and restore the data in M area. Click an address in M area, and fill in the value to be written in the dialog box to complete the writing operation of an address in M area.

≣	首页												
•	首页												
CPU CPU RAM ROM Stop	0 : 24% : 9% : 15%) Run	D116 0 00 - 0 01 - 0 03 - 0 04 - 0 05 - 0 05 - 0 07 - 0 08 - 0 09 - 0 10 - 0	DQ16 00 - 00 02 - 00 03 - 00 04 - 00 05 - 00 06 - 00 07 - 00 08 - 00 09 - 00	1 AQ4 2 DQ16 0 0 - 00 - 00 - 01 - 02 - 02 - 03 - 04 - 03 - 04 - 04 - 04 - 04 - 04	3 DQ16 4 00 - 4 02 - 03 - 02 03 - 05 - 05 - 06 - 07 - 08 - 07 - 08 - 09 - 09 - 09 - 09 - 09 - 09 - 09	DQ16 5 00 - • 01 - • 02 - • 03 - • 04 - • 05 - • 06 - • 07 - • 08 - • 09 - • 09 - •						
Run		9min	11 -	11 -	0-10V 11 - 12 -	11 -	11 -						
16K	B/S	12kB/S	13 - 14 -	13 - 8	3 2.50 13 - 14 -	13 -	13 - 1 14 - 1						
OK	B/S	OKB/S	15 - 🔷	15 - O	0-10V 15 -	● 15 - ●	15 -						
		•		Exception	Exception Excep	tion Exception	Exception						
WO	RD	<i></i>	Offset	0	Length 256	备份M区数据	还原M区数据	· 福奈 · • • • • • • • • • • • • • • • • • •	编辑区				
0	4001	25	1	50 1	75 1	100	1 125	1 150	1 175	1 200	1 225	1 250 1	
1	3	26	1	51 1	76 1	101	1 126	1 151	1 176	1 201	1 226	1 251 0	
2	515	27	1	52 1	77 1	102	1 127	1 152	1 177	1 202	1 227	1 252 0	
3	515	28	1	53 1	78 1	103	1 128	1 153	1 178	1 203	1 228	1 253 0	
4	1027	29	1	54 1	79 1	104	1 129	1 154	1 179	1 204	1 229	1 254 0	
5	5	30	1	55 1	80 1	105	1 130	1 155	1 180	1 205	1 230	1 255 0	
6	1	31	1	56 1	81 1	106	1 131	1 156	1 181	1 206	1 231	1	
7	1	32	1	57 1	82 1	107	1 132	1 157	1 182	1 207	1 232	1	
8	1	33	1	58 1	83 1	108	1 133	1 158	1 183	208	1 233	1	
9	1	34	1	59 1	84 1	109	1 134	1 159	1 184	209	1 234	1	
10	1	30	1	61 1	80 1	110	1 130	1 100	1 180	1 210	1 230	1	
12	1	30	1	62 1	07 1	112	1 130	1 162	1 100	1 211	1 230	1	
12	1	20	1	62 1	00 1	112	1 130	1 162	1 100	1 212	1 237	1	
14	1	39	1	64 1	89 1	114	1 139	1 164	1 189	1 214	1 239	1	
15	1	40	1	65 1	90 1	115	1 140	1 165	1 190	1 215	1 240	1	
16	1	41	1	66 1	91 1	116	1 141	1 166	1 191	1 216	1 241	1	
17	1	42	1	67 1	92 1	117	1 142	1 167	1 192	1 217	1 242	1	
18	1	43	1	68 1	93 1	118	1 143	1 168	1 193	1 218	1 243	1	
19	1	44	1	69 1	94 1	119	1 144	1 169	1 194	1 219	1 244	1	
20	1	45	1	70 1	95 1	120	1 145	1 170	1 195	1 220	1 245	1	
21	1	46	1	71 1	96 1	121	1 146	1 171	1 196	1 221	1 246	1	
22	1	47	1	72 1	97 1	122	1 147	1 172	1 197	1 222	1 247	1	
23	1	48	1	73 1	98 1	123	1 148	1 173	1 198	1 223	1 248	1	
24	1	49	1	74 1	99 1	124	1 149	1 174	1 199	1 224	1 249	1	

The data types that can be switched and displayed in the editing area are (BYTE, WORD, DWORD, FLOAT), which can be switched according to actual needs. Offset represents the first starting address of the first column. Click any address to modify its value. Length means that the maximum length of the address displayed on the interface is 1024.

The operation of "Back up data in M area" can only be performed after the operation of "Back up data in M area" on the web.

6.4. network settings

PLC network information can be set.

1. Select the network to operate.

必 首页	首页 ● 网卡 ×
· 系统设置	LAN-A/B
●网络设置	LAN-A/B
局 网卡	LAN-C * 丁明明归 255.255.255.0
🚢 无线网卡	* 网关地址 192.168.20.254
🐵 DNS服务器	* MACt##th 00:4c:0e:82:dd:f6
■ CPU型号	
ゆ CPU冗余	提交

2. Set the IP, subnet mask and gateway information of the corresponding network. Click "Submit" after input. When the communication mode of the network port needs to be changed, it needs to be switched on the web page. The default of the first network port is that EtherNet does not support EtherCAT mode. Please switch to the corresponding mode according to the actual use of other network ports.

OLI Motion Control PAC	■ 首页 / 系统设置 / 网络设置 / 网卡	
88 首页	首页 ● 网卡 ×	
· 오. 系统设置 · · · · · · · · · · · · · · · · · · ·	LAN-C V	
● 网络设置 ^	* IP地址 192.168.21.80	
📾 网卡	* 子网掩码 255.255.255.0	
🖉 无线网卡	* 网关地址 192.168.21.254	
☺ DNS 服务器	* MAC地址 00:4c:0e:bc:a4:88	
■ CPU型号		
ゆ CPU冗余	提交	
③ 时间设置		
回设备信息	请选择当前网口的通信方式 EtherCAT O EtherNet 确定	
金 固件升级		

3、Turn on/off the wireless network, and set the IP, subnet mask, gateway and other information of the wireless network card. After the wireless network is turned on, PLC can be accessed remotely through the set wireless network IP of PLC.

43 8 首页	首页 ● 无线网卡 ×			
일 系统设置 ^	默认已适配基于RTL8811CU芯片的USB Wireless Ac	dapter;产品		
● 网络设置 ^				
🖾 有线网卡	☑ 是否启用无线网络	WLAN-0 ~ 2、近日	译识别到的无线网络接口	
よ 无线网卡	速率:↑1KB/s ↓1KB/s	* IP地址 192.168.12.220	* 无线名称	LCKJ-2F1
ONS服务器	确定	* 子网掩码 255.255.255.0	* 密码	
□ Ftp服务器	L 1、PLC插入USB-WIFI后,开启无线网络	* 网关地址 192.168.12.254		提交
IIII CPU型号		提交	4、输入Pl	C需要连接的外部无线网络
总 CPU冗余	3.		名称和密码	9, 连接网络。
③ 时间设置	诸	亥网络信息需要与第4步连接的无线网络在同一个网	段	

If the wireless network card of PLC is set successfully, but PLC cannot be linked, please check whether the user name and password of PLC linking external wireless name are correct.

4、Set DNS server address

88 首页	首页 ● DNS廠分器 ×
② 系统设置 ^	*DNSO地址 222.172.200.68
● 网络设置 ^	* DNS1地址 61.166.150.123
□□ 有线网卡	
🗳 无线网卡	
🐠 DNS服务器	
Ftp服务器	
III CPU型号	

5. Ftp server settings, after opening Ftp anonymous connection, you can exchange files with PLC specific directory through Ftp client, without entering user name and password.

88 首页		首页 ● Ftp服务器 ×		
④ 系统设置				
● 网络设置		☑ 后用匿名连接	应用程序 个	佣定
□ 有线网卡			外部设备	
🗳 无线网卡				
😳 DNS服务器	R			
回 Ftp服务器				
I CPU型号				

Application: Open the file anonymous transfer permission of PLC application directory.

External devices: turn on PLC external devices (USB, SD card), and the file anonymous transfer permission of the directory (the external devices need to be formatted into a partition for use).

6.5. timeset

PLC time and NTP time can be set. Synchronization frequency indicates how often to synchronize.

OLI Motion Control PAC	三 首页 / 系统设置 / 时间设置	
28 . 首页	首页 ● 时间设置 ×	
② 系统设置 ^	设备时间 ① 2024-01-11 14:54:26	设置
● 网络设置 🛛 👋	NTP主机 time.windows.com	设置
篇 CPU型号		
ゆ CPU冗余	*同步频率 60	分钟次
③时间设置		
回设备信息		

6.6. Equipment information maintenance

If there are multiple CPUs at the same time, in order to better distinguish specific devices, we can modify the device name and view the software and hardware version information of the device.

	PAC	■ 首页 / 系約	充设置 / 设备信息	
经 3 首页		首页 ● 设备信息	l ×	
至 系统设置		* 设备名称	OLIMC-PAC-WAC621	→
● 网络设置				J
		设备型号	OLIMC-PAC-WAC621	
🧱 CPU型号		出厂序号	a1266c	
岛 CPU冗余		Li, 13, 3		
① 时间设置		软件版本	V1.0.0.0	
□□ 设备信息		便件版本	V1.0.0.0	
金 固件升级		构建日期	2024.01.24 15:44	
國一位田甫莊		г		
			提交	
····································		-		

6.7. Firmware update

Firmware upgrade operation can be performed, and the format and size of the upgrade package must meet the requirements.

	至 首页 / 系统设置 / 固件升级
43 . 首页	首页 ● 固件升级 ×
④ 系统设置 ^	
● 网络设置 🛛 👋	
III CPU型号	将文件拖到此处,或点击上传
ゆ CPU冗余	
① 时间设置	ZalkT14 vih / rg/ / rg/ via/ via/ via/ raik/ interview via/ interview via/
回设备信息	
金 固件升级	
■ 应用更新	

Upload the update package as instructed.

23 200 首页		首页 ● 固件升级 ×	
	^		
● 网络设置	~		
■ CPU型号		将文件拖到此处,或 <mark>点击上传</mark>	
岛 CPU冗余		LJ	
		只能上传 zip / tar.gz / tar.xz / sdes / des文件,且不超过30MB	
① 时间设置		© 打开 ::::::::::::::::::::::::::::::::::::	×
同心欠合自		← → < ↑ <a>> <a>→ <a>→ <a>> <a>→ <a>> <a>→ <a>> <a><	٥
		组织 • 新建文件夹 🎼 • 🔳 🤇	
金 固件升级		■ 图片 ^ 名称	
		□ CPU_KEY_f5a9a5b8_₩AC621-update-1.0.0.0-all.des	
會 应用更新		◆ 下载	
❀ 系统重启			
合 密码设置		文件名(N): CPU_KEY_f5a9a5b8_WAC621-upc ~ 自定义文件 (*.tar;*.gz;*.xz;*.zip ~ 打开(Q) 取消	

After uploading the firmware upgrade package, click to confirm the upgrade.



Retrieve the upgrade key from the upgrade package to verify the upgrade operation. The upgrade key is the field after CPU_KEY in the upgrade package name, for example, if the upgrade package name is "CPU_KEY_f5a9a5b8_SC621-update-1.0.0.0-all", the upgrade key is "f5a9a5b8".

请	输入校验码(校验码由厂家)	提供升级包时一并损	ピ(共)	
f	5a9a5b8	266%		
_		1-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L-L		
			确定	取
Waiting for	r the upgrade to complete			

6.8. Application Update

User Manual V1.0

Users can download and update user programs. First, write an application on Smart Control, compile it correctly, click "Online", select "Create Launch Application", choose the file storage path, and save the program file.



Compress the exported application file into ZIP file. Go back to the "Application Update" section of the web configuration tool and upload the update package.

	€ 打开	
	← → ◇ ↑ 《 桌面 > UPDATE > ◇ ♂ 搜索"	UPDATE"
	组织 ▼ 新建文件夹	🎫 🕶 🛄 🌘
將文件拖到此处,或 <mark>点击上传</mark>	→ ■ 图 f ↑ 36% ↑ → ■ 文档 → ♥ T載 → ● T載 → ● T載	
请将Application app、Application crc压缩为 zip文件,且不超过30MB,压缩时不能有二级目录。	→ ■ 桌面 v く 文件名(N): UPDATE.zip v WinR	AR ZIP archive (*.zip)
不原上一次应用程序	1	(开(0) 取消

Click 'Confirm Upgrade' and wait for the upgrade to complete.

	三 首页 / 系统设置 / 应用更新	请确认是否需要更新应用程序,更新完毕后系统将会重启!
43 首页	首页 ● 应用更新 ×	職定取消
④ 系统设置 ~		
● 网络设置 ~	6	
III CPU型号	将文件拖到此处,或点击上传	
ゆ CPU冗余		
③ 时间设置	请将Application.app、Application.crc压缩为.zip文件,且不超过30MB,压缩时不能有二级目录。	
四 设备信息	update.zip	
金 固件升级		
會 应用更新	还原上一次则用程序	
祭 系统重启	□ 删除应用程序 确定	
● 密码设置		
ひ恢复出厂设置		

Restore the previous application: This operation can only be performed after performing an 'application update' on the web.

Delete application: Delete the application in the PLC.

6.9. Password maintenance

Can complete the maintenance operation of PLC password.



6.10. Restore factory settings

The PLC can be reset to factory settings. After resetting to factory settings, the PLC will lose user set data and programs. Please be cautious when restoring factory data.

OLI Motion Control	PAC 三 首页 / 系统设置 / 恢复出厂设置	恢复出厂设置数据将丢失,是否继续
88 首页	首页 ● 恢复出厂设置 ×	義定 取消
系统设置	ケートの「仮复出」「设置」	
● 网络设置	\sim	
III CPU型号		
© CPU冗余		
③ 时间设置		
回设备信息		
金 固件升级		
昼 应用更新		
❸ 系统重启		
- 密码设置		
ひ 恢复出厂设置	2 2	

6.11. System restart

Users can perform system restart operations on the PLC on the webpage.



6.12. system maintenance

You can view the error code and corresponding solutions.

88 首页		首页 • 第	系统维护 ×	
	^	错误码	含义	处理方法
● 网络设置	~:	22	系统启动失败	检查系统供电无误后,重新启动
		23	系统初始化失败	检查系统供电无误后,重新启动
I CPU型号		25	CPU温度过高	请检查系统散热条件
 PU冗余 The other state The other state 		32	EtherCAT主站错误	检查 EtherCAT主站及其各子节点硬件连接、主站源地址(MAC)等参数设置是否正确,例如:网 线断路、网口与实际使用是否一致、从站异常
同、次夕片白		35	Ethernet节点异常	检查Ethernet及其各子节点硬件连接、参数设置是否正确
企 固件升级		36	Profinet主站异常	检查Profinet主站及各其子节点硬件连接、参数设置是否正确,例如:Ethernet网络接口及网络信息 与实际不一致
■ 应用更新		37	Profinet从站异常	检查Profinet从站与主站设备硬件连接、参数设置是否正确,例如:与主站网络是否正常、网络设 置是否同一个网段
S统维护		39	Ethernet/IP scanner异常	检查Ethernet/IP scanner及其各子节点硬件连接、参数设置是否正确,例如:与从站网络是否正 常、网络设置是否同一个网段
小 永 小 里 山		3a	Ethernet/IP adapter	检查Ethernet/IP adapter及其所属模块硬件连接、参数配置是否正确

7. Maintenance & Upkeep

7.1. Running/shutting down and clearing the application program

When the user program is written into the CPU module, the start/stop program operation can be executed according to the following steps.

1. At the bottom of the CPU module there is a program run/stop toggle switch, when you need to run the program, turn the switch to the RUN position, at this time if there is no fault then the CPU digital pipe

display ; when you need to stop the program, turn the switch to the STOP position, the program stops, at this time, the digital pipe of the CPU module will be polled to display the PLC's network information (in

hexadecimal display of the IP address, subnet mask, gateway information.): The digital pipe displays

that the four hexadecimal numbers immediately following the display are IP; the display

that the four hexadecimal numbers immediately following the display are mask; the display indicates that the four hexadecimal numbers immediately following the display are gateway. (Refer to Appendix B for display value symbols and value correspondences).



2. You can use the relevant buttons on the web configuration tool to complete the start/stop operation of the PLC program, please refer to the PLC Configuration chapter of the home page function for the detailed operation procedure.

Clear the application program.

1、After the PLC is powered off, turn the dip switch to "STOP".

2、When the PLC is powered on, set the dip switch to "RUN" within 5 seconds when the digital tube is

displayed ; wait for the display, set the dip switch to "STOP" within 5 seconds; wait for the

display EE, set the dip switch to "RUN" within 5 seconds; wait for the display EE, set the dip switch to "RUN" within 5 seconds; wait for the display, set the dip switch to "RUN" within 5 seconds. RUN"; wait for

the display, and then turn the dip switch to 'STOP' within 5 seconds.

7.2. MFK key to restore factory setting



7.3. SD card firmware upgrade

1. Insert the SD card containing firmware information (maximum capacity is 32GB, file format is FAT32) into the SD card slot of the CPU module.

When the power is restored, the CPU digital pipe will display

upgraded. When the digital pipe displays , it means the firmware upgrade is successful.

2. After the firmware upgrade is completed, power down the product and pull out the SD card.

3.Re-power on the product.

7.4. SD card/U disk update user program and data

1、Prepare the SD card/U disk for upgrading: Create a folder "Application" or "recipes" in the SD card/U disk (Application is used for updating the program, recipes are used for updating the recipe data). Recipes" for updating recipe data).

Create "Application_new" and "Application_old" folders under the "Application" folder. folder, and put in the upgrade boot file "Application.ini". As shown in the figure below.

> SD_U_UPDATE > Applic	ation	
名称	^	
Application_new		
Application_old		
Application.ini		

The contents of the upgrade bootstrap file "Application.ini" are shown below.

Application.ini - 记事本 文件(E) 编辑(E) 格式(O) 查看(V) 帮助(H) [APPLICATIONDIR] plcapplicationdir=Application

Create "recipes_new" and "recipes_old" folders under the "recipes" folder, and put the upgrade bootstrap file "recipes.ini". As shown in the figure below

夕物	^	
古称		
recipes new		
· · · · · · · · · · · · · · · · · · ·		

The contents of the update bootstrap file "recipes.ini" are shown below.

implement of the i

2. Store the update file compiled by Smart Control in the "Application/Application_new" directory of the SD card/U disk, or store the recipe data file to be updated in the "recipes/recipes.ini" directory of the SD card/U disk. Recipes/recipes_new" directory of the SD card/U disk.

3、Insert the SD card/U disk into the corresponding slot of the CPU module.

4、The update will start, the digital pipe will display EEE, after the update is successful, the digital pipe will

display , at this time, please pull out the SD card/U disk, after the upgrade is successful, the PLC will

automatically reboot, if the PLC reboot is successful and still do not pull out the SD card/U disk, the PLC will perform the upgrade operation again.

5. If the update fails. Please check whether the update file and the path stored in SD card/U disk are correct. If all are correct, but still failed to burn, please contact technical support to solve the problem.

7.5. Routine Maintenance

7.5.1. Daily Inspection Items

Inspection Items	Inspection method	Processing method	
Appearance inspection	Visual inspection for dirt	Cleaning of dirt and dust	
Is the DIN rail mounted securely?	Is the DIN rail tightly connected to the	Fixed DIN rail	
	fixing plane?		
Modules are securely mounted	Are the modules firmly connected to the	Make sure the mounting is	
	DIN rail?	secure	
Check for loose terminals	Module terminal screws are not loose	Tighten the screws	
Check cables and terminals	Check the cables and terminals of each	Installation of cables and	
	module for looseness.	terminals	

Installation and connection status check

7.5.2. Periodic inspection

Items to be inspected about once or twice in 6 months to a year are as follows:

Inspection items	Inspection method	Processing method
Appearance inspection	Visual inspection for contamination	Clean up dirt and dust
Power supply voltage	Measure whether the input DC power of the system	Confirm the reliability of
	meets the product specifications.	power supply system
Ambient temperature and humidity	Use thermometer and hygrometer to measure whether	Ensuring ring
	the ambient temperature and humidity around the	The environment meets
	system meet the product specifications, confirm the	the specification
	causes of environmental changes and deal with them	requirements
	in time.	
air	Check whether there is corrosive gas.	Eliminate the source to
		ensure the system works
		in a reliable environment.

Appearance cleanliness	Check whether there is dirt accumulation.	Remove dirt
		accumulation

In addition, patrol inspection should also be carried out in the case of relocation and transformation of equipment and change of wiring.

Appendix a fault code comparison table

Fault code (hexadecimal)	Digital tube display status	meaning	counter-measure
0x22	55	System startup failed.	Restart the system after checking that the power supply of the system is correct.
0x23	65	System initialization failed.	Restart the system after checking that the power supply of the system is correct.
0x25	25	CPU temperature is too high.	Check the cooling condition of the system.
0x32	35	EtherCAT master station error	Check whether the parameters such as the hardware connection of the EtherCAT master station and its sub-nodes and the source address (MAC) of the master station are set correctly, for example, the network cable is broken, the network port is consistent with the actual use, and the slave station is abnormal.
0x35	35	Ethernet node exception	Check whether the hardware connection and parameter settings of Ethernet and its sub-nodes are correct.
0x36	36	Profinet master station exception.	Check whether the hardware connection and parameter settings of Profinet master station and its sub-nodes are correct, for example, the Ethernet network interface and network information are inconsistent with the actual situation.
0x37	33	Profinet slave station exception.	Check whether the hardware connection and parameter settings of Profinet slave station and master station equipment are correct, for example, whether the network with master station is normal and whether the network settings are in the same network segment.
0x39	39	Ethernet/IP scanner exception	Check whether the hardware connection and parameter settings of the Ethernet/IP scanner and its sub-nodes are correct, e.g. whether the network with the slave is normal and whether the network settings are for the same network segment.
0x3a	39	Ethernet/IP adapter	Check whether the hardware connection and parameter configuration of the Ethernet/IP adapter and its subordinate modules are correct.
0x3c	Зс	CAN node abnormality	Check whether the CAN node communication network and baud rate are correct.
0x3d	38	CAN master abnormality	Check whether the hardware connection and parameter settings of the CAN master and its sub-nodes are correct, e.g., wiring error in CAN communication, slave ID inconsistent with the physical station number.
0x3e	36	CAN slave device abnormality	Check whether the CAN slave device hardware connection and parameter settings are correct.
0x3F	36	Modbus_tcp Master Abnormality	Check whether the hardware connection and parameter settings of Modbus_tcp master and its subnodes are correct, for example, whether the slave IP and port settings are

			correct			
0x40		Modbus, tcp slave device	Check whether the bardware connection and parameter			
0,40		exception	settings of the Modbus, top slave device are correct			
0v/2	цЭ		Check whether the hardware connection and parameter			
0742		Modbus rtu node exception	settings of Modbus rtu node and its sub-nodes are correct.			
		······································	e.g. wrong COM port selection.			
0x43	43		Check whether the hardware connection and parameter			
UNITO 1	· _ ·		settings of the Modbus rtu master and its sub-nodes are			
		Modbus rtu Master Error	correct, e.g. the slave address does not match the actual			
		_	one, or the physical connection between the master and the			
			slave is disconnected.			
0x44		Modbus_rtu slave device	Check whether the hardware connection and parameter			
		abnormality	settings of the Modbus_rtu slave device are correct.			
0x5a			Check whether the RUN/STOP switch is in STOP state, if it			
	70	Application program stopped	is in RUN state, check whether the application program is			
			closed on the web page, the initial reset of the device also			
			shows 5a			
0x5b	C L		Check for errors in application implementation logic, e.g.,			
30	JO	Application program exception	division by 0, null pointer, array out of bounds			
0x72		Power supply apportality of	Check whether the power input of the body IO module is			
	15	the body IO module	normal and the output module channel is not short-circuited			
			After the 70 error as do error and the disited air since distance			
0x73	33		displaye the elet number of the charmed module. Check the			
	·		asftware and bardware configurations according to the			
		Configuration mismatch	display and correct the error e.g. 73.02 means that the			
			hardware configuration of the second module does not			
			match the software configuration.			
0x74	_		After the 74 error code appears, the digital pipe immediately			
UNIT 1			displays the slot number of the abnormal module. If 74 02			
			means that the power supply of the second module is			
		Power supply abnormality of	abnormal, please check whether the wiring of the			
		expansion IO module	corresponding module is correct, e.g. whether the power			
			input of the corresponding expansion IO module is normal			
			and whether the output module channel is short-circuited.			
0x75	76	Fxpansion IO module	After the error code 75 appears, the digital pipe immediately			
	í D	overcurrent/overtemperature	shows the slot number of the abnormal module. Check the			
			corresponding module according to the display			
0x76	٦C	Abnormal tail plata	Check whather the tail plate is firmly installed			
0x77			After the 77 error code appears, the digital pipe displays the			
		Expansion IO module channel	slot number of the abnormal module. Check the			
		abnormality	corresponding expansion IO module according to the			
			display.			

Appendix B Comparison Table of Digital Pipe Display

Display Illustration	8	;	5	3	L	5	5	7
Hexadecimal	0	1	2	3	4	5	6	7
Hexadecimal	0	1	2	3	4	5	6	7
Display Icon	8	9	9	Ь		d	9	F
Hexadecimal	8	9	а	b	С	d	е	F
Decimal	8	9	10	11	12	13	14	15

Values