ZLAN6408I-4AI-4AO

4-channel IO controller

-1:RS485 to AI/AO

-3: Ethernet to RS485/AI/AO

ZL DUI 20250815.1.0

Version information

The following changes have been made to the document:

Modification record

DATE	Version number	Document number	Confidentiality level	Modify content
2025-08-15	Rev.1	ZL DUI 202508315.1.0	Public	Release version

Ownership information

Catalogue

1. Overview

ZLAN6408I-4AI-4AO is a small-sized and cost-effective AI and AO product developed by Shanghai Zhuolan. It supports analog input and output and is specifically designed for industrial automation scenarios.

This device supports the acquisition of analog input signals and can also achieve analog output control. Its stable signal processing capability can meet the monitoring and execution requirements of various IO signals in industrial sites, providing reliable underlying signal interaction support for automation systems. Meanwhile, the 6408I supports multiple combinations, which can meet the diverse needs on site. For relevant combinations, please refer to the following figure.

Supports multiple combinations

ZLAN6408I-3-4DI-4DO

AI accuracy
With "I", it is 16-bit precision AI; without "I", it is 12-bit precision

Communication interface
-3 is Ethernet +485
-1 is pure 485
-8 is 4G

Interface 1 mode
DI: Digital input,
DO: Digital output,
AI: Analog input,
AO: Analog output

Interface 2 mode
DI: Digital input,
DO: Digital output,
AI: Analog input,
AO: Analog output

Product Selection Table

Model	Name	Communication interface	DI	DO	AI	AO	AI accuracy
6408I-1-4DI-4DO	RS485 4-channel DI DO	RS485	√	√	×	×	/
6408I-1-4AI-4AO	RS485 4-channel AI AO	RS485	×	×	√	√	16 bits
6408I-1-2DI-2DO	RS485 2-channel DI DO	RS485	√	√	×	×	/
6408I-1-2AI-2AO	RS485 2-channel DI DO	RS485	×	×	√	√	16 bits
6408I-3-4DI-4DO	RS485 4-channel DI DO	Ethernet /RS485	√	√	×	×	/
6408I-3-4AI-4AO	RS485 4-channel AI AO	Ethernet /RS485	×	×	√	√	16 bits
6408I-3-4AI-0AO	Network Port 4 AI	Ethernet /RS485	×	×	√	×	16 bits
6408I-3-2AI-2AO	Network Port 2 AI 2AO	Ethernet /RS485	×	×	√	√	16 bits
6408I-3-2DI-2DO	Network Port 2DI 2DO	Ethernet /RS485	√	√	×	×	/
6408-1-4DI-4AI	RS485 4-channel DI AI	RS485	√	×	√	×	12 bits
6408-8-4DI-4AI	4G 4-channel DIAI	4G/RS485	√	×	√	×	12 bits

Other combinations (any combination from 0 to 4) such as OAI-2AO, 2AI-0AO
(if needed, please contact customer service)

01 The 6408I supports any combination of 0 to 4 digital input and output channels

02 The 6408I supports any combination of 16-bit analog inputs from 0 to 4 channels

03 The 6408 supports 12-bit analog input and 4-channel digital input

Figure 1 Selection diagram of ZLAN6408I gateway

For instance, the 6408I-1-4AI-4AO supports 4-channel AI analog quantity acquisition and 4-channel AO analog quantity output. IO can be read and controlled through the RS485 interface.

The 6408I-3-2AI-2AO supports 2-channel AI analog quantity acquisition and 2-channel AO analog quantity output. IO can be read and controlled through the Ethernet /RS485-IO interface (as shown in the lower right corner of the following figure), and communication can also be conducted with the slave device connected via Ethernet and the 485-ETH port (as shown in the lower right corner of the following figure).

The 6408I series supports any form of (0 to 4 channels)AI/AO or DI/DO combination. If needed, please contact customer service.

Figure 2 Appearance view of the ZLAN6408I-AI-AO gateway

The AI input supports 4-20mA current input (default shipment), with an ADC accuracy of 16 bits. The attributes of the AI can be modified to 0-5V voltage, 0-10V voltage type, resistance type, etc. according to requirements. The AO output supports

4-20mA output, with a DAC accuracy of 16 bits. (Factory confirmation is required. Any modifications need to be returned to the factory.

2. Functional Features

1. Supports up to 4 channels of AI analog input, 4 channels of AO analog output, and 16-bit ADC/DAC precision.
2. The serial port supports baud rates ranging from 1200 to 115200, 8 data bits, no parity, odd parity, and even parity, and 1 stop bit.
3. The 6408I-3-AI-AO supports Ethernet ports and can communicate with third-party 485 slave devices attached to 485-ETH.
4. 6408I-3-AI-AO supports ZLMB and custom Modbus RTU to JSON conversion functions.
5. The 6408I-3-AI-AO supports edge computing functions, including data over-limit alarm, data translation and scaling calculation, data change upload, and device offline alarm, etc.
6. The 6408I-3-AI-AO supports network port configuration and parameter viewing via ZLVircom software.

3. Technical parameters

Appearance	
Size：	Length × width × height=9.4cmx6.5cmx2.5cm
Serial port parameters	
6408I-1:485-IO 6408I-3:485-IO、485-ETH Baud rate: The default baud rate is 115200bps, which can be modified through software or instructions. Data bits: 8 bits. Check bit: No check, odd check, even check. Stop bit: 1 bit	
Software	

Network Protocol	MODBUS TCP/MQTT/JSON/HTTP
RS485 Protocol	MODBUS RTU
AI input /AO output form	
AI input Current input: 4-20mA Voltage input: 0-5V, 0-10V (customization required) Resistance input: 0-10K, resistance-type temperature and humidity sensors, etc. (customization required) AO output: Current output: 4-20mA	
Power supply	
Stable operating status: 200mA@12V	
6408I-3 (Ethernet) parameters	
Network port	It can be connected to 10/100M adaptive Ethernet.
Environmental requirements	
Operating temperature	-40~85℃
Storage temperature	-45~120℃
Humidity range	5 to 95% relative humidity

4. Hardware Description

The front view of the data acquisition gateway is shown in Figure 3.

Figure 3 Front view of ZLAN6408I-AI-AO

The gateway adopts an anti-radiation metal casing with two hanging ears on both sides, which can be fixed with screws.

Panel light

Indicator light	Color	Remarks
POWER	red	The equipment is powered on normally
LINK	Green/Blue	Green indicates an Ethernet connection/blue indicates a link has been established
ACT1	Green/Blue	Green: RS485-NET interface data output
ACT2	Green/Blue	Blue: RS485-NET interface data input
ACT3	Green/Blue	Green: Data received by the network end

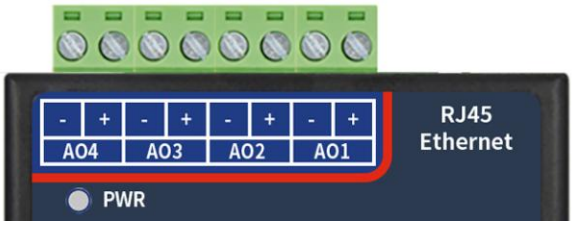

Figure 4 Interface Figure 1

The interface in front of the acquisition gateway is shown in Figure 4

1. 1.AO1 to AO4:4 analog output channels, with a precision of 16 bits, and the default is 4-20mA analog output.
2. 2. Network interface: This interface is a remote control communication method of Ethernet, which varies depending on the sub-model. Among them, 6408I-1 does not support network interfaces and only has local RS485 control.

The interface behind the acquisition gateway is shown in Figure 5

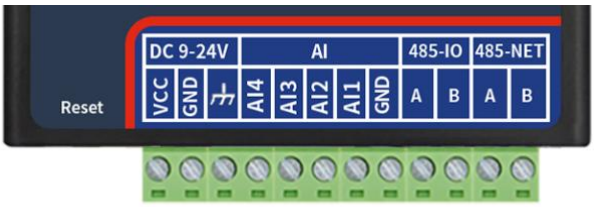

Figure 5 Interface Figure 2

1. Power supply: Terminal block input, input voltage DC+9V to +24VDC.
2. GND: The same as the negative terminal of the power supply.
3. AI1 to AI4: 4-channel analog input.

Analog input

4-channel analog input: With an accuracy of 16 bits, the default is 4-20mA analog input. For other inputs, select the extended model

1) Current signal input: 4~20mA.
2) Voltage signal input (6408I-3-4AI - 5V-4AO) : 0-5V.
3) Voltage signal input (6408I-3-4AI10V-4AO) : 0 to 10V.
4) Resistive impedance input: such as 0~10k or resistive temperature and humidity sensors, etc.

Both the voltage and current are relative to GND.

4. RS485 interface: 2 RS485 signal inputs. The A and B of 485-IO can be connected to the Modbus RTU master station to read the data of AI. The A and B of 485-NET can be connected to the 485 instrument slave station. Note that they should not be connected to the power supply.

5. AI/AO Function Description

5.1 Connect the device using the Vircom tool

The gateway configures IO parameters via the RS485 interface. Power on the device and connect the A and B interfaces in RS485-IO. Open the main interface device management with VIRCOM software and directly click the "IO Controller" button.

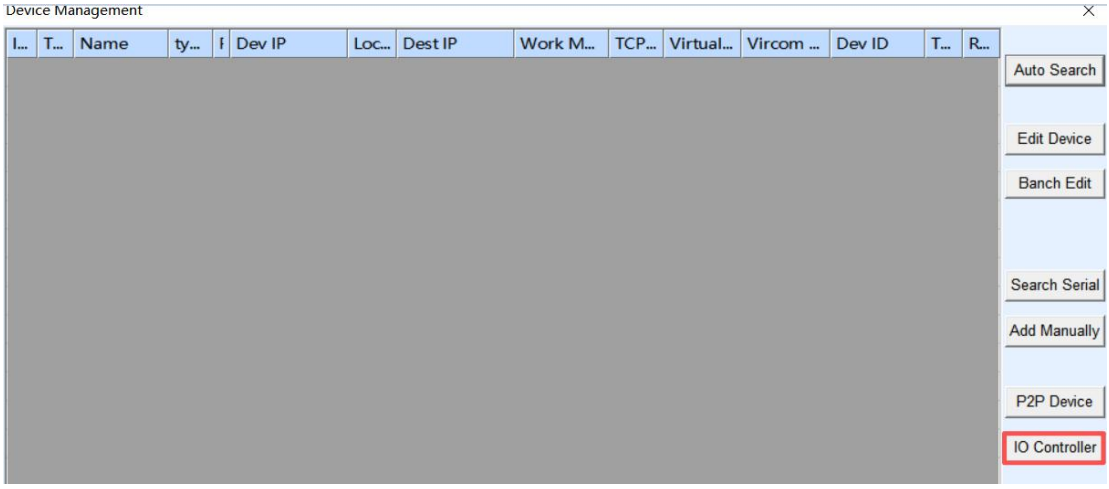

Figure 6 How to enter the IO controller dialog box

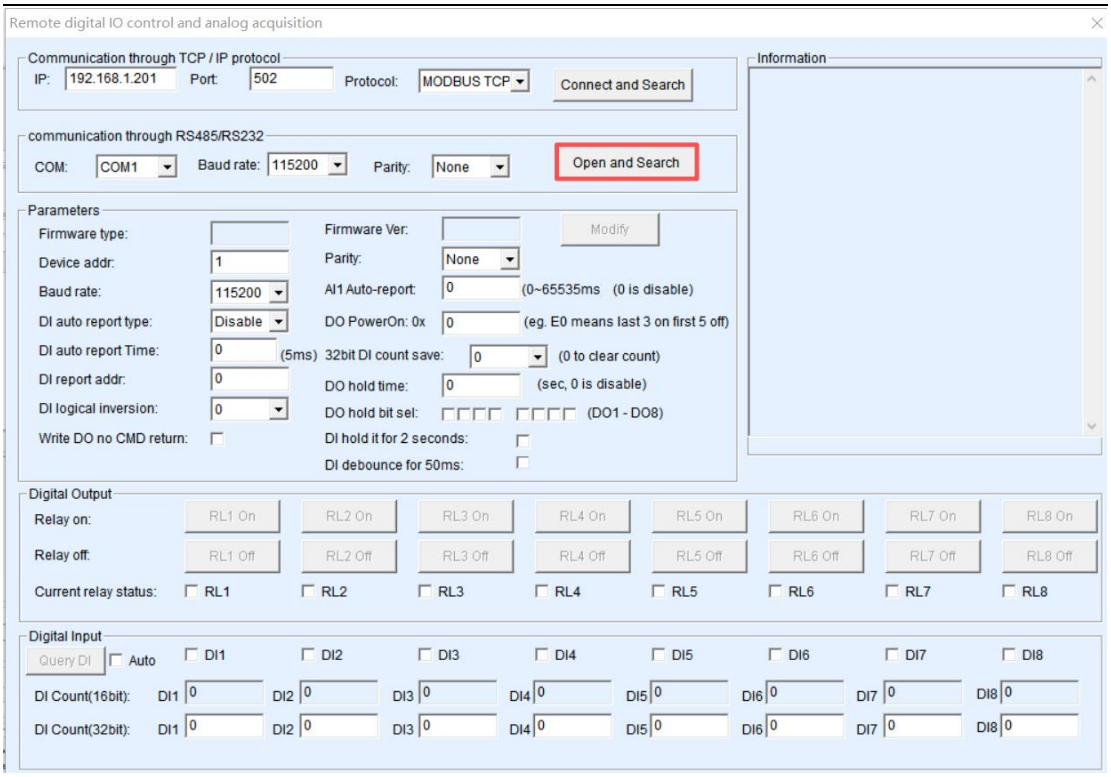

Figure 7 IO Controller Dialog Box

Select the correct COM port and click "Open and Search" to communicate with the device. There is no need to select the baud rate. If you have set a check bit before, please select the corresponding check bit and then click "Open and Search". After opening the com port, the parameters of the device are obtained through the Modbus RTU command of the software.

After the device obtains the parameters, they will be displayed in the dialog box. Later, parameters can be modified, and tests such as AI reading can be conducted.

5.2 Modbus Registers

The serial port supports Modbus RTU instructions. The specific register and address ranges are as follows:

Table 1. General Table of Modbus Registers

Function code	Function	Address range
04	Read AI	0~3
03	Read the basic	63~67

	parameters	
03	Read the extended parameter	68~162
06	Set parameters	63~67
06	Set the extended parameters	68~162
06	Set AO	768~771
16	Set basic parameters	63~67
16	Set the extended parameters	68~162

5.3 AI Usage Instructions

By using the 04 instruction of Modbus to read the values in registers 0 to 3, the values of AI1 to AI4 can be obtained. The data is stored in big-endian format.

Number of bytes	1	1	1	1	1	1	1	1
Name	Device Address	04	Start address high	Low start address	Length height	Low length	High CRC	Low CRC

For example, the Modbus RTU instruction for reading the value of AI1 is: For example, the Modbus RTU instruction for reading the value of AI1 is

Send-> 01 04 00 00 00 01 31 ca

Return-> 01 04 02 01 82 38 c1

The Modbus TCP instruction is:

Send-> 00 00 00 00 00 06 01 04 00 00 00 01

Return-> 00 00 00 00 00 05 01 04 02 01 82

The specific usage method of the returned data 01 82 here is related to the type of AI. If 01 82 is converted to decimal, it will be Vin=386. The calculation formulas for different types of AI are as follows:

- 5V: True voltage value = (Vin/ 1024)*5=1.8848;
- 10V: True voltage value = (Vin/ 1024)*10=3.7695;
- 4~20mA: True current = (Ain / 1024)*5/200*1000=9.4238;

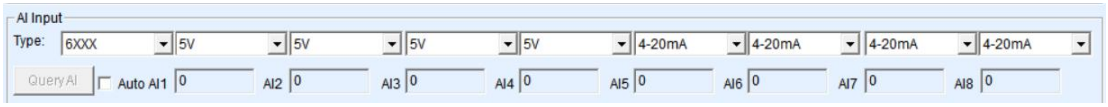

Figure 8 AI reading in the IO controller dialog box

After Vircom successfully connects to the device, click "Query AI Status" to query the AI value. You can also click "Auto" to query once per second. Before making a query, you need to make a selection based on the purchased model first. After selecting the model, the analog interface types of AI1 to AI4 will be automatically configured according to the standard configuration. Thus, the real current value of this interface can be displayed in the numerical dialog box.

5.4 AO Instructions for Use

By using the 06 instruction of Modbus to set the values of registers 768 to 771, the output values of AO1 to AO4 can be set. The hexadecimal representation of each register address is as follows: 03 00 (channel 1), 03 01 (channel 2), 03 02 (channel 3), and 03 03 (channel 4).

AO should be input as an unsigned integer, in big-endian format, and always retain three decimal places.

Byte count	1	1	1	1	1	1	1	1
Name	Equipment address	06	The starting address is high	The starting address is low	High data	Low data	CRC high	CRC low

Example 1: The Modbus RTU command for setting the output of AO1 to 20mA is

Send-> 01 06 03 00 4e 20 bd f6

Return-> 01 06 03 00 4e 20 bd f6

Among them:

01 is the device address, 06 is the function code, 03 00 is the address of the first AO register, 4e 20 is the big-endian format data, with a decimal value of 20000,

retaining three decimal places, indicating that the AO value is set to 20.000mA, and bd f6 is the CRC check code.

Example 2: The Modbus RTU instruction for setting the output of AO4 to 16.660mA is:

Send-> 01 06 03 03 41 14 49 d1

Return-> 01 06 03 03 41 14 49 d1

Among them:

01 is the device address, 06 is the function code, 03 is the fourth AO address, 41 is the big-endian format data, with a decimal value of 16660, retaining three decimal places, indicating that the AO value is set to 16.660mA, and 49 d1 is the CRC check code.

5.5 AO Calibration parameters

When the ZLAN6408I-AI-AO series leaves the factory, the output of AO will be calibrated to ensure the accuracy of the analog quantity output. If the set value deviates significantly from the actual output value during the user's usage, the output can be recalibrated by changing the value of the register. At the same time, we also have dedicated parameter calibration software. If you need it, you can contact customer service to obtain it.

The calibration method via Modbus instructions is as follows:

The parameter calibration of AO uses the two-point calibration method. By obtaining two sets of set values and actual values, two calibration coefficients, namely the slope and the intercept, are calculated. Expressed in a linear equation with two variables, it is y=kx+b, where y is the set value, x is the actual output value, k is the slope, and b is the intercept.

The 4-channel AO output slope and intercept of ZLAN6408I-AI-AO are stored in the register at address 6C-73. If it is a 2-channel AO, the address is 6C-6F. Every two registers correspond to one calibration coefficient, with the first register being the slope and the second register being the intercept. For instance, 6C corresponds to the slope of AO1, and 6D corresponds to the intercept of AO1. 6E corresponds to the

slope of AO2, and 6F corresponds to the intercept of AO2.

Both the slope and intercept in flash are integer numbers. The data is stored in little-endian format and will be automatically divided by 10,000 when used. Therefore, to set the slope of AO1 to 1.0000, write a signed integer of 10000 in hexadecimal: 0x2710 to register 6C of AO1.

For example, to calibrate the first AO channel, the following steps are required:

1. Reset the calibration coefficient: Set the slope to 1.0 and the intercept to 0, and use the 06 command of Modbus for the Settings. Set the slope: send -> 01 06 00 6c 10 27 04 0d (since the slope is to be set to 1, the value should be written as 10000, that is, 0x2710. Also, since the data is stored in little-endian format, the data bit is filled as 10 27); Set the intercept: 01 06 00 6d 00 00 18 17.
2. Read the two sets of actual output values after reset: for example, when the set value is 20mA, the actual output is 19.53mA; When the set value is 10mA, the actual output is 9.77mA.
3. By substituting the two sets of set values and the corresponding actual output values into the equation, the slope k is calculated to be 1.0246, magnified 10,000 times to 10246, and in hexadecimal, it is 0x2806. The intercept b is -0.0103, and when magnified 10,000 times, it becomes -103. Since it is a signed integer, all hexadecimal values are 0x8067.
4. The calculated slope and intercept are written into the register via Modbus's 06 or 16 instruction (Note: The data is stored in little-endian format) to complete the calibration.
5. Reset the AO value. After calibration, the set value should be consistent with the actual output value.

5.6 Active Reporting by AI

AI 的 The active reporting function of AI enables the collected analog quantities to be automatically sent to the upper computer. This method does not require the upper computer to query Modbus instructions and is very useful for network analog quantity monitoring based on the Internet.

The reporting time of analog quantities can be set. The time interval can be

selected from 0 to 65535, with the unit being ms. If 0 is set, it indicates that active reporting is not enabled. It can be directly set in the IO controller dialog box.

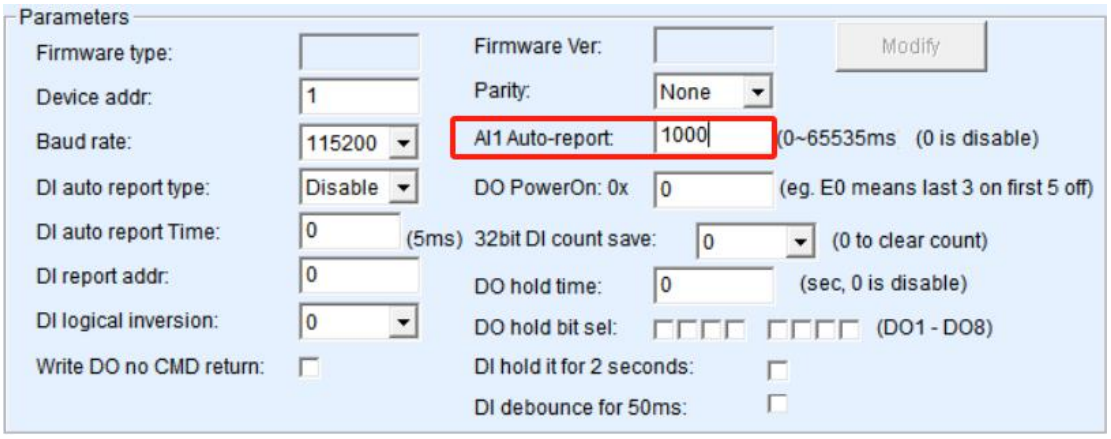

Figure 9 sets the AI active reporting time in the IO controller dialog box

The instructions actively uploaded by the AI are:

- When converting the protocol to Modbus RTU:01 04 10 H1 L1 H2 L2 H3 L3 H4 L4 H5 L5 H6 L6 H7 L7 H8 L8 C1 C2。
- When converting the protocol to Modbus TCP:00 00 00 00 00 0B 01 04 10 H1 L1 H2 L2 H3 L3 H4 L4 H5 L5 H6 L6 H7 L7 H8 L8

Here, H1 and L1 represent the collection volume of A1, H2 and L2 represent the collection volume of A2, and so on. Big-endian format. The subsequent values of H5 and L5 are omitted. C1 and C2 are CRCS.

If there is a device parameter search before the AI actively reports, the AI's active reporting will pause for 5 seconds. This can prevent conflicts between the AI's active reporting and the parameter search.

6. Configuration and Usage Method

Currently, the serial port parameters include baud rate and parity. Make Settings through the "IO Controller" dialog box.

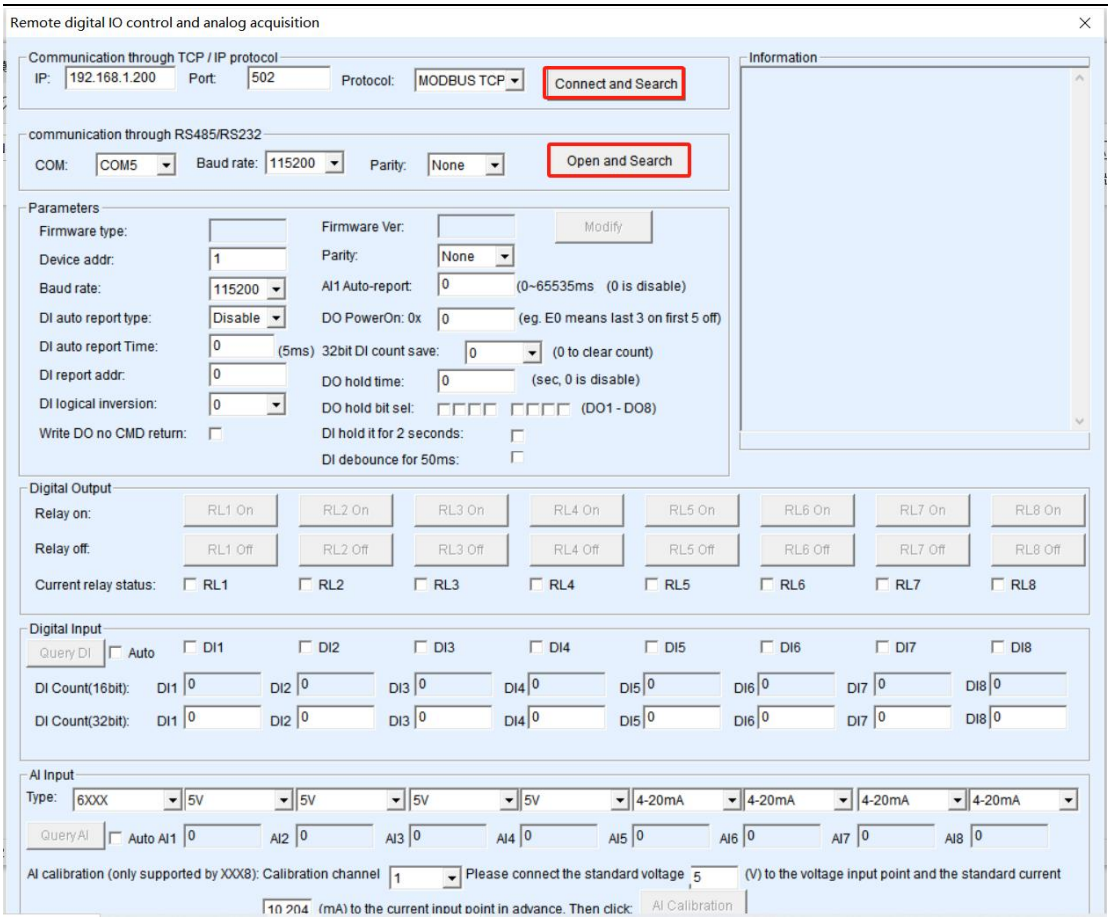

Figure 10 Configuration related to serial port parameters in the IO controller

Among them, the baud rate only affects the 485-IO RS485 interface.

When communicating via serial port, there is no need to select an appropriate baud rate, as the software will automatically search for all baud rates.

However, the setting of the check bit can affect the 485-IO serial port and network module. That is, when the parameters of the ZLAN6408I series are set to have verification (not the verification method without verification), the verification bit of the network module also needs to be modified accordingly; otherwise, the "Open" button of "Network Communication" will not be opened successfully. The serial port check bit of the network module can be modified through "Device Editing" in the "Device Management" dialog box. As shown in the following figure.

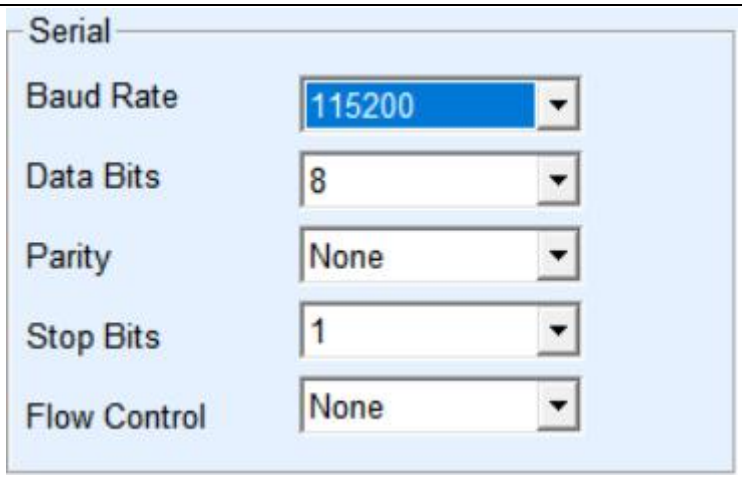

Figure 11 shows the parity bit Settings of the network module

Note: When set to the "non-unverified" mode, when the serial port is opened to search for devices, the corresponding verification mode must be selected. Otherwise, the corresponding device will not be searchable. Conversely, if the device is in the "no verification" mode, the serial port opening also needs to be searched in the "no verification" mode. That is, the serial port search does not support the automatic search of check bits. The user must specify the corresponding check method.

6.1 ZLAN6408I-1(485)

This model does not support network modules. Please directly perform read and write operations on the AI/AO of the device through the RS485-IO interface.

6.2 ZLAN6408I-3(Ethernet)

6.2.1 Configuration method

Download the ZLVircom configuration tool, connect the ZLAN6408I-3-AI-AO to the Ethernet, click the Device Management button, enter the page shown in Figure 12, and click Auto Search.

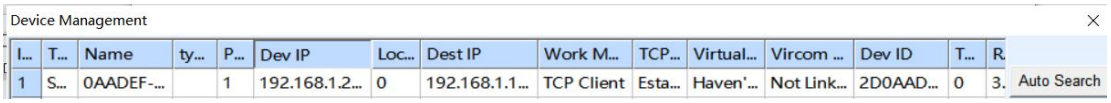

Figure 12 Ethernet configuration page

Double-click any area within the red box to enter the configuration page, as shown in the following figure.

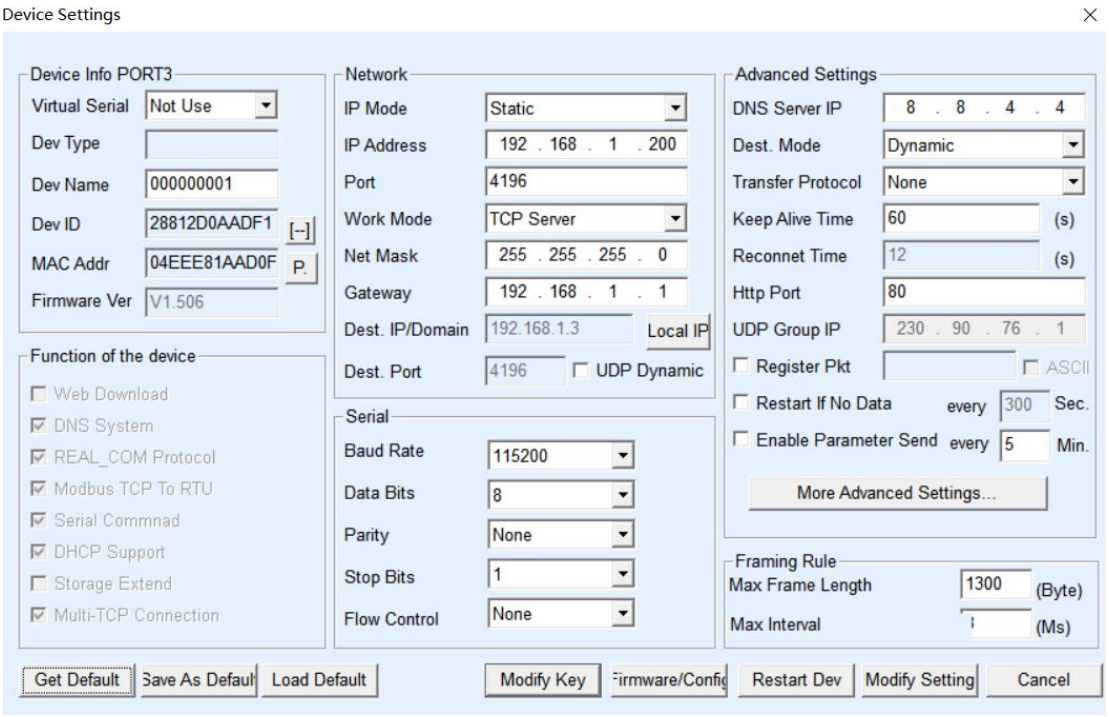

Figure 13 Configuration page

In this interface, users can set the parameters of the device. Then, by clicking "Modify Settings", the parameters will be set to the device's flash and will not be lost in case of power failure. At the same time, the device will automatically restart.

The main parameters configured here are: baud rate, data bits, and parity bits in the serial port Settings. IP address, subnet mask and gateway in network Settings; Sometimes, depending on the computer software, it is also necessary to configure the working mode of the serial port server.

The detailed meanings of other parameters are as follows:

Table 2. Parameter Meanings

Parameter name	value range	Contents
virtual serial port	none, created virtual serial port	You can bind the current device to an existing virtual serial port. Add a COM port in Serial Port Management on the home screen.

Device model		Only the model of the core module is displayed
Device name	random	You can give the device an easy-to-read name, up to 9 bytes, support Chinese names.
Device ID		factory unique ID, cannot be modified.
Firmware version		Firmware version of the core module
Functions supported by the device		See Table 3 for features supported by the device
IP mode	static、DHCP	Users can choose between static or DHCP (dynamic IP acquisition)
IP address		IP address of the serial port server
Interface	0～65535	Listening port of the serial port Server in TCP Server or UDP mode. If you use port 0 as the client, you are advised to set port 0 to improve the connection speed. If port 0 is used, the system randomly assigns a local port. The difference between this and non-zero port is: (1) When the local port is 0, a new TCP connection is established with the PC when the module restarts, and the old TCP connection may not be closed, and the device may have multiple fake connections. Generally, the host computer wants to close the old connection when the module restarts; Specifying a non-zero port closes the old connection. (2) If the local port is 0, the TCP connection takes a shorter time to re-establish. When the serial port server is in TCP client mode, it also acts as the TCP server to listen for incoming connections on the port. In this case, the local port number used by the TCP client to connect to the server is Port +1000.

Working mode	TCP server mode, TCP client mode, UDP mode, UDP multicast mode	When set to TCP server, the serial server waits for the computer to connect. If TCP client is configured, the serial port server initiates a connection to the network server specified by the destination IP address.
Subnet mask	For eg.：255.255.255.0	The subnet mask must be the same as that of the local LAN.
Gateway	For eg.：192.168.1.1	It must be the same as the local LAN gateway
Destination IP address or domain name		In TCP client or UDP mode, data is sent to the computer indicated by the destination IP or domain name.
Destination port		In TCP client or UDP mode, data is sent to the destination port of the destination IP address.
Baud rate	300、600、1200、2400、4800、7200、9600、14400、19200、28800、38400、57600、76800、115200、230400、460800、921.6K	Serial port baud rate
Digit bits	5、6、7、8、9	
Check bits	None, Even, Odd, tag, space	
Stop bits	1、2	
Flow control	No flow control, hard flow control CTS/RTS, hard flow control DTR/DCR, soft flow control XON/XOFF	Only available for RS232 serial port
DNS server		If the destination IP address is described by a domain name, enter the IP address of the DNS server. If the IP address mode is DHCP, you do not need to specify

		the DNS server. The DNS server automatically obtains the IP address from the DHCP server.
Destination mode	Static , dynamic	TCP client mode: In static destination mode, the device automatically restarts after five consecutive failed attempts to connect to the server.
Transfer protocol	NONE 、 Modbus TCP<->RTU 、 Real_COM、TELNET	NONE indicates that data is transmitted transparently from the serial port to the network. Modbus TCP<->RTU will convert Modbus TCP protocol directly into RTU protocol, which is convenient to cooperate with Modbus TCP protocol; RealCOM is designed to be compatible with the older version of the REAL_COM protocol. It is a virtual serial port protocol. However, it is not necessary to select the RealCom protocol when using the virtual serial port. The TELNET protocol allows the network to log in to our device through TELNET to communicate with the serial port
Keepalive timing time	0～255	Heartbeat interval. (1) If the value ranges from 1 to 255 and the device is in TCP client working mode, the device automatically sends TCP heartbeat packets at Keepalive intervals. This ensures the TCP validity of the link. If the value is set to 0, there is no TCP heartbeat. (2) If the value is set to 0 to 254, and the conversion protocol is REAL_COM, the device will send data with length 1 and content 0 at keepalive intervals to implement the heartbeat mechanism in the Realcom protocol. If the value is set to 255, there is no realcom heartbeat. (3) When the value is set to 0 to 254, if the device works on the TCP client, the device will send device parameters to the destination computer at keepalive intervals. If the

		value is set to 255, no parameter is sent, enabling remote device management.
Disconnected reconnection time	0～255	In TCP client mode, when the connection fails, the TCP connection is re-initiated to the computer at disconnection Reconnection time intervals. The value ranges from 0 to 254 seconds. If the value is set to 255, the reconnection is never performed. Note that the first TCP connection (such as hardware power-on, device restart through zlvircom software, and no data light) is generally carried out immediately, and only after the first connection fails will it wait for the "disconnection reconnection time" to try again, so the "disconnection reconnection time" will not affect the normal connection establishment time between the network and the server.
Web access port	1～65535	Default is 80
Multicast address		Under UDP multicast
Enable registration package		When a TCP connection is established, the registration packet is sent to the computer. The realcom protocol must be selected after the registration package is enabled. TCP server and TCP client modes are supported。
Digit packet length	1~1400	One of the serial port framing rules. Serial port server After receiving data of this length, the serial port sends the received data to the network as one frame.
Packet interval	0～255	Serial frame rule 2. When the data received by the serial port server stops for a period longer than the

		specified period, the received data is sent to the network as a frame。

6.2.2 Usage method

First, power on the device and connect it to the network with an Ethernet cable. If the Modbus TCP method is adopted, please select the conversion protocol to Modbus TCP; otherwise, select "None". The network module of ZLAN6408I-AI-AO operates in TCP server mode, with port 502. The user software can control the device by connecting to this IP and port 502.

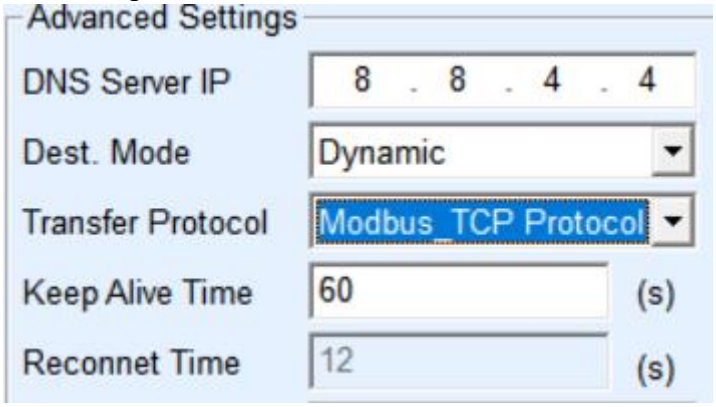

Figure 14 Enables the MODBUS TCP function

Appendix 1: General Parameter Table

The content of this chapter mainly involves the technical details of parameter setting and reading. It also helps users configure and modify parameters with their own software. For ordinary applications, you can skip this section.

The parameters related to reading and setting are listed separately from the register master table as follows.

Table 3. Parameter-related Reading Operations

Function code	Function	Address range
04	Read AI	0~3
03	Read the basic parameters	63~67

03	Read the extended parameter	68~162
06	Set parameters	63~67
06	Set the extended parameters	68~162
06	Set AO	768~771
16	Set basic parameters	63~67
16	Set the extended parameters	68~162

It can be seen from the table that the parameters are read using the 03 function code and set using the 06 and 16 instructions. The parameters are divided into two parts: basic parameters and extended parameters, corresponding to registers 63 to 67 and 68 to 162 respectively.

Table 4. Basic Parameter Register 2

Register address	Parameter name	Length (bytes)	Instructions
63(0x3F)	addr/Device address	1	The high byte of the register value
63(0x3F)	upLoad/The DI active reporting function is enabled	1	The low byte of the register value, 1 indicates that it is enabled, and 2 to 255 indicates that it is sent periodically.
64(0x40)	dst_addr/DI report address	1	The high byte of the register value
64(0x40)	baud/Device baud rate	1	The low byte of the register value sets only the baud rate of the 485-IO RS485 interface. 1200 0; 2400 1; 4800 2

			9600 3； 19200 4； 38400 5； 57600 6； 115200 7
65(0x41)	ver/Firmware version	1	High byte of the register value, read only
65(0x41)	Compound parameter setting	1	The low byte of the register value. Bit1:32-bit DI count save, 1 indicates save Bit2: DI logical inversion. 1 indicates inversion Bit3: DI delay function. After DI changes to 1, it keeps the value of 1 for 2 seconds after DI input changes to 0, that is, it can still read DI as 1 within 2 seconds.
66(0x42)	A1UpLoadH/AI Description The report period is high in bytes	1	The high byte of the register value
66(0x42)	A1UpLoadL/ AIDescription The reporting period is low bytes	1	The low byte of the register value
67(0x43)	A2UpLoadH/AI Description The report period is high in bytes	1	The register value must be the same as the value of A1UpLoadH
67(0x43)	A2UpLoadL/ AIDescription The	1	The low byte of the register value must be the same as the value of

	reporting period is low bytes		A1UpLoadL

Table 5. Extended Parameter Registers

Register address	Parameter name	Length (bytes)	Explanation (DO invalid)
68(0x44)	dostate/ DO configuration after power-on	1	The high byte of the register value, 0xF0, indicates the last 4 channels of pull-in
68(0x44)	checkb/ Check bit	1	The low byte of the register value. 0: No verification 1: Odd parity 2: Even check 3: Marking 4: Space
69(0x45)	baud_UART_0_2/ network communication and the baud rate of 485-4G	1	The high byte of the register value is currently read-only and is adaptive through the network module without the need for setting.
69(0x45)	datab/ Data bit	1	The low byte of the register value. It will be left for subsequent expansion.
70(0x46)	stopb/ Stop position	1	The high byte of the register value is reserved for subsequent expansion
70(0x46)	TCP_LINK_FLAG/ reserved	1	The low byte of the register value. It will be left for subsequent expansion.
71(0x47)	FirmwareType/	1	The high byte of the register

	Device type		value. 0：6002/6042 1：6808-1(6408-1) 3：6808-2，6808-3，6808-8，6808-7，6808(6408-8) 4：6802/6842 9：6808-9
71(0x47)	DO hold time	1	The low byte of the register value. The duration for which the DO state is maintained.
72(0x48)	DI controls its own DO	1	The first bit of the high byte of the register value (bit 0). 1: Start 0: Closed (Invalid)
72(0x48)	After power-on, maintain the DO state before the last power outage	1	The second bit of the high byte of the register value (bit 1). 1: Open; 0: Close
72(0x48)	The AI's active reporting has been changed to reporting high-precision values	1	The third bit (bit 2) of the high byte of the register value. 1: Open; 0: Close
72(0x48)	There is no return instruction when writing "DO"	1	The fourth bit (bit 3) of the high byte of the register value. 1: Open; 0: Close
72(0x48)	reserver/ Reserved	1	The low byte of the register value. It will be left for subsequent expansion.
73(0x49)	reserver/ Reserved	2	It will be left for subsequent expansion.

74~89 (0x4a~0x59)	V1 to V8 are the adjustment coefficients for each path of the AI	32	For big-endian format data, please refer to the "AI High-Precision Usage Chapter" for specific details.
90（0x5a）	AI calibration status	2	1 indicates that it is in the AI calibration state
91~98 (0x5b~6a)	32-bit count	32	There are a total of 8 registers, 4 DI registers, and 2 registers for each.
107（0x6b）	Single/multi-channel DO hold	2	Set whether DO1-DO8 single-lane/multi-lane is maintained
108~130 (0x6c~82)	Reserved	46	There are 23 registers in total
131~162 (0x83~a2)	The DI combination controls the DO logic	32	There are a total of 16 registers

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