

Serial to WLAN Converter

CSW-H80 User Manual

Version 3.1



Sollae Systems Co., Ltd.

<http://www.ezTCP.com>



This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product.

※ This equipment obtained certification by using 1.5M serial cable.

※ L'antenne de ce boîtier devra être placée à une distance minimale de 2 m de toute personne et animal.

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1 Overview

1.1 Overview

Almost all communication devices including a PC are using serial communication. Devices transmit and receive data in bit order in the serial communication which is quite simple to implement but has weaknesses such as short distance and hard maintenance.

CSW-H80 is a converter that enables serial devices to support TCP/IP communication through wireless LAN. CSW-H80 carries out the converting process to help users get to the network using TCP/IP protocol.

1.2 Features

- Connect serial devices to IEEE 802.11b/g wireless LAN
- RS232 Interface
- SMA Male connector for an external antenna
- Stable embedded TCP/IP stack
- Easy configuration program (ezManager)Application Examples

1.3 Application Examples

- 1:1 network with a PC

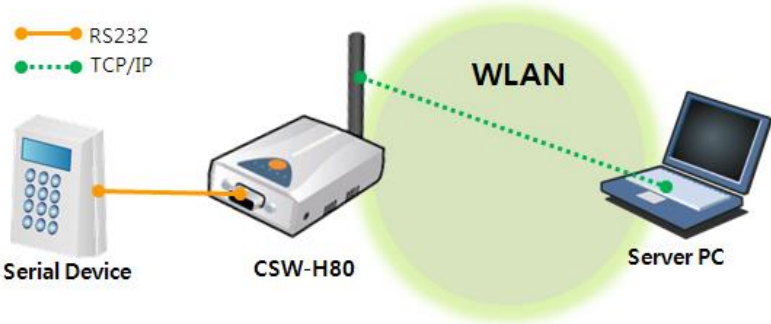


Figure 1-1 1:1 network with a PC

- 1:1 network with a PC through an AP

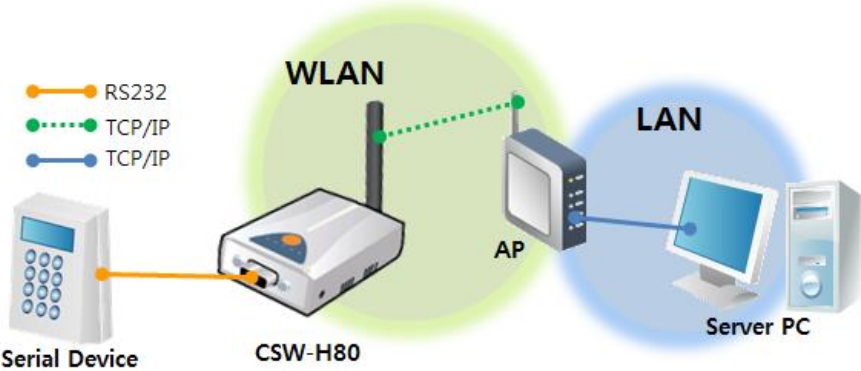


Figure 1-2 1:1 network with a PC through an AP

- Internet connection with a xDSL/cable modem

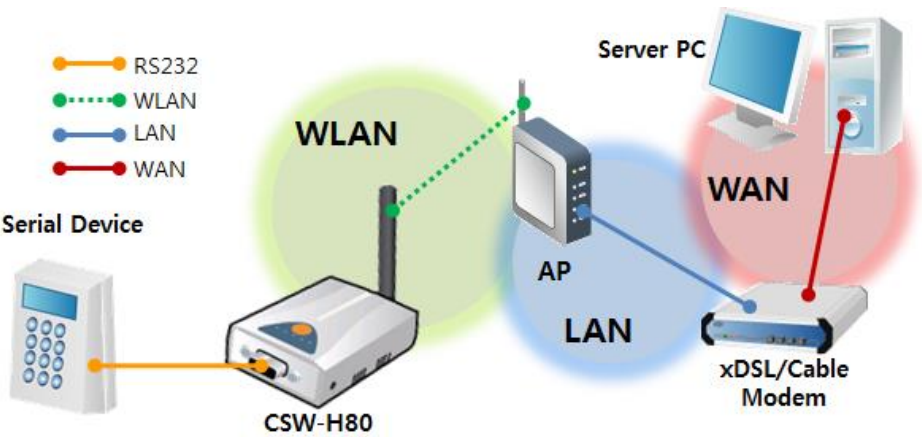


Figure 1-3 INTERNET connection with a xDSL/cable modem

1.4 Components

- CSW-H80's body
- Omni-directional dipole antenna
- 5V power adapter (Optional)
- RS232 cable for PC connection (Optional)
- Bracket (Optional)
- Mounter (Optional)
- Patch antenna (Optional)
- DVD including utilities and documents (Optional)

☞ ***Components and options could be different by each local retail store in the world.***

1.5 Specification

1.5.1 Hardware

| | | |
|---------------|---|---|
| Power | Input Voltage | DC 5V (±10%) |
| | Current | 300mA typical |
| Dimension | 93mm x 57mm x 24mm (without the antenna) | |
| Weight | About 66g (without the antenna) | |
| Serial Port | Serial | RS232 – RTS/CTS Flow Control (Baud Rate: 300bps ~ 230,400bps) |
| | WLAN | 2dBi external antenna (IEEE 802.11b/g) with SMA Male interface |
| Temperature | Operating: 0 ~ 55°C / Storage: -40 ~ 85°C | |
| Certification | MIC | |
| RoHS | RoHS Compliant | |

Table 1-1 hardware specification

1.5.2 Software

| | | |
|--------------------|---|--|
| Protocol | TCP, UDP, IP, ICMP, ARP, DHCP, DNS lookup, DDNS, Telnet COM Port Control Option(RFC2217), WEP, WPA PSK(TKIP), WPA2 PSK(AES) | |
| Diagnose | Online Debugging Function | |
| Operation mode | Normal | For Normal Data Communication |
| | ISP | For Upgrading F/W |
| | Serial Configuration | For Configuration via Serial |
| Communication mode | TCP Server | TCP Passive Connection |
| | TCP Client | TCP Active Connection |
| | AT Command | TCP Passive / Active Connection |
| | UDP | UDP – No Connection |
| Major Utilities | ezManager | Configuration Utility for MS Windows (Supports Downloading F/W) |
| | ezVSP | Serial to TCP/IP Virtual driver for MS Windows |

Table 1-2 software specification

1.6 Interface

1.6.1 Layout

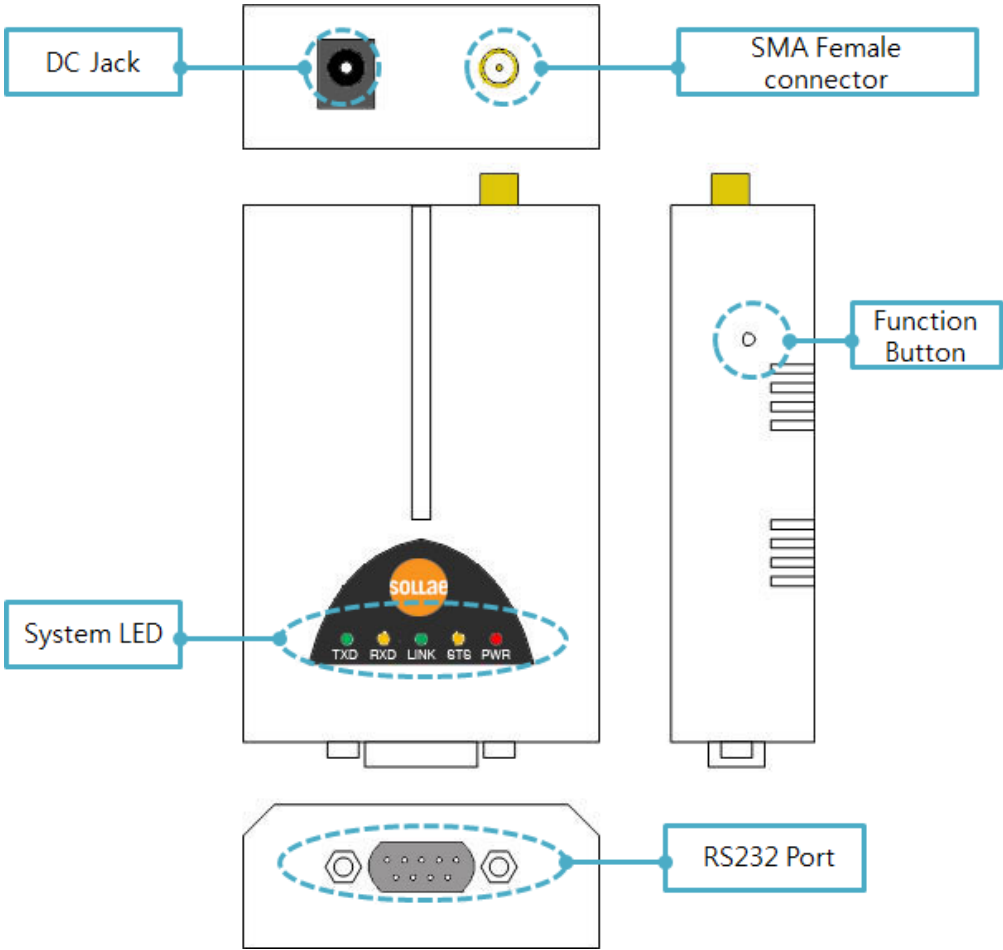


Figure 1-4 layout

1.6.2 Wireless LAN Interface

CSW-H80 embeds wireless LAN module. An SMA Male jack is interfaced for an external antenna.

1.6.3 Serial Interface

There is an RS232 port. The port is interfaced with a 9 pin D-sub male connector.

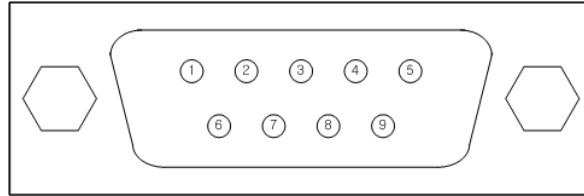


Figure 1-5 D-sub 9 pin male connector

- Pin Assignment

| Number | Name | Description | level | Dir. | Etc. |
|--------|------|--|--------|------|-----------|
| 1 | DCD | Data Carrier Detect | RS232 | IN | N/C |
| 2 | RXD | Receive Data | RS232 | IN | mandatory |
| 3 | TXD | Transmit Data | RS232 | OUT | mandatory |
| 4 | DTR | Data Terminal Ready (always output active signal) | RS232 | OUT | optional |
| 5 | GND | Ground | Ground | - | mandatory |
| 6 | DSR | Data Set Ready | RS232 | IN | N/C |
| 7 | RTS | Request To Send | RS232 | OUT | optional |
| 8 | CTS | Clear To Send | RS232 | IN | optional |
| 9 | RI | Ring Indicator | RS232 | IN | N/C |

Table 1-3 pin assignment

☞ **N/C: Not Connected**

- Port features

| Items | Values |
|--------------------|----------------------------------|
| the number of port | 1 |
| type | RS232 |
| baud rate | 300 ~ 230,400 [bps] |
| parity | NONE / EVEN / ODD / MARK / SPACE |
| data bit | 8 / 7 / 6 / 5 |
| stop bit | 1 / 1.5 / 2 |
| flow control | NONE / RTS/CTS |

Table 1-4 port features

1.6.4 Power

DC5V is used for CSW-H80 and the specification is below:

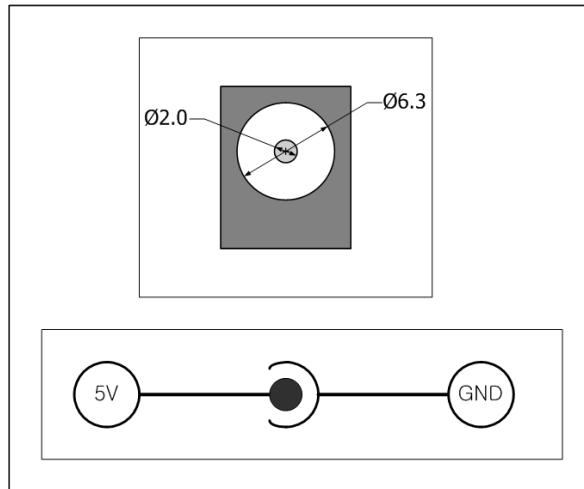


Figure 1-6 power connector

1.7 ETC.

1.7.1 LED indicators

There are 5 LED indicators on the top panel. Operations of the indicators are as follows:

| Mode | Name | Color | Status | Description |
|---------------------------|-------|--------|------------------------|---|
| Common | PWR | Red | On | Supplying the power |
| Normal mode | RXD | Yellow | Blinks | Receiving data from the WLAN |
| | TXD | Green | Blinks | Sending data to the WLAN |
| | STS | Yellow | Blinks in every second | Obtaining an IP address |
| | | | Blinks 4 times at once | Without obtaining an IP address under DHCP or PPPoE network |
| | | | On | Establishing TCP connection |
| LINK | Green | On | Connecting to the WLAN | |
| ISP mode | STS | Yellow | Off | Operating in ISP mode |
| Serial Configuration mode | STS | Yellow | Blinks simultaneously | Operating in Serial Configuration mode |
| | LINK | Green | | |
| | RXD | Yellow | | |
| | TXD | Green | | |

Table 1-5 led indicators

1.7.2 Function button

There is a function button on the side. With this button, you can change the operation mode of CSW-H80 to ISP or Serial Configuration mode. And the PC free options can be implemented by this button.



Figure 1-7 function button

2 Installation and Test

2.1 Fundamentals of wireless LAN

CSW-H80 supports IEEE802.11b/g. IEEE 802.11 is also called wireless LAN and has two network topologies and those are Infrastructure and Ad-hoc mode. CSW-H80 also supports WEP, WPA-PSK (TKIP) and WPA2-PSK (AES) for security.

2.1.1 Topology

- Infrastructure Mode

All wireless LAN stations communicate through an Access Point (AP). The wireless LAN station can be converted wired network by AP. It makes communication between wireless LAN stations as well as between wireless LAN station and wired LAN (Ethernet) host.

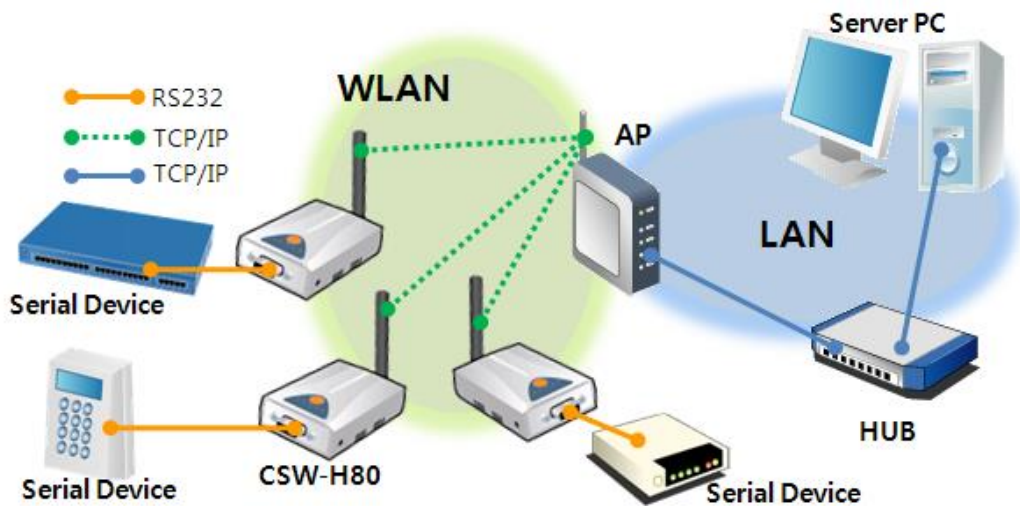


Figure 2-1 infrastructure mode

- Ad-hoc mode

This is an easy way to set up network since wireless LAN stations communicate each other without an AP in this mode. Therefore, you can easily make this network. It is suitable for a small scale network if wired LAN is not available. Usually, it is called peer-to-peer mode.

Caution: *Ad-hoc mode may not work with some devices or environments because of compatibility problem of wireless LAN chip.*

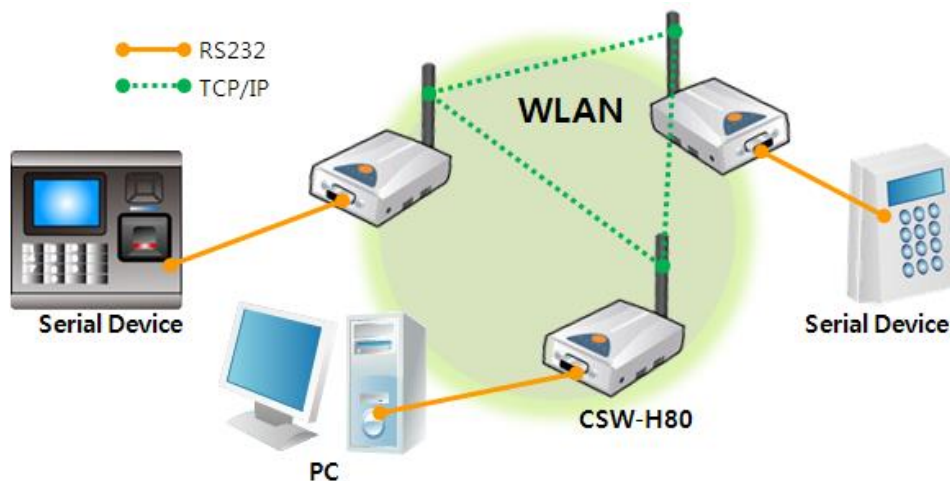


Figure 2-2 Ad-hoc mode

2.1.2 Key terms

- SSID(Service Set Identifier)

It is a name to identify wireless LAN. So every single station should have the same SSID to communicate in the network. In the case of infrastructure mode, you have to set the same SSID at an AP to CSW-H80. Otherwise, it will not communicate at all. The maximum length of this parameter is 31 bytes and the default is "sollae".

- Channel

Wireless LAN stations communicate through the ISM (Industrial, Scientific, and Medical) band which has the range of frequencies around 2.4GHz or 5GHz. IEEE 802.11 specification divides this band into 14 channels. If you install more than one wireless network in the same area, the channels should be set an interval of more than 4 channels to avoid interferences.

2.1.3 Authentication and Security

- Authentication

A wireless LAN station should get authentication from the AP in the infrastructure network. There are two methods for the authentication, Open system and the Shared key.

- WEP (Wired Equivalent Privacy)

The WEP is a security protocol for wireless LAN. You need to set 64 bit or 128 bit key. You can use both hexadecimal and ASCII code for this.

- WPA (Wi-Fi Protected Access)

WPA is a security standard for users of devices equipped with wireless connection. It is expected to replace the weakness of the original wireless security standard, Wired Equivalent Privacy (WEP). There are two modes about the user authentication in WPA security. One is Enterprise which has an authentication server and the other is PSK (Pre-Shared Key) which does not have any servers.

- WPA2

As final security of Wireless LAN, The Counter Mode with Cipher Block Changing Message Authentication Code Protocol (CCMP) was suggested for IEEE80211i (Wireless LAN standard) to replace the TKIP. CCMP uses Advanced Encryption Standard (AES) which is adopted by WPA2. WPA 2 has also both Enterprise and PSK mode.

☞ ***CSW-H80 supports WEP, WPA-PSK (TKIP) and WPA2-PSK (AES).***

2.2 Installation

The following instruction is written based on use of evaluation board for CSW-H80. Before testing CSW-H80, connect the serial port to your PC. And then, make wireless LAN link between the PC and CSW-H80 using an AP or wireless LAN adaptor.

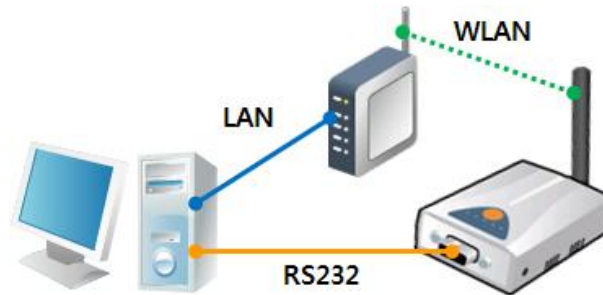


Figure 2-3 connection between CSW-H80 and a PC

2.2.1 Making Wireless LAN link

Wireless LAN link is not automatically established when you connect the AP or wireless LAN adapter to your PC. Wireless LAN parameters should be configured on CSW-H80. Follow the steps below if you are a beginner.

- Supplying the Power
Connect the 5V DC adapter to the CSW-H80.
- Pressing the Function Button
Press the function button shortly (less than 1 second).
- Reading the Setting
Click the [Read] button of [Serial] tab on the ezManager, after opening the connected COM port.

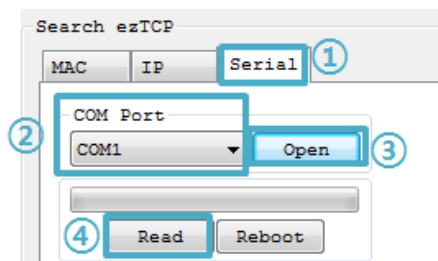
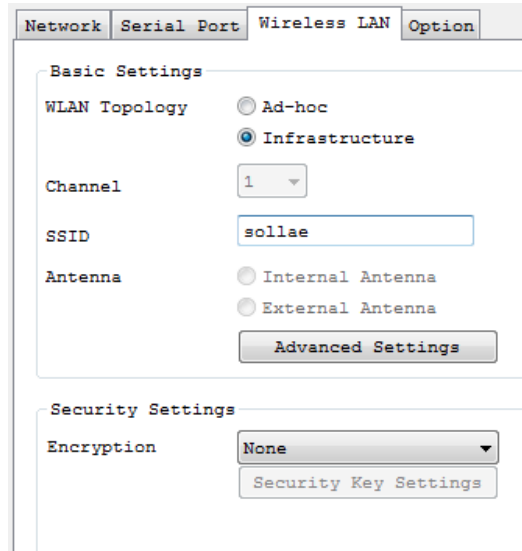


Figure 2-4 reading the setting

- Configuring Wireless LAN Parameters

On the [Wireless LAN] tab, set the same SSID and security options properly of the AP. Consult the manufacturer on how to set or figure the AP's value out if you have no idea about it.



The screenshot shows a web-based configuration interface for a wireless LAN. At the top, there are four tabs: 'Network', 'Serial Port', 'Wireless LAN', and 'Option'. The 'Wireless LAN' tab is selected. Below the tabs, there are two main sections: 'Basic Settings' and 'Security Settings'. In the 'Basic Settings' section, 'WLAN Topology' has two radio buttons: 'Ad-hoc' and 'Infrastructure', with 'Infrastructure' selected. The 'Channel' is set to '1' in a dropdown menu. The 'SSID' is 'sollae' in a text input field. The 'Antenna' section has two radio buttons: 'Internal Antenna' and 'External Antenna', both unselected. There is an 'Advanced Settings' button below this section. In the 'Security Settings' section, the 'Encryption' is set to 'None' in a dropdown menu. There is a 'Security Key Settings' button below this section.

Figure 2-5 configuring wireless LAN parameters

☞ ***If you want to make an Ad-hoc network, choose the [Ad-hoc] as the value of [WLAN Topology] and set a value of [SSID]. Then, search the wireless network on your PC and try to connect your PC to the network.***

2.2.2 Setting Network Aera

This step is for setting both CSW-H80 and your PC to be located the same network. If only they are, the TCP connection between them can be established.

- Setting of the PC

Add or change the IP address of the network adapter on your PC. Get into the property menu of your network adapter. Then, you can see the properties of [Internet Protocol (TCP/IP)]. In there, press the [Advanced..] button for adding an IP Address like the below figure.

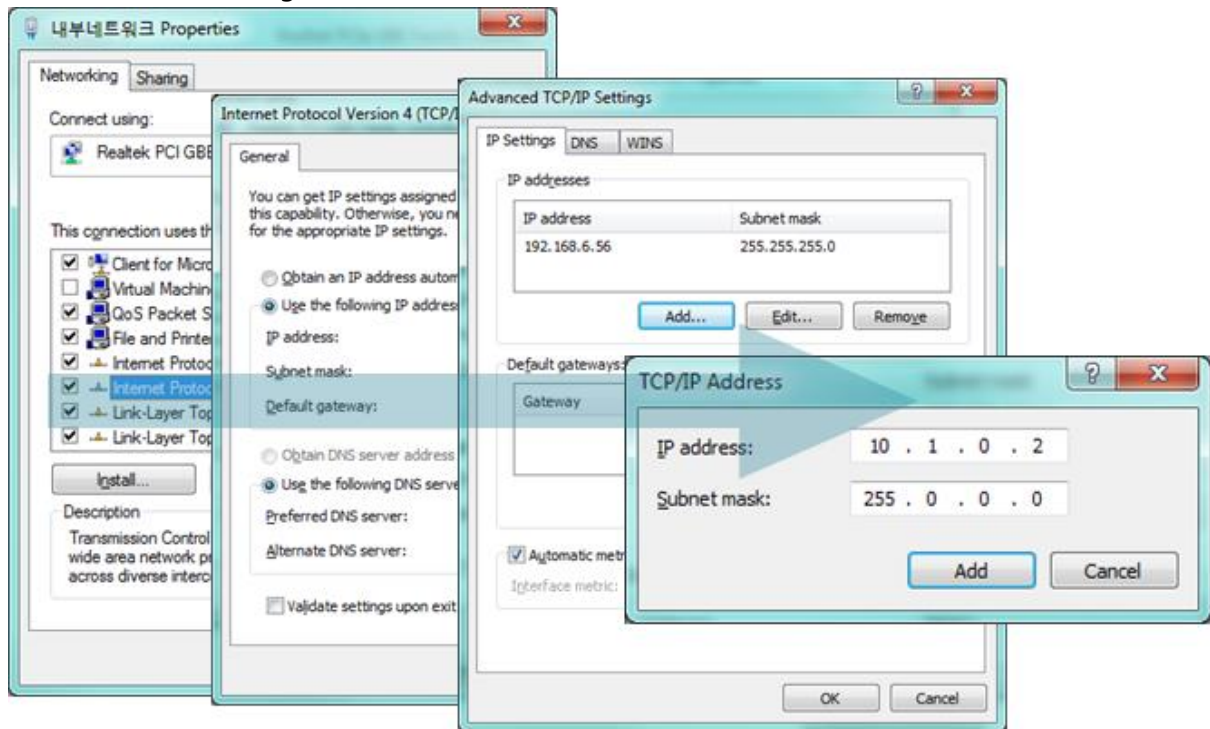


Figure 2-6 adding / changing the IP address of users' PC

- Setting of CSW-H80

CSW-H80 uses ezManager as configuration tool, which can be operated on MS Windows. This program is easy to use and doesn't need installation. For setting CSW-H80, search your CSW-H80 via serial port first. All the values of parameters are set to the factory default. To apply CSW-H80 to your system, set proper values. Default values of major parameters are listed on the table below. Keep these values without any changes for the simple test.

| Name | | Default Values |
|-----------------------|--------------------|----------------|
| Network | Local IP Address | 10.1.0.1 |
| | Subnet Mask | 255.0.0.0 |
| Serial Port (COM1) | Serial Type | RS232 |
| | Baud Rate | 19,200bps |
| | Parity | NONE |
| | Data Bits | 8 |
| | Stop Bit | 1 |
| | Flow Control | NONE |
| | Communication mode | TCP Server |
| | Local Port | 1470 |
| WLAN | Topology | Infrastructure |
| | SSID | sollae |
| | Security Settings | NONE |
| Option | TELNET | Enabled |
| | IP Address Search | Enabled |

Table 2-1 default values of Major parameters

☞ ***You can download ezManager on our website.***

☞ ***You can download ezManager application for a smart phone on our website.***

2.3 Simple Test

If you press the [Simple Test] button, test program will be shown on your screen.

- Connecting to the CSW-H80 via LAN

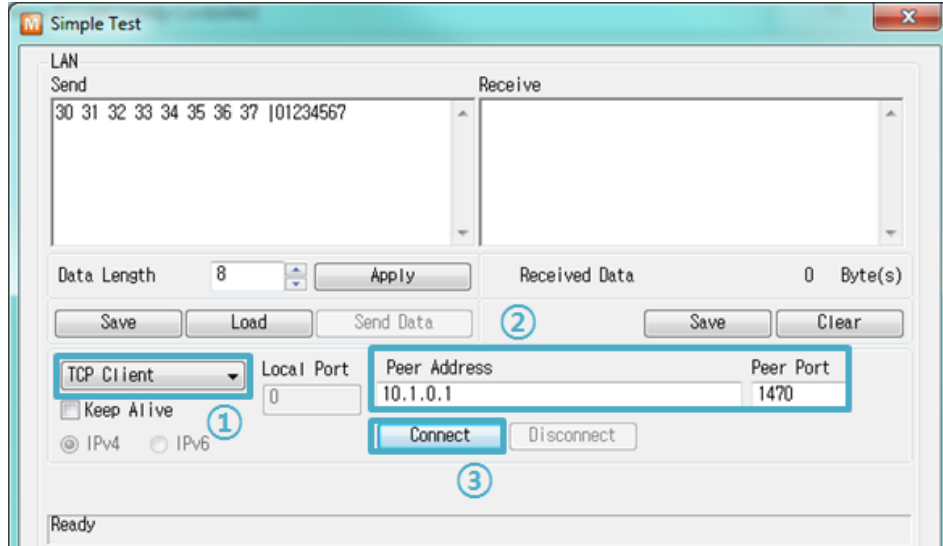


Figure 2-7 settings for TCP connection

- ① Select [TCP Client]
 - ② Input correct IP address and port number of CSW-H80
 - ③ Click the [Connect] button. (In case of TCP Server, it will be [Listen] button)
- Opening RS232 Port

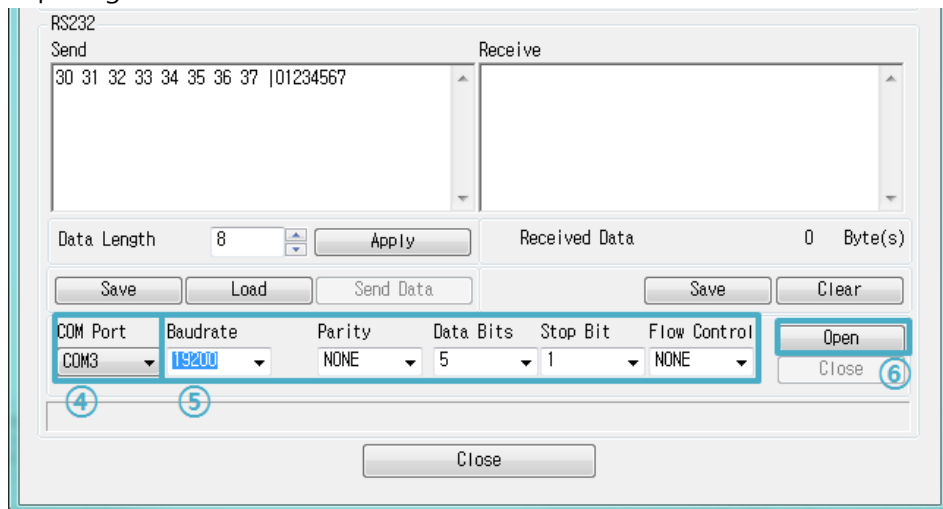


Figure 2-8 opening COM Port

- ④ Select COM port which the CSW-H80 is connected to
- ⑤ Make sure that all the parameters are the same with H80
- ⑥ Press the [Open] button

- Confirm the TCP Connection and COM port status

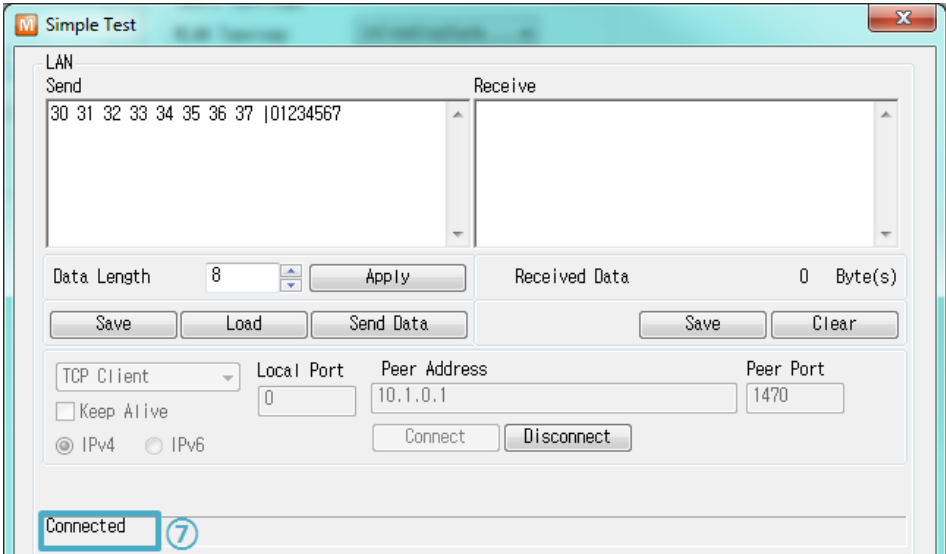


Figure 2-9 TCP Connected message

- ⑦ Check the message if the TCP connection is established

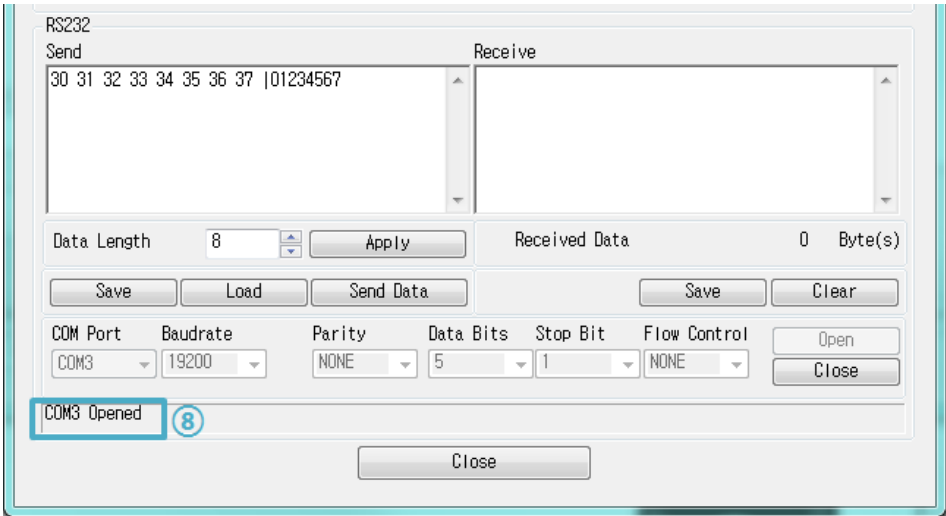


Figure 2-10 COM Port open message

- ⑧ Check the message if the COM port has been opened

• Data transmission test

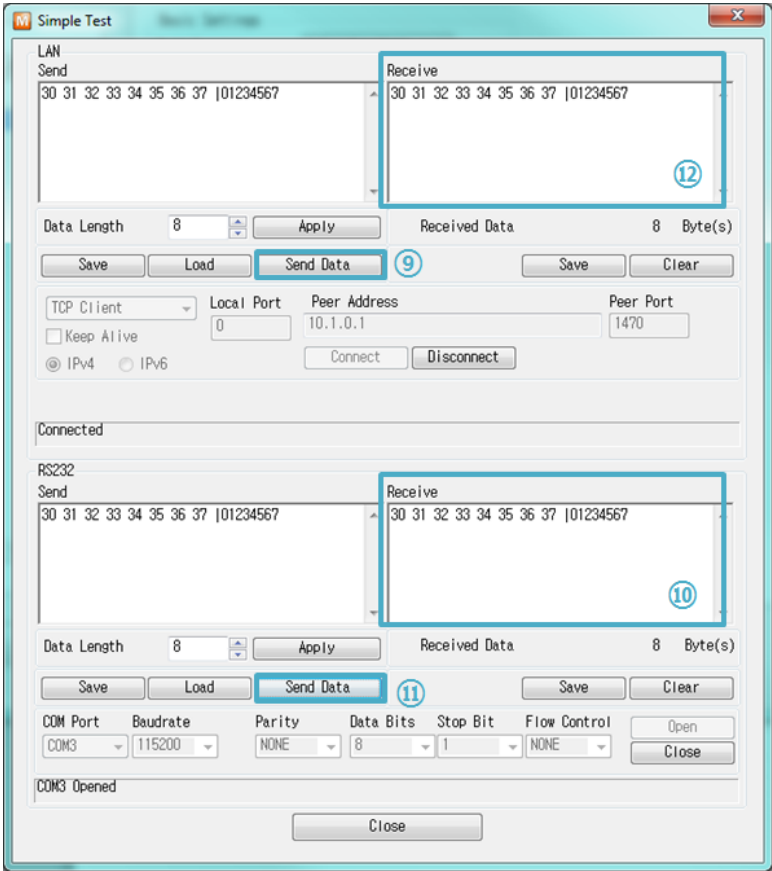


Figure 2-11 successful data transmission

- ⑨ Click the [Send data] on the LAN part
- ⑩ Check the data from the step ⑨ has been shown



Figure 2-12 LAN → RS232

- ⑪ Press the [Send data] on the RS232 part
- ⑫ Check the data from the step ⑪ has been received

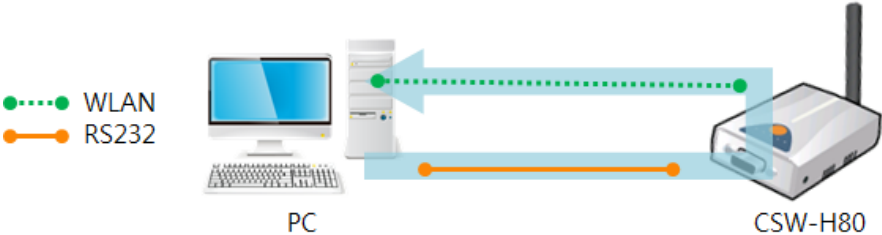


Figure 2-13 RS232 → LAN

3 Configuration

3.1 Configuration with ezManager

3.1.1 Configuration via Serial

- Checklists

Make sure the connection between your PC and CSW-H80 using RS232 cross cable. CSW-H80 has to be operated in the [Serial Configuration] mode.

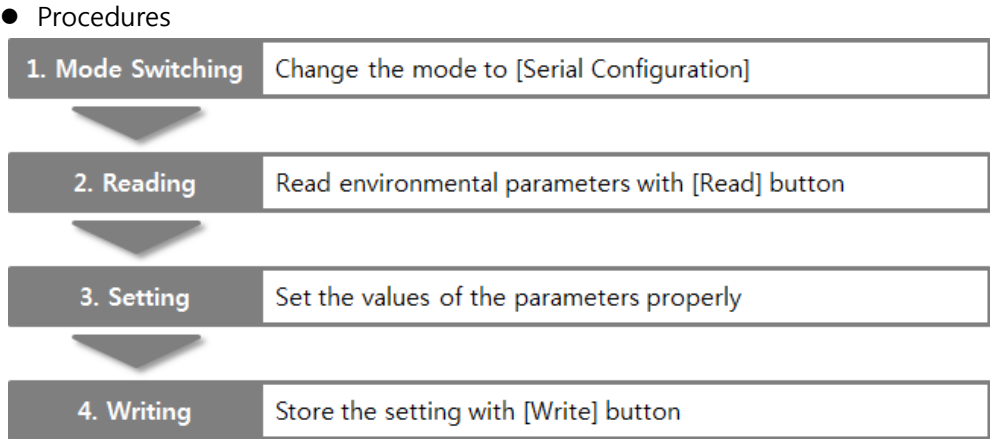


Figure 3-1 procedures for configuration via Serial

3.1.2 Configuration via WLAN

- Checklists

Make sure the WLAN connection between your PC and CSW-H80. If they are on the same network, [MAC Address search] can be used. Otherwise, only [IP Address search] is allowed to use.

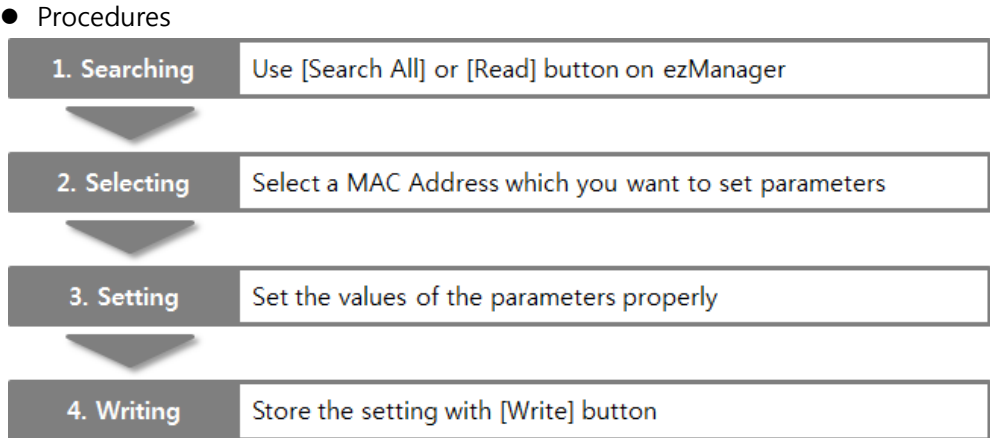


Figure 3-2 procedures for configuration via WLAN

3.2 AT command

In the AT command mode, you can change some parameters through the serial port.

- Checklists

Make sure the connection between your PC and CSW-H80 using RS232 cross cable. CSW-H80 has to be set to [AT command] mode as communication mode. This can be configured by ezManager.

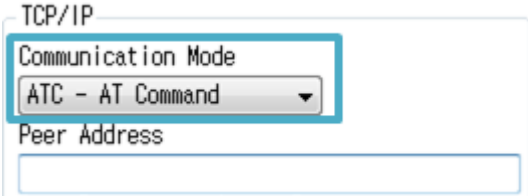


Figure 3-3 setting the communication mode to the AT command

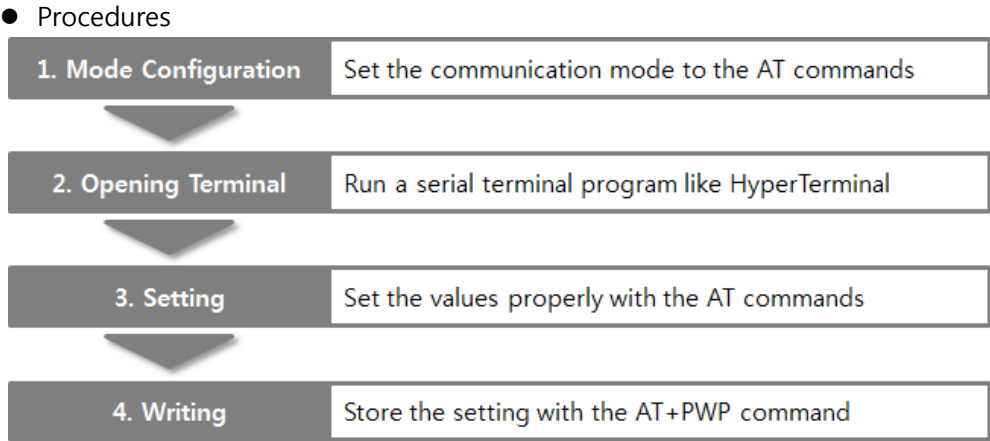


Figure 3-4 procedures for configuration with AT command

| Division | Available parameters |
|------------------------------|---|
| IP Address related items | Local IP Address, DHCP, PPPoE, Subnet Mask, Gateway IP Address, DNS IP Address and etc. |
| TCP connection related items | Local Port, Peer Address (IP Address or Host name), Peer Port, ... |
| Option | ESC code sending option, timeout and etc. |

Table 3-1 parameters which are available to change with AT command

Including above items, rest of parameters can be set by ezManager.

4 Operation Modes

4.1 What is the Operation Mode?

Each of three operation mode is defined for specific purpose, and those are followed.

- Normal mode
This mode is for normal data communication and has 4 different connection modes. Configuring parameters is also available in this mode.
- Serial configuration mode
This mode is for configuring environmental parameters through the RS-232 port.
- ISP mode
This mode is only for changing firmware.

4.2 How to enter each mode

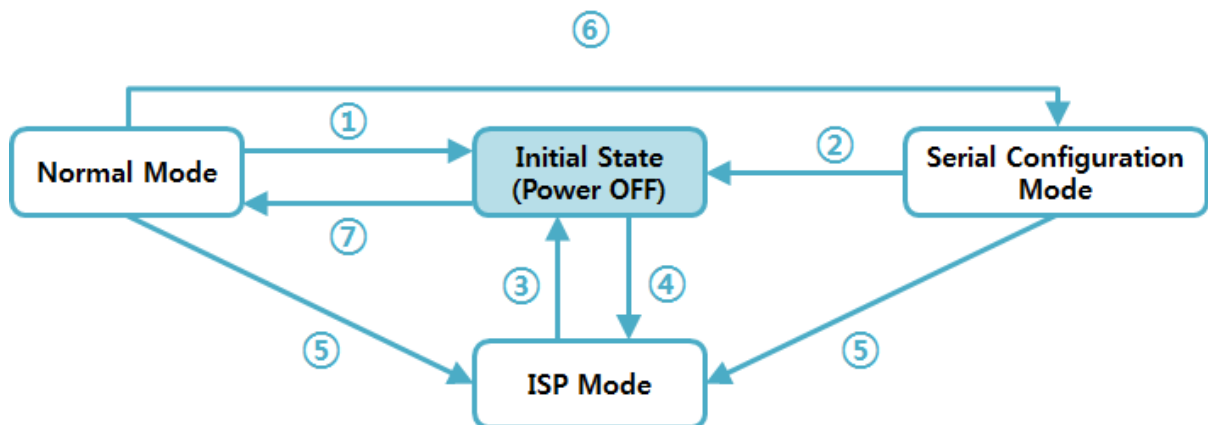


Figure 4-1 how to entering each mode

- ① Reset (Power off)
- ② Reset or input "g 0" command
- ③ Reset (After transmitting firmware, CSW-H80 will be automatically reset)
- ④ Reset pushing the function button
- ⑤ Push the function button for a while (over 1 sec)
- ⑥ Push the function button for a moment (less than 1 sec)
- ⑦ Turn the power on

4.3 Comparison with each mode

Table 4-1 shows summaries with each mode

| Name | Serial port | Type |
|----------------------|------------------|-------|
| Normal | configured value | RS232 |
| Serial Configuration | 115,200/N/8/1 | RS232 |
| ISP | 115,200/N/8/1 | RS232 |

Table 4-1 comparison with each mode

4.4 Normal mode

4.4.1 WLAN mode

CSW-H80 supports three types of WLAN mode.

| WLAN mode | Description |
|----------------|---|
| Ad-hoc | WLAN is composed to only stations without an AP |
| Infrastructure | WLAN is composed to an AP and clients |

Table 4-2 comparison of WLAN mode 1

Required and available values for each WLAN mode are as follows:

| WLAN mode | Channel | SSID | WEP | WPA |
|----------------|---------------|----------|----------|---------------|
| Ad-hoc | required | required | optional | not available |
| Infrastructure | not available | required | optional | optional |

Table 4-3 comparison of WLAN mode 2

4.4.2 Communication mode

In normal mode, there are four types of connection to communicate with a remote host.

| Mode | Description |
|------------|--|
| TCP Server | Wait connection request from TCP clients (Passive Connection) |
| TCP Client | Send connection request to a TCP server (Active Connection) |
| AT Command | Control connections by AC commands (Active / Passive Connection) |
| UDP | Communicate by block units without connection |

Table 4-4 comparison of communication mode

| Mode | Protocol | Connection | Requirements about Modifying S/W of serial devices | Serial configuration | Topology |
|------------|----------|------------|--|----------------------|----------|
| TCP Server | TCP | Passive | N/A | N/A | 1:1 |
| TCP Client | | Active | N/A | N/A | 1:1 |
| AT Command | | Both | Required | Available | 1:1 |
| UDP | UDP | - | N/A | N/A | N:M |

Table 4-5 comparison of communication mode

4.5 Serial Configuration Mode

4.5.1 Configuring Parameters

This is a mode for setting environmental parameters through the serial port. If you cannot use the WLAN, this mode is only way to configure the parameters. Click the [Read] button on the [Serial] tab of ezManager after entering this mode.

☞ Refer to the [Serial Management Protocol] document on our website for details.

4.5.2 Revoking Security Options

CSW-H80 offers restriction for security like filtering with password or MAC and IP address. In the serial configuration mode, you can revoke all of these options. When you forget the password, enter this mode to change or delete it.

4.6 ISP Mode

4.6.1 Upgrading Firmware

ISP mode is for upgrading firmware, implemented via the serial port.

5 Communication Modes

5.1 TCP Server

In this mode CSW-H80 listens to a request of TCP connection from remote hosts. Once a host tries connecting to CSW-H80, it accepts a connection. After the connection is established, CSW-H80 converts the raw data from the serial port to TCP/IP data and sends it to the network and vice versa.

5.1.1 Key parameters

- Local Port

This is a server's port number which is used in the TCP connection.

- Event Byte

With setting event bytes, you can handle the serial data of the serial buffer before a TCP connection is established.

| Value | Description |
|-----------------------------|---|
| 0 | CSW-H80 doesn't send the data |
| Otherwise (512 or under) | CSW-H80 sends the data right after a connection is established. 512 or under bytes are strongly recommended. |

Table 5-1 Event Byte

- Timeout

If there is no transmission of data for specific time the connection would be terminated.

- Notify IP Change

This function is to notify changed IP addresses to a management server. Not only can the TCP/UDP protocol be used, but Dynamic Domain Name Service (DDNS).

- Access restriction

Users can block TCP connections from unauthorized hosts by using this option. Both IP and MAC address are available.

5.1.2 Examples

- A situation that [Event Byte] is set to 0.

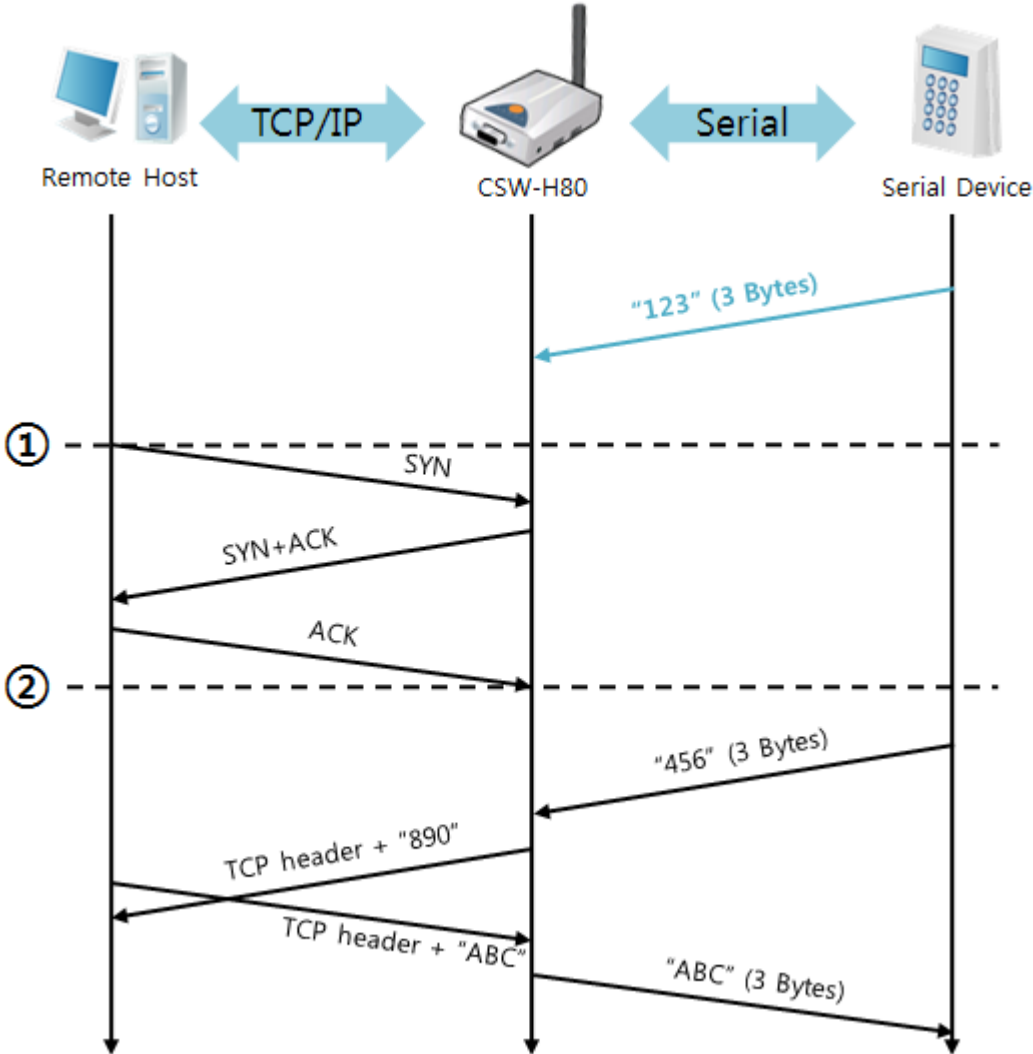


Figure 5-1 time chart

| Time | States |
|------|---|
| ~ | Before Three-way handshaking |
| ① | Remote host sends a connection request (SYN) segment. |
| ~ | Processes of the connection |
| ② | The connection is established. |
| ~ | Data communication is implemented on both sides. |

Table 5-2 states of each point

Look at the blue arrow above. The data "123" from the serial port has sent before Three-way handshaking. In this case, the data isn't sent because the [Event Byte] is set to 0 (zero).

- A situation that [Event Byte] is set to 1.

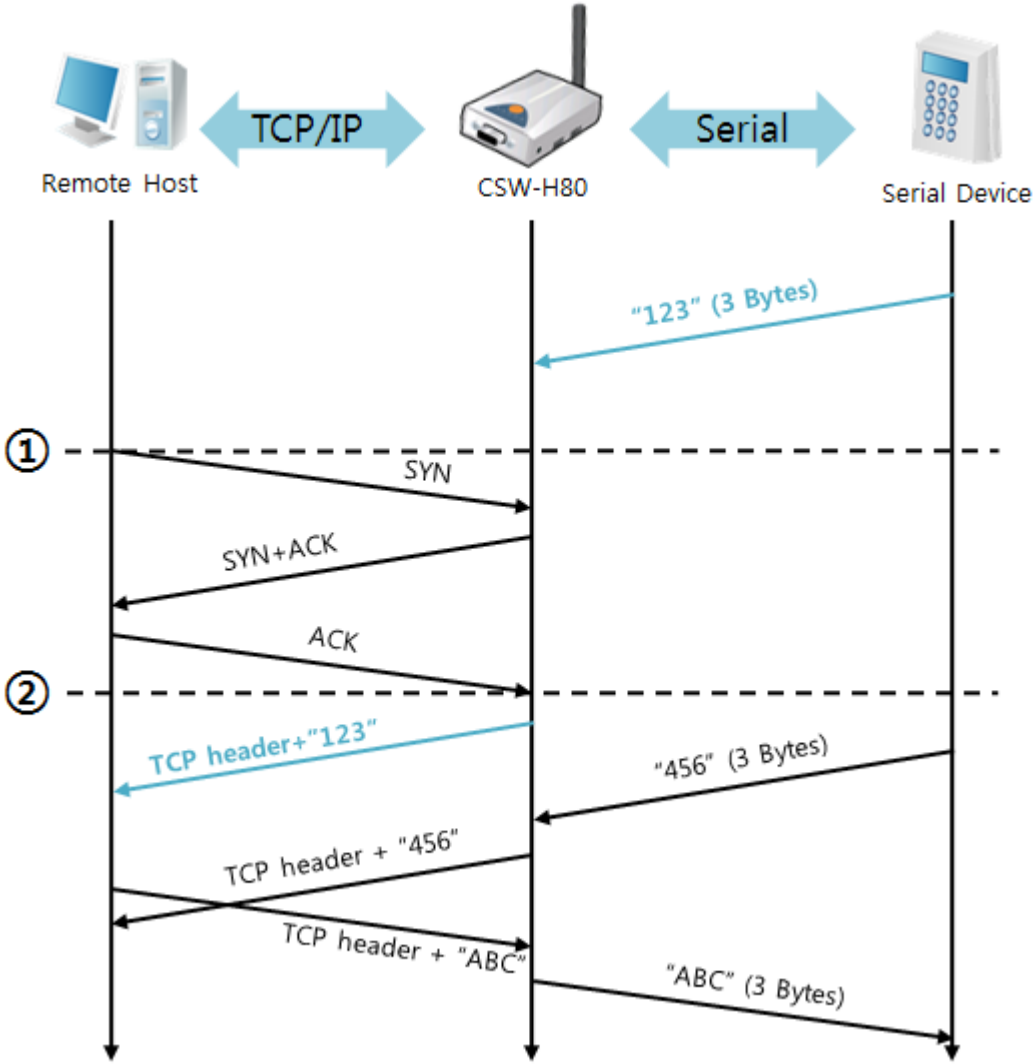


Figure 5-2 time chart

| Time | States |
|------|---|
| ~ | Before Three-way handshaking |
| ① | Remote host sends connection request (SYN) segment. |
| ~ | Processes of the connection |
| ② | The connection is established. |
| ~ | Data communication is implemented on both sides. |

Table 5-3 states of each point

Look at the blue arrow above. The data "123" is sent right after Three-way handshaking because the value of [Event Byte] is set to non-zero.

- A situation that [Timeout] is set to 5.

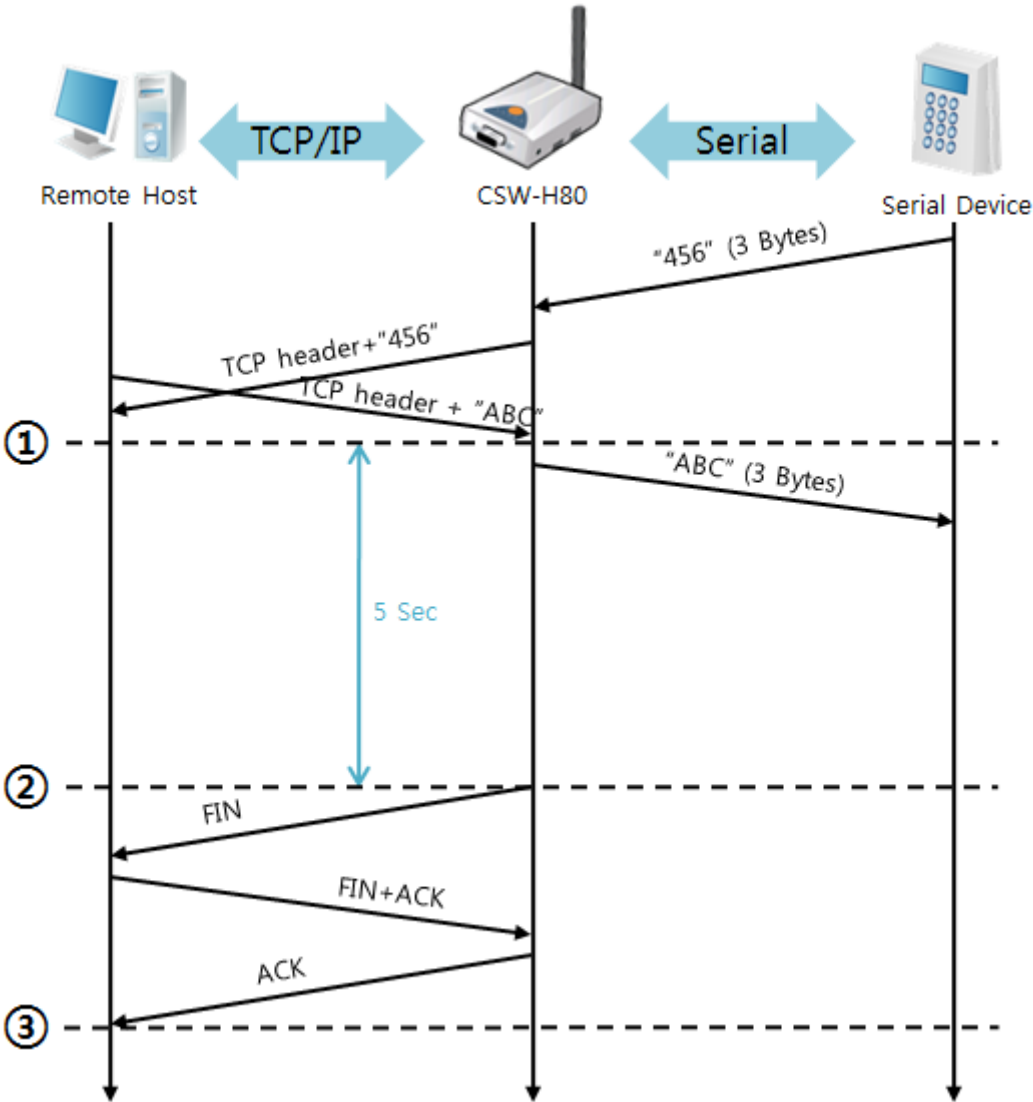


Figure 5-3 time chart

| Time | States |
|------|---|
| ~ | Data communication on both sides |
| ① | The last segment has been arrived at the H80 |
| ~ | 5 seconds are passed with no data communication |
| ② | CSW-H80 has sent disconnection request (FIN) to a remote host |
| ~ | Processes of the disconnection |
| ③ | The connection has been terminated |
| ~ | CSW-H80 is listening to connection requests |

Table 5-4 states of each point

5.2 TCP Client

In this mode, CSW-H80 sends request segments to a TCP server with information of [Peer Address] and [Peer Port]. Once a host is listening, the connection will be established. After then, CSW-H80 converts the raw data from the serial port to TCP/IP data and sends them to the network and vice versa.

5.2.1 Key parameters

- Peer Address

This item is an address of TCP server.

- Peer Port

[Peer Port] is the port number of TCP server.

- Event Byte

CSW-H80 decides when to send the connection request frame with this parameter.

| Value | Description |
|-----------------------------|---|
| 0 | right after CSW-H80 boots up |
| Otherwise (512 or under) | right after the bytes set to [Event Byte] have been received from the serial port 512 or under bytes are strongly recommended. |

Table 5-5 the operation of Event Byte 1

In addition, users can handle the serial data before a TCP connection is established with this parameter.

| Value | Description |
|-----------------------------|---|
| 0 | CSW-H80 doesn't send the data |
| Otherwise (512 or under) | CSW-H80 sends the data right after a connection is established. 512 or under bytes are strongly recommended. |

Table 5-6 the operation of Event Byte 2

- Timeout

If there is no transmission of data for specific time the connection would be terminated.

- TCP Server

This check option enables you to get to the TCP server / client mode. In this mode, CSW-H80 can be operated as a TCP server or client without changing any setting.

- DNS IP Address

[DNS IP Address] is needed when you use host name instead of the IP address.

5.2.2 Examples

- A situation that [Event Byte] is set to 0.

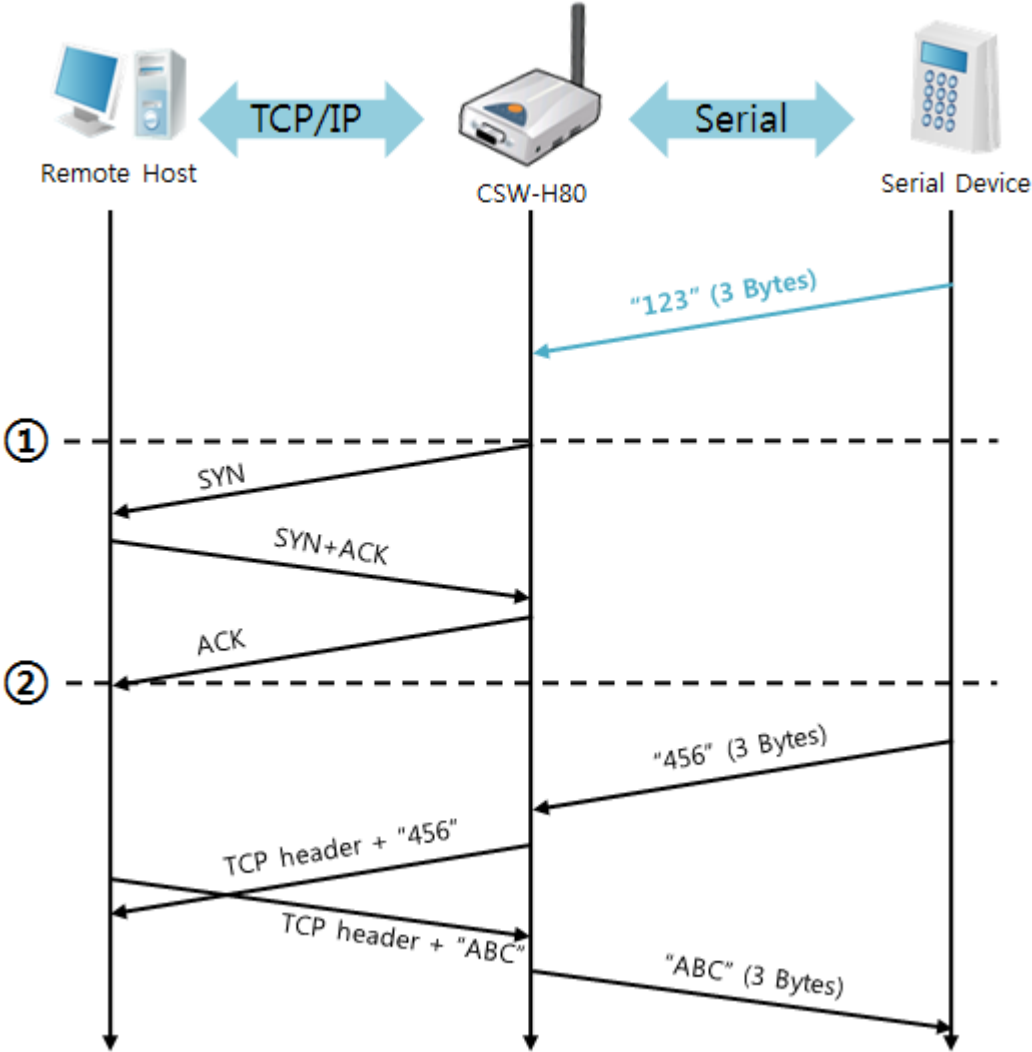


Figure 5-4 time chart

| Time | States |
|------|---|
| ~ | Before Three-way handshaking |
| ① | CSW-H80 sends a connection request segment. |
| ~ | processes of TCP connection |
| ② | The connection is established. |
| ~ | data communication on both sides |

Table 5-7 states of each point

Look at the blue arrow above. The data "123" from the serial port has sent before Three-way handshaking. In this case, the data will not be sent because the [Event Byte] is set to 0 (zero).

- A situation that [Event Byte] is set to 1.

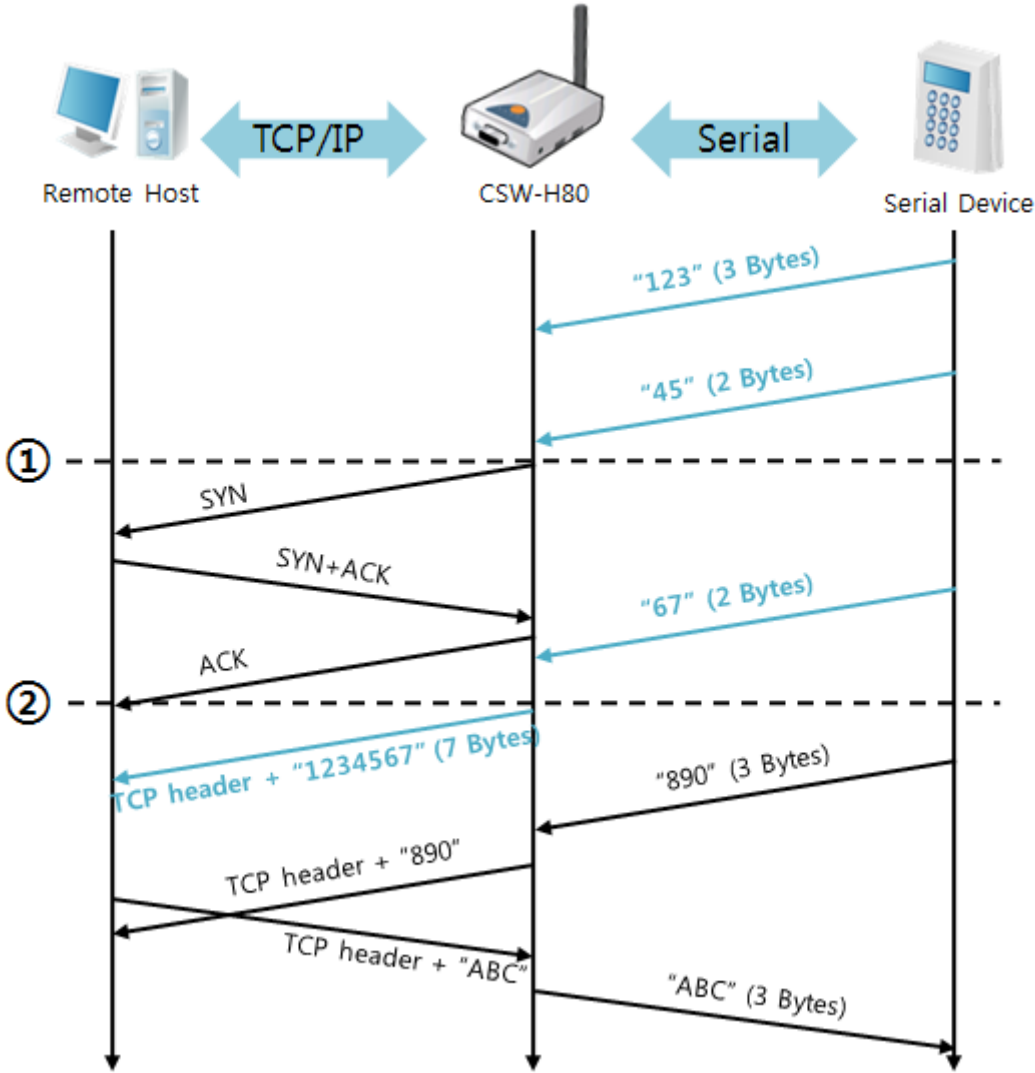


Figure 5-5 time chart

| Time | States |
|------|---|
| ~ | CSW-H80 waits until 1 byte arrive at serial port |
| ① | CSW-H80 sends a connection request right after receiving 3 bytes. |
| ~ | processes of the TCP connection |
| ② | The connection is established. |
| ~ | The data "1234567" is transmitted to the remote host. |

Table 5-8 states of each point

As you can see, CSW-H80 sends a request segment right after the size of the serial data becomes 1 bytes. Even though they arrive before finishing Three-way handshaking, the data "123" will be transmitted to the remote host because the [Event Byte] is set to non-zero.

5.3 AT Command

AT command is a mode which users control CSW-H80 with AT command like controlling modem. In this mode, active and passive TCP connections are available. And users are allowed to configure some environmental parameters with extended commands.

5.3.1 Key parameters

The configuration should be implemented via the serial port of H80

| Commands | Description | Examples |
|----------|------------------|----------------------|
| +PLIP | Local IP Address | at+plip=10.1.0.1<CR> |
| +PLP | Local Port | at+plp=1470<CR> |
| +PRIP | Peer IP Address | at+prip=10.1.0.2<CR> |
| +PRP | Peer Port | at+prp=1470<CR> |
| +PDC | DHCP | at+pdc=1<CR> |
| +PPE | PPPoE | at+ppe=1<CR> |
| +PTO | Timeout | at+pto=10<CR> |
| +PWP | Store setting | at+pwp<CR> |

Table 5-9 some of extended commands for configuration

- Related items with IP Address and Local Port
Local port can be set as well as IP address related parameters like IP Address, Subnet Mask and Gateway IP Address.
- Peer Address / Peer Port
IP address and local port of a remote host can be set.
- Type of assigning IP address: Manual, DHCP, PPPoE
Manual setting and automatic assigning protocol (DHCP, PPPoE) are available.
- Others
Some of options including [Timeout] can be configured in this mode.

☞ ***If you want more information about the ATC mode, please refer to the [ATC mode] document in [Download] >> [Technical documents] >> [Basic and Common part] category of our web site.***

5.3.2 Examples

- TCP Server – setting parameters and passive connection

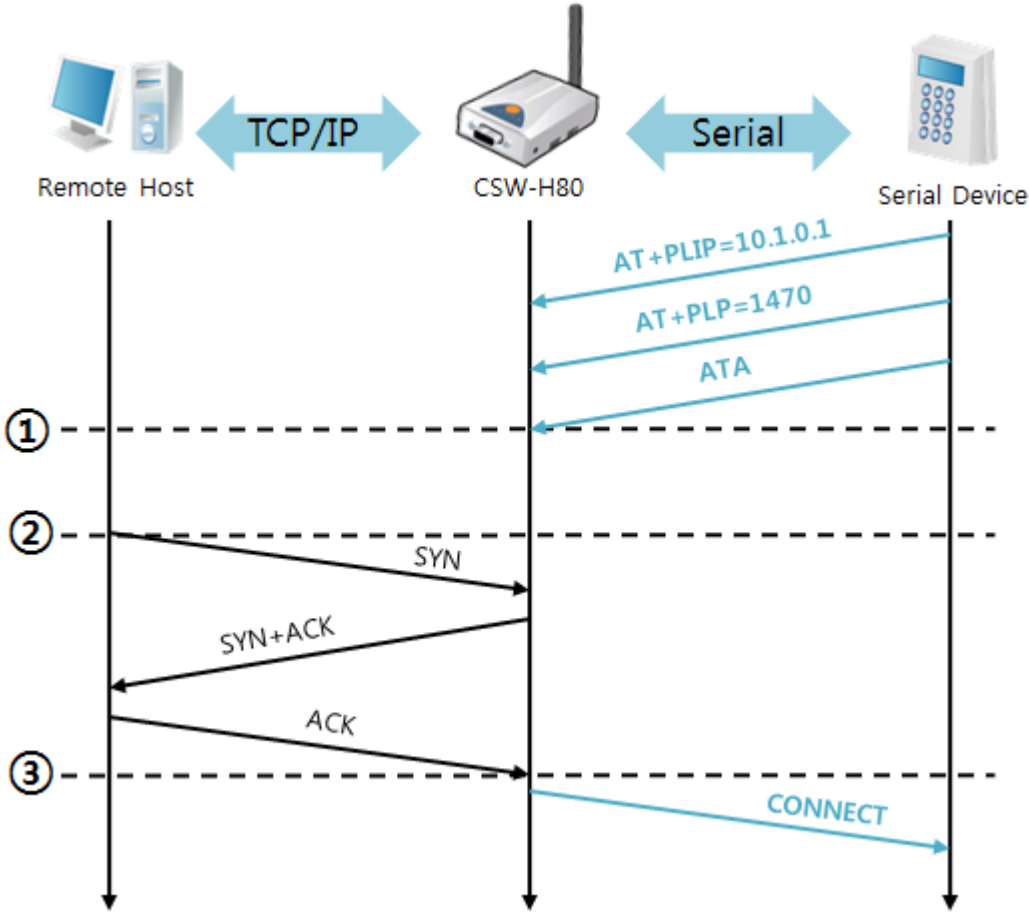


Figure 5-6 time chart

| Time | States |
|------|---|
| ~ | configuring parameters with AT commands |
| ① | ATA command has arrived. |
| ~ | CSW-H80 is listening to TCP connection requests. |
| ② | A remote host has sent SYN segment to H80. |
| ~ | processes of TCP connection |
| ③ | TCP connection has been established. |
| ~ | CSW-H80 sends "CONNECT" message to the serial port. |

Table 5-10 states of each point

☞ *Some of the response messages from the serial port of CSW-H80 are omitted on above figure.*

- TCP Client - setting parameters and active connection

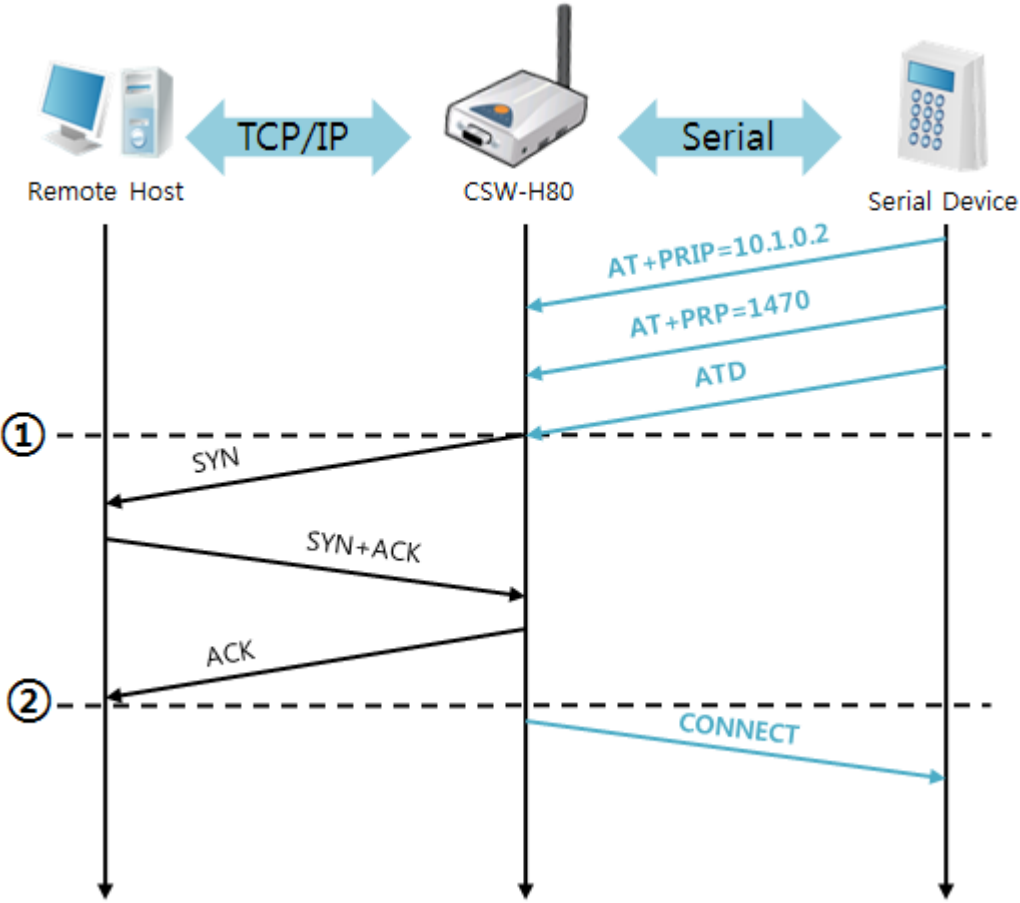


Figure 5-7 time chart

| Time | States |
|------|---|
| ~ | configuring parameters with AT commands |
| ① | CSW-H80 has sent a TCP connection request with the ATD command. |
| ~ | processes of TCP connection |
| ② | TCP connection has been established. |
| ~ | CSW-H80 sends "CONNECT" message to the serial port. |

Table 5-11 states of each point

- Termination of online status – entering the AT command mode

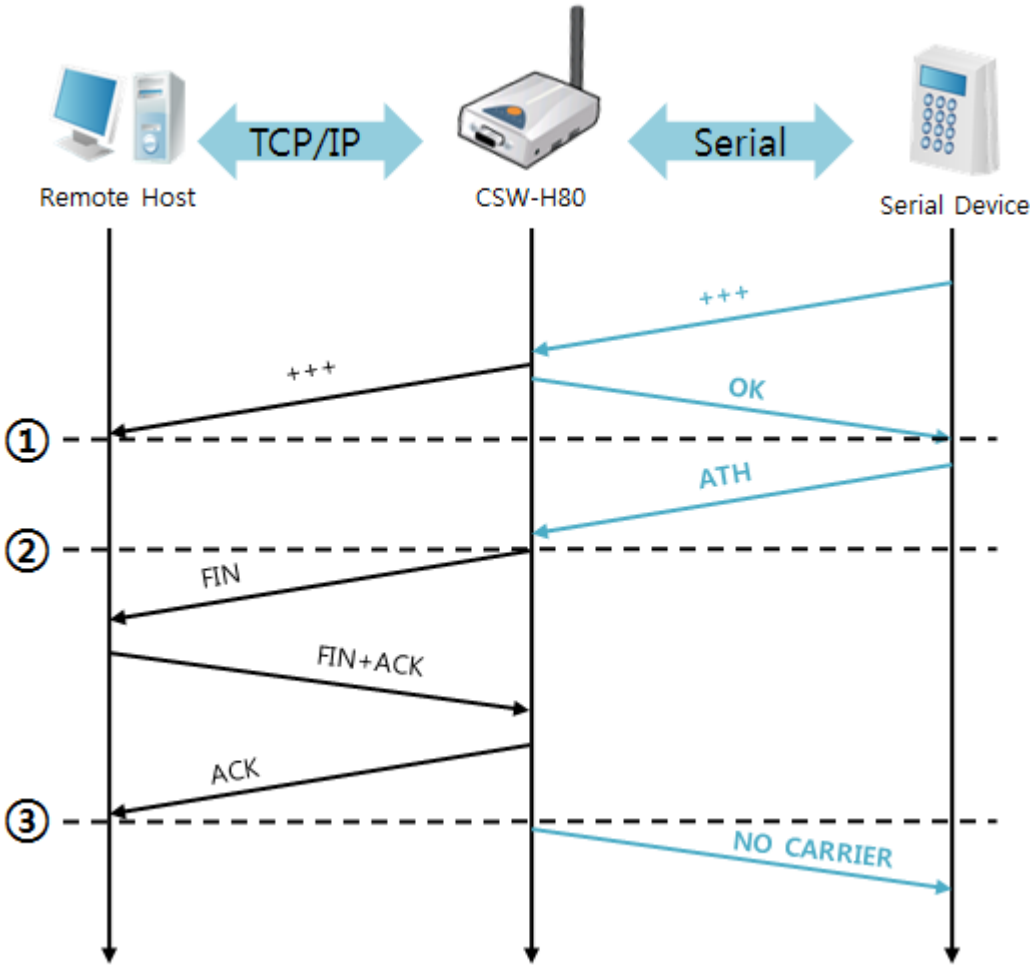


Figure 5-8 time chart

| Time | States |
|------|---|
| ~ | TCP connection is on-line. |
| ① | The mode has changed to "command mode" after receiving "+++". |
| ~ | command mode (TCP connection is off-line) |
| ② | CSW-H80 has sent FIN segment right after the "ATH" has arrived. |
| ~ | processes of TCP disconnection |
| ③ | TCP connection has been terminated |
| ~ | CSW-H80 sends "NO CARRIER" with disconnection. |

Table 5-12 states of each point

CSW-H80 changes to the command state, when receiving "+++". In this state, the communication with remote host is not possible because CSW-H80 processes only AT commands. Whenever you want to go back to on-line state, just give "ATO" command.

5.4 UDP

UDP has no processes of connection. In this mode, data is sent by block unit. Therefore, data coming through CSW-H80's serial port is classified by block units to send it elsewhere.

- Block Size(Byte)

[Block Size(Byte)] is the size of a block in UDP mode. Its unit is byte. If the data in configured size of the [Block Size(Byte)] has come into the serial port, CSW-H80 sends them as one block to the network. The maximum value could be 1460 bytes.

- Data Frame

[Data Frame] is the time to gather data to for one block. Its unit is 10ms. If there are no data from the serial devices during the [Data Frame] time, CSW-H80 sends and receives data in the buffer as one block to the network.

☞ ***Once one of the two parameters is sufficient, event byte and data frame, UDP packet block will be transmitted.***

- Dynamic update of Peer host

If users set the value of [Peer Address] and [Peer Port] to 0, [dynamic update of peer host] function is activated. By using this function, CSW-H80 can communicate to multiple hosts without additional setting.

5.4.1 Examples

- Block Size: 5 bytes / Data Frame: 1s (100 by 10ms)

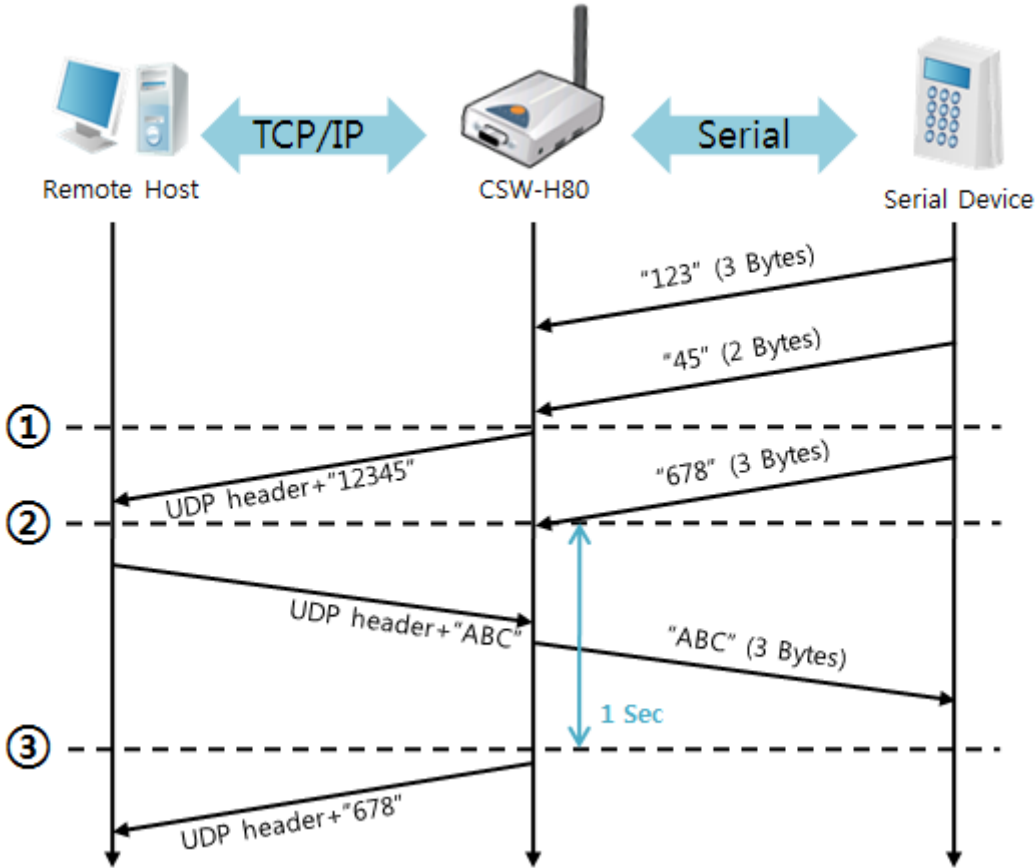


Figure 5-9 time chart

| Time | States |
|------|--|
| ~ | CSW-H80 is receiving data from the serial port |
| ① | CSW-H80 has sent 5 bytes as one block based on the [Block Size]. |
| ~ | Serial device is sending data "678". |
| ② | The data "678" has arrived. |
| ~ | CSW-H80 sends data from the remote host to the serial device |
| ③ | 1 second has passed. |
| ~ | CSW-H80 sends data "678" as one block based on the [Data frame]. |

Table 5-13 states of each point

- Dynamic Update of Peer host
 This is a function that CSW-H80 automatically sets its peer host with information of the last packet received from network. The source address of the packet is set to the peer host.

| Parameters | Values |
|--------------|----------|
| Peer Address | 0 (None) |
| Peer Port | 0 |

Table 5-14 setting for [dynamic update of peer host] function

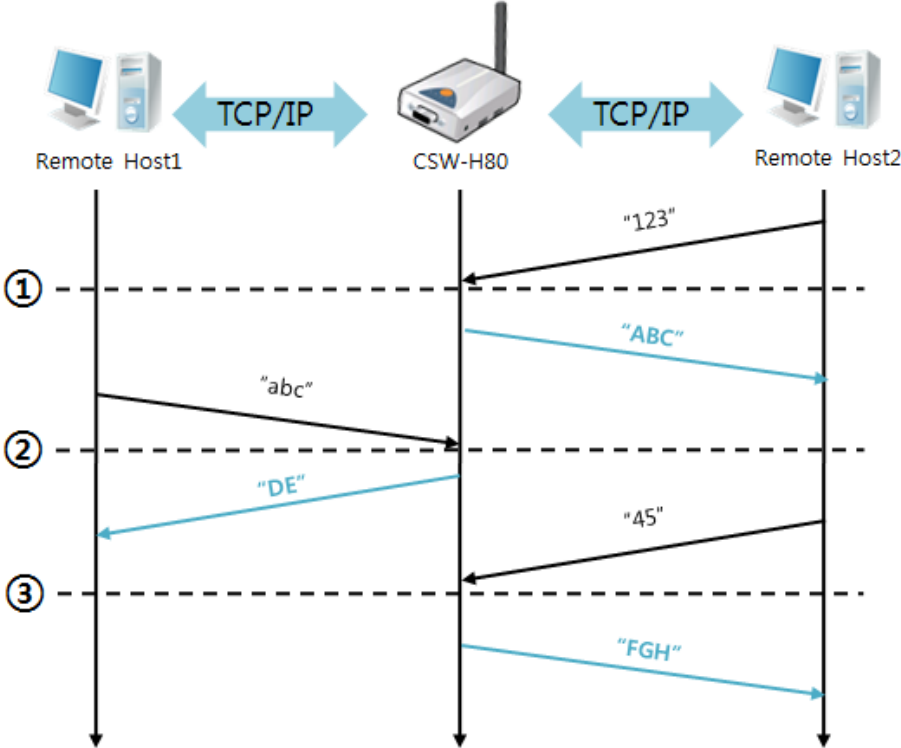


Figure 5-10 time chart

| Time | States |
|------|--|
| ~ | Sending any UDP data to the network is impossible. |
| ① | UDP data has arrived from Remote Host 2. |
| ~ | Send UDP data to Remote Host 2. |
| ② | UDP data has arrived from Remote Host 1. |
| ~ | Send UDP data to Remote Host 1. |
| ③ | UDP data has arrived from Remote Host 2. |
| ~ | Send UDP data to Remote Host 2. |

Table 5-15 states of each point

☞ *The data "ABC", "DE", "FGH" are from the serial port of CSW-H80 in the above figure.*

6 System Management

6.1 Upgrading Firmware

6.1.1 Firmware

Firmware is a type of software for operation of CSW-H80. If there are needs for adding function or fixing bugs, the firmware is modified and released. That's why we recommend that users keep using the latest released firmware.

6.1.2 Processes

- Downloading the latest firmware
Download the latest firmware file. We upload it on our homepage if a new one is released.
- Connecting the serial ports
Connect serial port of CSW-H80 to the PC's COM port with RS232 cross cable.
- Run the program for sending the F/W file
Run the program on the ezManager and click the [Change F/W / HTML] button.

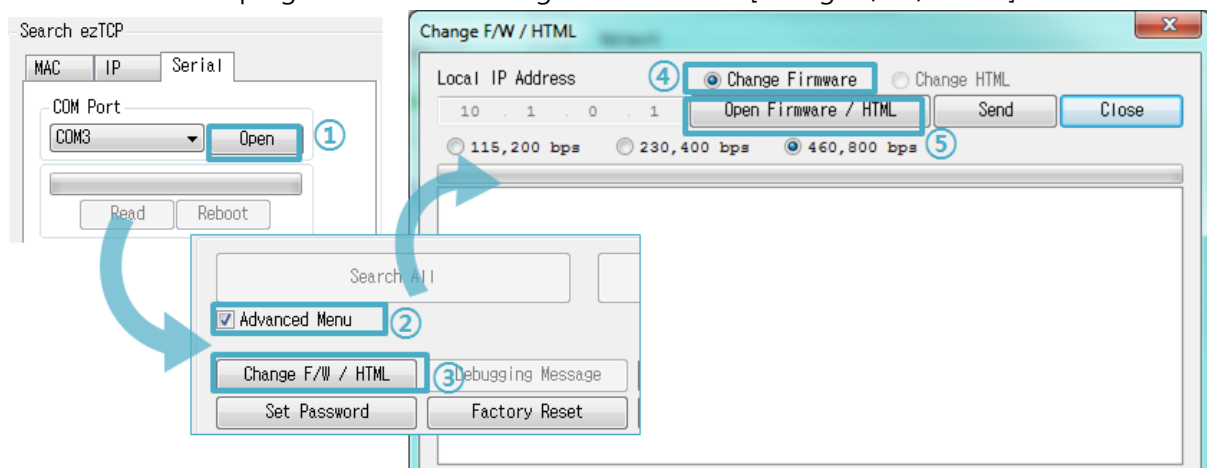


Figure 6-1 running the program for sending F/W file

- ① Press the [Open] button after selecting the COM port
- ② Click the [Advanced Menu] check box
- ③ Press the [Change F/W / HTML] button to run the program
- ④ Check the [Change Firmware] radio button
- ⑤ Press the [Open Firmware / HTML] button and choose the firmware file

● Checking firmware file and Sending

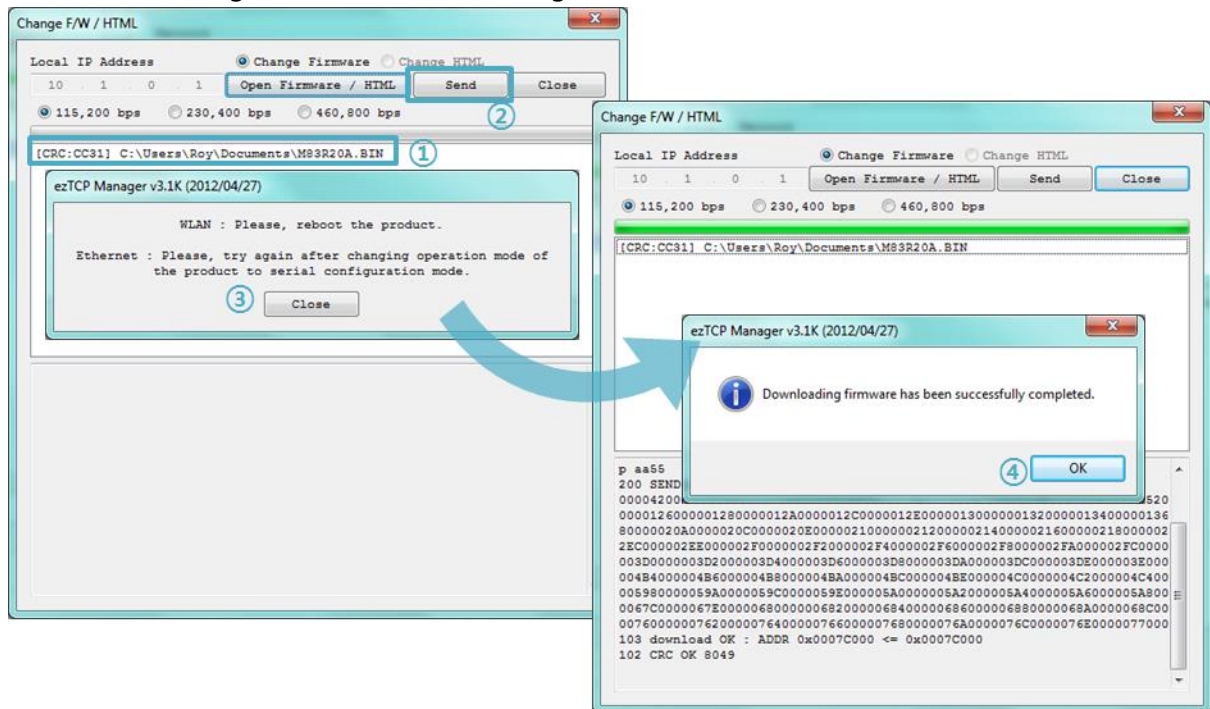


Figure 6-2 sending firmware file

- ① Check if the name and path of the firmware file are correct
- ② Click the [Send] button
- ③ Request for reboot message will appear. After reboot, the program will send the file automatically.
- ④ Confirm the completed message

6.2 Status Monitoring

6.2.1 Using TELNET

When the [TELNET] option is activated, you can remotely log in to CSW-H80. If a password is set, users should input the password.

- ☞ **Starting with firmware version 2.0A, you can login by entering "sollae" without setting a password.**

After then, messages from CSW-H80 will appear like the following figure.

```
CSW-H80 Management Console v1.1H Sollae Systems
lsh>_
```

Figure 6-3 log in to CSW-H80 via TELNET

Followed commands let users check each state.

| Command | Option | Description | Usage |
|---------|------------|----------------------|-------------------|
| st | net | Network Status | lsh>st net |
| | sio | Serial Port Status | lsh>st sio |
| | uptime | System Uptime | lsh>st uptime |
| sd | [OP1][OP2] | Serial data Dumping | lsh>sd 1 100 |
| sc | [OP1][OP2] | Session Close | lsh>sc com1 close |
| exit | - | TELNET Session Close | lsh>exit |

Table 6-1 commands for checking states

- st net

"st net" command displays present network states of all sessions.

```
lsh>st net
proto name      local address      peer address      sendq      state
-----
TCP    tty             10.1.0.1< 23>      10.6.0.56<55802> 209 ESTABLISHED
TCP    com1            10.1.0.1< 1470>   10.6.0.56<55801> 0  ESTABLISHED
lsh>
```

Figure 6-4 "st net command"

- st sio

"st sio" command displays the number of bytes for the serial port.

```
lsh>st sio
port fmax rbmax rxbuf txbuf rx_count tx_count
-----
com1 0      0      0      0          0          0
lsh>
```

Figure 6-5 "st sio" command

- st uptime

"st uptime" command shows amount of time since CSW-H80 boots up.

```
lsh>st uptime
00:01:59.39 up 0 days
lsh>
```

Figure 6-6 "st uptime" command

- sd

"sd" command is used when users close a session. [OP1] means the number of COM port, and [OP2] means period of capturing and printing messages with 10ms unit.

```
lsh>sd 1 100
com1 dump start
com1 dump buffering time : 1000ms
lsh>tx1 => 30 31 32 33 34 35 36 37          ! 01234567
rx1 <= 30 31 32 33 34 35 36 37          ! 01234567
```

Figure 6-7 "sd" command

- sc

This command is for disconnecting one of the current sessions. Input session name to [OP1] and "close" command to [OP2].

```
lsh>sc com1 close
com1: closed
lsh>
```

Figure 6-8 "sc" command

- exit

This command disconnects current TELNET session.

```
lsh>exit
Connection to host lost.
C:\Users\Roy>
```

Figure 6-9 "exit" command

 ***You can download TCP Client application for a smartphone on our website.***

6.2.2 Using ezManager

Status of CSW-H80 can be monitored by [Status] button on ezManager. By using the [Refresh Every 1 Second] option in the status window, the status is automatically updated in every second.

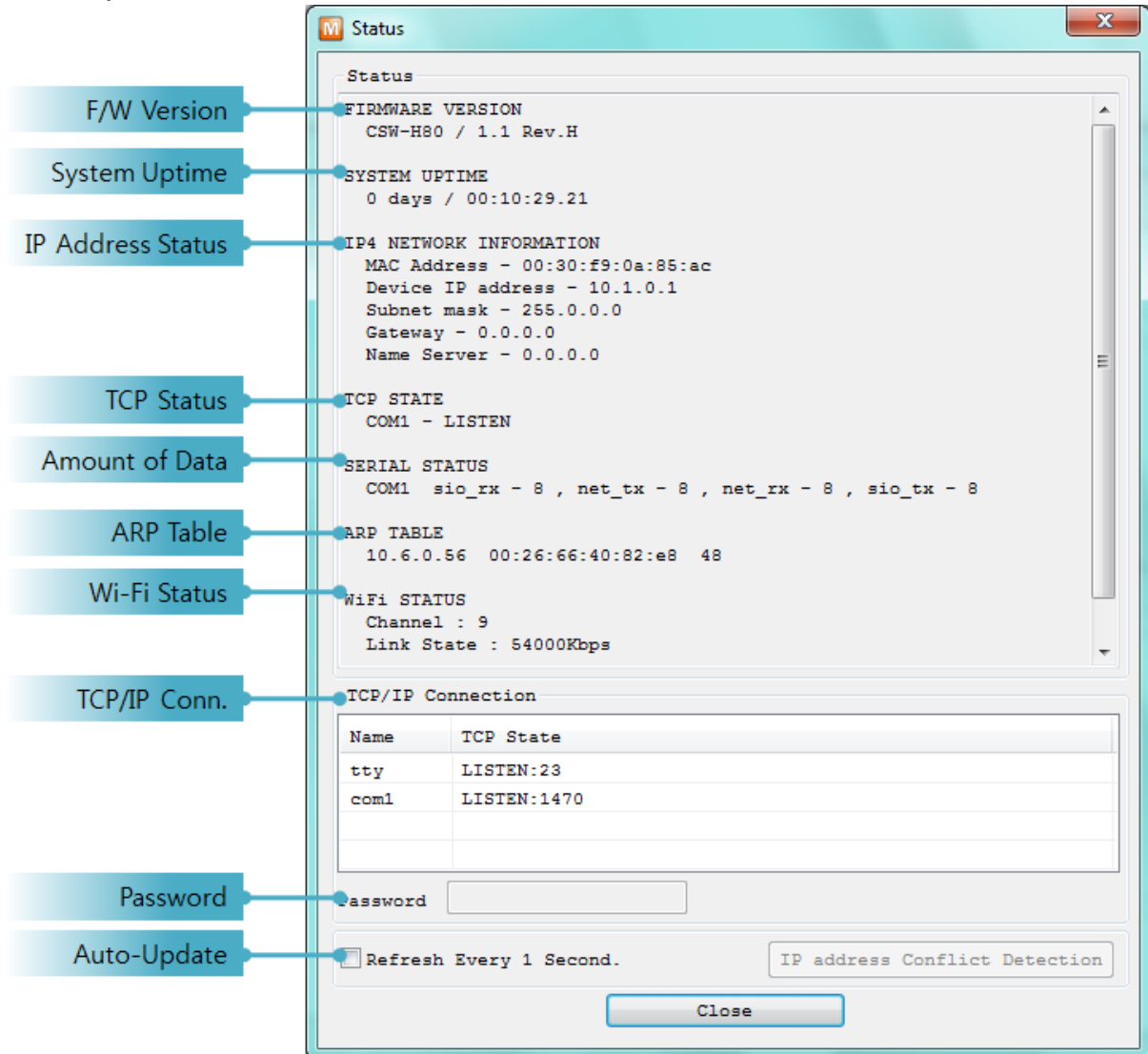


Figure 6-10 status window of ezManager

- **FIRMWARE VERSION**
The name of model and the version of firmware are displayed here.
- **SYSTEM UPTIME**
Amount of operating time since CSW-H80 has booted up is displayed.
- **IP4 NETWORK INFORMATION**
All information about related items with IP Address is shown here. It works even if the IP address is assigned from DHCP or PPPoE.

- TCP STATE

TCP status of each port is shown this section.

| Message | Description |
|-------------|---|
| LISTEN | listening TCP connection |
| CLOSE | TCP connection is closed |
| SYN_SENT | Send "SYN" segment to make TCP connection |
| ESTABLISHED | When TCP connection is established |
| N/A | In UDP mode |

Table 6-2 TCP STATE

- Amount of data

Amount of data in every buffer is displayed. The unit is byte.

| Buffer | Description |
|--------|---|
| sio_rx | The number of data which is received from the COM port |
| net_tx | The number of data which is sent to the remote host |
| net_rx | The number of data which is received from the remote host |
| sio_tx | The number of data which is sent to the COM port |

Table 6-3 SERIAL STATUS

- ARP Table

This part shows ARP table of CSW-H80. When TCP connection is established or UDP data communication is performed, the information of IP and MAC address is automatically registered in the table. This information lasts for 1 minute so when 50 seconds have passed, CSW-H80 starts broadcasting the ARP packet in every second. If there is no response until the time is 0, the information is removed. Otherwise, the time is updated 60 seconds again.

- Wi-Fi Status

Status of Wireless LAN Channel is displayed.

| Item | Description |
|------------|---|
| Channel | Name of channel (frequency band) which is using |
| Link State | Maximum data rate of the link |
| RSSI | Received Signal Strength Indication |

Table 6-4 Wi-Fi Status

- TCP/IP Connection

In this section, the same information with TCP STATE is displayed with IP address and port number. A difference is that users can terminate TCP connection. When right clicking on a session, a small pop-up window is created.

- Password

This text box is activated when CSW-H80 has a password. If you want to close TCP connection on [TCP/IP Connection] list, input the password first.

- Refresh Every 1 Second.

If this option is checked, ezManager sends queries in every second.

7 Additional Functions

7.1 Security

7.1.1 Access Restriction (ezTCP Firewall)

On the [Option] tab of ezManager, users can set access restriction function with MAC and IP address.

- Allowed MAC Address

If this option has a valid value, the device with the particular MAC address is only permitted to access.

- Allowed IP Address

This is for qualifying hosts with IP address or range of IP addresses. The range is defined by multiplying [IP address] and [Network Mask] in bit unit.

- Examples

| IP Address | Network Mask | Allowed IP Address Range |
|-------------|-----------------|---------------------------|
| 10.1.0.1 | 255.0.0.0 | 10.1.0.1 ~ 10.255.255.254 |
| 10.1.0.1 | 255.255.255.0 | 10.1.0.1 ~ 10.1.0.254 |
| 192.168.1.4 | 255.255.255.255 | 192.168.1.4 |

Table 7-1 examples of defining allowed IP range

- Apply to ezManager

[Apply to ezManager] is for applying above two restrictions to ezManager functions like [Search], [Read], [Write] and etc.

7.1.2 Setting Password

A password can be used for protecting CSW-H80 from TELNET login or changing environmental parameters by unqualified hosts. The maximum length is 8 bytes of Alphabet or number.

☞ ***When you want to revoke all of these restrictions, operate CSW-H80 as the serial configuration mode.***

7.1.3 Using WEP

- Configuration of the Access Point
Set the related parameters on the AP first. If you do not know how to set AP's parameters, please refer to the manual or ask the manufacturer.
- Choosing Authentication and Encryption Methods.
Select the WEP on the panel.

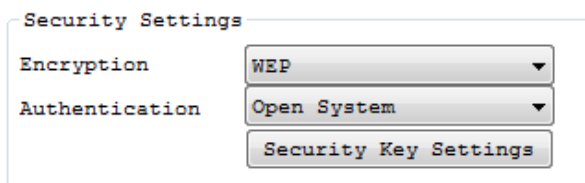


Figure 7-1 security settings

| Parameter | Available Values |
|----------------|---------------------------------|
| Encryption | None / WEP / WPA PSK |
| Authentication | Open System / Shared Key / Auto |

Table 7-2 available values

- Setting WEP key

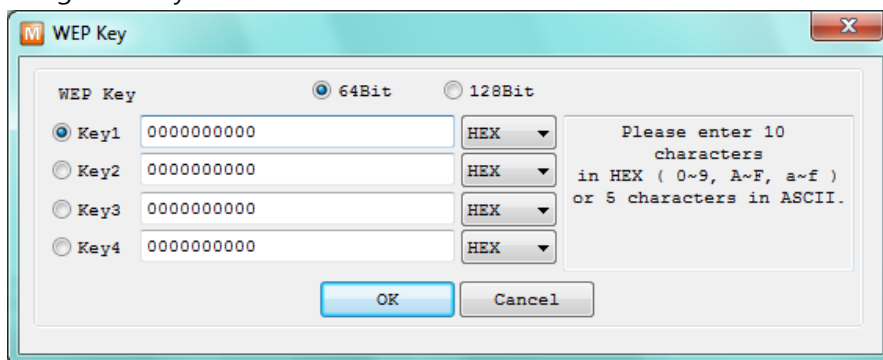


Figure 7-2 an example of setting WEP Key

| Parameter | | Available Values | |
|-----------|-------------|------------------|-----------|
| Key Index | | Key 1 ~ 4 | |
| Length | | 64 bits | 128 bits |
| Type | ASCII code | 5-digits | 13-digits |
| | Hexadecimal | 10-digits | 26-digits |

Table 7-3 available values

7.1.4 Using WPA

- Configuration of the Access Point
Set the WPA-PSK or WPA2-PSK and related parameters on your AP first. If you do not know how to set AP's parameters, please refer to the manual or ask the manufacturer.
- Choosing Authentication and Encryption Methods.
Select the WPA PSK for Encryption.

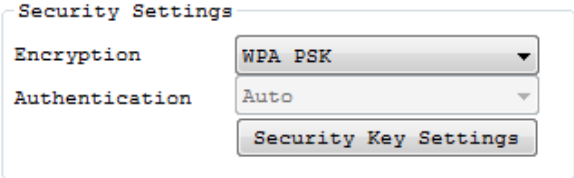


Figure 7-3 security settings

- Setting WPA Key

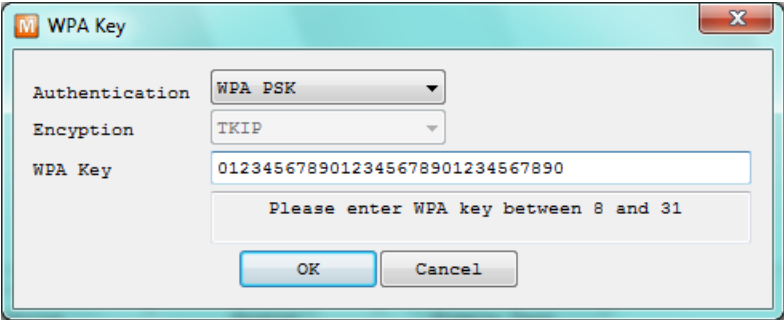


Figure 7-4 an example of setting WPA key

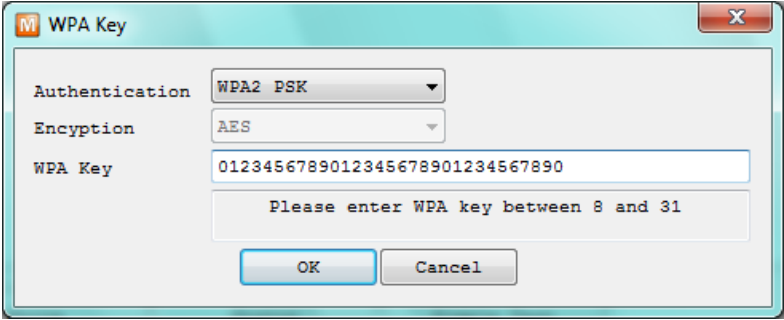


Figure 7-5 an example of setting WPA2 key

| Parameter | Available Values | |
|----------------|------------------|----------|
| Authentication | WPA PSK | WPA2 PSK |
| Encryption | TKIP | AES |
| Length | 8~31 digits | |

Table 7-4 available values

7.2 Option Tab functions

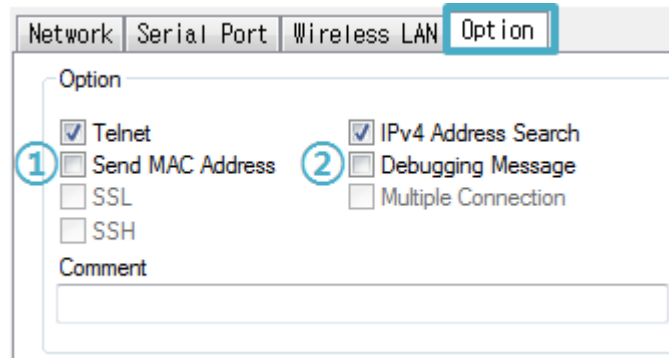


Figure 7-6 option tab functions

7.2.1 Send MAC Address - ①

[Send MAC Address] is a function to send MAC address to the remote host right after a connection. By using this function, a server can identify multiple devices with the information.

7.2.2 Debugging Message - ②

By using [Debugging] option, users can receive debugging messages from CSW-H80 on the network.

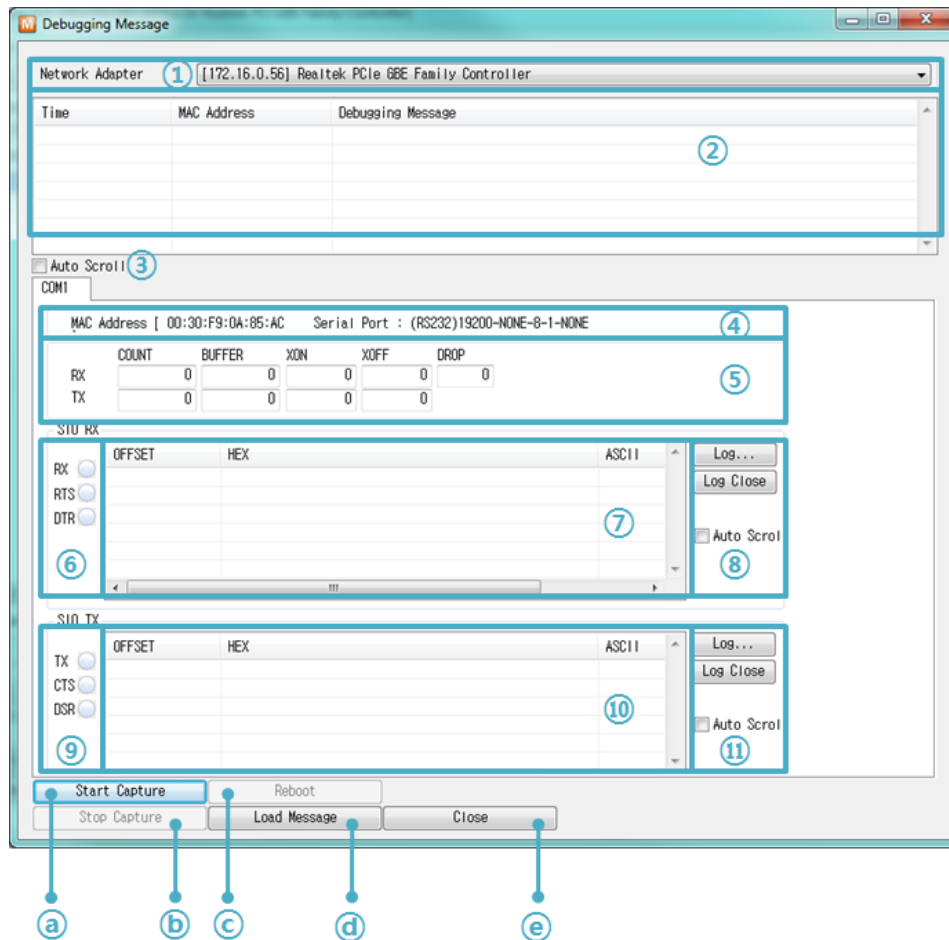


Figure 7-7 debugging message window

- ① Network Adapter
- ② Place for listing received debugging messages from CSW-H80 over the network
- ③ Auto update to display the latest captured file on the screen of ②
- ④ MAC address and serial port information of a selected product
- ⑤ ~ ⑪ Not available
- a) To start capturing debugging messages from CSW-H80
- b) To stop capturing debugging messages from CSW-H80
- c) Not available
- d) loading a debugging log file to display
- e) Closing debugging message window

☞ *If you have problems with communication or connection, it can be helpful for us that you capture the debugging messages and send us to the file.*

☞ *When you use [Debugging Message] function, it can cause network traffic because the messages are broadcasted to whole network. If you don't use it anymore, you should uncheck the function.*

7.2.3 Notify IP Change

CSW-H80 can be a TCP server even though its IP address is automatically assigned. Using [Notify IP Change] function, CSW-H80 sends its IP address to the specific server. There are 3 types for this service; DDNS, TCP and UDP.

- Dynamic Domain Name Service (DDNS)

CSW-H80 supports DDNS service offered by DynDNS. Therefore, you have to make an account and create host names on the website of DynDNS before you use.

☞ **All about service usage of an account could be changed according to the policy of DynDNS.**

☞ **Homepage of DynDNS: <http://dyn.com/dns/>**

Notify IPv4 Change

| | | | | |
|---------------------|-------------------------|---------------|-----------------|---|
| ① Protocol | DDNS(dyndns.org) | Interval | 40320 Minute(s) | ② |
| Port | 0 | Data Type | ASCII | |
| ③ DDNS ID | account | DDNS Password | •••••••• | ④ |
| ⑤ Host Name(dyndns) | yourhostname.dyndns.org | | | |

Figure 7-8 setting DDNS

- ① Select the [DDNS(dyndns.org)]
- ② 40,320 is a fixed value
- ③ Input the ID of DDNS account
- ④ Input the password of the account
- ⑤ Input a host name which you create on your account

- TCP/UDP

In the case that you have an own server and want to manage the information about changed IP addresses, you are allowed to use TCP/UDP. Not only can you set the [Interval], but also use both ASCII and hexadecimal in [Data Type].

☞ **Refer to the [IP Change Notification] document on our website for details.**

7.3 Serial Port Tab functions

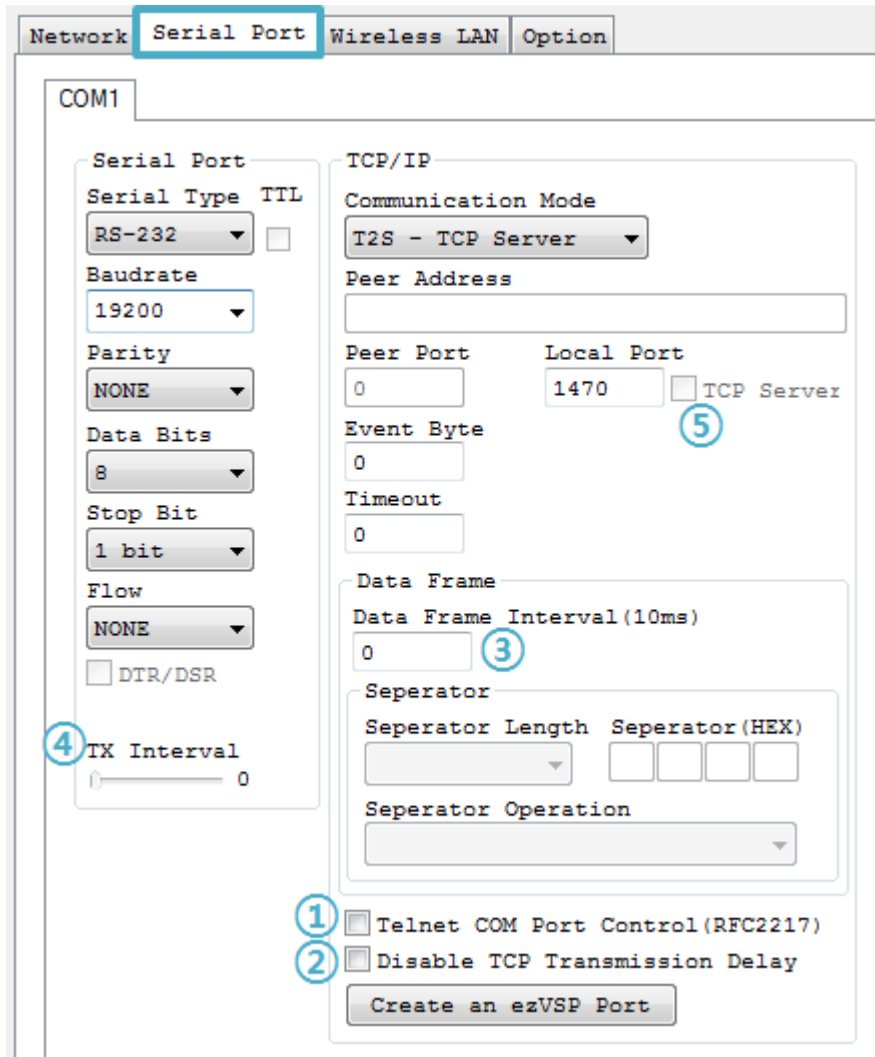


Figure 7-9 settings of [Serial Port] tab

7.3.1 TELNET COM port Control Option (RFC 2217) - ①

This option is for sending and receiving serial port states between two devices. Users can send and receive control signals such as RTS/CTS when the states are changed.

☞ *Refer to the [TELNET COM Port Control Option] document on our website for details.*

7.3.2 Disable TCP Transmission Delay - ②

If you use this option, CSW-H80 sends the data from the serial port to Ethernet as quickly as possible.

7.3.3 Data Frame Interval - ③

Before sending data from the serial port to Ethernet, ezTCP gathers data in the buffer. If there is no data during the time configured in the [Data Frame Interval], ezTCP will send data to the network. In case the value is set to 0, data will be sent immediately. The unit is 10ms and this is operated more accurately by checking [Disable TCP Transmission Delay] option.

7.3.4 TX interval - ④

This option is for preventing data loss in the case that the serial device has very small buffer size or doesn't have a buffer. The range of the value could be from 0 to 25 and the unit is duration of sending 1 byte. For example, if you set this value to 5, each byte will be transferred with duration of sending 5 bytes.

7.3.5 TCP Server / Client mode - ⑤

This mode is available on TCP client mode only. In this mode, you don't need to change the mode for switching active or passive TCP connection. Note that the [Event Byte] option should be set to 1 or larger value.

☞ ***Refer to the [TCP Server/Client mode] document on our website for details.***

8 Checklist in Trouble

When users are in trouble with CSW-H80, make sure all the followed steps first.

8.1 Searching problem with ezManager

- Confirming types of configuration utility
CSW-H80 can be configured by ezManager.
- Stopping Firewall operation
Firewalls of personal computer or network block broadcast packets. Stop all the firewalls before searching CSW-H80

☞ ***Most of vaccine programs have firewall functions so it can cause some trouble to search CSW-H80. Stop these programs before the searching.***

- Stable supply of the power
Check if the power is supplied continually. If the power is constantly supplied, the PWR LED on the CSW-H80's body is turned ON.
- Connection with the wireless network
Check if the wireless channel is fine. After confirming that the status of LINK LED is ON, check the list of wireless LAN devices on the management page of the AP.
- Connection with the network
Make sure that the network connection is fine between the PC and AP including Ethernet cable. In this step, we recommend that you connect the AP with your PC directly or in the same network hub.
- Checking options of restriction
In case that access restriction is activated, the communication with ezManager can be impossible. When users are in this situation, make CSW-H80 operate in the serial configuration mode to revoke the restriction.

8.2 Connection Problem over TCP/IP

- Connection with the wireless network
Check if the wireless channel is fine.
- Checking parameters related with TCP/IP
When CSW-H80 has a private network IP address, personal computer's IP address has to be in the same sub network. Check if the IP address and local port number are correct. In case of a fixed IP address, the subnet mask, gateway IP address and DNS IP address should be configured.

| TCP Server side | TCP Client side |
|--|--|
| Local IP Address, Local Port, Subnet Mask, Gateway IP Address, DNS IP Address, DDNS option, and etc. | Local IP Address, Peer Address, Peer Port, Subnet Mask, Gateway IP Address, DNS IP Address, and etc. |

Table 8-1 major parameters related with TCP/IP

- PING Test
Confirm the connection over the network by PING test. If the CSW-H80 doesn't send any reply from the request, check the network environment.
- Firewall
In case the networks which need strong security, the access may be denied by their firewall. Under this circumstance, users should ask the network administrator to release ports which will be used. (Ex: TCP 1470, UDP 50005)
- Operation Mode
TCP connection is not possible when CSW-H80 is operating in the ISP or Serial Configuration mode.
- Communication Mode
To make TCP connection, both a server and client should exist. If there are only servers or clients, TCP connection can't be established.
- ezTCP Firewall
When users set the ezTCP firewall with MAC and IP address, any hosts can't be reachable to it except for the hosts which have the allowed MAC and IP address. Inactivate the option or check the setting is correct.
- Checking the TCP status
Basically TCP is a protocol connected one to one. Because of this, if a device is on TCP connection, other requests are denied. If users are in this situation, check the network status by connecting on TELNET or using ezManager.

8.3 Data Communication Problem on the Serial

- Connection of Pins

Check if the connection of each pin is right. Using cables, users choose the right type of cable which is suitable for the device. Transmit Data (TXD) pin should be connected with Receive Data (RXD) pin. Look at the below figure.

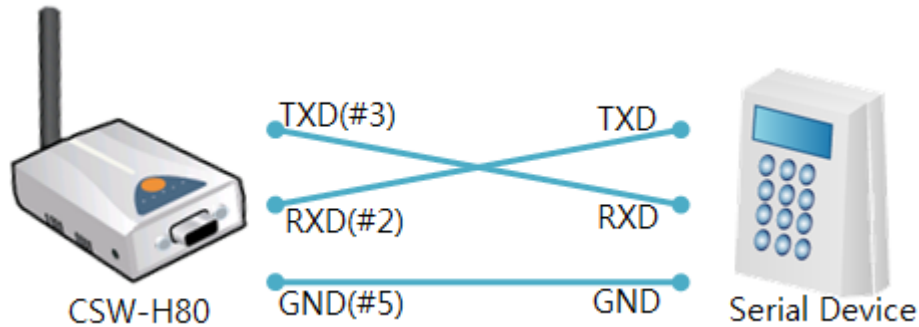


Figure 8-1 RS232 connection

- Setting parameters

Check if all the serial port parameters like Baud Rate, Data bit, Stop bit and Parity are properly set.

☞ ***Please contact us if you have any questions about above steps or our products.***

9 Related Materials

9.1 Documents

You can find each document on our web site or included CD in your package.

- Datasheet
- Declaration of RoHS Compliance
- Quick Start Guide

9.2 Applications for a Smart Phone

- ezManager(for iOS)
- ezManager(for Android)
- TCP/IP Console(for iOS)
- TCP Client(for Android)

10 Technical Support and Warranty

10.1 Technical Support

If you have any question regarding operation of the product, visit Customer Support FAQ corner and the message board on Sollae Systems' web site or send us an email at the following address:

- E-mail: support@eztcp.com
- Website Address for Customer Support: <http://www.eztcp.com/en/support/>

10.2 Warranty

10.2.1 Refund

Upon the customer's request to refund the product within two weeks after purchase, Sollae Systems will refund the product.

10.2.2 Free Repair Services

For product failures occurring within 2 years after purchase, Sollae Systems provides free repair services or exchange the product. However, if the product failure is due to user's fault, repair service fees will be charged or the product will be replaced at user's expense.

10.2.3 Charged Repair Services

For product failures occurring after the warranty period (2 years) or resulting from user's fault, repair service fees will be charged and the product will be replaced at user's expense.

11 Precaution and Exemption from Liability

11.1 Precaution

- Sollae Systems is not responsible for product failures occurring due to user's alteration of the product.
- Specifications of the product are subject to change without prior notice for performance improvement.
- Sollae Systems does not guarantee successful operation of the product if the product was used under conditions deviating from the product specifications.
- Reverse engineering of firmware and applications provided by Sollae Systems is prohibited.
- Use of firmware and applications provided by Sollae Systems for purposes other than those for which they were designed is prohibited.
- Do not use the product in an extremely cold or hot place or in a place where vibration is severe.
- Do not use the product in an environment in which humidity is high or a lot of oil exists.
- Do not use the product where there is caustic or combustible gas.
- Sollae Systems does not guarantee normal operation of the product under the conditions a lot of noise exists.
- Do not use the product for a purpose that requires exceptional quality and reliability relating to user's injuries or accidents – aerospace, aviation, health care, nuclear power, transportation, and safety purposes.
- Sollae Systems is not responsible for any accident or damage occurring while using the product.

11.2 Exemption from Liability

11.2.1 English version

In no event shall Sollae Systems Co., Ltd. and its distributors be liable for any damages whatsoever (including, without limitation, damages for loss of profit, operating cost for commercial interruption, loss of information, or any other financial loss) from the use or inability to use the CSW-H80 even if Sollae Systems Co., Ltd. or its distributors have been informed of such damages.

The CSW-H80 is not designed and not authorized for use in military applications, in nuclear applications, in airport applications or for use in applications involving explosives, or in medical applications, or for use in security alarm, or for use in a fire alarm, or in applications involving elevators, or in embedded applications in vehicles such as but not limited to cars, planes, trucks, boats, aircraft, helicopters, etc..

In the same way, the CSW-H80 is not designed, or intended, or authorized to test, develop, or be built into applications where failure could create a dangerous situation that may result in financial losses, damage to property, personal injury, or the death of people or animals. If you use the CSW-H80 voluntarily or involuntarily for such unauthorized applications, you agree to subtract Sollae Systems Co., Ltd. and its distributors from all liability for any claim for compensation.

Sollae Systems Co., Ltd. and its distributors entire liability and your exclusive remedy shall be Sollae Systems Co., Ltd. and its distributors option for the return of the price paid for, or repair, or replacement of the CSW-H80.

Sollae Systems Co., Ltd. and its distributors disclaim all other warranties, either expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, with respect to the CSW-H80 including accompanying written material, hardware and firmware.

11.2.2 French version

- Documentation

La documentation du boîtier CSW-H80 est conçue avec la plus grande attention. Tous les efforts ont été mis en œuvre pour éviter les anomalies. Toutefois, nous ne pouvons garantir que cette documentation soit à 100% exempt de toute erreur. Les informations présentes dans cette documentation sont données à titre indicatif. Les caractéristiques techniques peuvent changer à tout moment sans aucun préavis dans le but d'améliorer la qualité et les possibilités des produits.

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de toute responsabilité et de toute demande de dédommagement.

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Tous les boîtiers CSW-H80 sont testés avant expédition. Toute utilisation en dehors des spécifications et limites indiquées dans cette documentation ainsi que les court-circuit, les chocs, les utilisations non autorisées, pourront affecter la fiabilité, créer des dysfonctionnements et/ou la destruction du boîtier CSW-H80 sans que la responsabilité de Sollae Systems Co., Ltd. et de ses distributeurs ne puissent être mise en cause, ni que le boîtier CSW-H80 puisse être échangé au titre de la garantie.

- Rappel sur l'évacuation des équipements électroniques usages

Le symbole de la poubelle barré présent sur le boîtier CSW-H80 indique que vous ne pouvez pas vous débarrasser de ce dernier de la même façon que vos déchets courants. Au contraire, vous êtes responsable de l'évacuation du boîtier CSW-H80 lorsqu'il arrive en fin de vie (ou qu'il est hors d'usage) et à cet effet, vous êtes tenu de le remettre à un point de collecte agréé pour le recyclage des équipements électriques et électroniques usagés. Le tri, l'évacuation et le recyclage séparés de vos équipements usagés permettent de préserver les ressources naturelles et de s'assurer que ces équipements sont recyclés dans le respect de la santé humaine et de l'environnement. Pour plus d'informations sur les lieux de collecte des équipements électroniques usagés, contacter votre mairie ou votre service local de traitement des déchets.

12 Revision History

| Date | Version | Comments | Author |
|------------|---------|--|---------|
| 2008.12.09 | 1.0 | ○ Initial Release | |
| 2009.01.08 | 1.2 | ○ Add re-configuring the security function in the Serial Configuration Mode | |
| 2009.03.31 | 1.3 | ○ Modify 7.1 Technical Support ○ Modify the table of 6.7.1 | |
| 2009.05.13 | 1.4 | ○ Modify the table of 1.3 Specification ○ Modify the table of 1.4.2 LED Indicators ○ Add 3.1.7. WPA, 3.1.8 WPA 2 ○ Modify all the figures related ezManager ○ Add a description of changing Local Ports in ATC ○ Add a description of US2 Echo function ○ Correct some expressions | |
| 2009.05.14 | 1.5 | ○ Add a comment about F/W which support WPA and WPA2 | |
| 2010.01.05 | 1.6 | ○ Form and contents are modified to the new style | Roy LEE |
| 2010.04.05 | 1.7 | ○ Figure 3-2, 3-3 and 3-5 have been replaced | Roy LEE |
| 2010.07.15 | 1.8 | ○ Paragraph 4.1 has been corrected. | Roy LEE |
| 2010.08.18 | 1.9 | ○ Contents of 2.1.3 SSID has been changed. | Roy LEE |
| 2011.02.23 | 2.0 | ○ The link of support page has been corrected. ○ Figure 1-6 has been corrected. | Roy LEE |
| 2011.08.03 | 2.1 | ○ Add description of serial options. (FIFO, Data frame interval... etc) ○ Update a screenshot of ezManager. | Amy KIM |
| 2012.02.06 | 2.2 | ○ Add recommended values of the Event Byte ○ Remove contents about FIFO ○ Modify descriptions of 4.2 Changing modes ○ Change form of the front page ○ Update pictures ○ Add 7.2 Option tab function ○ Add caution about service using of DynDNS | Roy LEE |
| 2012.04.24 | 2.3 | ○ Change Figure 5-10 | Roy LEE |

| | | | |
|------------|-----|---|---------|
| 2012.06.04 | 2.4 | <ul style="list-style-type: none"> ○ Change the domain name to 'www.ezTCP.com' ○ Update figures ○ Remove description about PPPoE and DHCP ○ Extend the warranty period to two years ○ Modify the descriptions of components ○ Correct some errors and expressions | Roy LEE |
| 2013.02.26 | 2.6 | <ul style="list-style-type: none"> ○ Add a description about test condition for certificate. ○ Add a clause about serial port parameters ○ Modify some document styles ○ Add a notification about mobile applications ○ Correct some errors and expressions | Roy LEE |
| 2013.05.16 | 2.7 | <ul style="list-style-type: none"> ○ Add Related Materials chapter ○ Add Exemption from Liability chapter ○ Correct some errors and expressions | Roy LEE |
| 2013.12.18 | 2.8 | <ul style="list-style-type: none"> ○ Correct some errors and expressions | Roy LEE |
| 2014.10.23 | 2.9 | <ul style="list-style-type: none"> ○ Modify 1.4. Components ○ Add a note about ad-hoc mode ○ Add "exit" command for TELNET ○ Change figures 5-1 ~ 5-4 ○ Add TCP/IP Console for iOS on the application list ○ Correct some errors and expressions | Roy LEE |
| 2016.06.03 | 3.0 | <ul style="list-style-type: none"> ○ Add a description about telnet login ○ Modify smart phone application list ○ Correct some errors | Roy LEE |
| 2016.11.22 | 3.1 | <ul style="list-style-type: none"> ○ Remove CE Certification | Amy Kim |