# R5 Series Remote I/O
# R5X PC CONFIGURATOR
# Model: R5CON

# Users Manual

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# 1. GENERAL

In this manual, user is assumed that he/she is already familiar with operating Windows 7 or Windows 10 and terminology used in these operating systems.
If you need to know about particular operation or terminology on Windows, please refer to manuals provided with the system.

### 1.1 FEATURES OF R5CON

The R5 Series are isolated, modular I/Os with open field networking capabilities, such for DeviceNet and Profibus. These network modules can be directly connected to a Windows PC via PC Configurator Cable.
The R5CON software is used to help you program various parameters such as I/O scaling, zero/span adjustments to match the users' needs.
General functions of the R5CON are as follows:

#### ■ PARAMETERS CONFIGURATION FOR EACH CHANNEL

I/O range scaling and zero/span adjustments are available for each I/O module.
For temperature input modules, actual temperature range can be also programmed per each command.
For T/C input of the model R5(T)-TS (Ver 1.00 or higher), overrange limits (0% and 100% of the scaled range) can be applied. When the input goes below 0% or above 100%, 0% and 100% data respectively are sent to the host PLC or PC.

#### ■ FILE MANAGING

The parameter configuration for each module can be saved as a file on the PC. Therefore, you can configure a set of parameters without actually connecting the R5x to your PC.
Reading (downloading) parameter files to the network module and each I/O module helps you to configure multiple modules easily and accurately.

#### ■ MONITORING

You can check analog I/O data using configured data.
For discrete I/O modules, ON/OFF status of each channel can be monitored.

### 1.2 HARDWARE REQUIREMENTS

- DOS/V compatible PC with Windows 7 (32-bit, 64-bit) or Windows 10 (32-bit, 64-bit) appropriately installed.
- PC configurator cable, model MCN-CON or COP-US

### 1.3 INSTALLING THE R5CON

(1) Start up Windows.
(2) Go to M-System's web site (http://www.m-system.co.jp). Download and save the R5CON archive in your PC's local hard disk.
(3) Confirm the size and version number of the downloaded archive ('x' in the file name as shown below). R5CON_Rx.exe or R5CON_Rx.zip
(4) Double-click the file's icon and locate 'R5CON_Rx' folder.
(5) Start up setup.exe in the folder and follow instructions on the screen. Now the R5CON program has been installed.

**CAUTION !**
If you have already the R5CON program installed in your PC, remove it following the procedure explained in "1.4 UNINSTALLING THE R5CON" before installing a new one.

### 1.4 UNINSTALLING THE R5CON

(1) Click 'Start' on the task bar and choose Control Panel from Settings menu. (Double-click My Computer icon on the desktop and choose Control Panel.)

>> Control Panel appears on the display.

(2) Double-click 'Uninstall a program' or 'Program and feature'.

>> 'Property' dialog box of Programs and feature appears on the display.

(3) Choose 'R5CON' among the list of installed applications.

(4) Choose 'Add/Remove'.

(5)'Remove Programs From Your Computer' dialog box appears on the display. Click OK.

>> All files installed with the R5CON are removed.

For Windows 10

(1) Click on START button at the lower left of the display to show a list of programs.

(2) Locate R5CON on the list, and right-click on it, then select Uninstall.

# 2. BASIC OPERATIONS

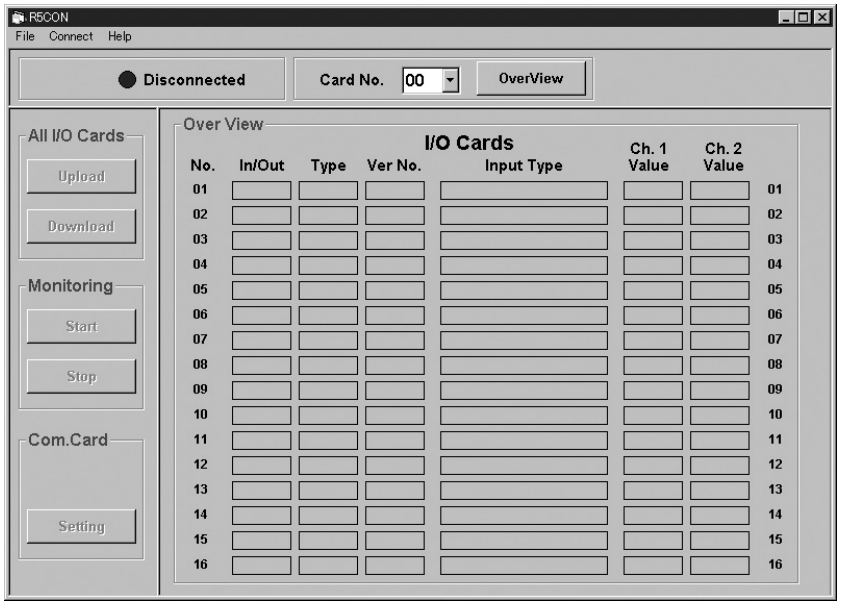
Connect the R5 network module to the PC with PC configurator cable. Confirm the hardware connection in order to write the setting data to the network module and each I/O module.

### 2.1 STARTING / QUITTING THE R5CON

Display images shown in this manual may change in detail when the software version is updated.

#### ■ STARTING THE R5CON

Press [Start] on the task bar and choose [R5CON] from [Program] menu. The main view appears on the screen as shown below.




#### ■ QUITTING THE R5CON

Choose [Exit] from [File] menu to quit the program.

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**CAUTION !**

Clicking [X] button at the right end of the title bar does not end the program.

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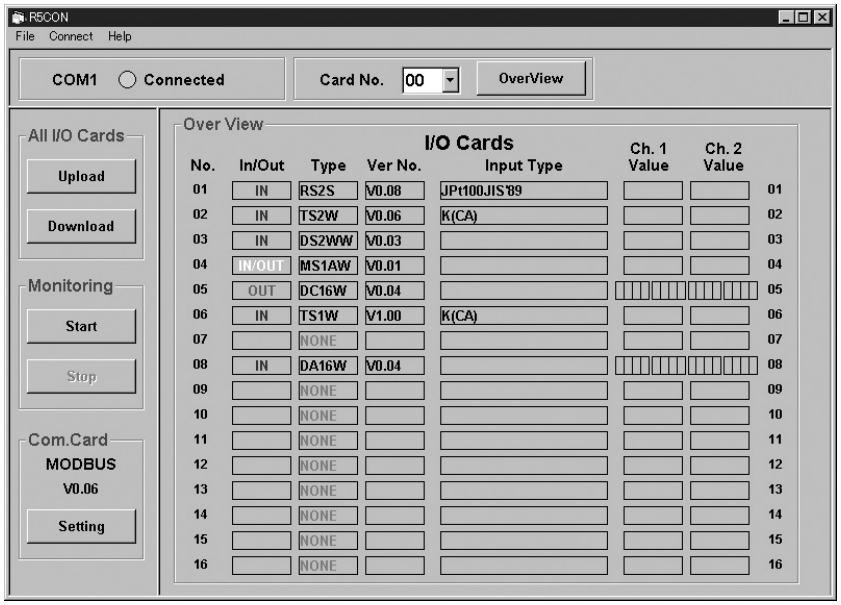
## 2.2 VIEW COMPONENTS AND FUNCTIONS

The R5CON view is composed of the menu bar at the top, the control panels below it and on the left, and the main frame including various pop-up windows.
In this section, functions of menu bar and various buttons, and of each frame are explained.



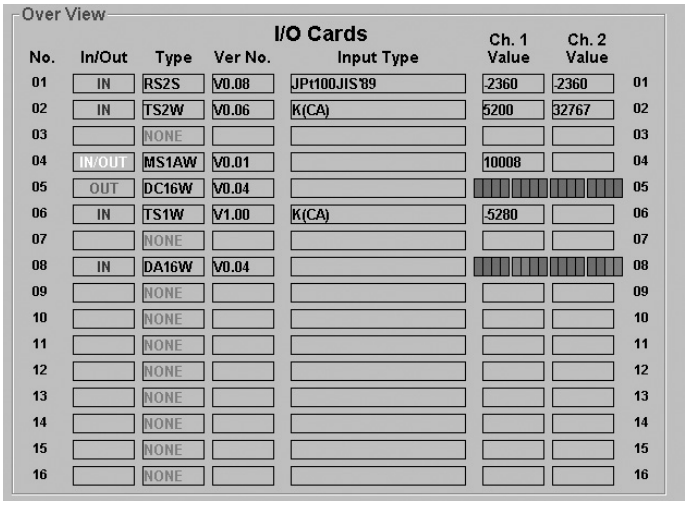

### ■ MENU BAR

| Menu | Submenu | Function |
|---|---|---|
| File | Open | Reading the specified file and displaying its contents. |
| | Save | Saving the parameters as a file. |
| | Exit | Quitting the R5CON program. |
| Connect | Connect | Connecting to the communication line. |
| | Disconnect | Disconnecting from the communication line. |

### ■ CONTROL PANEL

| | |
|---|---|
| [Card No.] list | Shows the selectable card numbers. Click the arrow at the right to choose a card number in order to switch the main frame from Overview to the detail view for the selected card (module). |
| <OverView> button | Shows the hardware configuration. Click this button to switch the main frame back to Overview from each card's detail view. |
| <Upload> button | Starts uploading I/O module's information. |
| <Download> button | Starts downloading I/O module's information to the network module. |
| <Start> button | Starts monitoring of the system. |
| <Stop> button | Stops monitoring of the system. |
| <Setting> button | Opens up the Com. card Settings view. |
| <Ethernet Setting> button | Opens up the Ethernet Settings view for the R5-NE1 module. (Available only when the R5-NE1 module is connected.) |

## ■ OVERVIEW



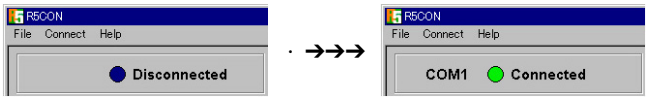

| Item | Function | Selection | Detail |
|---|---|---|---|
| No. | Slot No. (1 to 16) | ---- | ---- |
| In/Out | Input or Output | IN | Input card (module) |
| | | OUT | Output card (module) |
| | | IN/OUT | 1 input / 1 re-transmitted output card (module) |
| Ver. No. | Software version | ---- | ---- |
| Input Type | Type of thermocouple and RTD | ---- | ---- |
| Type | I/O Card (Module) Type | None | No card mounted |
| | | Model No. | One of the Model No. mounted |
| Ch. 1 Value<br>Ch. 2 Value | Analog I/O value for Ch. 1<br>Analog I/O value for Ch. 2 | Decimal data | Shows data sent to the host PLC.<br>Refer to the relevant descriptions in the data sheet of respective modules. Scaled range if specified so. |
| Indicators | Discrete I/O status<br>Ch. 1 (left) to Ch. 16 (right) | Green | OFF |
| | | Red | ON |

## 2.3 CONNECTING/DISCONNECTING THE COMMUNICATION LINE

### ■ CONNECTING

Connecting the R5 network module to the communication line.
Choose [Connect] from [Connect] on the menu bar and the COM Port Setting window pops up on the screen.


Confirm that the power is supplied to the R5 modules and that the configurator jack of the R5 network module and the COM port of the PC is firmly connected with the attached cable.
Choose an appropriate COM port No. (COM1 through COM8) and click OK.
With the communication line established, the communication status lamp turns to green and the COM port No. is shown.

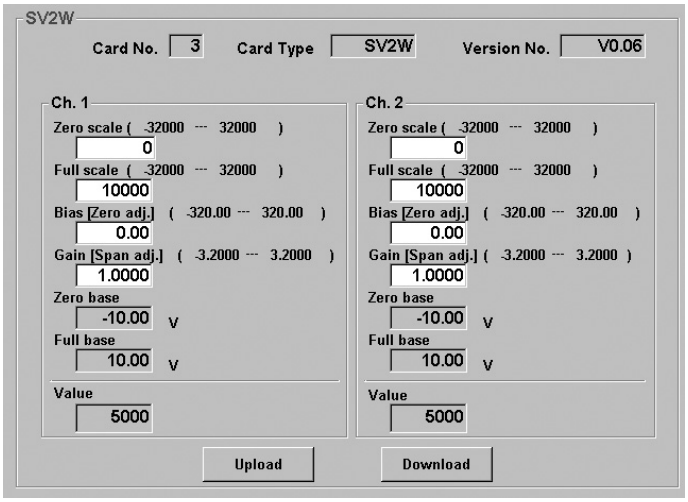



### ■ DISCONNECTING

Choose [Disconnect] from [Connect] on the menu bar.

# 3. VIEWS & FUNCTIONS PARTICULAR TO MODULES

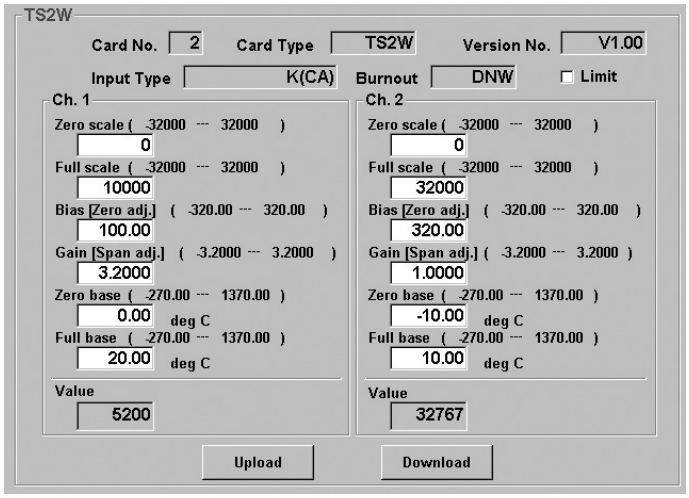
### 3.1 ANALOG I/O MODULE




<Upload> button Uploading the current setting for the I/O module to the window.
<Download> button Downloading the setting on the current display to the R5 module.

| Item | Function | Selectable Range (must be used within this range) |
|---|---|---|
| Card No. | Shows Slot No. | |
| Card Type | Shows I/O module hardware type | |
| Version No. | Shows firmware version No. | |
| Zero Scale | Enter 0% scaling value | -32000 to 32000 |
| Full Scale | Enter 100% scaling value | -32000 to 32000 |
| Bias [Zero Adj.] | Enter fine 0% adjustment value (bias) | -320.00 to 320.00 |
| Gain [Span Adj.] | Enter fine 100% adjustment value (gain) | -3.2000 to 3.2000 |
| Zero Base | Shows 0% input value in engineering unit | Selected range |
| Full Base | Shows 100% input value in engineering unit | Selected range |
| Value | Shows the current uploaded value of the scaled range. | |

### 3.2 THERMOCOUPLE & RTD INPUT MODULE



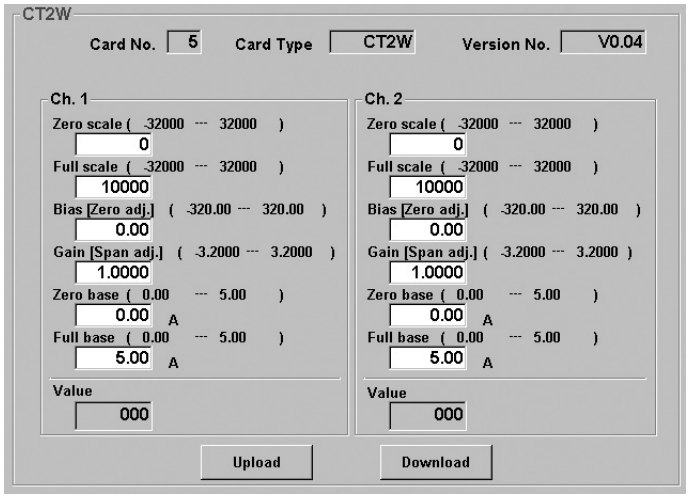

<Upload> button Uploading the current setting for the I/O module to the window.
<Download> button Downloading the setting on the current display to the R5 module.

| Item | Function | Selectable Range (must be used within this range) |
|---|---|---|
| Card No. | Shows Slot No. | |
| Card Type | Shows I/O module hardware type | |
| Version No. | Shows firmware version No. | |
| Input Type | Shows T/C or RTD input type setting | |
| Burnout | Shows the burnout type setting | |
| Zero Scale | Enter 0% scaling value | -32000 to 32000 |
| Full Scale | Enter 100% scaling value | -32000 to 32000 |
| Bias [Zero Adj.] | Enter fine 0% adjustment value (bias) | -320.00 to 320.00 |
| Gain [Span Adj.] | Enter fine 100% adjustment value (gain) | -3.2000 to 3.2000 |
| Zero Base | Enter 0% temperature. (factory setting = 0) | As shown on the display |
| Full Base | Enter 100% temperature. (factory setting = 0) | As shown on the display |
| Value | Shows the current uploaded temperature value. | |
| Limit (R5-TS V1.00 or higher) | Check the box to limit the input range within Zero Scale and Full Scale when scaling is set. When no scaling is set and/or when the check box is not selected, the input range is limited within -15 to +115%. | |

**CAUTION !**

Scaling is disabled when both Zero Scale is set to '0' and Full Scale is set to '10000.' The input module will send multiplied raw data: with °C temperature unit, raw data is multiplied by 10 (e.g. 25.5°C is converted into 255), and with °F temperature unit, the integer section of raw data is directly converted into the data (e.g. 135.4°F is converted into 135).

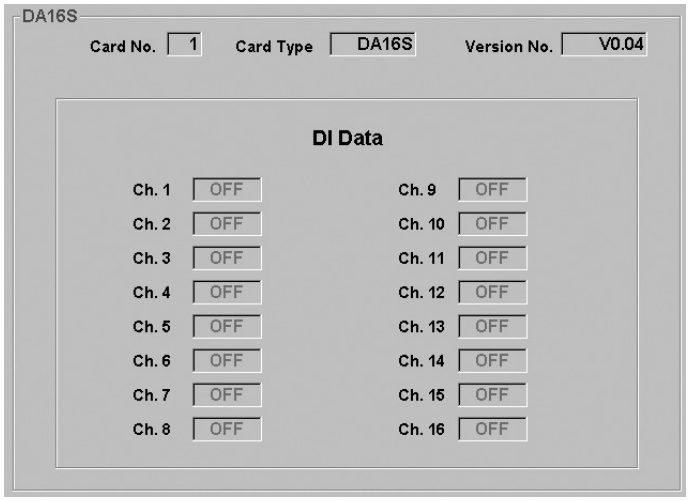
### 3.3 CT & PT : AC CURRENT / VOLTAGE INPUT MODULE




<Upload> button Uploading the current setting for the I/O module to the window.
<Download> button Downloading the setting on the current display to the R5 module.

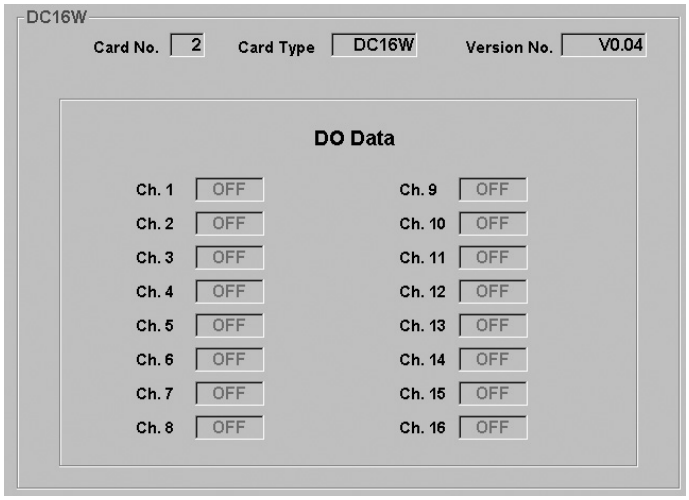
| Item | Function | Selectable Range (must be used within this range) |
|---|---|---|
| Card No. | Shows Slot No. | |
| Card Type | Shows I/O module hardware type | |
| Version No. | Shows firmware version No. | |
| Zero Scale | Enter 0% scaling value | -32000 to 32000 |
| Full Scale | Enter 100% scaling value | -32000 to 32000 |
| Bias [Zero Adj.] | Enter fine 0% adjustment value (bias) | -320.00 to 320.00 |
| Gain [Span Adj.] | Enter fine 100% adjustment value (gain) | -3.2000 to 3.2000 |
| Zero Base | Enter 0% current (CT) or voltage (PT). | Selected range |
| Full Base | Enter 100% current (CT) or voltage (PT). | Selected range |
| Value | Shows the current uploaded value of the scaled range. | |

### 3.4 DISCRETE INPUT MODULE



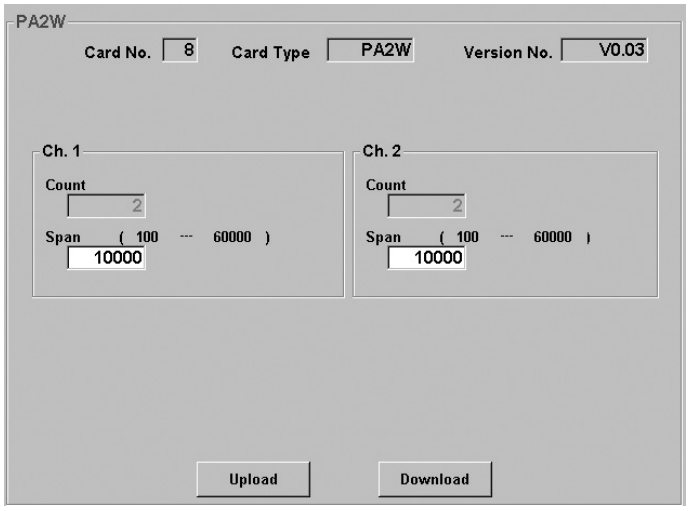

| Item | Function |
|---|---|
| Card No. | Shows Slot No. |
| Card Type | Shows I/O module hardware type |
| Version No. | Shows I/O module's firmware version No. |
| DI Data | Shows current input data status |

### 3.5 DISCRETE OUTPUT MODULE




| Item | Function |
|---|---|
| Card No. | Shows Slot No. |
| Card Type | Shows I/O module hardware type |
| Version No. | Shows I/O module's firmware version No. |
| DO Data | Shows current output data status |

### 3.6 TOTALIZED PULSE I/O MODULE



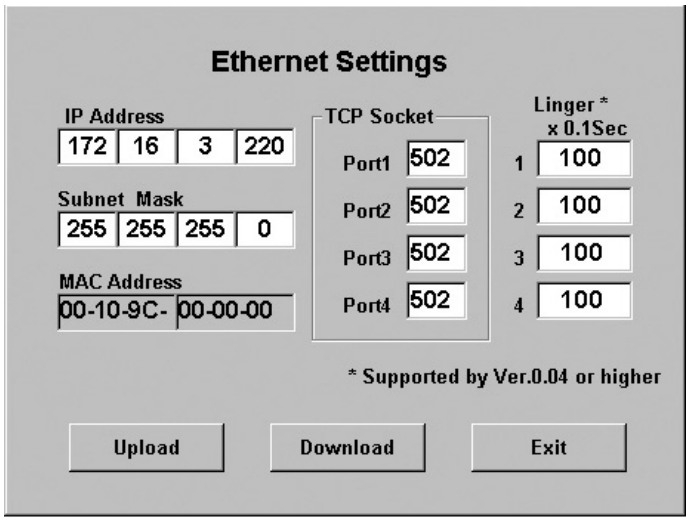

<Upload> button Uploading the current setting for the I/O module to the window.
<Download> button Downloading the setting on the current display to the R5 module.

| Item | Function | Selectable Range (must be used within this range) |
|---|---|---|
| Card No. | Shows Slot No. | |
| Card Type | Shows I/O module hardware type | |
| Version No. | Shows firmware version No. | |
| Count | Shows the present totalized count, 16 bits (decimal) | |
| Span | Enter the maximum count limit. | 100 to 60000 |

# 4. NETWORK MODULE

### 4.1 ETHERNET SETTINGS

With the Ethernet Interface Module (model: R5-NE1) connected, click <Ethernet Settings> button.



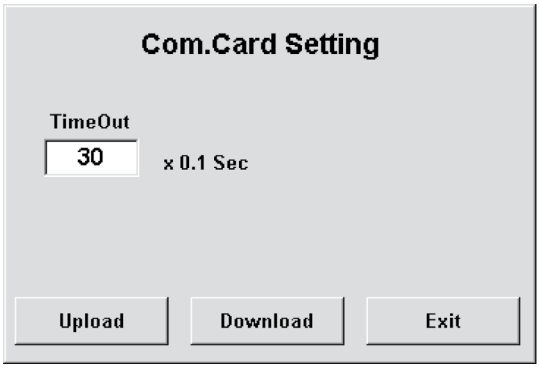

<Upload> button Reading the current setting from the R5 module and showing on the window.
<Download> button Writing the setting on the current display to the R5 module.
<Exit> button Close the window.

| Item | Function | Selectable Range (must be used within this range) |
|---|---|---|
| IP Address | Enter IP Address | 0 to 255 (integer) |
| Subnet Mask | Enter Subnet Mask | 0 to 255 (integer) |
| MAC Address | Shows MAC Address | |
| TCP Socket | Enter TCP Socket Port No. to each port (1 thr. 4)<br>Modbus/TCP port number is 502. | 502 |
| Linger | Enter time to close TCP Socket. (factory set to 1800)<br>TCP Socket closed after no communication (Set 1800 for 180.0 sec.) for the preset time.<br>This function is selectable with the R5-NE1 Ver 0.04 or higher.<br>'CNG' is indicated on the screen when the version is lower than 0.04. | 0 to 32767 (integer) |

**CAUTION !**
Ethernet settings, once set, are enabled only after the power supply to the R5 network module is turned off and on.

### 4.2 COMMUNICATION TIMEOUT

Timeout means the time interval for the network module to recognize interrupt communication when the network module terminates communication with the host PLC or PC, or the latter interrupt communication with the former.




(1)Enter a value between 0 and 32767. In order to set to 30 seconds, enter 300. (Factory setting = 3 seconds)
(2)Click [Download].

# 5. SAVING & READING PARAMETERS

### 5.1 SAVING PARAMETERS

Parameters stored in I/O modules can be saved in a file.

(1)Open the Overview.
(2)Click [File] - [Save] on the menu bar.
(3)Specify a location and a file name to save.

### 5.2 READING PARAMETERS

Click [Open] in the pulled-down menu.
The PC Program reads the saved parameters but are not downloaded automatically to each module. <Download> on the Overview.

(1)Click [File] - [Open].
(2)Locate the file and open it.
(3)Execute <Download> on the Overview.
(4)After changes have been applied, <Download> again.