IVCS-EPM Ethernet adapter

1. Products

IVCS-EPM communication adapter is a converting transmission device which is from Ethernet TCP/IP protocol to RS232/485 serial port, from serial communication to network communication to make the serial devices network. The user can connect original serial device to the network directly but no need to master complex TCP/IP protocol and change the program. Simple and flexible configuration and high reliability really meet the requirement of remote Ethernet control.

1.1. Specifications

Ethernet Specifications

Type	Specification
Interface Type	RJ-45
Transmission mode	IEEE 802.3
Transmission speed	10 Mbps
Isolation protection	1.5KV isolation
Communication protocol	ICMP, ARP, IP, TCP, UDP, DHCP, MODBUS TCP, Remote programming port protocol

Serial communication specifications

Type	Specification
Interface Type	DB9
Transmission mode	RS232/RS485(can not be used at the same time)
Transmission speed	1200，2400，4800，9600，19200，38400，57600，115200
Communication protocol	MODBUS TCP, Remote programming port protocol

Indicators:

Type	Instruction
POWER	Power indicator, keep on after power on
LINK	Ethernet connection indicator, keep on after connection
DATA	Ethernet data indicator, blink after receive and send data

1.2 Functions

EPM module can provide the switching function between Ethernet and serial communication. In Ethernet connection, TCP mode is available, the IP address can be set by the user and the terminal is 502. Currently it supports two protocols: modbus tcp and remote programming interface protocol, the factory default is modbus tcp protocol.

1）Modbus tcp is an open standard protocol. Any device following the protocol can be connected to the EPM module. But currently, EPM only supports slave mode.

2）Remote programming port protocol can only be applied through Auto Station software. The program can be upload/download and PLC operation can be controlled through the programming software.

1.3 Installation mode

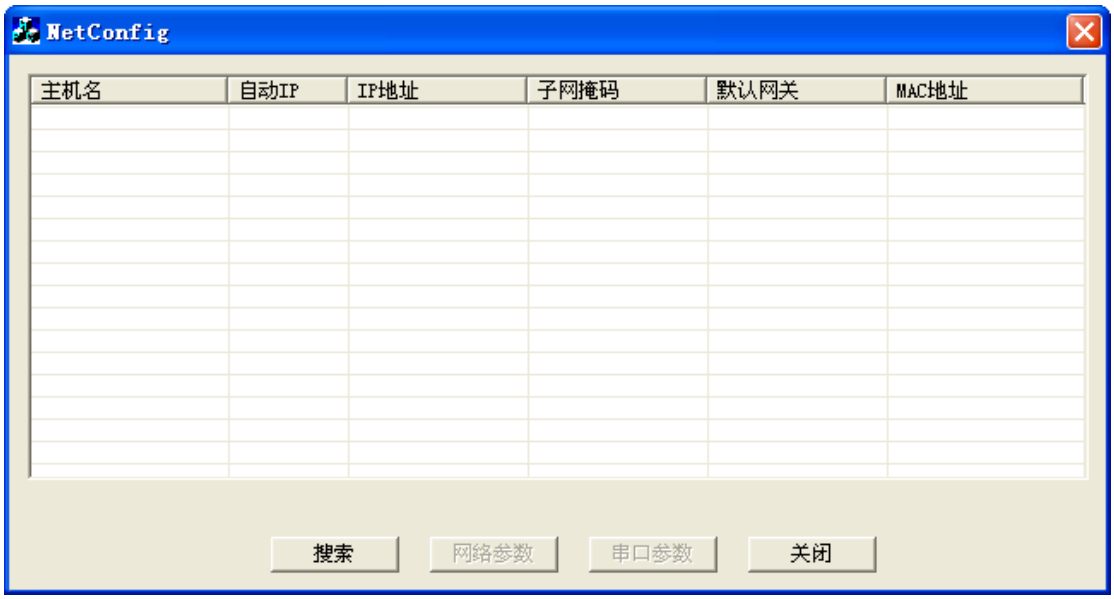
IVCS-EPM series product configures parameters by applying application NetConfig of WINDOWS, so the user needs to provide a goof net environment. If various serial devices need to be connected, network switch or HUB is also needed.

1. The user can ignore this step if NIC and network environment are well-configured. If not, it is necessary to install NIC and configure the IP address and subnet mask. If the client computer is not networked with other computers, any IP address is available, i.e. 192.168.X.Y (Note: in the same LAN network, X is the same, Y is arbitrary, but can not be repeated), but the subnet mask is 255.255.255.0. Always follow the system administrator if the computer is in LAN network;
2. After configuring the network, the client NIC interface and RJ45 interface of the serial port on the server can be connected via crossover cable or both connected to the network switch or HUB through straight cables;
3. Connect the serial port or 485 port of the server to the serial port or 485 port of the client device;
4. IVCS-EPM will begin to work after power on and the indicator PWR is on; the indicator LINK is on if the network physical connection is right. After that, the serial sever and LAN network are connected well, when data is received or sent in the network, the indicator DATA is on.

2 Applications

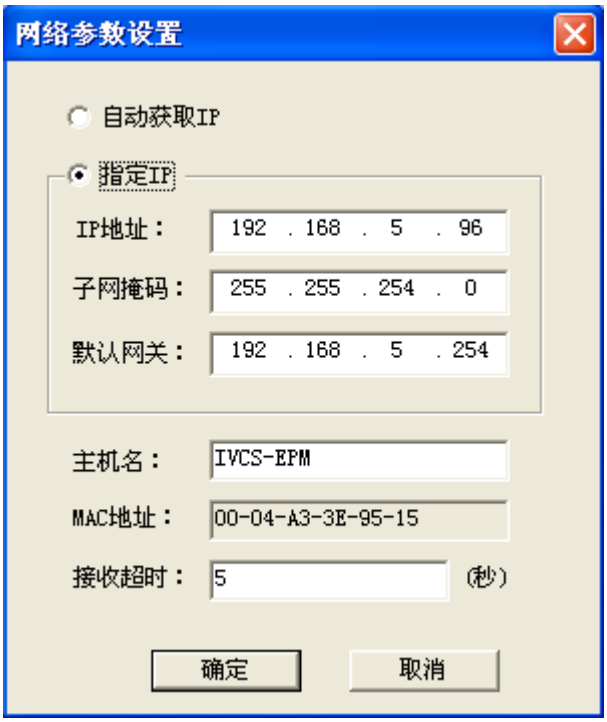
2．1 IVCS-EPM configuration:

Set corresponding content before using IVCS-EPM, for example, set the software as NetConfig, below is the operation interface:



1） Start NetConfig and click “search”. The software will search the connected EPM module by UDP broadcast, and the searched modules will be listed automatically.

2） Select the module which is to be set and click the net parameters to set the relative parameters of Ethernet.

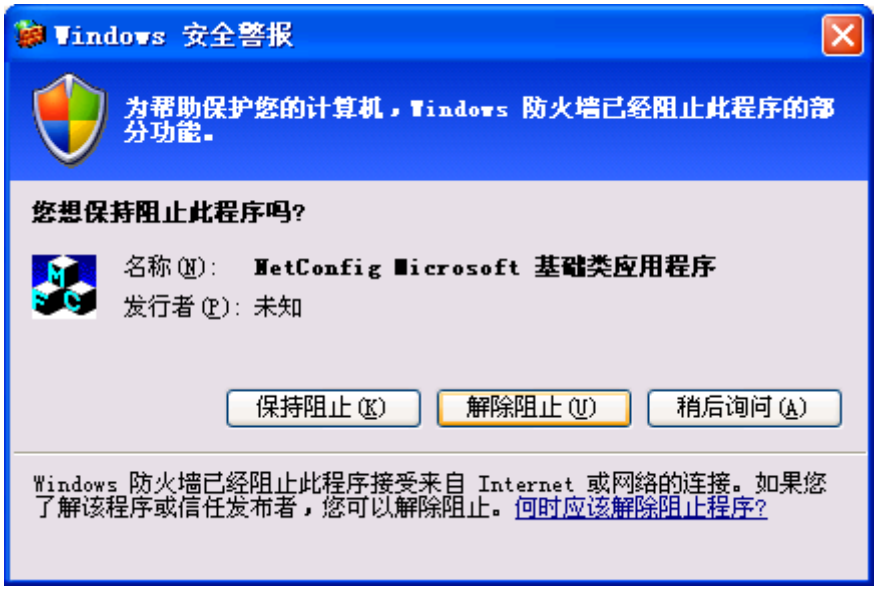


3） Select the module which is to be set and click the parameters of serial port to set the relative parameters of serial port.

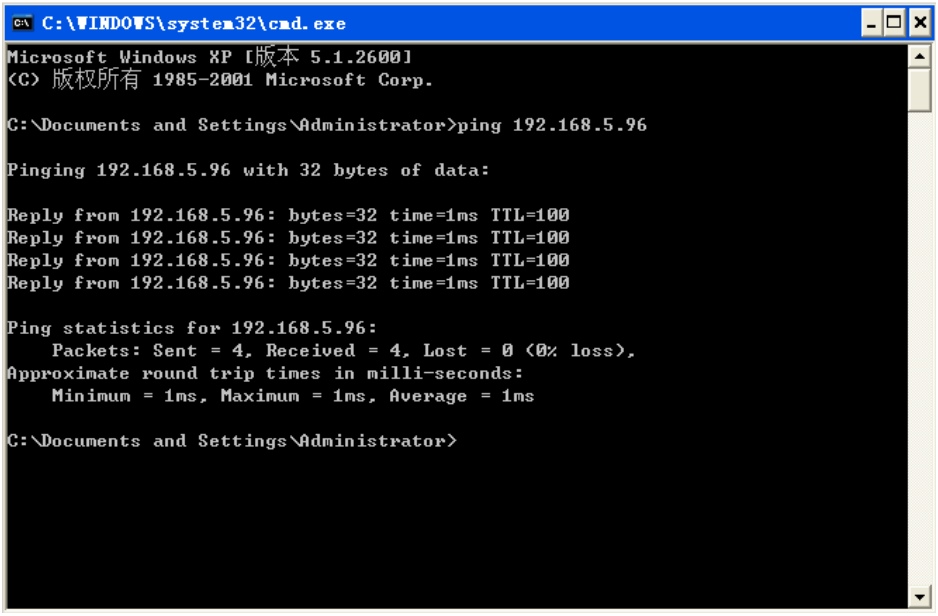
Note: the selected protocol will determine the serial transmission mode. For example, if MODBUS TCP protocol is set, the transmission mode is 485, while if programming port protocol is set, the transmission mode is 232 and all parameters except the baud rate is fixed.

Note:

1. Because NetConfig needs network communication, following prompt window may pop up if the computer turns on system firewall, please click "Unblock".



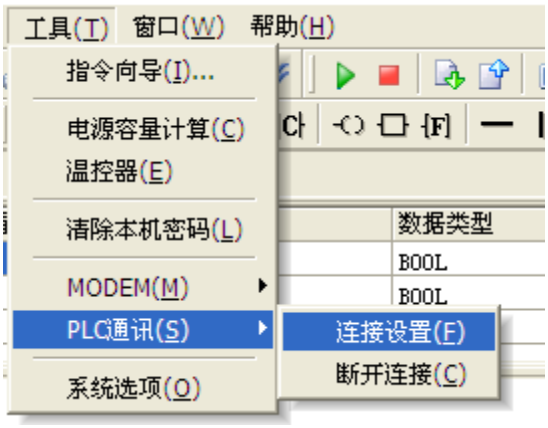
2. The reachability can be tested through PING test in DOS window after setting, as the figure below:



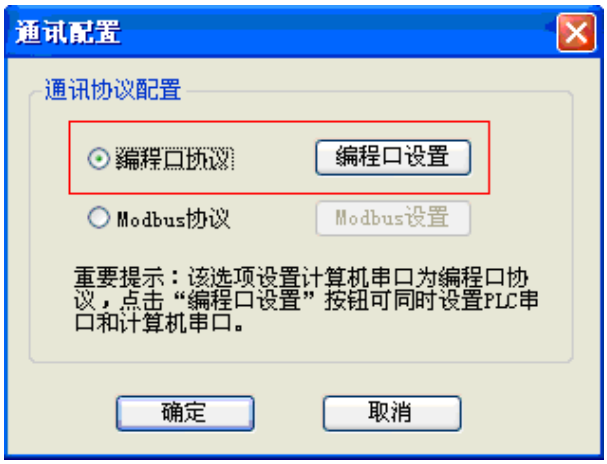
3. Setting of the upper PC

3.1. Programming software AutoStation connects IVC series PLC through IVCS-EPM

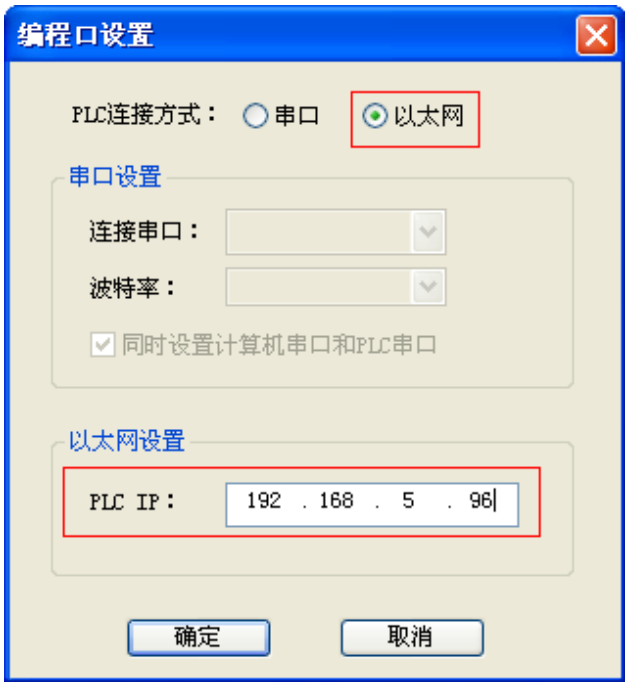
1) Click the “connection setting” in “PLC communication”



2) Click to select the programming port setting



3) Select the Ethernet communication and set the PLC IP address

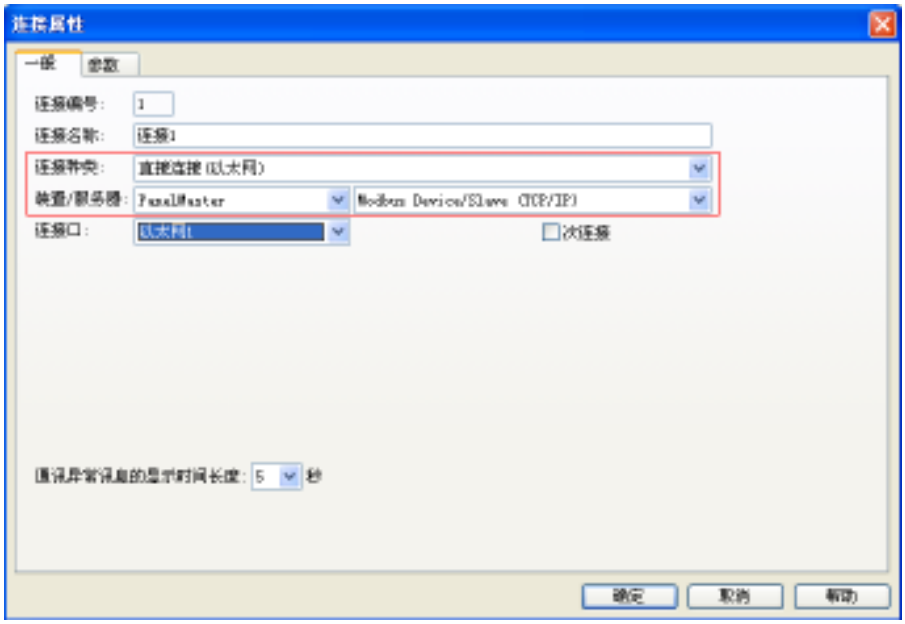


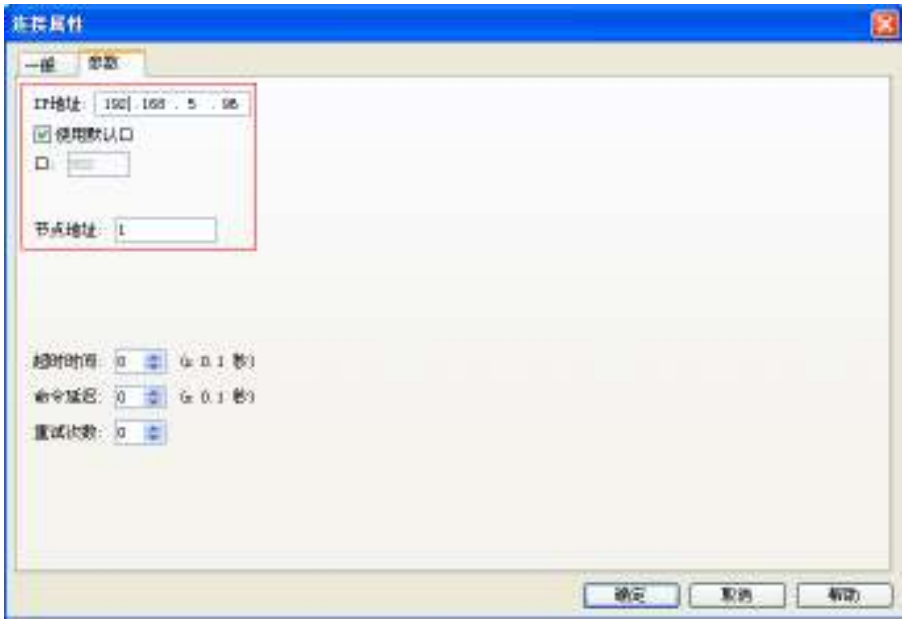
Note: IP address needs to be same as the setting address of the EPM adapter.

3.2. Upper PC connects IVC series PLC through IVCS-EPM (take VT series touch screen as the example)

Open the “connection 1” in “Project Administrator”

Select “direct connect (Ethernet)” and “PanelMaster”“Modbus Device (TCP/IP)”





Appendix 1

Factory setting of EPM:

Network parameters

IP addresses	192.168.1.10
Subnet mask	255.255.255.0
Default gateway	192.168.1.1
Receive timeout	5 seconds

Serial port parameters

Protocol type	MODBUS TCP (Slave)
Baud rate	19200
Data bits	8
Parity bit	Even parity

Stop bits	1
The timeout	1000(ms)

Appendix 2

Pin definitions of serial port

Pin	Instruction
1	485+
2	RXD
3	TXD
5	GND
6	485-