

# Communication Protocol

Config process: To simplify configuration for cross network sections, all operation of protocol should be adopted in UDP broadcast mode, all arrangement should be Low-order in Front

Port:1901, all protocol is UDP broadcast

## 1. Send Command

Function	Head	Length (Command~Parameter)	Command	MAC (6 byte)	User/Password (12 bytes)	Parameter	Check Bit (sum)
Search	FF	01	01				02
Reset	FF	xx	02	[MAC]	[username] [password]		xx
Read	FF	xx	03	[MAC]	[username] [password]		xx
Store	FF	xx	04	[MAC]	[username] [password]		xx
Basic Setting	FF	xx	05	[MAC]	[username] [password]	Basic PAR	xx
COM 0 setting	FF	xx	06	[MAC]	[username] [password]	Serial PAR	xx
COM 1 setting	FF	xx	07	[MAC]	[username] [password]	Serial PAR	xx
COM 2 setting	FF	xx	08	[MAC]	[username] [password]	Serial PAR	xx
Expand setting							
Read temporary config	FF	xx	0A	[MAC]	[username] [password]		xx

## Parameter construction of Basic setting: 67 bytes

Name	Byte	Example	Instruction
ucSequenceNum	1		
ucCRC	1		
ucVersion	1		
ucFlags	1	80	IP address type: The eighth is 0: DHCP; 1: Statics IP
usLocationURLPort	2	20 19	UPNP port
usHTTPServerPort	2	50 00	HTTP service port
ucUserFlag	1		
ulStaticIP	4	38 00 A8 C0	Statics IP
ulGatewayIP	4	01 00 A8 C0	Gateway
ulSubnetMask	4	00 FF FF FF	Subnet mask
ucModName	16	55 53 52 2D 54 43 50 32 33 32 2D 45 00 00 00 00	Module name
username	6	61 64 6D 69 6E 00	Username
password	6	61 64 6D 69 6E 00	Password
ucNetSendTime	1		
uiId	2	01 00	Device ID
ucIdType	1		Device ID (0~3) 0:no use 1:send id when connect 2:send id when send data 3:both
ucUserMAC	6	FF FF FF FF FF FF	MAC address
ucReserved	8		

## Parameter construction of COM setting: 63 bytes

Name	Byte	Example	Instruction
ulBaudRate	4	00 C2 01 00	Baud rate
ucDataSize	1	08	Data bit:(0x05/0x06/0x07/0x08)
ucParity	1	01	Check bit: 1: no, 2: odd, 3: even, 4: mark, 5: space
ucStopBits	1	01	Stop bit (0x01/0x02)
ucFlowControl	1	01	Flow control ( 0x01: no, 0x03: HW)
ulTelnetTimeout	4	00 00 00 00	Network reconnection time
usTelnetLocalPort	2	17 00	Local port
usTelnetRemotePort	2	17 00	Remote port
uiTelnetURL	30	31 39 32 2E 31 36 38 2E 30 2E 31 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	IP address or domain name will be set in ASCII code Example: 192.168.0.1
ulTelnetIPAddr	4	00 00 00 00	Disuse
ucFlags	1	02	Work protocol The second is 0: Telnet; 1: Raw
ucWorkMode	1	03	Work mode: 0: UDP, 1: TCP Client, 2: UDP Server, 3: TCP Server, 4: HTTPD Client
uiPackLen	4	C8 00 00 00	Packet length
ucPackTime	1	0A	Packet time
ucTimeCount	1	91	
ucReserved	5		The first byte: High 4 bit: Connection number in TCP server Mode Low 4 bit: Connection type in TCP server Mode (1~3) 1: Transparent transmission 2: Press ID to send (No ID packet discard) 3: Press ID to send (No ID packet is sent to all client) The remaining bytes reserved expansion

## 2. Return command

### Search returns

Byte	name	Example	Instruction
0	TAG_STATUS	FF	
1	Packet_length	24	
2	CMD_DISCOVER_TARGET	01	
3	Board_type	00	
4	Board_ID	00	
5~8	Client_IP_address	C0 A8 00 07	Device IP (High bit in front)
9~14	MAC_address	AC CF 23 20 FE 3D	Device MAC (High bit in front)
15~18	Firemwre_version	D0 07 12 34	D0 07: Device version number (low bit in front) 12 34: Encrypted version ;The others is non encrypted version;Encrypted program upgrade directly in encryption version;Non encrypted version need to decrypt the encrypted program,then send
19~34	Application_title	55 53 52 2D 54 43 50 32 33 32 2D 35 30 30 00 00	Device name
35	checksum	F0	

### Read configuration returns

No protocol, return parameters directly

Judge the length: As 193,(basic par+serial port Par+serial port Par) -400 series

As 256, (basic par+serial port Par+serial port Par+serial port Par) -500 series

Read mode:Refer to the "basic parameters" and "serial port parameter" table

### Others returns

Check and error: return 'E'+ as correct checksum

Correct operation:FF 01 CMD 'K'

False username/password return:FF 01 CMD 'P'

The other error return:FF 01 CMD 'E'

### Search:

Send(4 bytes): ff010102

Respond(36 bytes): FF 24 01 00 00 C0 A8 00 64 00 11 22 33 44 57 48 20 00 00 55 53 52 2D  
4E 45 54 2D 44 32 00 00 00 00 00 00 F6

The return parameter

### Reset

FF 0D 02 61 64 6D 69 6E 00 61 64 6D 69 6E 00 20

Respond(4 types): FF 01 02 4B If the password is correct, 4B = 'K'

FF 01 02 45 If username/password is error,45 = 'E'