



ezTCP Configuration Software

ezManager Manual

Version 1.9

Sollae Systems Co., Ltd.
<http://www.eztcp.com>

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1 Overview

1.1 Overview

In order to use all the ezTCP, environmental parameters are should be set correctly. Not only IP addresses but all of the serial port parameters (Type, Baud Rate, Data bit, Stop bit, Parity and Flow Control) are needed on ezTCP. There are some ways for configuration and it could be different according to product model. ezManager, one of the ways, is software for easy configuration of those parameters through LAN and serial port. Products whose name is started with “CSE”, “CIE” or “CSW” are available on this program.

☞ *ezManager is available on Microsoft Windows O/S.*

1.2 Available products

Table 1-1 available products

Model	Available Interfaces		Product Type	Requirement
	LAN	Serial		
CIE-M10	○	○	Serial to Ethernet	Connection over Ethernet, wireless LAN or Serial
CIE-H10	○	○		
CIE-H12	○	○		
CIE-H14	○	○		
CSE-M53N	○	○		
CSE-M32	○	○		
CSE-M73	○	○		
CSE-B63N	○	○		
CSE-H55N	○	○		
CSE-H53N	○	○		
CSE-H25	○	○		
CSE-H20	○	○		
CSE-H21	○	○		
CSE-T16	○	○		
CSE-T32	○	○		
CSE-T48	○	○		
CSE-M24	○	○		

CSC-H64	<input type="radio"/>	<input type="radio"/>		
CSW-M83	<input type="radio"/>	<input type="radio"/>	Serial to WLAN	
CSW-M85	<input type="radio"/>	<input type="radio"/>		
CSW-B85	<input type="radio"/>	<input type="radio"/>		
CSW-B85K	<input type="radio"/>	<input type="radio"/>		
CSW-H80	<input type="radio"/>	<input type="radio"/>		
CSW-H85K	<input type="radio"/>	<input type="radio"/>		
CSW-H85F	<input type="radio"/>	<input type="radio"/>		

2 Window Composition

2.1 Initial Appearance

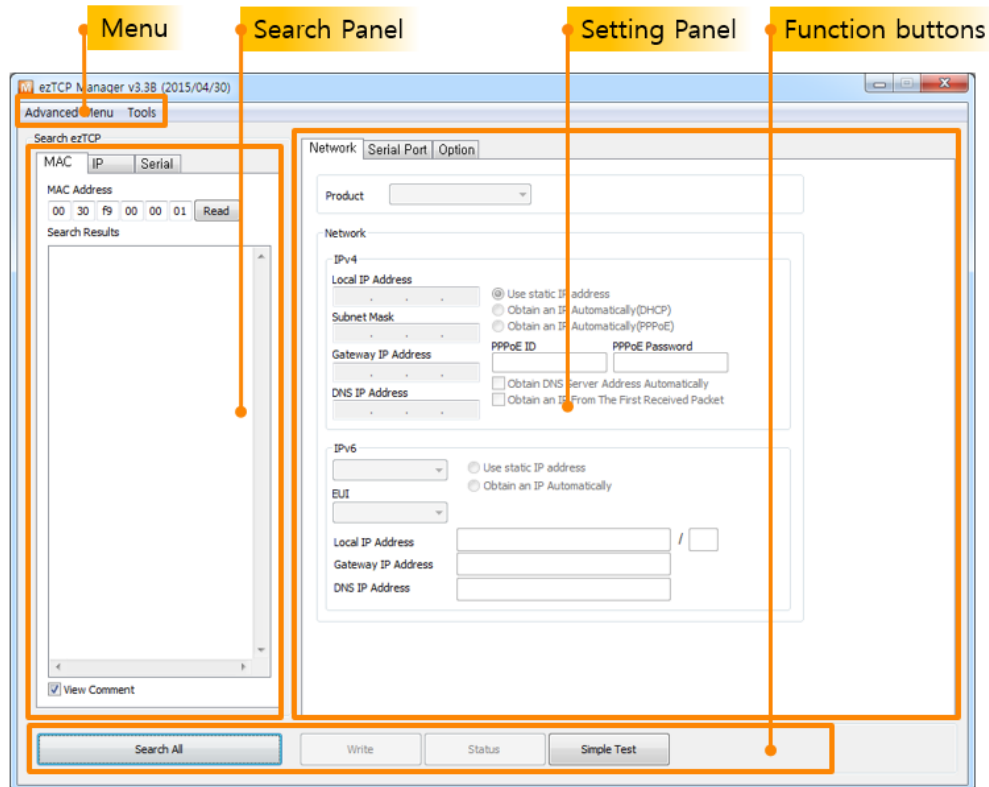


Figure 2-1 initial appearance of ezManager

- **Search Panel**
To configure the environmental parameters, the setting should be loaded to ezManager. You can read those values from both Ethernet using a MAC address or IP address and serial using RS232. This panel is for those jobs.
- **Setting Panel**
Loaded value of each parameter is shown in this panel. According to product type, three or four tabs will appear among the following five tabs: [Network], [Option], [Serial Port], [WLAN] and [I/O Port].
- **Function buttons**
Every function button which has a special function is located in this panel. It is composed of 4 basic buttons.
- **Menu**
Additional functions such as [Change FW / HTML] or [Set Password] are located in [Advanced Menu] and [Tools].

3 Search Panel

3.1 MAC Tab

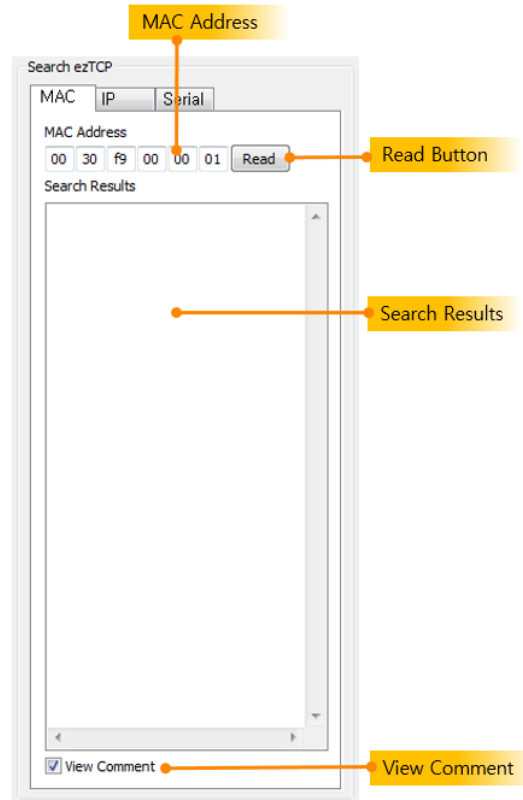


Figure 3-1 MAC tab

Use MAC tab when you want to broadcast the search packet in UDP.

- **MAC Address**
This area is for a MAC address of ezTCP. [Read] button lets you search the product. If you click one of the products which is listed on the [Search Results], the MAC address of the product is displayed.
- **Read**
This button lets you search an ezTCP which has the same MAC address with value of [MAC Address].
- **Search Results**
All the searched products are displayed in this box with their MAC addresses.
- **View Comment**
This option is for displaying comments instead of the MAC addresses. It is only valid for products which have value in comment filed.

3.2 IP Tab

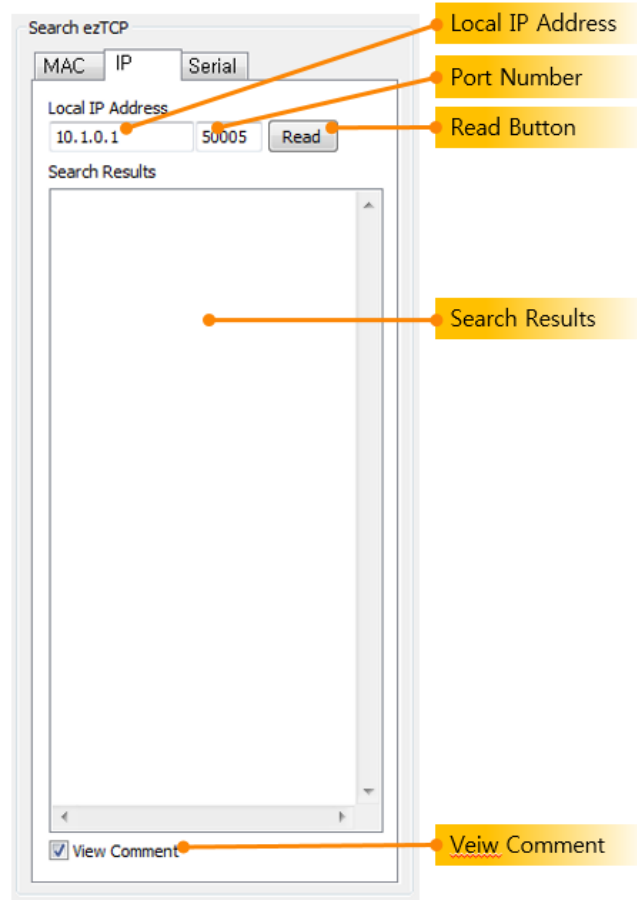


Figure 3-2 IP tab

Use IP tab when you want to send a search packet in UDP to an ezTCP.

- **Local IP Address**
This field is for an IP address or host name of an ezTCP which you want to search.
- **Port Number**
ezManager sends a UDP packet to ezTCP with this port number.
☞ Please use 50007 for CSE-T16 / T32 / T48.
- **Read Button**
This button is for sending the search packet in UDP.
- **Search Results**
The searched product is displayed in this box with its IP address.
- **View Comment**
This option is for displaying comment instead of the IP address. It is only valid for products which have value in comment field.

3.3 Serial Tab

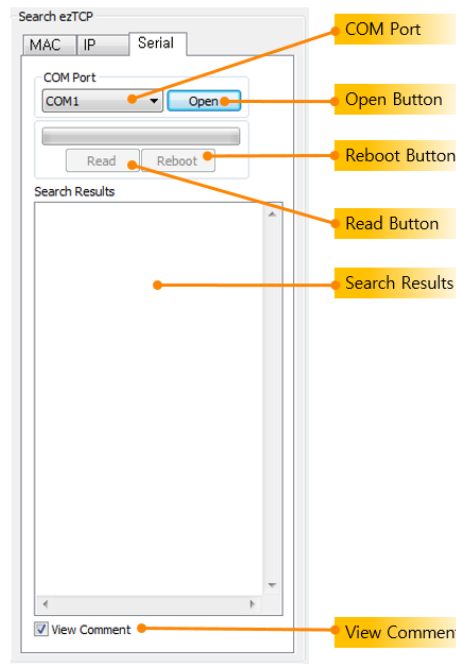


Figure 3-3 serial tab

All the products using ezManager are possible to configure environmental parameters by serial as well as the Ethernet.

- COM Port

This is a combo box for choosing a COM port.

- Open Button

Press this button for opening the selected port.

- Read Button

When you press this button, ezManager sends the read request message to ezTCP.

☞ *Note that ezTCP should operate as [Serial Configuration mode] before the setting.*

- Reboot

[Reboot] button lets ezTCP reboot.

☞ *All the products are entered the normal mode when you press this button in the serial configuration mode.*

- Search Results

- View Comment

4 Setting Panel

4.1 Network Tab

Figure 4-1 network tab

4.1.1 Product

The model name of selected product in the result box is displayed here. The version of firmware is shown by the model name. Those values are displayed only.

4.1.2 IPv4 Network Tab

This tab is for setting parameters which are related to an IP address.

- Local IP Address

This is a text box for the IP address of ezTCP. When you want to use DHCP or PPPoE on the [Option] part, [Local IP Address] will be assigned automatically.

- Subnet Mask

Subnet Mask should be set on this text box.

- Gateway IP

A gateway IP address of user's network should be set on this box. Gateway is needed to be connected with other network. If it is not correct, Internet or inter network communication will be not possible.

- **DNS IP Address**
Domain Name Service (DNS) is a technique for using a Host Name instead of an IP address because it is hard to remember the address. This box is for entering an IP address of DNS server.
- **Obtain an IP From The First Received Packet (ARP)**
This option is for receiving an IP address automatically from the first packet to arrive. ezTCP temporarily uses the destination IP address of the packet as its Local IP address.
- **Obtain an IP Automatically (DHCP)**
Receive its IP address from a Dynamic Host Configuration Protocol (DHCP) server automatically.
- **Obtain an IP Automatically (PPPoE)**
Receive its IP address from a Point to Point Protocol over Ethernet (PPPoE) server automatically.
- **PPPoE ID**
Input the PPPoE ID of your account here.
- **PPPoE Password**
Input the PPPoE password of your account here.
- **Obtain DNS Server Address Automatically**
When using PPPoE or DHCP, you can get the IP address of a DNS server by checking this option.

4.1.3 IPv6 Network Tab

Users can configure it in case of supporting IPv6. For more information refer to the technical document

 [\[Download\]>>\[Technical Documents\]>>\[IPv6 Guide\]](#)

4.2 Option Tab

The screenshot shows the 'Option' tab in the ezManager interface. It is divided into three main sections:

- Option:** Contains checkboxes for Telnet (checked), Send MAC Address, SSL, SSH, IPv4 Address Search (checked), Debugging Message, Multiple Connection, and Power Management.
- ezTCP Firewall:** Includes fields for Allowed MAC Address, Allowed IP Range (IPv4 Address, Network Mask, IPv6 Address), and an 'Apply To ezManager' checkbox.
- Notify IPv4 Change:** Includes dropdowns for Protocol (Disable) and Data Type (ASCII), and input fields for Interval (0 Minute(s)), Port (0), DDNS ID, DDNS Password, and Host Name (custom).

Three yellow callout boxes on the right side of the image point to the 'Option', 'ezTCP Firewall', and 'Notify IPv4 Change' sections respectively.

Figure 4-2 option tab

4.2.1 Option

Additional or special functions could be configured on this tap. Since each ezTCP has different options, refer to the manuals for more information.

- **Telnet**
This option lets you log in to ezTCP through telnet protocol and you can monitor the status of ezTCP.
- **IP Address Search**
This is an option for searching ezTCP using UDP unicast in [IP] tap. If this option is disabled, it does not work to search ezTCP in [IP] tap by an IP address. Therefore, we recommend that this option keeps being checked.
- **Send MAC Address**
This is an option for sending the MAC address of ezTCP right after the TCP connection is made.
- **Debugging Message**
While this option is checked, the [Debugging Message] button will be activated. The debugging messages are sent to UDP 50006. To capture the messages, press the [Debugging Message] button.

- **SSL**
Secure Socket Layer (SSL), which is a security protocol, can be configured here.
- **SSH**
Secure Shell (SSH), which is a security protocol, can be configured here.
- **Multiple Connection**
When using this function, multiple connections are allowed in T2S mode. There are two models which support this option so far. CSE-H25 and CSE-M73 can make up to 8 connections at a time. For more information about this option, refer to the technical document on our website.
- **Comment**
Users are allowed to give a comment on each product by this text box, which helps to distinguish products. In addition, if the [View Comment] option located under [Search Results] box, the comments are shown on the box.

4.2.2 ezTCP Firewall

This part is for restriction from hosts who are not supposed to access to the product.

- **Allowed MAC Address**
ezTCP allows a device to be connected with a configured MAC address on this box.
- **Allowed IP Range**
When users want to allow connection with one or more devices, this option would be used. Input an IP address and check the [Network Mask]. The following examples will be helpful to set it.

Table 4-1 examples of setting [Allowed IP Range]

IP Address	Network Mask	Range of IP address allowed to connect
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

- **Apply to ezManager**
This is an additional option of limitation. If this option is enabled, any devices without configuration at [Allowed MAC Address] or [Allowed IP Range] cannot be searched the ezTCP through ezManager. This option is available only when at least one of ezTCP Firewall options has been checked.

4.2.3 Notify IP Change

Under environment of using DHCP or PPPoE, ezTCP can communicate on TCP/IP with its changed IP address or host name by notification of it.

- Protocol

This part is for selecting a protocol for the IP notification. Three protocols (DDNS, TCP and UDP) are available. In case of DDNS, you have to make an account of DynDNS in the web site. And you can use TCP and UDP instead of DDNS by using own server.

- Interval

Notification period is to be configured on this box. The unit is a minute.

- DDNS ID

[DDNS ID] means an account ID of the DynDNS.

- DDNS Password

[DDNS Password] means an account password of the DynDNS.

- Port

When using TCP or UDP, port number is needed. This box is for entering the port number and it would not be activated under DDNS.

- Data Type

When using TCP or UDP, data type is needed. Two types are supported and they are ASCII and Hexagonal.

- Host name(custom)

This means an IP address or a host name of the custom server for management of IP address information.

- Host name(DynDNS)

When DDNS is selected for notifying an IP address, this would be a text box for a host name of ezTCP. Before using this a host name should be registered on the account. [Host name (custom)] would be activated when TCP or UDP is selected.

4.3 Serial Port Tab

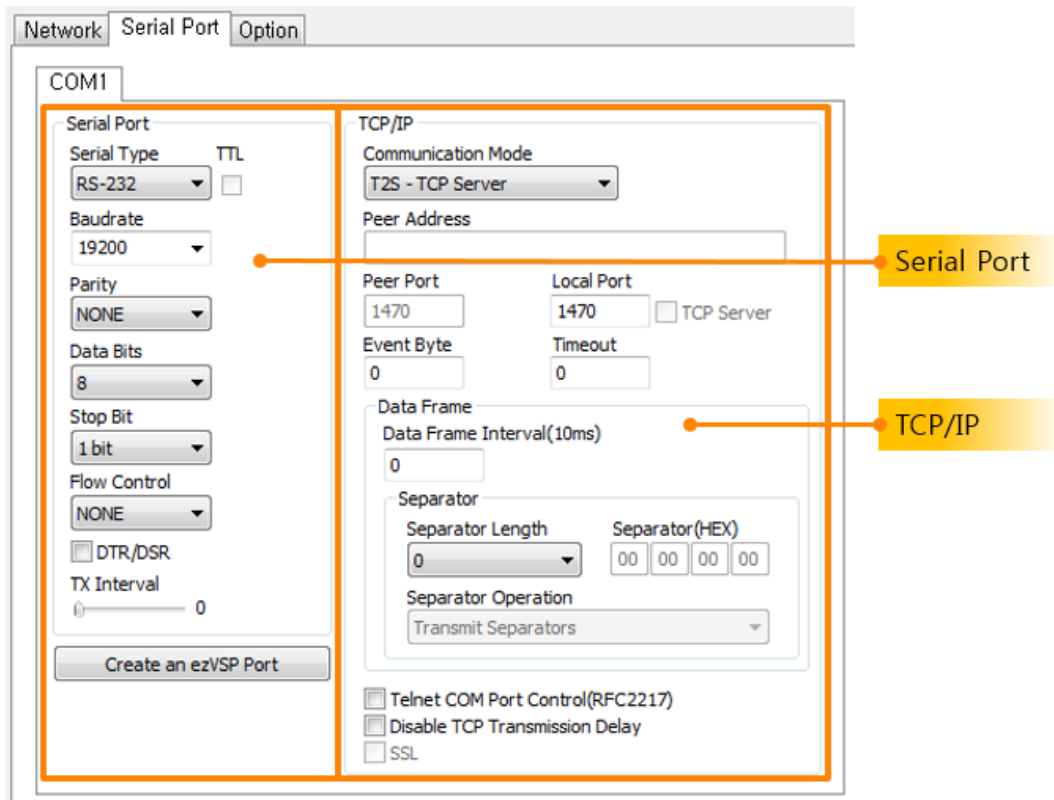


Figure 4-3 serial port tab

4.3.1 Serial Port

This part is for configuration about a serial port and TCP/IP connection.

- **Serial Type**
You can select a type of serial communications in this combo box. All ezTCP has RS232 interface, and some of them are available to use RS422 (Full duplex), RS485 (Half duplex) and TTL (Transistor to Transistor Logic).
- **Baud Rate**
Select a Baud rate for serial data communication rate. The unit is bit/sec.
- **Parity**
You can make a decision if you use the parity bit or not by this option. There are five options. (None, Even, Odd, Mark and Space)

Table 4-2 options of parity

Type	Description
None	No parity bit
Even	Add a parity bit to make number of 1 to be even number
Odd	Add a parity bit to make number of 1 to be odd number
Mark	Add a parity bit of 1
Space	Add a parity bit of 0

- **Data bit**
Make a decision about the length of data bits. The options are 5, 6, 7 and 8 bits. The default value is 8.
- **Stop bit**
Choose the length of stop bit. The options are 1, 1.5, 2 bit(s). The default value is 1.
- **Flow Control**
Select a method of flow control.

Table 4-3 options for flow control

Flow Control Type	Description
None	No Flow Control
RTS/CTS	Using RTS/CTS pins for Flow Control
Xon/Xoff	Xon/Xoff flow control (software)
DTR/DSR	Using DTR/DSR pins for Flow Control

- **TX Interval**
When transmitting data received from a network to the serial device, ezTCP causes some delays between each data. This function is useful when user's serial devices have any buffer or processing speed too slow. The unit is a Byte and that means ezTCP causes delays for the time to transmit a Byte between every Bytes.
For example, if it is assumed that the [Baud Rate] is 19,200 bps, [data bit] is 8 bits, [stop bit] is 1 bit, no [parity bit] and [TX Interval] is 5 Bytes, the time for transmitting one Byte will be $10/19,200$ sec (about $520.83\mu\text{s}$). So, when 5 Bytes duration is $50/19,200$ sec (about $520.83 \times 5 \doteq 2.6\text{ms}$), the intervals between every Byte would be 2.6ms.

4.3.2 TCP/IP

- **Communication mode**
Select a communication mode of ezTCP. The options are T2S (as a TCP server), COD (as a TCP client), ATC (TCP server/client) and U2S (UDP). In case of an I/O controller,

Serial Modbus/TCP would be added in the options.

- Peer Address

This box is for setting an IP address of TCP server who should be connected with your ezTCP. This could be set when your product is in the COD or U2S communication mode. In U2S mode, [Peer Address] means destinations of UDP packet to send. It could be an IP address or host name.

- Peer Port

When user's ezTCP is in TCP client mode (COD), the server's local port which is listening should be configured at this box. In U2S mode, it means a local port of the destinations of data to send.

- Local Port

In case of T2S mode (TCP server), this item is port number which will listen. When the ezTCP is set as U2S mode, it will be a port number where the data will be come into.

- Timeout

When ezTCP is using TCP protocol (T2S, COD or ATC mode), if this parameter's value is not set to zero, the connection will be closed after the specified time is passed (unit: second).

- Event Byte

[Event Byte] is a parameter which can decide the point of time that ezTCP tries to request a connection with a TCP server. If the specified amount of data is received from a serial port, ezTCP sends a request packet to the server for making a TCP connection. In U2S mode, this item means the packet size which is supposed to be sent at once. For example, if the value is set to 5, the size of a UDP packet block will be 5 Bytes.

- Data Frame Interval

Before sending data from the serial port to Ethernet, ezTCP gathers data in its 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 with checking [Disable TCP Transmission Delay] option.

- Telnet COM Port Control Option (RFC 2217)

This option is defined in the RFC2217. If this option is set, ezTCP transmits serial input signals (CTS, DSR) to the peer host and set values (RTS, DTR, Baud rate, Data bits, Parity, Stop bit) in to its serial ports from the peer host.

- **Disable TCP Transmission Delay**
By using this option, ezTCP transmits received data to the network right after the data comes from the serial port.
- **Create an ezVSP Port**
Users can create a virtual COM port in ezVSP based on the present values of the product. This is available when ezVSP is running.

☞ *For more information, refer to the technical document “ezVSP User Manual” on the [Download] >> [Technical Documents] menu of our web site.*

4.4 Wireless LAN Tab

The [Wireless LAN] tab appears in case of using ezTCP Wireless LAN models. Parameters related to wireless LAN could be configured in this tab.

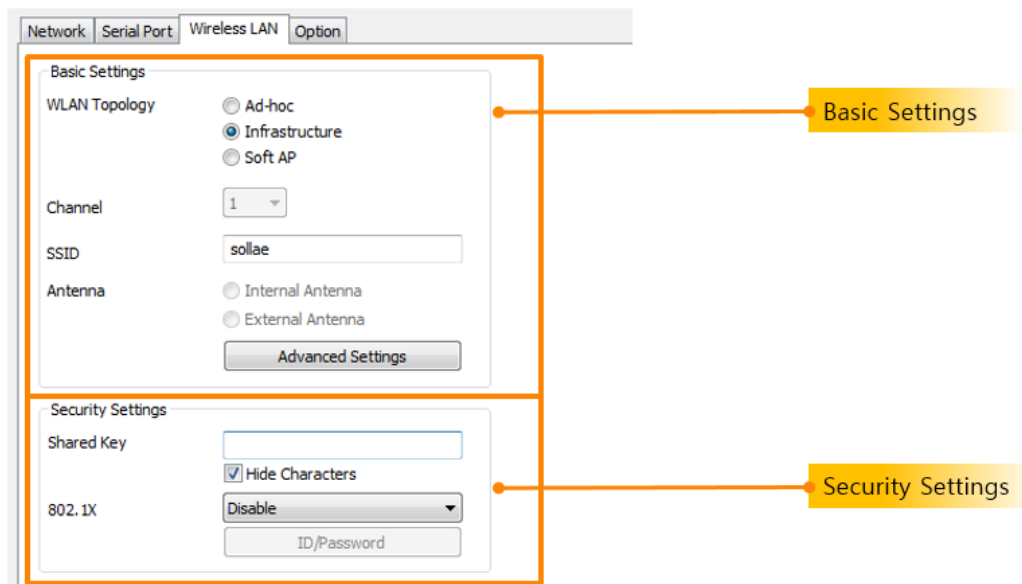


Figure 4-4 wireless LAN tab

4.4.1 Basic Settings

- **WLAN Topology**
Select a Topology of wireless LAN. One of Infrastructure, Ad-hoc or Soft AP(Software embedded Access Point) mode could be set. Infrastructure mode contains an Access Point (AP) so it is possible to connect ezTCP to Ethernet. On the other hand, Ad-hoc mode does not need an AP. A network of this mode needs just wireless devices. Soft AP is a mode that a wireless client can act as an AP through software embedded AP functions.

- **Channel**
In Ad-hoc mode, select a channel which is used to form a wireless link. If you have to set two or more networks in the same space, we recommend you to make an interval of more than 4 channels. This helps for avoiding the interference.
- **SSID(Service Set Identifier)**
A SSID is for identification of wireless networks. Wireless devices should have the same SSID for communication. In infrastructure mode, the SSID will be decided by an Access Point. Thus, ezTCP which is in the same network should have the AP's SSID. The default value is "sollae".
- **Antenna**
This option is for CSW-M85 to select either the chip antenna or external one.
- **Advanced Settings**
You can configure advanced settings for WLAN with this button. We recommend using the default values if you do not have any problem with it.

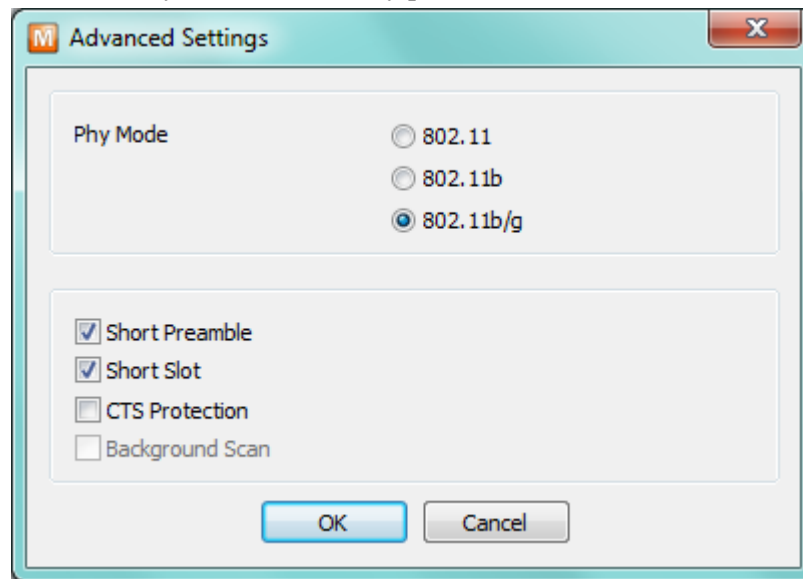


Figure 4-5 Advanced Settings

Table 4-4 Advanced Settings

Advanced Settings	Description
PHY Mode	You have three options for PHY mode and those are [802.11], [802.11b] and [802.11b/g] mode.
Short Preamble	Under good condition of WLAN environment, you can expect a slight improvement by enabling this option.

	Otherwise, you had better to disable this option.
Short Slot	Using this option, you can expect some improvement in WLAN performances. If you are in bad condition of WLAN environment, you had better to disable this option.
CTS Protection	Using this option, you can expect some improvement in WLAN performances under WLAN environment that both 802.11b and 11g devices are.

4.4.2 Security Settings

- Encryption

Choose one of the following security protocols.

Table 4-5 available items of the encryption

Protocol	CSW-H80/M83	CSW-M85
None	No security set	No security set
WEP	Coding by WEP (64 / 128 bit KEY)	Coding by WEP (64 / 128 bit KEY)
WPA-PSK	Coding by WPA-PSK - TKIP, 8~32 bytes KEY	Coding by WPA-PSK -TKIP, 8~63 bytes KEY -AES, 8~63 bytes KEY -TKIP/AES, 8~63 bytes KEY
WPA2-PSK	Coding by WPA2-PSK - AES, 8~32 bytes KEY	Coding by WPA2-PSK -TKIP, 8~63 bytes KEY -AES, 8~63 bytes KEY -TKIP/AES, 8~63 bytes KEY

- Authentication

The authentication could be divided to two big parts. The one is Open-System and the other one is Shared-Key. The first one just consists of two frames which are request and response. There is no checking process. The second one uses a shared key for the authentication. This is valid for only WEP.

Table 4-6 methods for the authentication

Method	Description
Open System	Use request and response messages
Shared Key	Use a shared key
Auto	Use automatic configuration

- WPA-Enterprise

If the AP uses WPA-Enterprise for its authentication, you have to select 802.1X authentication protocol for ezTCP.

Table 4-7 802.1X item

Protocol	Description
EAP-TLS	ID of radius server account, client certificate
EAP-TTLS	ID and passphrase of radius server account
PEAP	ID and passphrase of radius server account

4.5 I/O Port Tab

This is only for remote I/O controllers. In this tap, all the parameters could be set for monitoring and controlling digital inputs and outputs.

4.5.1 Basic Settings

Select protocols for monitoring and controlling digital I/O ports.

Figure 4-6 I/O port tab

- **Web (HTTP)**
If you want to monitor and control the remote I/O device through the HTTP using web browser, you should check this option. Just input the IP address or host name of the controller on the web browser.
- **Web (HTTP) Port**
The default port number of HTTP is 80. However, users can set the port number to another value in this box.
- **Size of Web (HTTP) page**
When controlling an I/O model, you can decide the size of memory where the HTML files will be stored. Default is 80KB, but 96KB or 112KB can be set. We recommend using 80KB because to set another values may cause problems when downloading F/W.

- Initialize the output port state
The output port will be changed to the [Initial State] when Modbus/TCP is disconnected.
- Modbus/TCP
Digital input and output ports are controlled by Modbus/TCP protocol. In this case, ezTCP could be operated as a Modbus/TCP Master or Slave.
- Notify Input Port Change
While ezTCP is operating as a Modbus/TCP slave, it sends the master response packets right after status of input port is changed regardless of master's query.
- Master/Slave
Choose one of the types in Modbus/TCP communication. A master sends queries to a slave and the slave replies to the query.
- Unit ID
In the slave mode, this item means the device ID. In the master mode, however, the parameter means an ID of the remote device and ezTCP.
- Input Port Base Address
This represents the first address of digital input ports. In case of CIE-H10, there are 8 input ports. Therefore, the difference with [Output Port Base Address] has to be 8 at least. Modbus/TCP regards this value as a reference number of the first digital input port (Di0) and next 7 numbers as addresses of each input port (Di1~7). This is why the value should be 8 at least.
- Output Port Base Address
This represents the first address of digital output ports. In case of CIE-H10, there are 8 output ports. Therefore, the difference from [Input Port Base Address] has to be 8 at least.
- Poll Interval
This item means the period of sending queries from the master. The unit is millisecond.
- Control Method of (FCXX)
The output ports of slave are controlled both individually(bit unit) and simultaneously(word unit) in ezTCP master.
- Control Method of (AND/OR)
Control method for the output ports of the master.
- Passive Connection
ezTCP listens to the Modbus/TCP connection request.

- **Active Connection**
ezTCP tries to make a Modbus/TCP connection.
- **Multiple Connection**
In slave mode, you can accept multiple TCP connection requests using this option.
- **Peer Address**
In the [Active Connection] mode, an IP address or host name of counterpart should be set here.
- **Peer Port**
In case of [Passive Connection], this is the local port number where the connection would be established. In [Active Connection], however, ezTCP tries to make a Modbus/TCP connection through this port.

4.5.2 I/O Port Option Tab

The screenshot displays the 'I/O Port Option' tab within the ezManager software. The interface includes several sections:

- I/O Port Option:** A checkbox for 'Notify Input or Output Port Change(Email)', an 'Email Address' input field, and checkboxes for 'Input Port' (Di0-Di7) and 'Output Port' (Do0-Do7).
- Digital Input:** A table with columns for 'Valid Time (ms)' and rows for Di0 through Di7, all showing a value of 0.
- Digital Output:** A table with columns for 'Macro', 'Delay (ms)', and 'Initial State'. It includes checkboxes for Do0-Do7, a 'Delay (ms)' column with values of 0, and 'Initial State' dropdowns set to 'Off'.

Orange callout boxes highlight the 'I/O Port Option' tab, the 'Notify Input or Output Port Change(Email)' checkbox, the 'Digital Output' section, and the 'Digital Input' section.

Figure 4-7 I/O Port Option tab

- **Notify Input or Output Port Change(Email)**
When input or output port is changed, you can receive an email for notification from ezTCP using SMTP protocol. When ports you selected are changed, status of the ports is sent to the Email address you entered.

- Digital Input

This is a part for setting [Valid Time]. I/O products recognize the input as a signal which is continued over the valid time. If the signal does not be maintained for the specified time, ezTCP will ignore it. The unit of [Valid Time] is one millisecond. However, the resolution is 10ms and the rest of them is rounded down.

- Digital Output

This is a part for setting output port options like [Macro], [Delay] and [Initial State].

- Macro

[Macro] is an option for automatic control of the output ports by using some numerical expressions. ezTCP supports some simple expressions of Boolean Algebra. While using this option, users cannot control the output ports through HTTP or Modbus/TCP.

- Delay

I/O models apply the signal to its output ports after the [Delay time]. The unit is 1 millisecond. However, the resolution is 10ms and the rest of them is rounded down. If the [Delay] is set to zero, ezTCP applies the signal immediately.

- Initial State

This means that the initial state of each output port. If an output port is set to 'on', the port will be turn on right after the booting is completed.

4.5.3 I/O Port Comments Tab

You can easily identify each product by using this comment option.

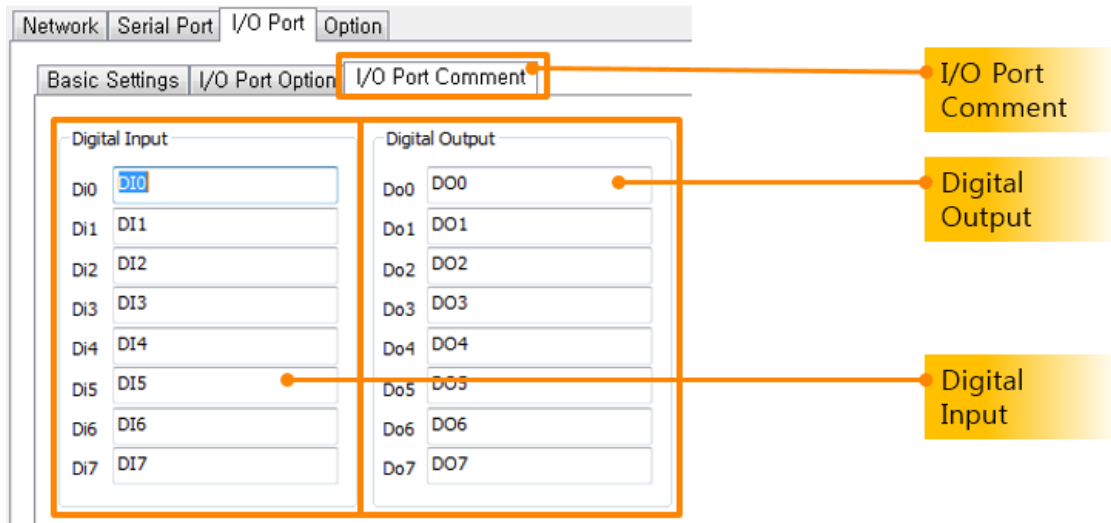


Figure 4-8 I/O port comment tab

- **Digital Input**
Give comments for identifying the output ports
- **Digital Output**
Give comments for identifying the input ports

5 Function Buttons and Menu

5.1 Function Buttons

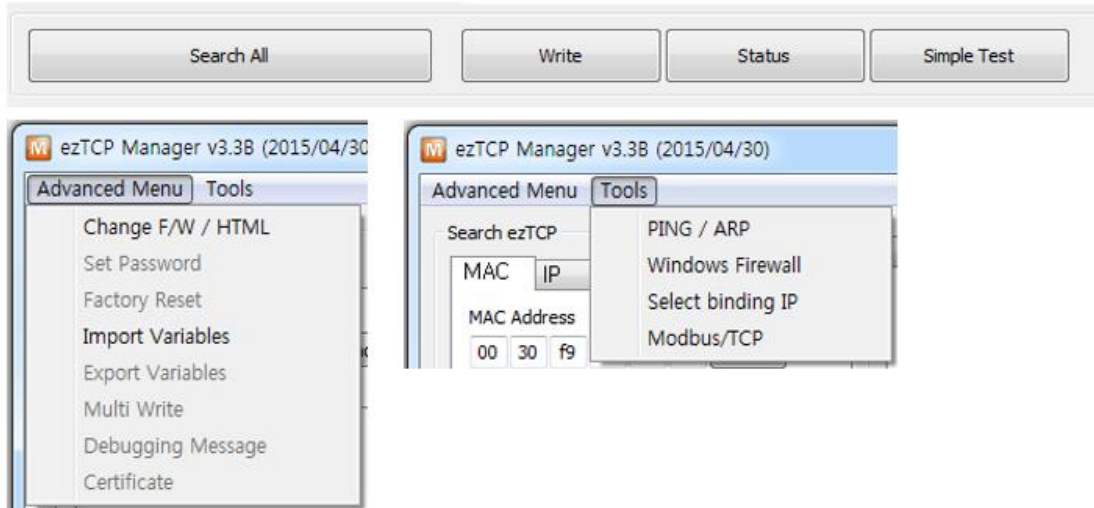


Figure 5-1 Function Buttons

5.1.1 Search All

ezManager searches all the products on the local network. The result is displayed on the [Search Results] box. Each value represents each MAC address of ezTCP. Parameters of the selected product are displayed in the right panel of the ezManager window.

5.1.2 Write

ezManager saves the modified parameters to ezTCP by pressing the [Write] button. The ezTCP resets automatically if the [Write] button is pressed. **This button may be used by any other person who has ezManager. So, we strongly recommend you to protect your ezTCP by setting a password.**

5.1.3 Status

You can find the current status of your ezTCP by pressing this button. When users press this button, a new window appears and some information will be shown. The information includes system uptime, an IP address, the amount of receiving and transmitting data from/to the serial ports.) This window appears when you double click the MAC address on the [Result Box]

5.1.4 Simple Test

You can simply test ezTCP in terms of both serial and network ports with this program. Refer to the chapter 6 for the program.

5.2 Menu

5.2.1 Change F/W / HTML

This is for changing a firmware file or HTML files. Refer to the chapter 8.

5.2.2 Set Password

This button is for setting or modifying the password of ezTCP. If the product has a password, you have to input the password when you press the [Write] button. The password is used to restrict configuration of environmental parameters by unauthorized people. Once the password is configured, it will be necessary to remember for logging on to telnet, SSH and HTTP.

5.2.3 Debugging Message

This button is used to see debugging messages. When the [Debugging Message] option is activated on the [Option] tap, ezTCP sends debugging messages to UDP 50006 and those can be captured after pressing this button. Since this operation may cause a lot of network traffic, you had better to inactivate the [Debugging Message] option.

5.2.4 Factory Reset

All the parameters except for the password will be initialized.

5.2.5 Import Variables

Load environmental parameters from a file stored by [Export Variables] on the present window.

5.2.6 Export Variables

Store environmental parameters on the present window as a file



5.2.7 Multi Write

Set the present environmental parameters to multiple products. The products should be the same model.

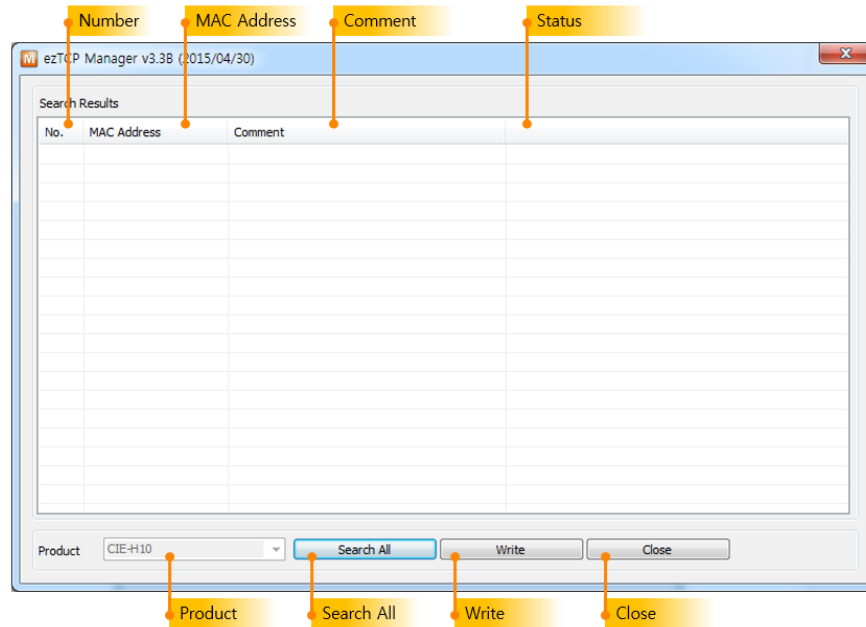


Figure 5-2 multi write window

- **No. / MAC Address / Comment**
These items present the information of searched products.
- **Status**

Table 5-1 status on the multi write window

Message	Description
Ready	
Writing the environment variables has been successfully completed.	Succeed
No response from the ezTCP(s). Please check the LAN cable and the setting of the firewall on your PC. This program only works for the products with the prefixes such as "CSE", "CIE" or "CSW".	Failed

- **Product**
A model name is shown in this box. The products which have the same type of model are searched.
- **Write**
Write the present settings to the searched products.
- **Close**

5.2.8 PING/ARP

This program is for PING test and management of an ARP table.

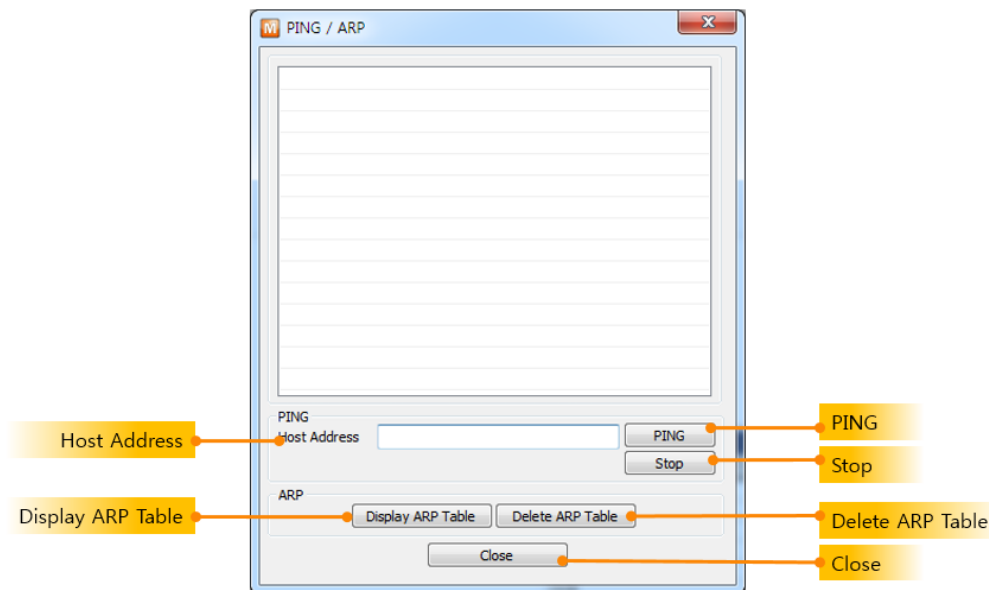


Figure 5-3 PING / ARP program

- Host Address
Input a host address to send a PING request.
- PING
Send the PING request.
- Stop
Stop sending the PING request
- Display ARP Table
Display contents of an ARP table in your PC
- Delete ARP Table
Delete all contents of ARP table in your PC
- Close

5.2.9 Windows Firewall

ezManager broadcasts UDP packets when searching ezTCP with [Search All] button on [MAC] tap. However, most of firewall blocks broadcast packets for some reasons. So, the ezManager does not work if any firewall is operating. This button lets you move to the firewall configuration window directly.

5.2.10 Select binding IP

By selecting a binding IP address, you can choose a Network Interface Card (NIC) of your PC for broadcasting the search packet from ezManager. This option is helpful for users who have a PC with 2 Ethernet adapters or a laptop which equips both Ethernet and Wi-Fi adapter.

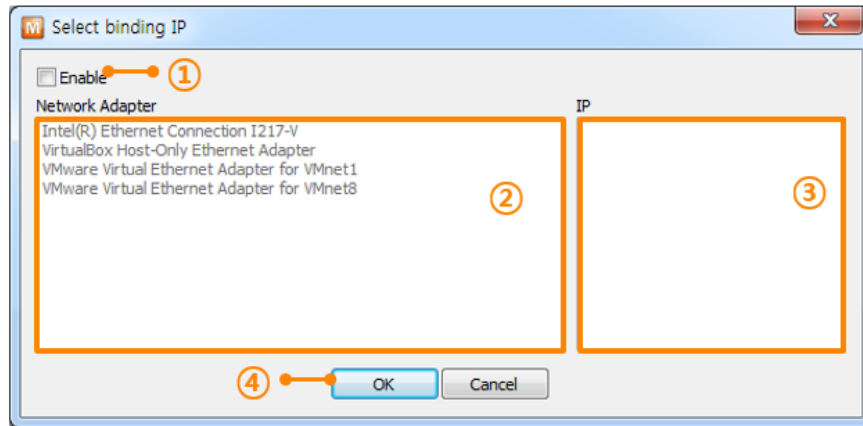


Figure 5-4 select binding IP

- Use
This option enables or disables the [Select binding IP] function.
- Network Adapter
All the available NICs are listed in this area.
- IP
All the assigned IP addresses of selected NIC are listed in this box.
- How to use
 - ① Check the [Use] option.
 - ② Choose a NIC to broadcast the search packets.
 - ③ Select an IP address.
 - ④ Press the [OK] button.

5.2.11 Modbus/TCP

Modbus/TCP program can control I/O products. Refer to **7. Modbus/TCP test program**.

5.2.12 Certificate

When a WLAN product uses EAP-TLS, it must have a certificate. You can save the certificate with this function.

6 Simple Test Program

6.1 About the Program

This program helps you confirm the simple data communication. When you press the [Simple Test] button, the program will be created.

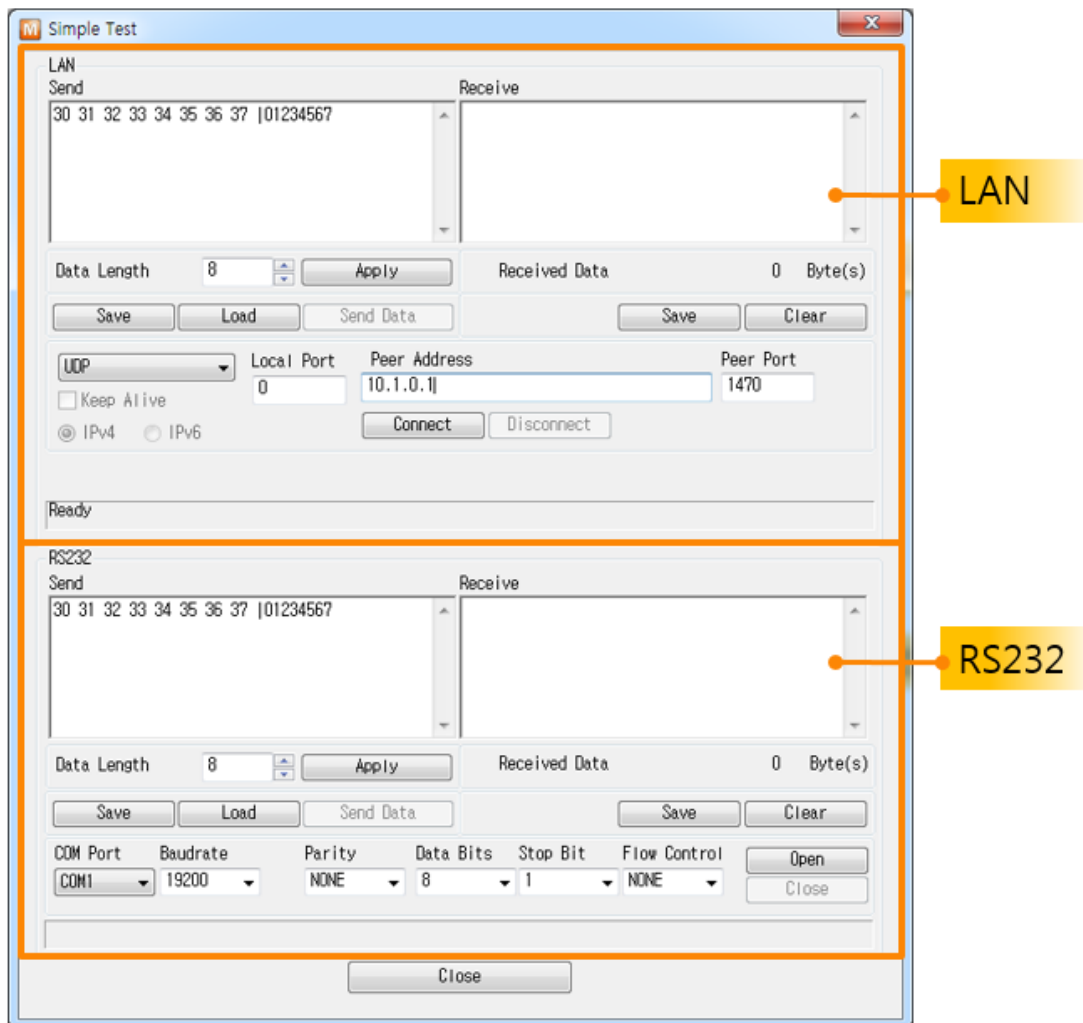


Figure 6-1 simple test program

This program has both LAN and serial interfaces.

6.2 LAN Part

This part is a socket communication program.

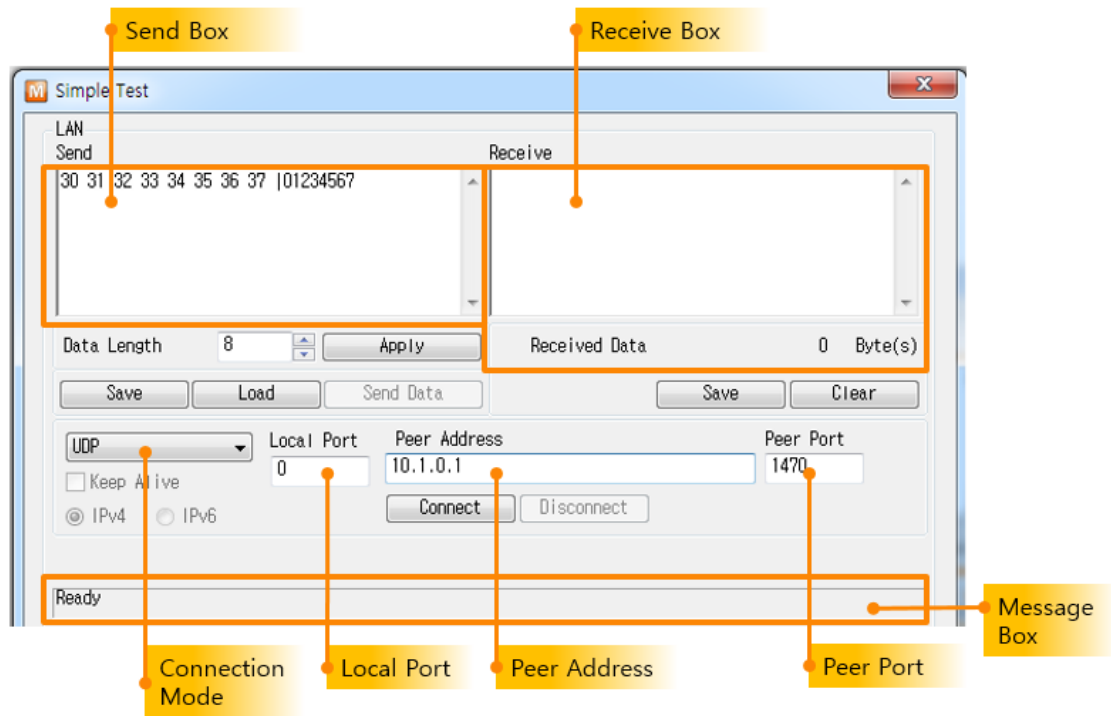


Figure 6-2 LAN part

6.2.1 Send Part

Data which is in this box will be sent to the network counterpart.

- **Data Length**
Set the length of the data to send.
- **Apply**
Apply the Data Length on the box.
- **Save**
Store the message on the box as a file.
- **Load**
Load a file on the box.
- **Send**
Send data on the box to a remote host.

6.2.2 Receive Part

Received TCP/IP data is displayed in this box.

- Save
Store the message on the box as a file.
- Clear
Clear the box.

6.2.3 TCP/IP Setting Part

- Connection Mode
Set the communication mode. A mode could be set among three modes: TCP client, TCP server or UDP.
- Keep Alive
Use a Keep-Alive packet for detection of TCP disconnection.
- Local Port
Set a local port number for receiving UDP data in UDP mode or listening to TCP connection requests in TCP server.
- Peer Address
Configure a destination IP address or hostname.
- Peer Port
Configure a destination port number.
- Connect
Send TCP connection requests using the peer address and port. In UDP mode, the program gets ready to communicate.
- Listen
Listen to TCP connection requests with the Local Port.
- Disconnect
Disconnect established TCP connection. In UDP mode, the program gets back to the initial state.
- Message Box
Output messages about the information of TCP/IP connection.

6.3 RS232 Part

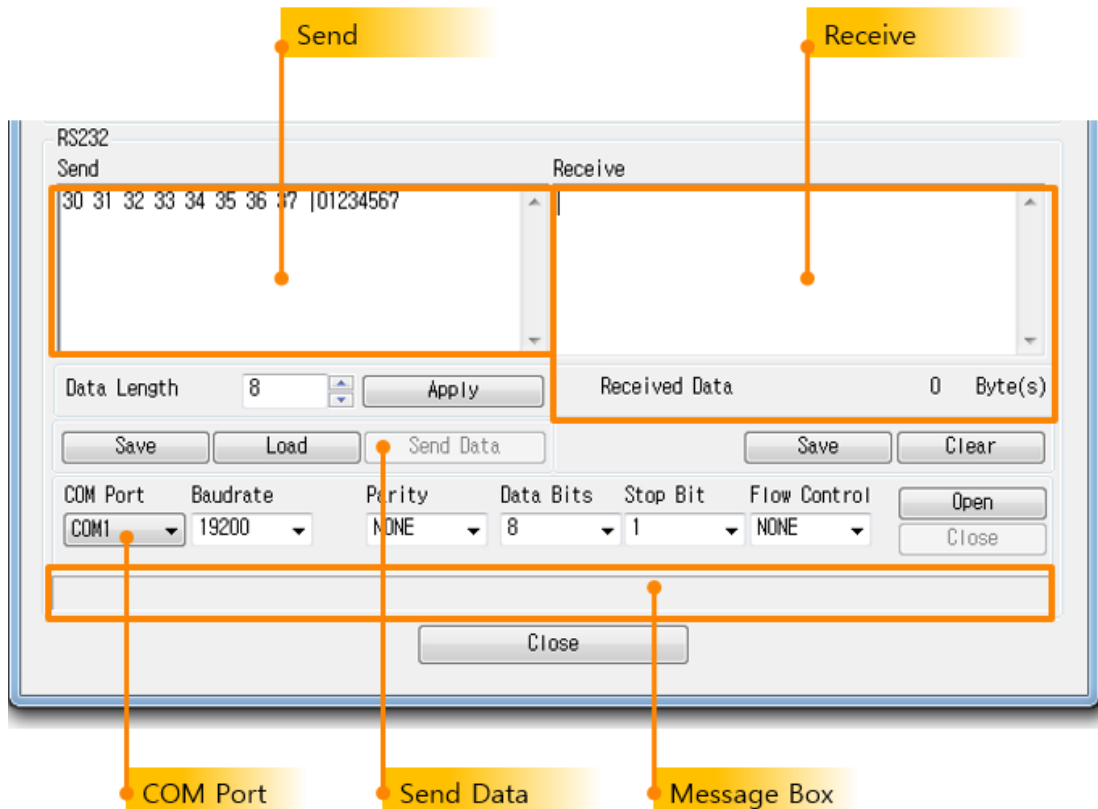


Figure 6-3 RS232 part

6.3.1 Send Part

Data in this box will be sent to the serial port.

- **Data Length**
Set the length of the data to send.
- **Apply**
Apply the Data Length on the box.
- **Save**
Store the message on the box as a file.
- **Load**
Load a file on the box.
- **Send**
Send data on the box to the serial port.

6.3.2 Receive Part

Received serial data is displayed in this box.

- Save
Store the message on the box as a file.
- Clear
Clear the box.

6.3.3 RS232 Setting Part

- COM Port
Select the connected COM port.
- Baud Rate / Parity / Data Bits / Stop Bit / Flow Control
Set each parameter to the same with the connected device.
- Open
Open the selected COM port.
- Close
Close the opened COM port.
- Message Box
Output messages about the information of COM port operation.

6.4 Simple Test

- Connecting to the product via LAN

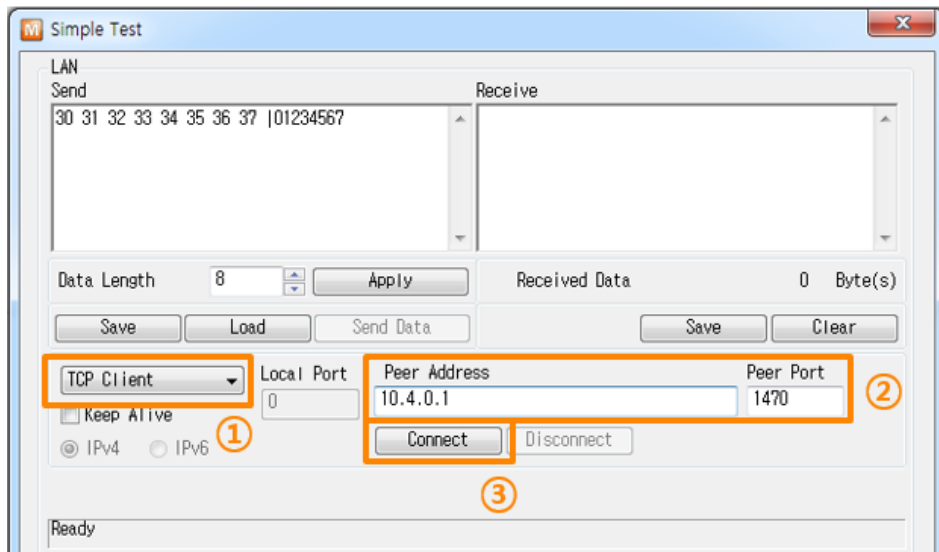


Figure 6-4 settings for TCP connection

- ① Select [TCP Client]
 - ② Input a correct IP address and port number of ezTCP
 - ③ Click the [Connect] button. (Click the [Listen] button in case of a TCP Server)
- Opening RS232 Port

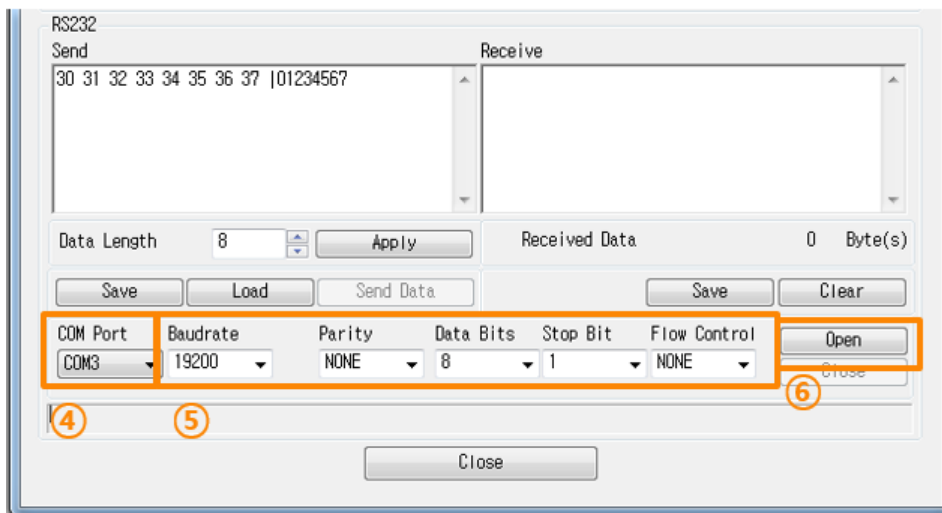


Figure 6-5 opening COM Port

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

- Confirm the TCP Connection and COM port status

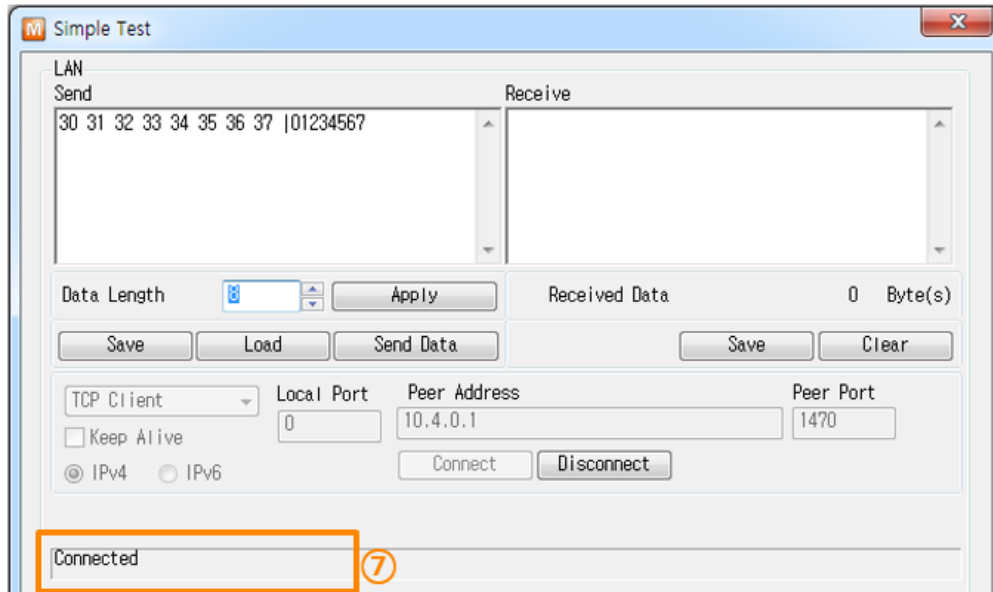


Figure 6-6 TCP Connected message

- ⑦ Check the message if the TCP connection is established

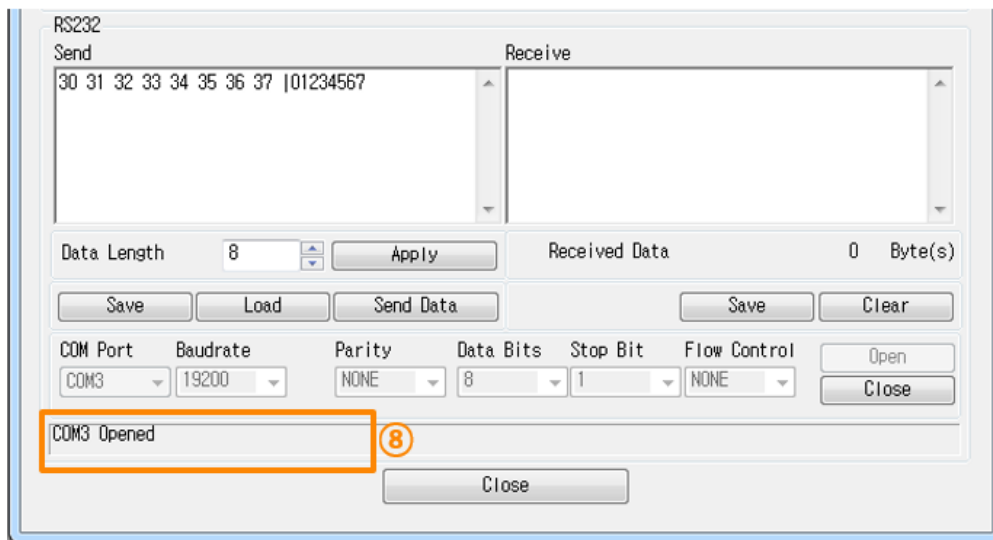


Figure 6-7 COM Port open message

- ⑧ Check the message if the COM port is opened

● Data transmission test

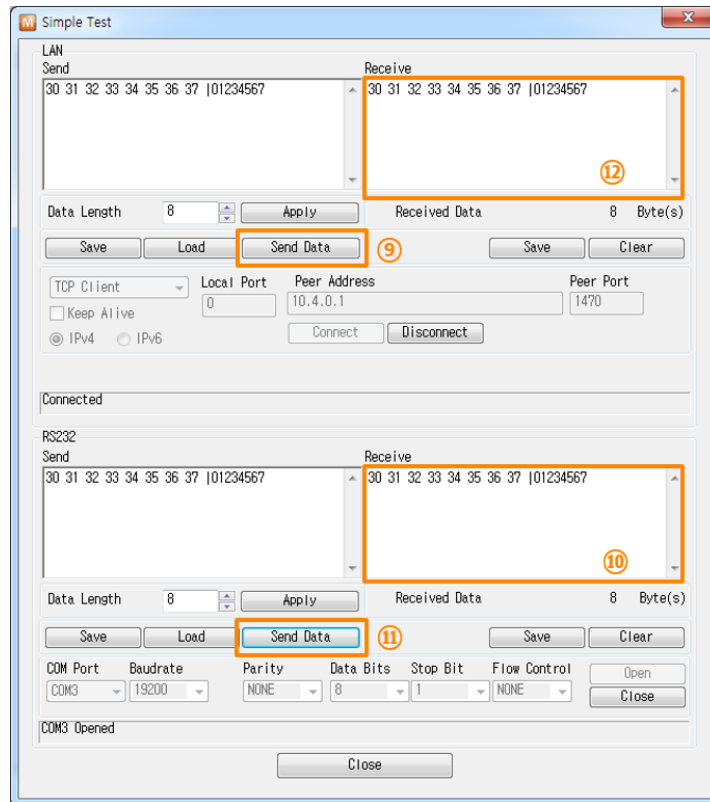


Figure 6-8 successful data transmission

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

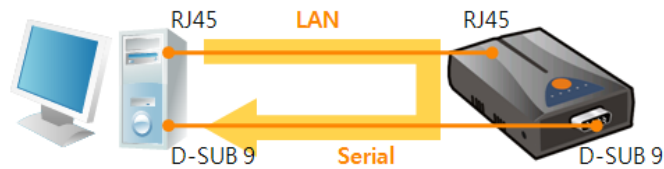


Figure 6-9 LAN → RS232

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

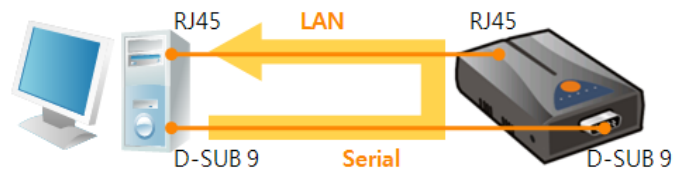


Figure 6-10 RS232 → LAN

7 Modbus/TCP Test Program

7.1 About the Program

Check the [Advanced Menu] checkbox and click the [Modbus/TCP] button, then a program for testing Modbus/TCP is created on the right side. You can test Modbus/TCP functions and operation like controlling output ports with this program. This is a Modbus/TCP master program.

7.1.1 Components

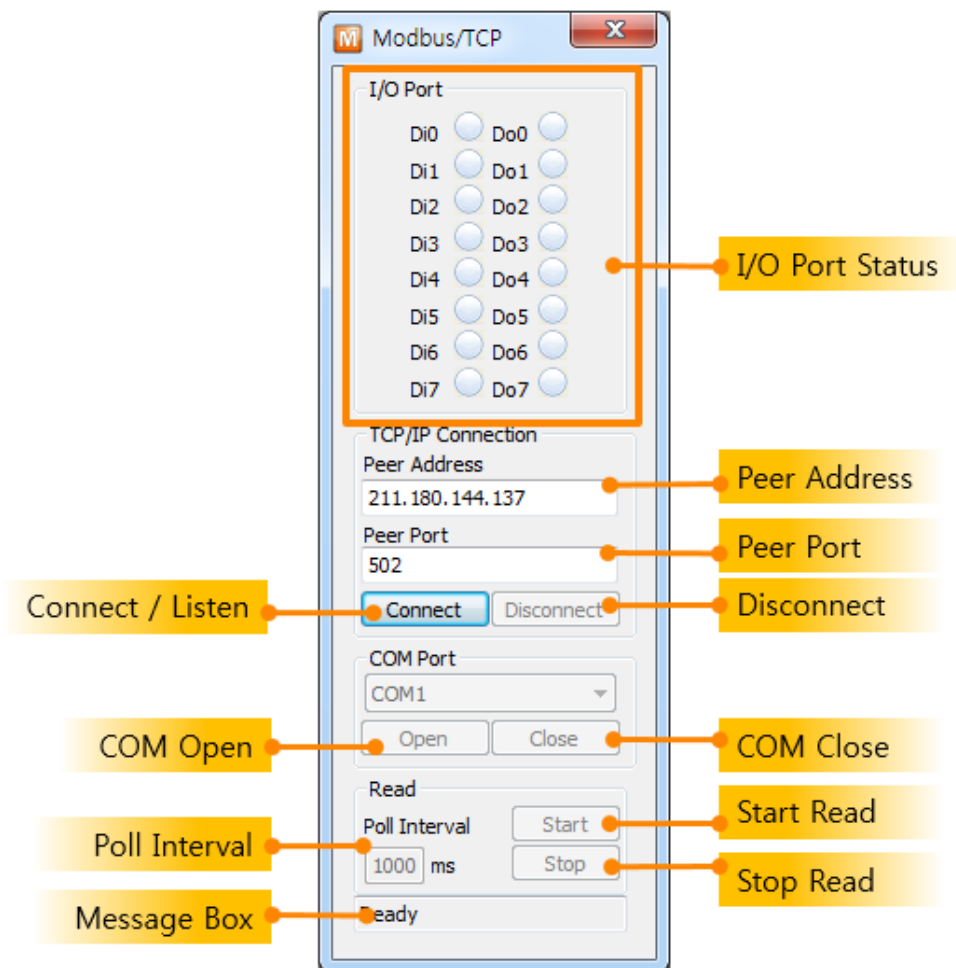


Figure 7-1 Modbus/TCP test program

- I/O Ports Status

Each state of input and output ports is shown. The image is changed to green color when the port is ON.

- Connect / Listen

While the product is operated in passive connection mode, [Connect] button is shown and it is used for sending TCP connection requests. If the product is operated in active connection mode, [Listen] button will be shown and it is used for waiting TCP connection requests.

☞ ***The program's connection mode (Active or Passive) is automatically set according to the product's mode.***

- Disconnect

Disconnect the established TCP connection.

- COM Port

When the product is set to [Serialized Modbus/TCP] mode, this part is activated. You should select the connected COM port.

- Open / Close

Open / Close the COM port.

- Poll Interval

In the master mode, set the time period as milliseconds unit to send query.

- Read Start / Stop

Start / Stop sending query from the program.

7.1.2 Test Operation

This is for checking the operation of input and output ports via Modbus/TCP.

- Configuration of the product
 - ① Select the MAC address after searching the product
 - ② Check if the Modbus/TCP test program is created
 - ③ Move to [I/O Port] tab
 - ④ Select [Basic Settings]
 - ⑤ Set the parameters like the figure below

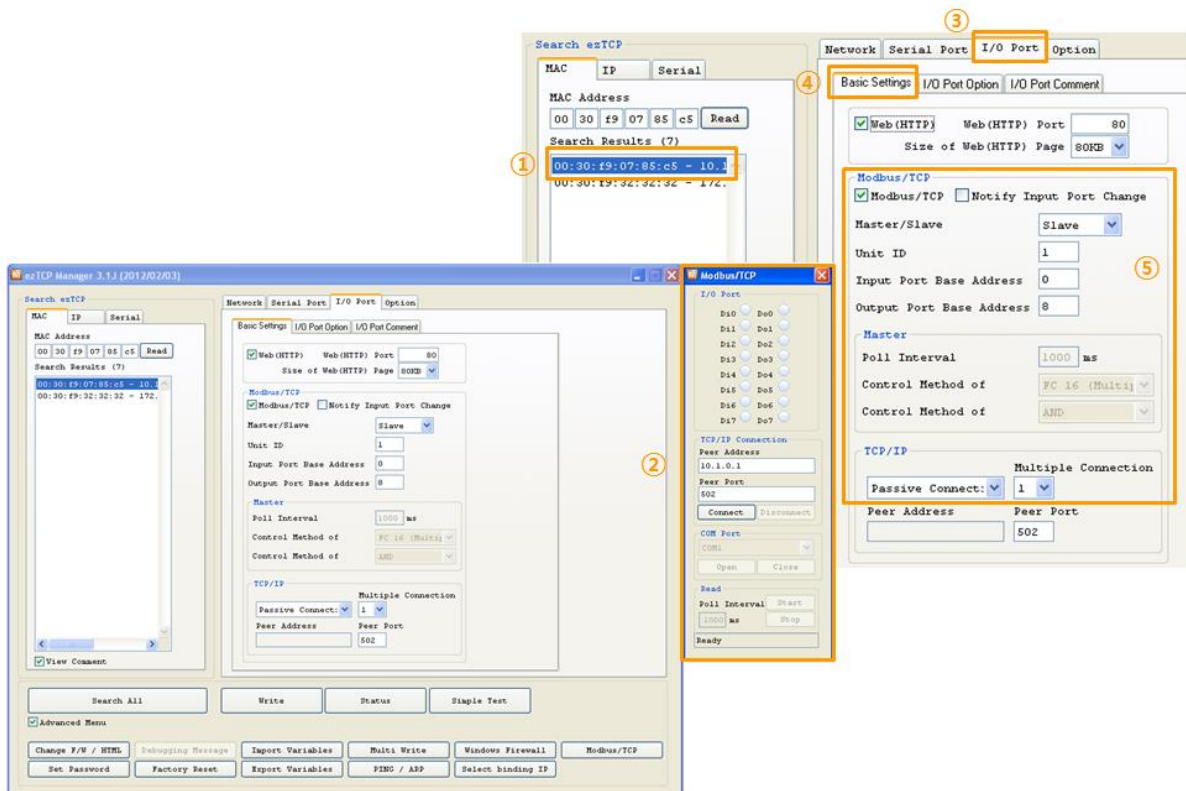


Figure 7-2 test operation for Modbus/TCP

- Connection and Controlling

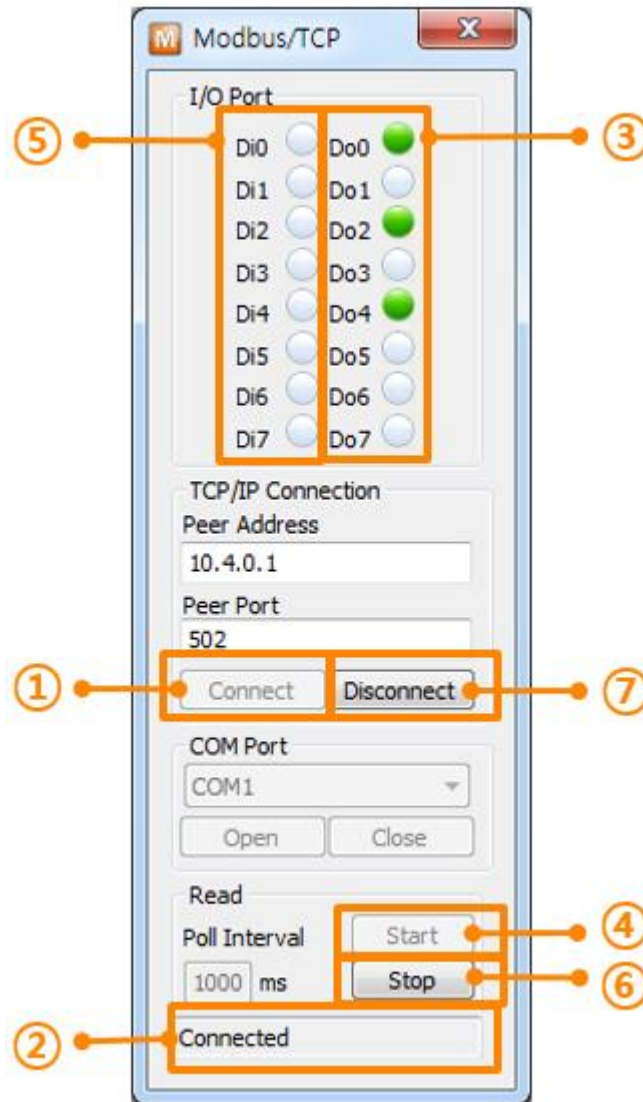


Figure 7-3 Modbus/TCP test program

- ① Press the [Connect] button.
- ② Check the message output is fine.
- ③ Click the each output port for test.
- ④ Press the [Start] button to start reading the state of digital input ports.
- ⑤ Input signal to an input port and check if the LED is changed to green.
- ⑥ Press the [Stop] button to stop reading.
- ⑦ Click the [Disconnect] button after test is finished.

8 Changing Firmware / HTML

8.1 Changing F/W

Firmware is a type of software that operates ezTCP inside. The firmware has been improved because it would be modified on occasional basis with fixing bugs or adding new functions by user's demands. Therefore, we recommend that users keep their product to have the latest released firmware. The information of new and old firmware of each product is on our website.

8.1.1 Changing F/W over the Ethernet

- Getting the latest firmware file

Download the file on your PC and remember the route. The file is on our web site.

- Changing mode to ISP

Change operation mode of ezTCP to ISP to download the firmware file.

- Preparation for transmission

Click [Advanced Menu]->[Change F/W / HTML] menu. The program lets you transmit the file to ezTCP.

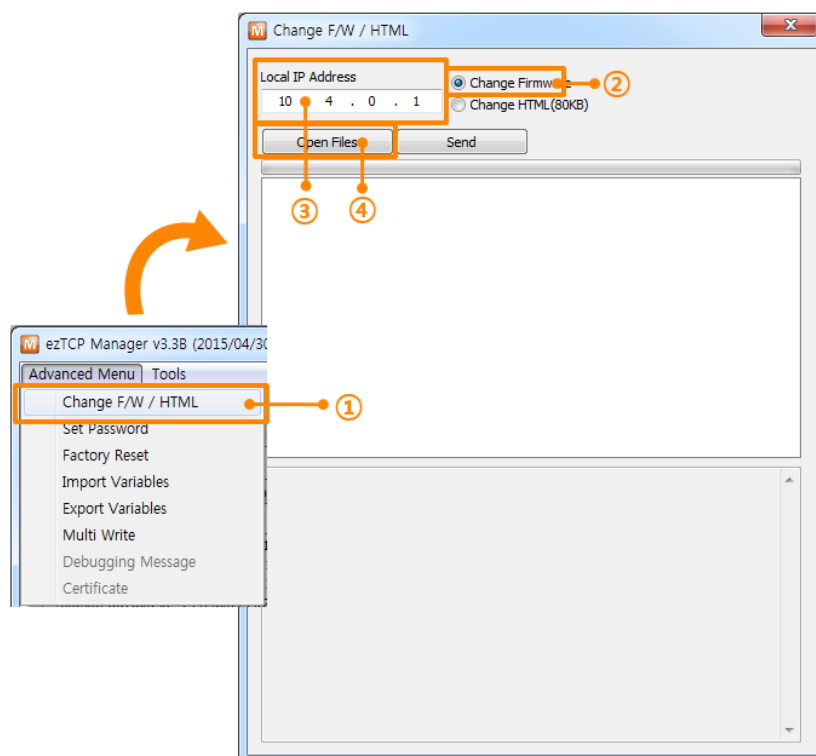


Figure 8-1 preparation for transmission

- ① Click [Advanced Menu]->[Change FW / HTML] menu.
- ② Select the [Change Firmware] option.
- ③ Input the IP address of the product.
- ④ Click the [Open Files] button and select a firmware file.

- Transmission

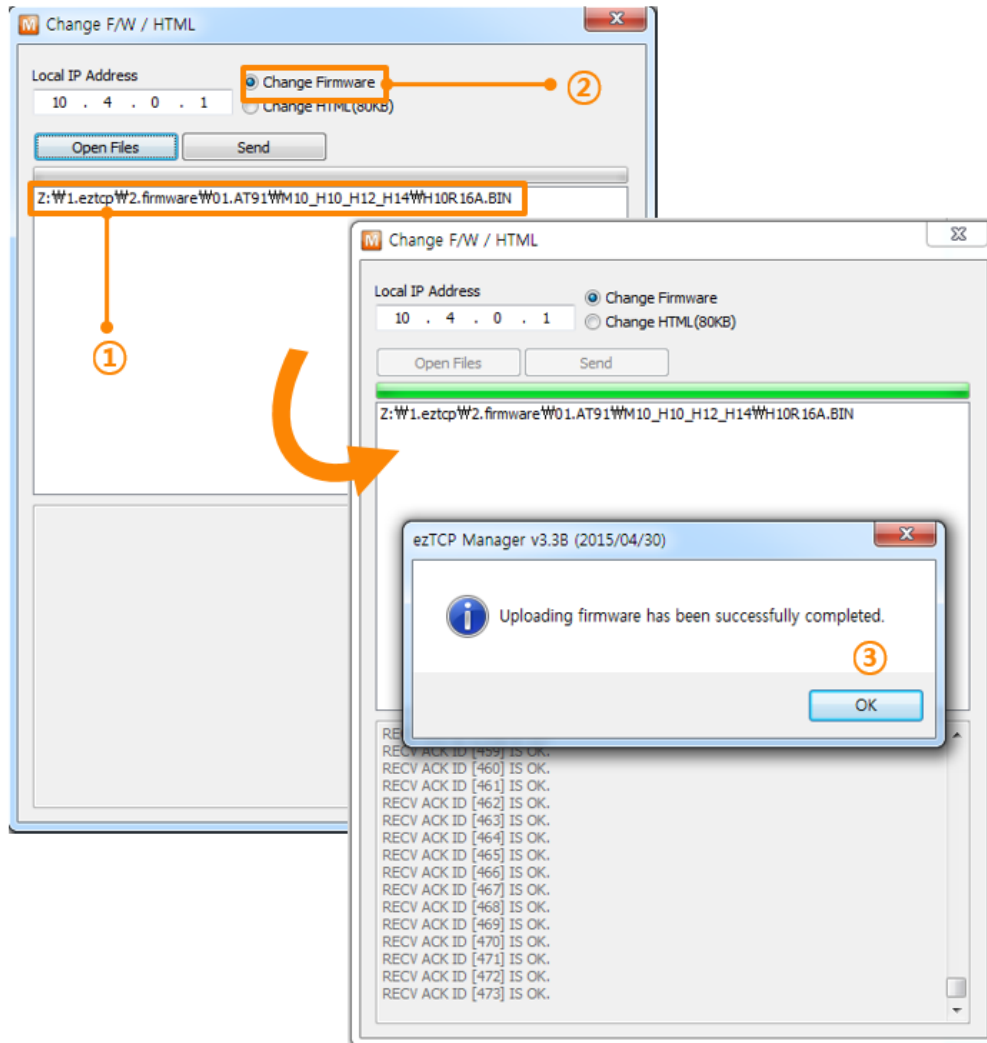


Figure 8-2 transmission

- ① Check the name of file and its route.
- ② Press the [Send] button.
- ③ Click [OK] button when downloading is completed.

8.1.2 Changing F/W over the Serial

In case of wireless LAN type products, F/W download is implemented with their serial (RS232) port.

- Getting the latest firmware file

Download the file on your PC and remember the route. The file is on our web site.

- Opening a COM port

Connect the product and your PC with a RS232 crossed cable and open the COM port with [Serial] tab of ezManager.

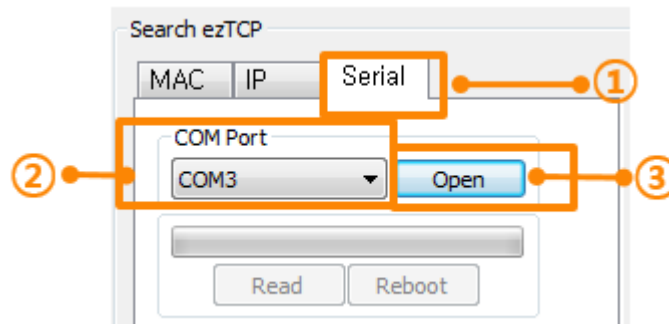


Figure 8-3 opening a COM port

- ① Move to the [Serial] tab
- ② Choose the connected COM port
- ③ Press the [Open] button

- Preparation for transmission

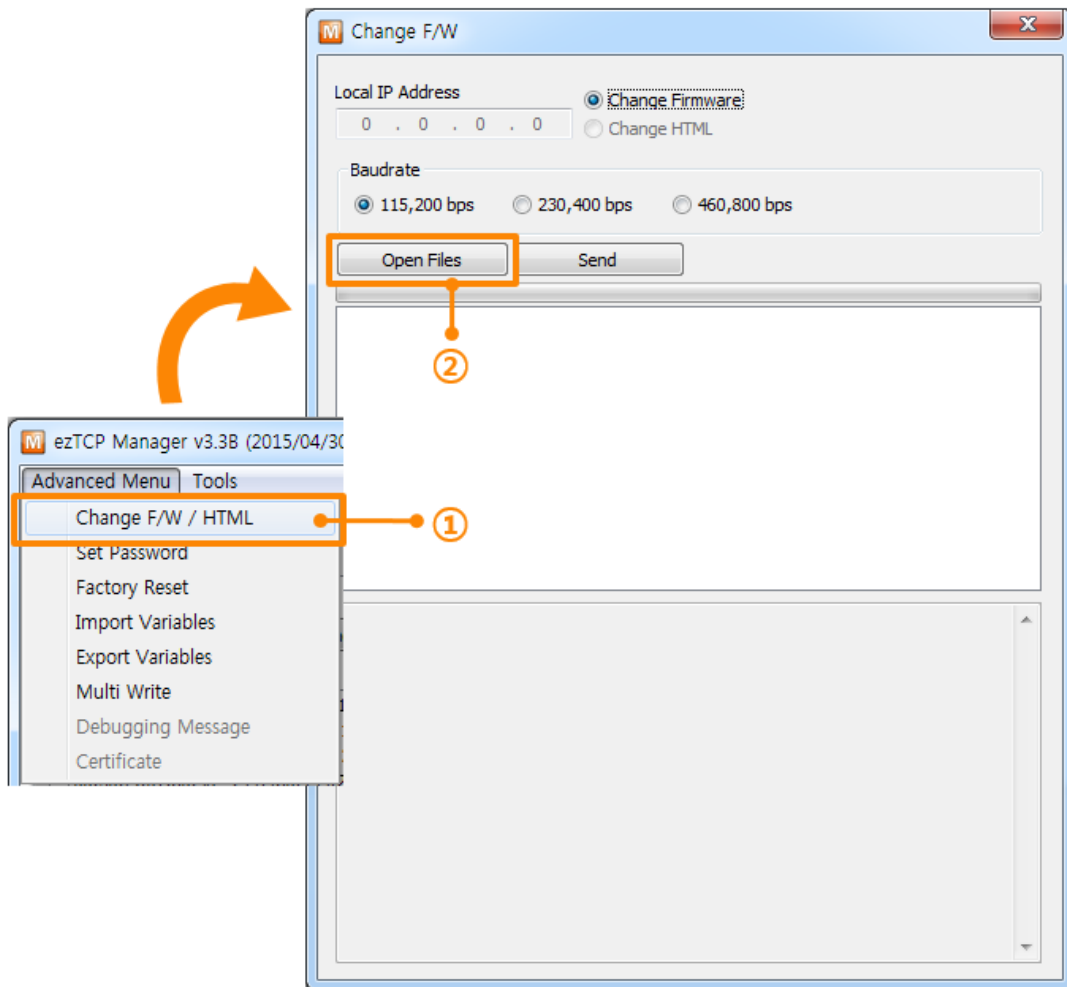


Figure 8-4 preparation for transmission

- Transmission

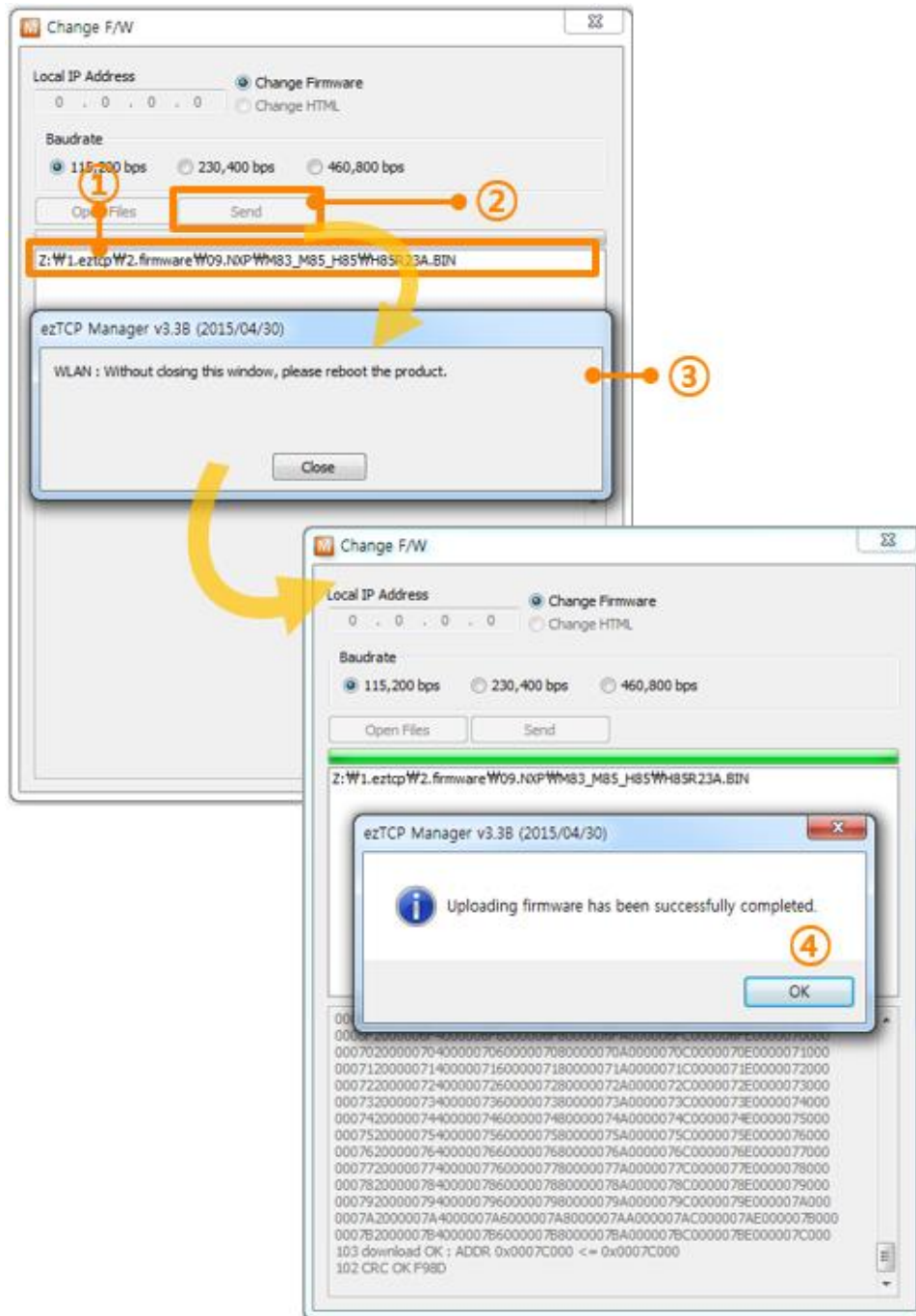


Figure 8-5 transmission

- ① Check the name of file and its route.
- ② Press the [Send] button
- ③ Reboot or supply power to the product again
- ④ Click the [OK] button when downloading is completed.

8.2 Changing HTML files

8.2.1 Uploading User's Homepage

I/O controllers basically support controlling option with HTTP. From the 1.3A firmware, a function to upload your own homepage is supported. Your HTML files can be downloaded by ezManager. The procedure is the same with downloading firmware.

- Making user's homepage

Make your own HTML file using the designated function and script.

- Changing mode to ISP

Change operation mode of ezTCP to ISP to download the firmware file.

- Preparation for transmission

Click [Advanced Menu]->[Change F/W / HTML] menu. The program lets you transmit the file to ezTCP.

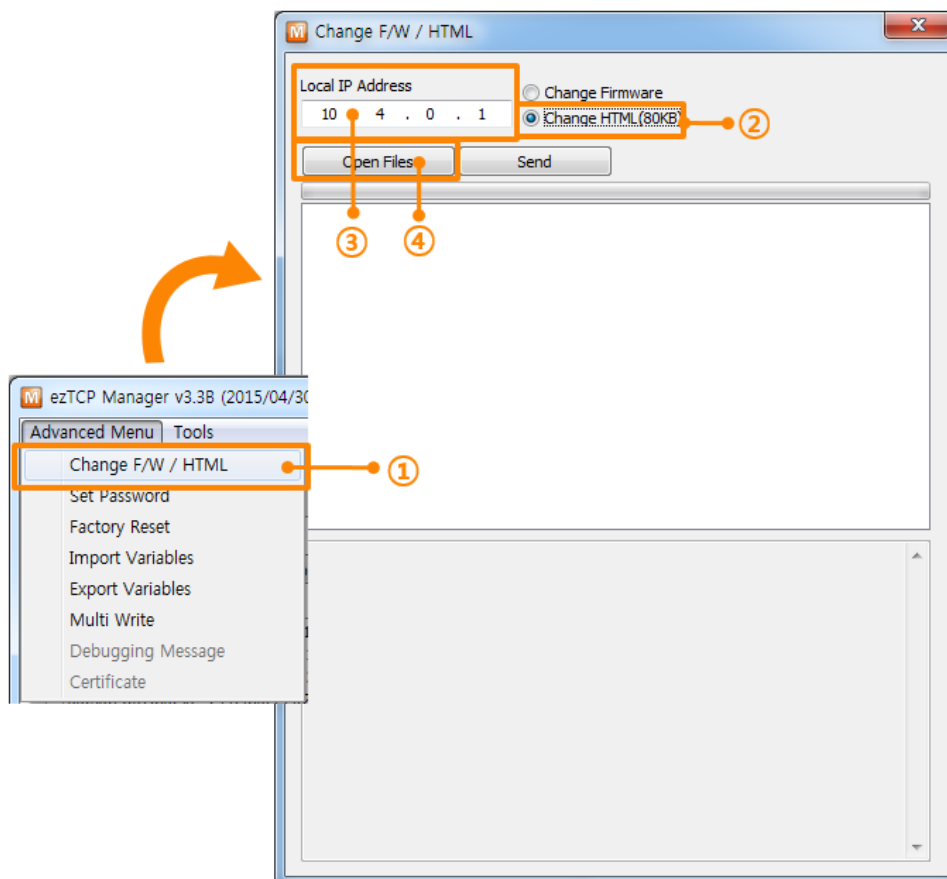


Figure 8-6 preparation for transmission

- ① Click [Advanced Menu]-> [Change F/W / HTML] menu.
- ② Select the [Change HTML] option.
- ③ Input the IP address of the product.
- ④ Click [Open Files] button and select a HTML file including linked files.

- Transmission

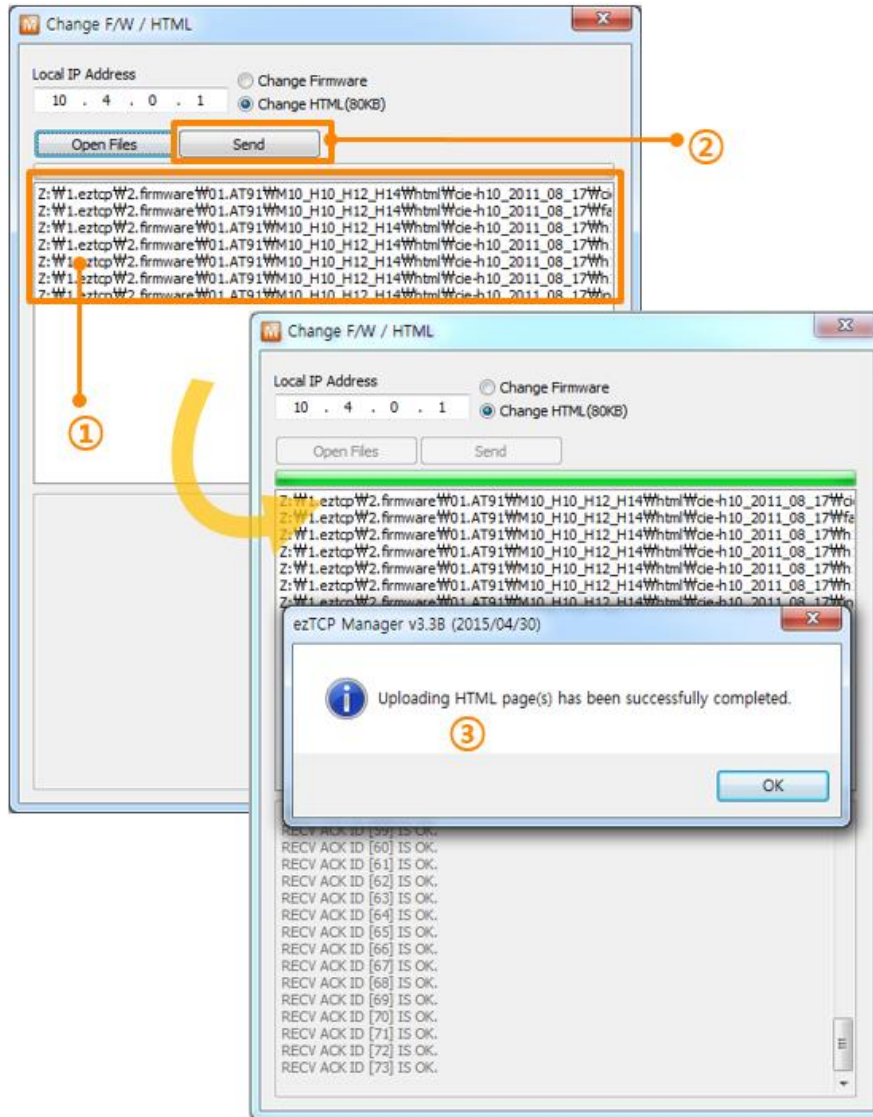


Figure 8-7 transmission

- ① Check the name of files and their route.
- ② Press the [Send] button.
- ③ Click [OK] button when downloading is completed.

☞ *The basic HTML file is stored when the product is produced. We offer some sample files on our web site.*



9 ezManager Configuration Process

9.1 Configuration via LAN

- Checklists

Make sure the connection between your PC and ezTCP. If those devices are the same network, [MAC Address search] button can be used. Otherwise, only [IP Address search] is allowed to use.

- Procedures

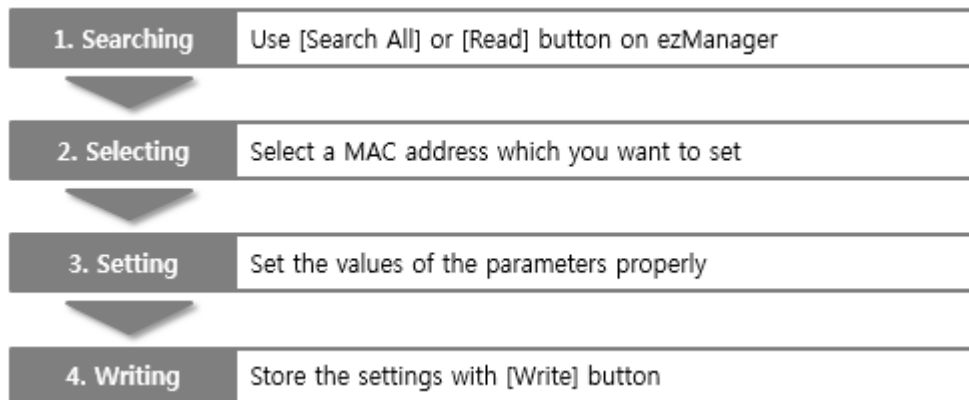


Figure 9-1 procedures for configuration via LAN

9.2 Configuration via Serial

- Checklists

Make sure the connection between your PC and the product using a RS232 crossed cable. To use this, ezTCP has to be operated in the [Serial Configuration] mode.

- Procedures

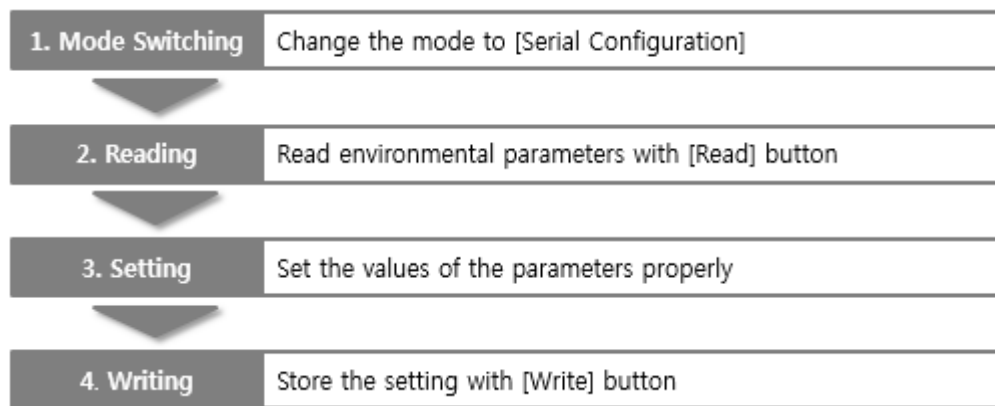


Figure 9-2 procedures for configuration via Serial

- Step 2, Reading

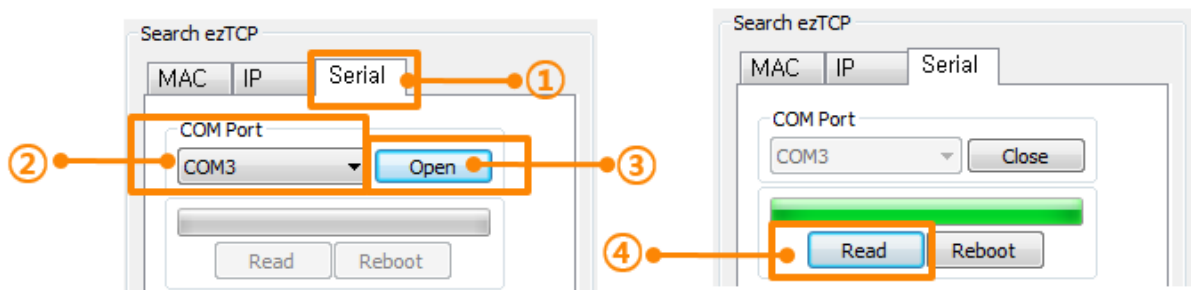


Figure 9-3 reading procedure via serial

- ① Choose the [Serial] tab
- ② Select the COM port
- ③ Open the COM port with the [Open] button
- ④ Load the setting with [Read] button

10 Other Functions

10.1 Status

Status of ezTCP can be monitored through the network. If you have problem with communication, use this information to find out the reason.

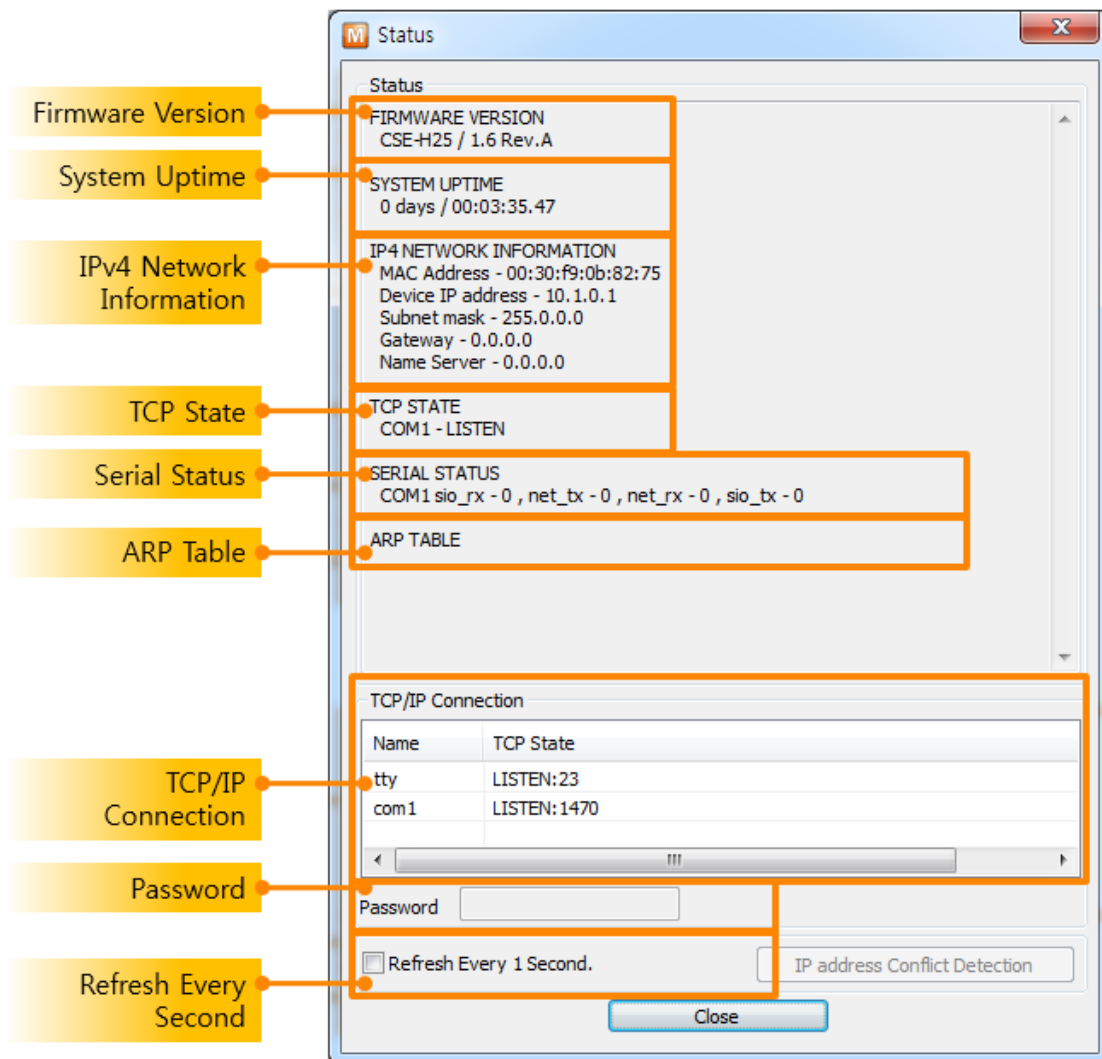


Figure 10-1 status window

- **Firmware Version**
This part presents model name and version information of firmware. In some products, a name of firmware file or CRC can be shown.
- **System Uptime**
Running time is displayed since ezTCP boots up.

- IPv4 Network Information

All information about related items to an IP Address is shown here. It works even if the IP address is assigned by DHCP or PPPoE.

- TCP State

TCP status of each port is shown in this section.

Table 10-1 TCP STATE

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

- Serial Status

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

Table 10-2 SERIAL STATUS

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

- ARP Table

This part shows an ARP table of the product. When TCP connection is established or UDP data communication is performed, the information of an IP and MAC address is automatically stored in the ARP table. This information is held for 1 minute. When 50 seconds is passed, the product starts broadcasting the ARP packet again. If there is no response until the time is 0, the information is removed. If there is response, the time is updated to 60 seconds again.

- TCP/IP Connection

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

- Password

This text box is activated when the product has a password. If users want to close a TCP connection with right clicking on the session, this password has to be correctly filled.

- Refresh Every 1 Second.

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

- Wi-Fi Status

```
WiFi STATUS
Channel : 6
Link State : 54000Kbps
RSSI : -34dBm
```

Figure 10-2 Wi-Fi status

Although not being appeared on above figure, Wi-Fi status can be monitored, too. The device which has a closer number of RSSI is in good Wi-Fi channel condition.

Table 10-3 Wi-Fi status

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

- I/O Ports Status

```
I/O PORT STATUS
IN 0 0 0 0 0 0 0 0
OUT 0 0 0 0 0 0 0 0
```

Figure 10-3 I/O ports status

Although not being appeared on above figure, digital I/O ports status can be monitored, too. From the left, port 0 ~ 7 are shown. Status 1 means the port is ON and 0 means OFF.

10.2 Debugging Message

10.2.1 Debugging Message

When ezTCP does not work, you can capture debugging messages from the product to find out the reason.

10.2.2 Procedure

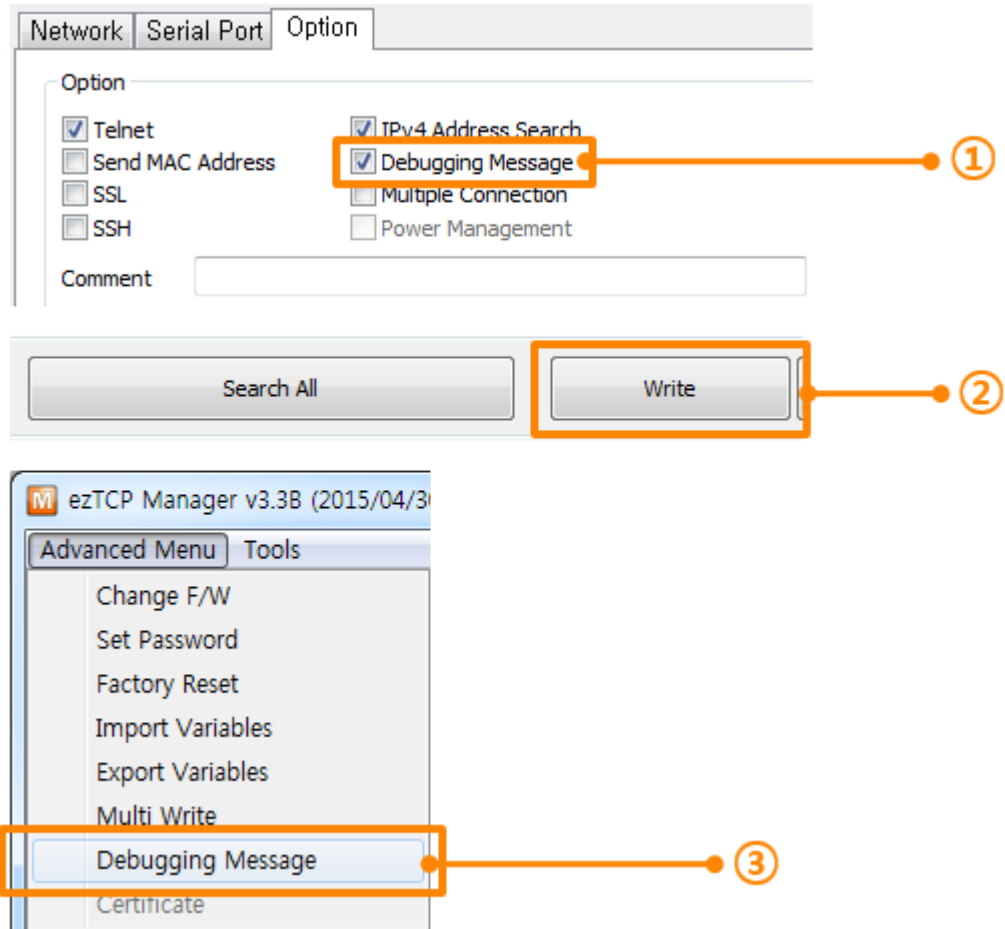


Figure 10-4 procedure

- ① Check the [Debugging Message] option on the [Option] tab.
- ② Click the [Write] button.
- ③ Click [Advanced Menu]-> [Debugging Message] menu. Then, the debugging message window will appear.

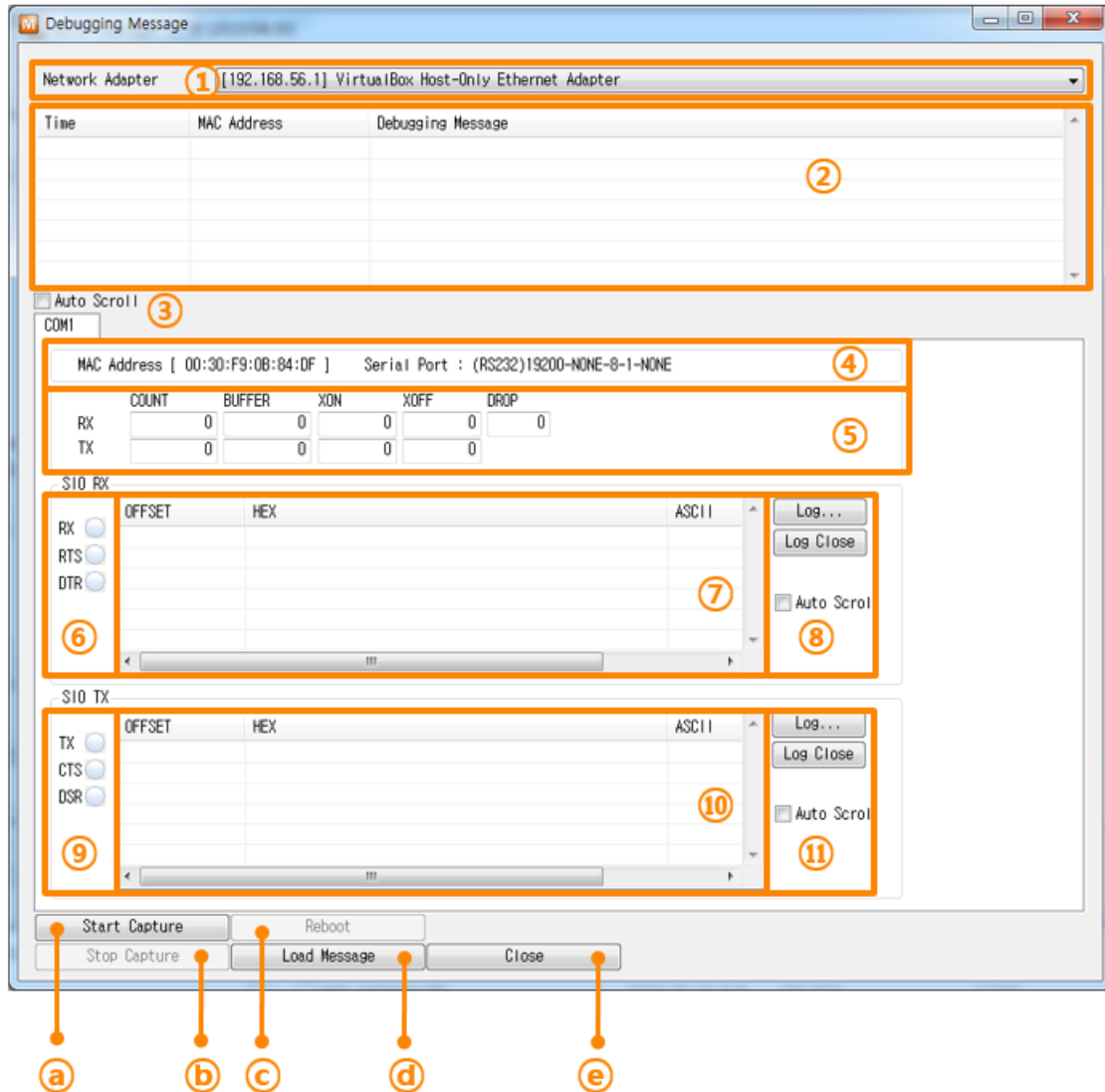


Figure 10-5 debugging message window

- ① Network Adapter
- ② Place for listing received debugging messages from ezTCP 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 message
- ⑤ Amount of received or dropped data and XON/OFF signals
- ⑥ Serial port's receiving status with LED interface
- ⑦ Place for listing received data from the serial port
- ⑧ Buttons for saving, closing and clearing a log file including an auto scroll option
- ⑨ Serial port's transmitting status with LED interface
- ⑩ Place for listing sent data to the serial port
- ⑪ Buttons for saving, closing and clearing a log file including an auto scroll option
- ⑫ To start capturing debugging messages from ezTCP

- ⓑ To stop capturing debugging messages from ezTCP
- ⓒ [Reboot] button is for software rebooting
- ⓓ [Load Message] is for loading a debugging log file to display
- ⓔ Closing debugging message window

☞ *When you have problems with communication or connection, it would be helpful for us if you capture the debugging messages and send us the file.*

☞ *When you use [Debugging Message] function, it can cause network traffic because the messages are broadcasted to whole network. So, You should keep the function unchecked unless you use it.*

11 Revision History

Date	Version	Comments	Author
2009.06.02	1.0	○ Initial Released	
2010.06.01	1.3	○ Style of document has been changed ○ Contents have been modified based on version 3.0G	
2010.06.18	1.4	○ Contents have been modified based on version 3.1A. ○ Chapter 11 Revision History has been updated. ○ Table 1-1 has been updated: CSE-H55 is added.	Roy LEE
2010.11.02	1.5	○ Contents have been modified based on version 3.1E. ○ [Select Binding IP] option has been added. ○ [Multiple Connection] menu for Modbus/TCP has been added.	Roy LEE
2012.03.22	1.6	○ Contents have been modified based on version 3.1J ○ Wireless security contents has been added. ○ I/O port has been updated.	Lisa Shin
2015.02.13	1.7	○ Wrong expressions have been updated.	Jack Kim
2015.05.19	1.8	○ Contents have been modified based on version 3.3B.	Jack Kim
2017.10.26	1.9	○ Add a description to section 3.2 IP Tab.	Jack Kim