Remote I/O R8 Series

PC CONFIGURATOR SOFTWARE
Model: R8CFG Ver. 1.15

Users Manual

M-SYSTEM CO., LTD.

5-2-55, Minamitsumori, Nishinari-ku, Osaka 557-0063 JAPAN
Tel: +81-6-6659-8201 Fax: +81-6-6659-8510

http://www.m-system.co.jp/

E-mail: info@m-system.co.jp

CONTENTS

1. INTRODUCTION

1.1 GENERAL DESCRIPTION

M-System R8CFG is used to program parameters for the Power/Network and I/O Modules of the R8 Series Remote I/O (referred hereunder as 'device'). The following major functions are available:

- Edit parameters
- Download parameters to the device, upload parameters from the device
- Save parameters as files, read parameters from files

1.2 APPLICABLE DEVICES

The R8CFG is applicable to the following products:

Function	Model No.	Version
Discrete input, 4 points	DA4A	1.0
Transistor input (NPN), 16 points	DAM16A	1.3
Transistor input (NPN), 16 points	DAT16A2	1.13
Transistor output (NPN), 4 points	DC4A	1.0
Transistor output (NPN), 4 points	DC4A2	1.6
Photo MOSFET relay output, 4 points	DC4C	1.6
Relay output, 4 points	DCT4D	1.13
Transistor output (NPN), 16 points	DCM16A	1.3
Transistor output (NPN) with short circuit protection, 16 points	DCT16A2	1.13
Transistor output (NPN) with full interlock, 16 points	DCM16ALZ	1.5
Transistor output (NPN) with full and individual interlock, 16 points	DCM16ALK	1.5
Transistor output (NPN) with full and partial interlock, 16 points	DCM16ALH	1.5
Transistor output (NPN) with short circuit protection; 32 points	DCM32B2	1,9
Power/Network Module for Modbus	NM1	1.0
Power/Network Module for EtherCAT	NECT1	1.6
Power/Network Module for DeviceNet	ND1	1.8
Power/Network Module for CC-Link	NC3	1.10
Totalized pulse input, 4 points	PA4	1.4
High-speed totalized pulse input, 4 points	PA4F	1.15
Totalized pulse output, 4 points	PC4A	1.11
RTD input (non-isolated), 4 points	RS4N	1.3
Thermocouple input (isolated), 2 points	TS2	1.7
Temperature control module	TC2	1.9
AC current input (non-isolated), 4 points	CT4E	1.11
DC current input (isolated), 2 points	SS2	1.1
DC current input (non-isolated), 4 points	SS4N	1.1
DC current input (built-in excitation, non-isolated), 4 points	SS4NJ	1.5
DC current input (isolated), 8 points	SST8	1.13
DC current/voltage input (built-in excitation, non-isolated), 16 points	FS16N	1.9
DC current input (isolated), 2 points	SV2	1.1
DC voltage input (non-isolated), 4 points	SV4N	1.1
DC voltage output (non-isolated), 4 points	YV4N	1.1
DC current output (isolated), 2 points	YS2	1.7
DC current output (built-in excitation, non-isolated), 2 points	YS2NJ	1.11
DC current output (non-isolated), 4 points	YST4N	1.13

The lowest software version applicable to each hardware model is indicated in the above table. Confirm that the software you have is compatible with the hardware you have.
The latest version of the R8CFG is downloadable at M-System's web site (www.m-system.co.jp) if you need higher version software.

1.3 PC REQUIREMENTS

The following PC performance is required for adequate operation of the R8CFG.

PC	IBM PC compatible
OS	Windows 7 (32-bit, 64-bit), Windows 8.1 (32-bit, 64-bit), Windows 10 (32-bit, 64-bit) The software may not operate adequately in certain conditions.
Network port	COM port (RS-232-C) or USB port (*) COM1 through COM16

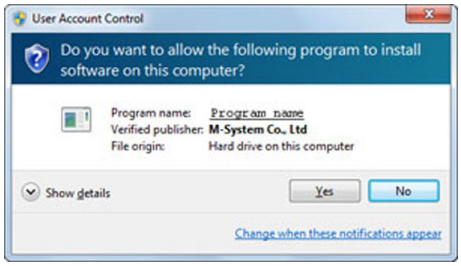
One of the following PC Configurator Cables is also required to connect the device to the PC.

Port	Port PC Configurator Cable Model
RS-232-C	MCN-CON
USB	COP-US

1.4 INSTALLING & DELETING THE PROGRAM

INSTALL

The program is provided as compressed archive. Decompress the archive and execute 'setup.exe' to start up the R8CFG installer program. Follow instructions on the Windows.
For Windows 7, log on as administrator but you still need to clarify your administrative right before proceeding. When User Account Control window appears, choose 'Yes' on Windows 7.



Windows 7

'R8CFG' is displayed instead of 'Program name'.

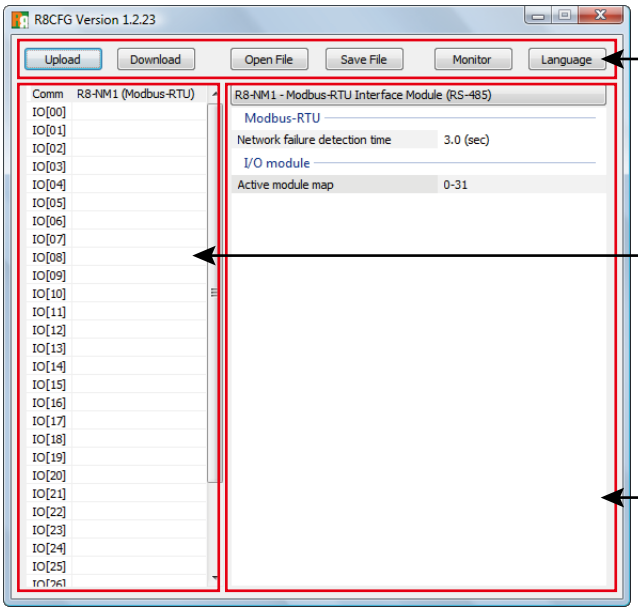
DELETE

Open Control Panel > Add/Remove Programs. Select the R8CFG from the program list and click Delete button.

2. GETTING STARTED

2.1 STARTING THE R8CFG

Open the R8CFG program on the Windows PC. The following window appears on the screen.



Command Buttons
Used to upload, download read or write file.

Module List
Choose a device (module) to change configuration. When a configuration is uploaded, automatically module combination is shown.

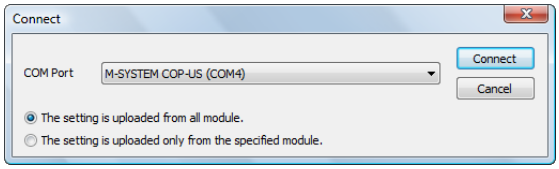
Module Configuration
Configuration of the chosen module is shown. You can refer or change it.
Also you can change the combination of modules' models.

2.2 MODIFYING PARAMETERS

Whenever you need to modify parameters stored in the device, first read (upload) the present parameters from the device, modify whatever parameters you need, and then write (download) the new parameters to it.

2.2.1 READING PRESENT PARAMETERS (UPLOAD)

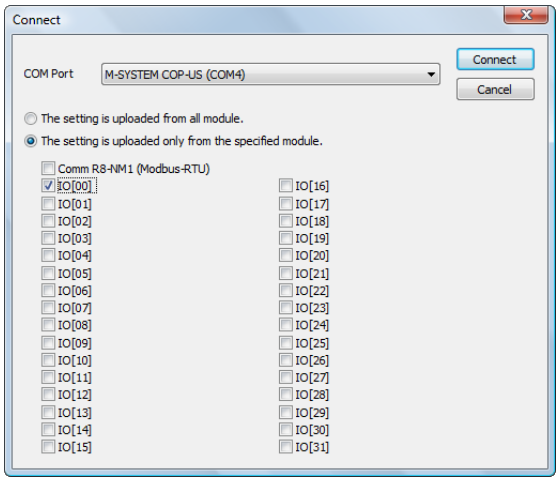
Click [Upload] button at the top of the window. The following window appears.



Choose the COM port number to which the device is connected with the PC Configurator Cable.
The port number depends on the PC. Choose an adequate port.

Click [Connect] button and then the configurator communicates with the devices and uploads the cofigurations.
If an error message appears, confirm the hardware connection and the setting again before retrying.

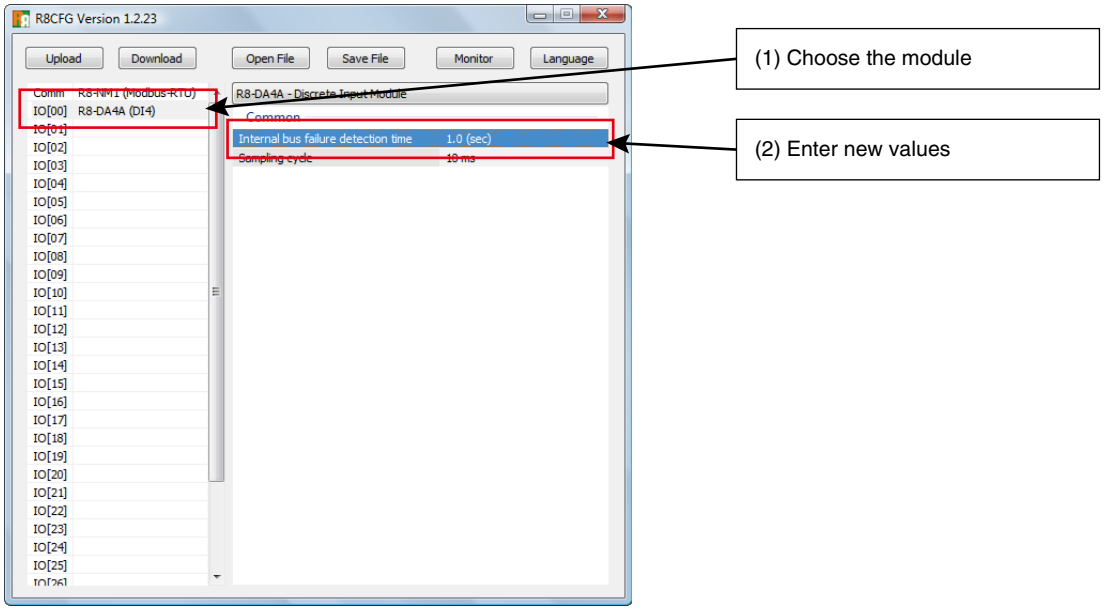
Note: When “The setting is uploaded only from the specified module” is selected, the following window appears. Check modules you want and click [Connect] button. Then the cofigurations of the checked modules are uploaded.



2.2.2 MODIFICATION EXAMPLE

The initial view is composed of the R8 module configuration to the left and the parameters of the selected module to the right. The example below shows the combination of the following modules and change of internal bus communication loss detection time of 4-point discrete input module.

Power/Network Module	R8-NM1
I/O Module	4-point Discrete Input Module (address 0)



Parameters available to each type of I/O module are explained in the later sections.

2.2.3 WRITING NEW PARAMETERS (DOWNLOAD)

Click [Download] button at the top of the window.
Choose the COM port number to which the device is connected.
Confirm the connection and click [Connect] button.
When the indicator showing progress of the download reaches the right end without showing any error message, the device configuration is correctly updated and immediately valid.

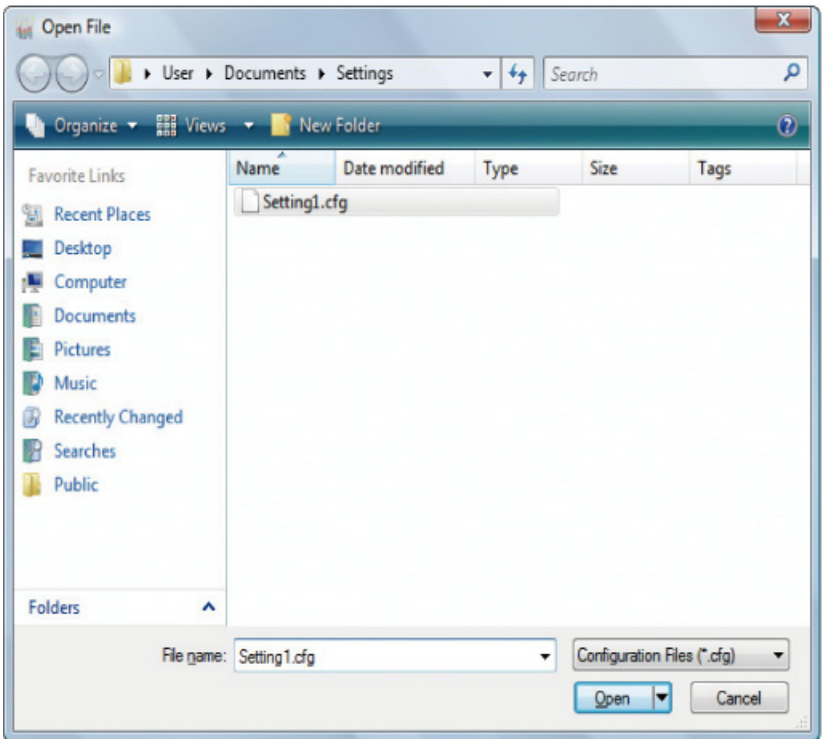
Note: When “The setting is uploaded only from the specified module” is selected, the cofigurations of the checked modules are downloaded.

2.3 SAVING & READING PARAMETERS IN A FILE

Parameters edited on the screen can be saved as a file, and read out on the screen from a file. By combining [Upload] / [Download] functions with [Save] / [Open], a backup file of those presently used in the device can be created.

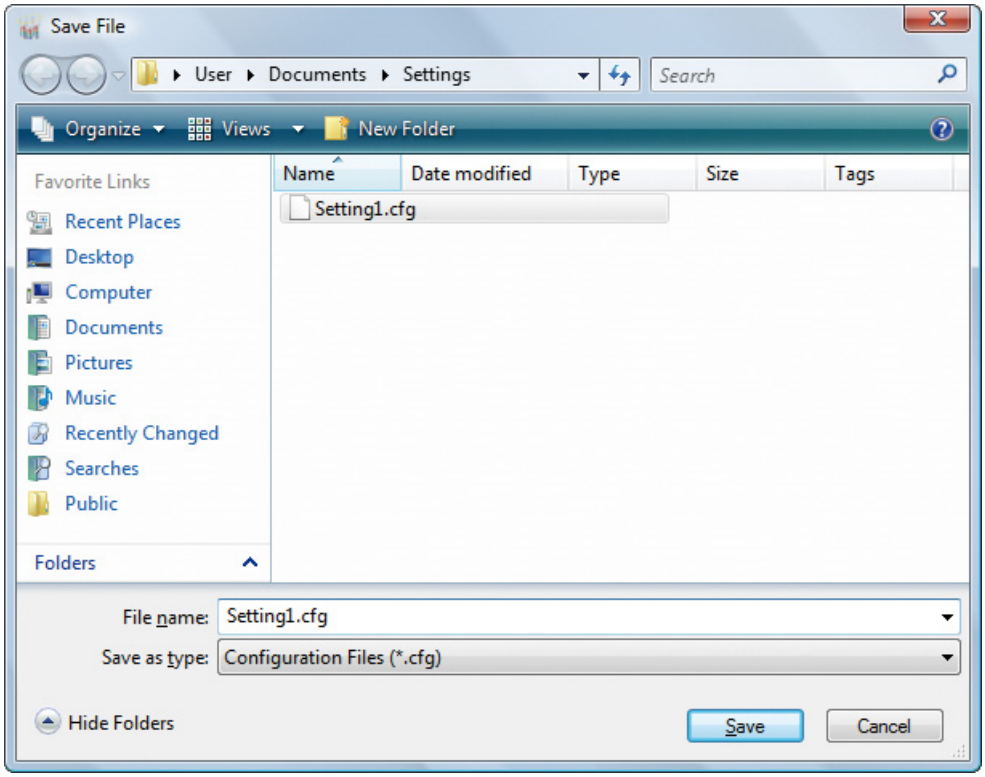
2.3.1 READING PARAMETERS SAVED AS FILE

Clicking [Open File] calls up the Windows-standard Open dialog box. Select a parameter file to show a stored parameter setting.



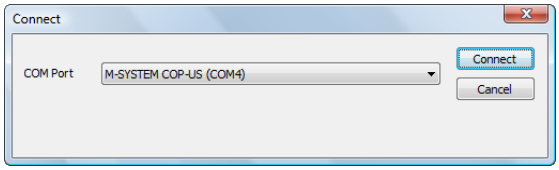
2.3.2 SAVING PARAMETERS IN A FILE

Clicking [Save File] calls up the Windows-standard Save As dialog box. Enter a desired file name to File Name field and click [Save] to store a parameter setting.

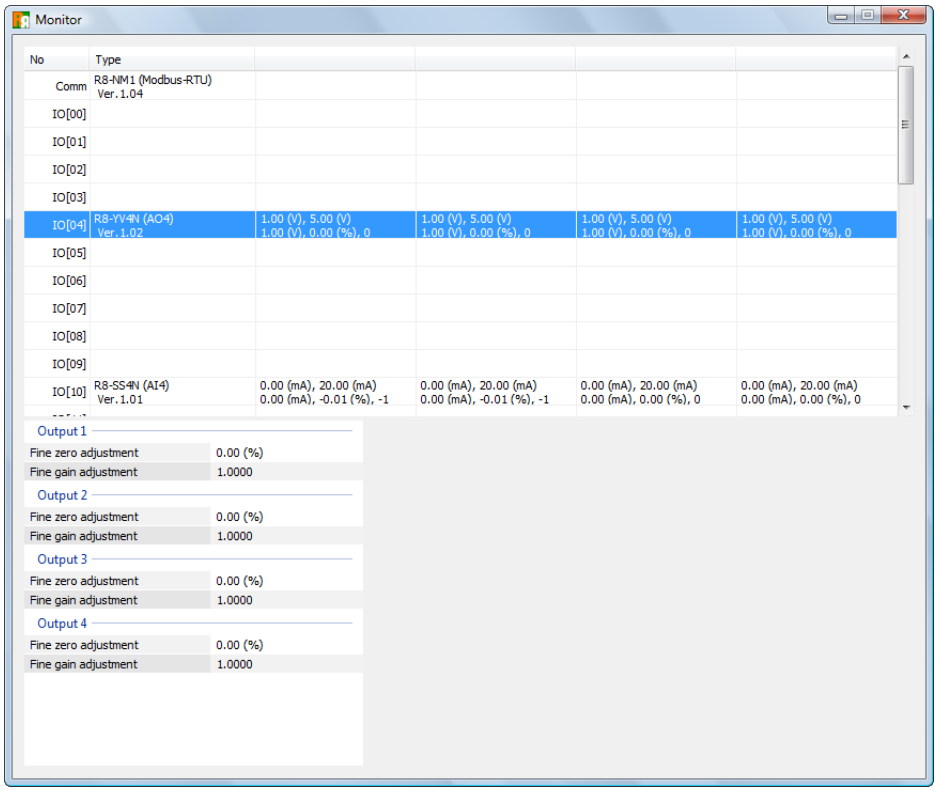


2.4 MONITORING I/O STATUS

The Monitoring function is used to show each I/O status on the window and conduct fine adjustments when applicable.



Click [Monitor] button to open the COM Port dialog box. Specify the COM port and click [Connect] to open the COM port. When the communication is established, the following window appears on the screen.

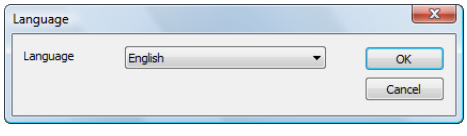


The top half of the window shows the types of modules followed by each I/O status.
Some of the I/O modules have fine adjustment capabilities. The adjustments are conducted by monitoring actual status and entering calibration values in the tables shown at the bottom half of the window.
Preset value is shown in the left bottom corner. When the module selected in the top half of the window is totalized pulse input module or totalized pulse output module, preset value can be written. To preset, the host communication must be disconnected.
Command is shown in the left bottom corner. When the module selected in the top half of the window is temperature control module, command can be set.
Manual MV is shown in the left bottom corner. When the module selected in the top half of the window is temperature control module, manual MV can be written. (It is required to be manual mode already.)

Note: DO NOT disconnect the PC Configurator Cable during the window is shown. When disconnecting the PC Configurator Cable is required, disconnect it after closing the window.

2.5 SWITCHING LANGUAGE

Clicking [Language] button opens the Language dialog box. Choose one of the available languages. Note that the PC's operating system on which the program is running must be compatible with the selected language in order to show all characters correctly on the window.



3. PARAMETER DETAILS

3.1 R8-NM1 – POWER/NETWORK MODULE (Modbus)

Parameter	Factory Setting
Host Communication Loss Detection Time	3.0 (sec.)
Scan Map	0 – 31

3.1.1 HOST COMMUNICATION LOSS DETECTION TIME

When there is no communication with the host device for the specified time period, the RUN LED turns OFF as an abnormal communication status. Selectable 0.0 or between 0.2 and 3200.0 seconds.
When 0.0 is set, host communication loss detection is not performed.

3.1.2 SCAN MAP (ACTIVE MODULE MAP)

Between each cycle of I/O data exchange, the network module provides also 'Active Module Map,' indicating the slots where I/O modules are mounted on the base.

The scanning takes only several microseconds* every time, which is short enough not to affect the overall scan cycles. It is usually not necessary to change the value from its factory setting.

* 500 microseconds per cycle [Number of I/O modules × 200 (µsec.)]

On the other hand, the total processing time can be trimmed to a peak efficiency by pre-defining the map using the R8CFG so that the procedure is skipped as far as all mounted I/O modules are functioning properly.

For example, when address 0 through 7 are set for scan map, only the address 0 through 7 modules are used, while the address 8 through 31 are not necessary to be scanned.

3.2 R8-NECT1 – POWER/NETWORK MODULE (EhterCAT)

Parameter	Factory Setting
None	–

3.3 R8-ND1 – POWER/NETWORK MODULE (DeviceNet)

Parameter	Factory Setting
None	–

3.4 R8-NC3 – POWER/NETWORK MODULE (CC-Link)

Parameter	
None	

3.5 R8-DA4A / R8-DAM16A / R8-DAT16A2

Parameter	Factory Setting
Loss of internal bus communication detection time	1.0 (sec.)
Sampling cycle	10 (msec.)

3.5.1 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

The host communications are monitored by the Power/Network Module as far as it is functioning normally. If the communication is lost, I/O modules proceed accordingly upon notified by the Power/Network Module through the internal bus.

This means the I/O modules cannot detect host communication errors if the Power/Network Module is removed.

In order to ensure adequate I/O functions in such events, the I/O modules can be set with an independent 'Loss of Communication Detection' time to detect errors of the internal bus communication with the Power/Network Module.

Specify between 0.0 and 99.9 seconds. The function is cancelled when it is set to 0.0.

3.5.2 SAMPLING CYCLE

Choose one of the input signal conversion rates among: 1, 5, 10, 20, 50, 70, 100 and 200 milliseconds.

3.6 R8-DC4x / R8-DCM16A / R8-DCT16A2 / R8-DCM16ALx / R8-DCM32B2

Parameter	Factory Setting
Initial output at the startup	off, off, off, off (4 points) off, off, off, off, off, off, off, off, off, off, off, off, off, off, off, off (16 points) From left to right, channel 1 to 4 / 1 to 16.
Loss of internal bus communication detection time	1.0 (sec.)
Output function at the loss of communication	Hold the last normally received data
Configuration mode	DIP switch (OFF)

3.6.1 INITIAL OUTPUT AT THE STARTUP

The output module fixes its output signals at a specific state until data is received from the host network. Off/On for each output at the start up is fixed.

3.6.2 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to Section 3.5.1.

3.6.3 OUTPUT FUNCTION AT THE LOSS OF COMMUNICATION

Specify the output module's function among the following when no output data is received from the network due to a loss of communication:

Hold the last normally received data
Fix at OFF

This function is enabled when both parameter "configuration mode" and DIP switch configuration of the module are "PC (ON)". This function complies with the setting of the DIP switch when the DIP switch is OFF.

3.6.4 CONFIGURATION MODE

Some of the I/O module parameters can be specified both by the hardware DIP switch and by the R8CFG program.

When you set these parameters using the R8CFG program, be sure to set the DIP switch configuration and specify PC Configuration Mode on the R8CFG.

This setting is provided to double-check that the hardware DIP switch is correctly set as the user has intended. If they do not match, the R8CFG alerts it and aborts the process when you try to download parameters to the module.

3.7 R8-SV2 / R8-SV4N / R8-SS2 / R8-SS4N / R8-SS4NJ / R8-SST8

Parameter	Factory Setting	
	R8-SVx	R8-SSx
Input range	-10 to +10 (V DC)	-20 to +20 (mA DC)
Lower range value	-10.00 (V)	4.00 (mA)
Upper range value	10.00 (V)	20.00 (mA)
Fine zero adjustment	0.00 (%)	0.00 (%)
Fine gain adjustment	1.0000	1.0000
Scaled range Zero	0	0
Scaled range Span	10000	10000
Loss of internal bus communication detection time	1.0 (sec.)	1.0 (sec.)
Configuration mode	DIP switch (OFF)	DIP switch (OFF)

3.7.1 INPUT RANGE / LOWER RANGE VALUE / UPPER RANGE VALUE

Input range is fixed and unchangeable. Specify the exact lower and upper range values within the following ranges:

Type	Input Range	Available Lower/Upper Range
R8-SVx	-10 to +10 V DC	-10.00 to +10.00 V
R8-SSx	-20 to +20 mA DC	-20.00 to +20.00 mA

These parameters can be changed on the R8CFG only when the specified module is set to PC Configuration Mode both by the hardware DIP switch and by the R8CFG program.

3.7.2 FINE ZERO ADJUSTMENT / FINE GAIN ADJUSTMENT

A field input signal is converted into a digital value of 0.00 to 100.00% proportional to the specified lower/upper range. The fine zero and gain adjustments are applied to this value using the following equation:

Calibrated value % = [Non-calibrated value] × [Fine gain adjustment] + [Fine zero adjustment]

Specify the zero between -320.00 and +320.00%, and the gain between -3.2000 and +3.2000.

3.7.3 SCALED RANGE ZERO / SCALED RANGE SPAN

The calibrated input value (after fine zero/gain adjustments) is then converted into the specified scaled range value, which is supplied to the Network Module and then read out by the host device.

Specify between -32000 and +32000.

3.7.4 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to Section 3.5.1.

3.7.5 CONFIGURATION MODE

Refer to Section 3.6.4.

3.8 R8-FS16N

Parameter	Factory Setting
Input range	-10 to +10 (V DC)
Lower range value	-10.00 (V)
Upper range value	10.00 (V)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Loss of internal bus communication detection time	1.0 (sec.)

3.8.1 INPUT RANGE / LOWER RANGE VALUE / UPPER RANGE VALUE

Select the input range from following two type and specify the exact lower and upper range values within the following ranges:

Input Range	Available Lower/Upper Range
-10 to +10 V DC	-10.00 to +10.00 V
-20 to +20 mA DC	-20.00 to +20.00 mA

With these settings, set voltage and current settings by the hardware DIP switch.

3.8.2 FINE ZERO ADJUSTMENT / FINE GAIN ADJUSTMENT

A field input signal is converted into a digital value of 0.00 to 100.00% proportional to the specified lower/upper range. The fine zero and gain adjustments are applied to this value using the following equation:

Calibrated value % = [Non-calibrated value] × [Fine gain adjustment] + [Fine zero adjustment]

Specify the zero between -320.00 and +320.00%, and the gain between -3.2000 and +3.2000.

3.8.3 SCALED RANGE ZERO / SCALED RANGE SPAN

The calibrated input value (after fine zero/gain adjustments) is then converted into the specified scaled range value, which is supplied to the Network Module and then read out by the host device.

Specify between -32000 and +32000.

3.8.4 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to Section 3.5.1.

3.9 R8-YV4N / R8-YS2 / R8-YS2NJ / R8-YS2T4N

Parameter	Factory Setting	
	R8-YVx	R8-YSx
Output range	-10 to +10 (V DC)	0 to 20 (mA DC)
Lower range value	-10.00 (V)	4.00 (mA)
Upper range value	10.00 (V)	20.00 (mA)
Fine zero adjustment	0.00 (%)	0.00 (%)
Fine gain adjustment	1.0000	1.0000
Scaled range Zero	0	0
Scaled range Span	10000	10000
Initial output at the startup (scaled range)	0	0
Fixed output at the loss of communication (scaled range)	-500	-500
Loss of internal bus communication detection time	1.0 (sec.)	
Output function at the loss of communication	Hold the last normally received data	
Configuration mode	DIP switch (OFF)	

3.9.1 OUTPUT RANGE / LOWER RANGE VALUE / UPPER RANGE VALUE

Choose an approximate output range first and then specify the exact lower and upper range values within the following ranges:

Type	Output Range	Available Lower/Upper Range
R8-YVx	-10 to +10 V DC	-10.00 to +10.00 V
R8-YSx	0 to 20 mA DC	0.00 to 20.00 mA

The output from the module is converted with the range having 5 % margin outside the range set by lower range value and upper range value after scaled range and fine adjustment shown in next page.
For example, when setting is done as shown in the table below, output value, -500 to +10500 sent from host device is converted into output DC voltage, 0.8 V to 5.2 V.

Lower range value	1.00 (V)
Upper range value	5.00 (V)
Scaled range Zero	0
Scaled range Span	10000

These parameters can be changed on the R8CFG only when the specified module is set to PC Configuration Mode both by the hardware DIP switch and by the R8CFG program.

3.9.2 FINE ZERO ADJUSTMENT / FINE GAIN ADJUSTMENT

The fine zero and gain adjustments are applied to a digital value of 0.00 to 100.00%, converted from the scaled range signal, using the following equation:

Calibrated value % = [Non-calibrated value] × [Fine gain adjustment] + [Fine zero adjustment]

Specify the zero between -320.00 and +320.00%, and the gain between -3.2000 and +3.2000.

3.9.3 SCALED RANGE ZERO / SCALED RANGE SPAN

Specify the scaled range of the output data supplied through the Network Module, between -32000 and +32000.

3.9.4 INITIAL OUTPUT AT THE STARTUP

The output module fixes its output signals at a specific value until data is received from the host network. Specify a scaled range value between -32000 and +32000.

3.9.5 FIXED OUTPUT AT THE LOSS OF COMMUNICATION

The output signals can be fixed at a specific value when a loss of communication is detected. Specify a scaled range value between -32000 and +32000.

These parameters can be changed on the R8CFG only when the specified module is set to PC Configuration Mode and "Output function at the loss of communication" is set to "Fixed output as specified". When PC Configuration Mode is OFF, output is specified by DIP switch setting at the loss of communication.

3.9.6 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to Section 3.5.1.

3.9.7 OUTPUT FUNCTION AT THE LOSS OF COMMUNICATION

Specify the output module's function among the following when no output data is received from the network due to a loss of communication:

Hold the last normally received data
Fixed output at scaling value at the loss of communication

These parameters can be changed on the R8CFG only when the specified module is set to PC Configuration Mode both by the hardware DIP switch and by the R8CFG program.

3.9.8 CONFIGURATION MODE

Refer to Section 3.6.4.

3.10 R8-RS4N / R8-TS2

Parameter	Factory Setting	
	R8-RSx	R8-TSx
Sensor type	Pt 100 (JIS '97,IEC)	K (CA)
Lower range value	0.00 (degC)	
Upper range value	0.00 (degC)	
Fine zero adjustment	0.00 (%)	
Fine gain adjustment	1.0000	
Scaled range Zero	0	
Scaled range Span	10000	
Burnout	Upper	
Loss of internal bus communication detection time	1.0 (sec.)	
Temperature unit	degC	
Cold junction compensation	----	ON
Limit	-5 – +105 %	
Configuration mode	DIP switch (OFF)	

3.10.1 SENSOR TYPE / LOWER RANGE VALUE / UPPER RANGE VALUE

Set temperature range and the sensor type of input 1 through 4. Choose the sensor and specify lower range value for input lower limit and upper range value for input upper limit. Sensor parameters are described below.

In the case of setting 0.00 to lower range value and upper range value, the value sent to host network is 10 times the temperature unit (equal multiplication for Fahrenheit unit setup) with no need of fine-adjust or scaling.

This function is enabled when both parameter "configuration mode" and DIP switch configuration of the module are "PC (ON)." This function complies with the setting of the DIP switch when the DIP switch is OFF.

R8-RS4N sensor type / temperature range

Sensor	Available Temperature Range		
	Celsius (degC)	Fahrenheit (degF)	Absolute temperature (K)
Not in use (*)	----	----	----
Pt 100 (JIS '97, IEC)	-240.00 to +900.00	-400.00 to +1652.00	33.15 to 1173.15
Pt 1000	-240.00 to +900.00	-400.00 to +1652.00	33.15 to 1173.15
Pt 50 Ω (JIS '81)	-236.00 to +700.00	-392.80 to +1292.00	37.15 to 973.15
JPt 100 (JIS '89)	-236.00 to +560.00	-392.80 to +1040.00	37.15 to 833.15

* "Not in use" is supported by the module version V2.00 or later.

R8-TS2 sensor type / temperature range

Sensor	Available Temperature Range		
	Celsius (degC)	Fahrenheit (degF)	Absolute temperature (K)
Not in use (*)	----	----	----
K (CA)	-272.00 to +1472.00	-457.60 to +2681.60	1.15 to 1745.15
E (CRC)	-272.00 to +1100.00	-457.60 to +2012.00	1.15 to 1373.15
J (IC)	-260.00 to +1300.00	-436.00 to +2372.00	13.15 to 1573.15
T (CC)	-272.00 to +500.00	-457.60 to +932.00	1.15 to 773.15
B (RH)	24.00 to 1920.00	75.2 to 3488.00	297.15 to 2193.15
R	-100.00 to +1860.00	-148.00 to +3380.00	173.15 to 2133.15
S	-100.00 to +1860.00	-148.00 to +3380.00	173.15 to 2133.15
C (WRe 5-26)	-52.00 to +2416.00	-61.60 to +4380.80	221.15 to 2689.15
N	-272.00 to +1400.00	-457.60 to +2552.00	1.15 to 1673.15
U	-252.00 to +700.00	-421.60 to +1292.00	21.15 to 973.15
L	-252.00 to +1000.00	-421.60 to +1832.00	21.15 to 1273.15
P (Platine II)	-52.00 to +1496.00	-61.60 to +2724.80	221.15 to 1769.15
(PR)	-52.00 to +1860.00	-61.60 to +3380.00	221.15 to 2133.15

* "Not in use" is supported by the module version V2.00 or later.

3.10.2 FINE ZERO ADJUSTMENT / FINE GAIN ADJUSTMENT

Refer to section 3.7.2.

Note: Available only in case of scaling for setting other value than 0.00 to lower and upper range value.

3.10.3 SCALED RANGE ZERO / SCALED RANGE SPAN

Refer to section 3.7.3.

3.10.4 BURNOUT

Select the value that is desired to be sent to the host network at sensor wire break detection.

Upscale
Downscale

The table below describes the settings of lower, upper scaled range and limit at setting upper or lower value sent to the host network.

	Lower / Upper range value with 0.00	Lower / Upper range value with other than 0.00	
		Limit -5 – +105%	Limit Scaled range zero/span
Upscale	Temperature setting maximum available range	((Scaled range span) – (scaled range zero)) × 1.05 + (scaled range zero)	Scaled range span
Downscale	Temperature setting minimum available range	((Scaled range span) – (scaled range zero)) × (-0.05) + (scaled range zero)	Scaled range zero

3.10.5 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to section 3.5.1.

3.10.6 TEMPERATURE UNIT

Select the temperature unit from below

degC
degF
K

3.10.7 LIMIT

Select the value range after scaling.

-5 – +105%
Scaled range zero/span

In case of selecting -5 – +105%, the range set with scaled range zero or scaled range span is sent to host network with a margin of 5% added.

In case of selecting scaled range zero/span, the value sent to the host network is the value set with scaled range zero or scaled range span without adding 5%.

3.10.8 CONFIGURATION MODE

Refer to section 3.6.4.

3.11 R8-PA4 / R8-PA4F

Parameter	Factory Setting
Max. accumulable pulse:	4294967295 (0xffffffff)
Overflow reset value	0
Loss of internal bus communication detection time	1.0 (sec.)

3.11.1 MAXIMUM ACCUMULABLE PULSE

Is the maximum count value of every input pulse. If the pulse value overtakes the maximum with one pulse, the counter returns to overflow reset value. Parameter range is: 1 to 4294967295 (0xffffffff)

3.11.2 OVERFLOW RESET VALUE

Is the value to return after overtaking the maximum count pulse. Parameter range is 0 to 1.

3.11.3 PRESET VALUE

Pulse count value for each input is changed to desired preset value. Writing preset value is available only in the monitor view.

3.11.4 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to section 3.5.1.

3.12 R8-TC2

Parameter	Factory Setting
Loop 1 PV1	Refer to the R8-TC2 operating manual for detailed setting items.
Loop 1 Action	
Loop 1 PID	
Loop 1 Alarm	
Loop 2 PV2	
Loop 2 Action	
Loop 2 PID	
Loop 2 Alarm	
Control output 1 MV1	
Control output 2 MV2	
CT1	
CT2	
Loss of internal bus communication detection time	1.0 (sec.)

3.12.1 LOOP 1 PV1 – CT2

There are multiple setting items in the each setting menu. Refer to the setting item section of the R8-TC2 operating manual for description of each setting item and default value.

3.12.2 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to section 3.5.1.

3.13 R8-CT4E

Parameter	Factory Setting
Sensor type	CLSE-R5
Lower range value	0.000 (A)
Upper range value	0.000 (A)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Low-end cutout	1.0 (%)
Loss of internal bus communication detection time	1.0 (sec.)
Configuration mode	DIP switch (OFF)

3.13.1 SENSOR TYPE / LOWER RANGE VALUE / UPPER RANGE VALUE

Set input current range and the sensor type of input 1 through 4. Choose the sensor and specify lower range value for input lower limit and upper range value for input upper limit. Sensor parameters are described below.

In the case of setting 0.000 to lower range value and upper range value, the value sent to host network is 1000 times (CLSE-R5) the current unit or 100 times (except CLSE-R5) the current unit with no need of fine-adjust or scaling. Setting other than 0 for at least one of lower range value or upper range value enables to sent scaled value to host.

This function is enabled when both parameter "configuration mode" and DIP switch configuration of the module are "PC (ON)." This function complies with the setting of the DIP switch when the DIP switch is OFF.

Sensor type and available input range

Sensor	Available Input Range
	AC Current (A)
CLSE-R5	0.000 to 5.000
CLSE-05	0.00 to 50.00
CLSE-10	0.00 to 100.00
CLSE-20	0.00 to 200.00
CLSE-40	0.00 to 400.00
CLSE-60	0.00 to 600.00

3.13.2 FINE ZERO ADJUSTMENT / FINE GAIN ADJUSTMENT

Refer to section 3.7.2.

Note: Available only in case of scaling for setting other value than 0.000 to lower and upper range value.

3.13.3 SCALED RANGE ZERO / SCALED RANGE SPAN

Refer to section 3.7.3.

3.13.4 LOW-END CUTOUT

Low-end cutout is available to fix the value to 0 at no AC current input. Input below the value set by low-end cutout is fixed to 0%. In case of setting 0 to lower and upper range value, the % value for available input range of the previous table "Sensor type and available input range" is criterion. In case of scaling for setting other value than 0 to lower and upper range value, the % value for entered lower and upper range value is criterion.

It is available to set low-end cutout between the range from 0.0 to 5.0%. When 0.0 is set, low-end cutout is disabled.

3.13.5 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to section 3.5.1.

3.13.6 CONFIGURATION MODE

Refer to section 3.6.4.

3.14 R8-PC4A

Parameter	Factory Setting
Max. Totalized pulse count	10000
Pulse ON time	5 msec.
Pulse OFF time	5 msec.
Loss of internal bus communication detection time	1.0 (sec.)

3.14.1 MAX. TOTALIZED PULSE COUNT

Setting for max. totalized pulse count for each output. When pulse count reaches the setting value, the totalized pulse count returns to 1 with next pulse output. If totalized pulse count sent from the host is higher than the setting value, the value is ignored. Setting range is 1 to 65535.

3.14.2 PULSE ON/OFF TIME

Setting for pulse on/off time for each output. The module outputs the pulse with pulse width within the setting time (not more than + 2 msec.). The setting can be chosen among 5 msec., 10 msec., 50 msec., 100 msec., 500 msec., 1000 msec., 1500 msec., and 2000 msec.
This setting is only available when the parameter "Configuration mode" and configuration mode of the DIP switch of the module, both are "PC (ON)". When the DIP SW (OFF), the module operates according to the DIP switch setting.

3.14.3 PRESET

It is available to preset totalized pulse count to desired value. Writing preset value is available only from monitor view. The preset value range is from 0 to max. totalized pulse count.

3.14.4 LOSS OF INTERNAL BUS COMMUNICATION DETECTION TIME

Refer to section 3.5.1.