

REMOTE I/O R30 SERIES
PC CONFIGURATOR SOFTWARE
Model: RCFG-R30CFG

Users Manual

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1. INTRODUCTION

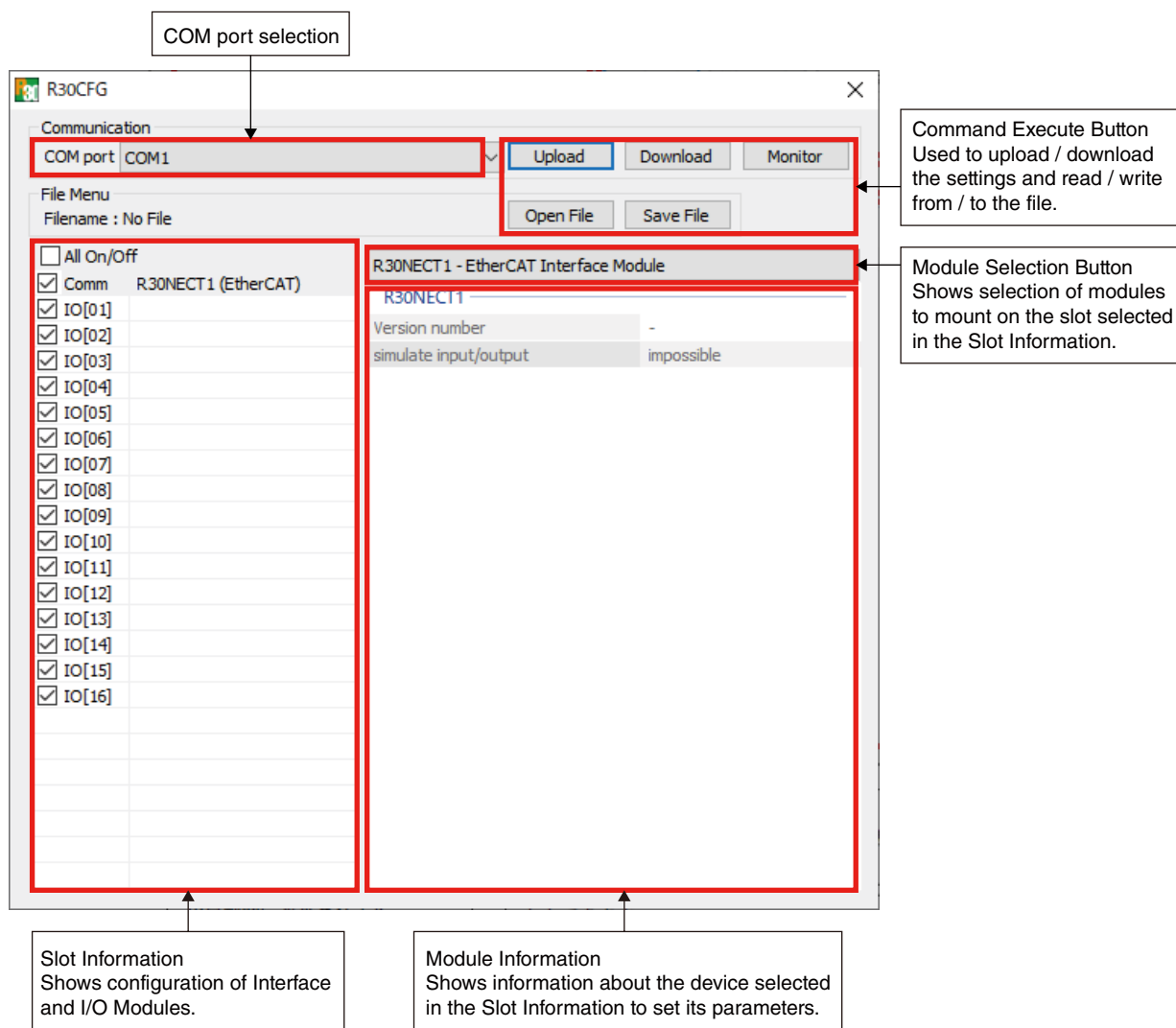
The RCFG-R30CFG is used to program parameters for the Interface and I/O Modules of the R30 Series Remote I/O (referred hereunder as 'device').

2. GETTING STARTED

2.1 STARTING THE R30CFG

Start RCFG in the program menu on the PC.

When R30CFG is selected, the following setting window appears on the screen.



2.1.1 SELECTING COM PORT

Select a COM port added in installing the R30 USB Driver adequately. The added COM port number depends on the PC.

2.1.2 SELECTING SLOTS

- 1) [Upload] and [Download] functions are applicable to the slots with checkmarks only.
- 2) [Monitor], [Open File] and [Save File] functions are applicable to all slots, regardless of the checkmarks.

2.2 MODIFYING PARAMETERS

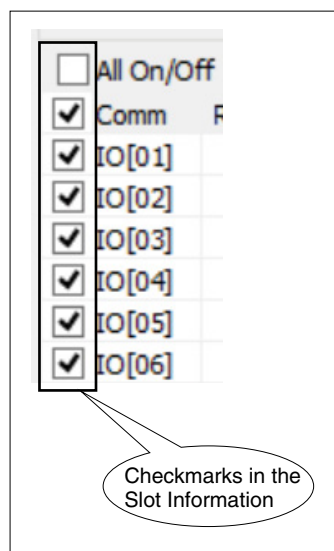
Whenever you need to modify parameters stored in a device, first read (upload) the present parameters from the device, modify whatever parameters you need, and then write (download) the new parameters to the device.

2.2.1 READING PARAMETERS FROM DEVICE (UPLOAD)

- 1) Choose the COM port number to which the device is connected.
- 2) Click on [Upload] button at the top of the window.
Then the program starts to communicate with the device to read the present parameters. If an error message appears, confirm the hardware connection and the setting again before retrying.
- 3) The device's present parameters are uploaded and shown on the screen.

NOTE

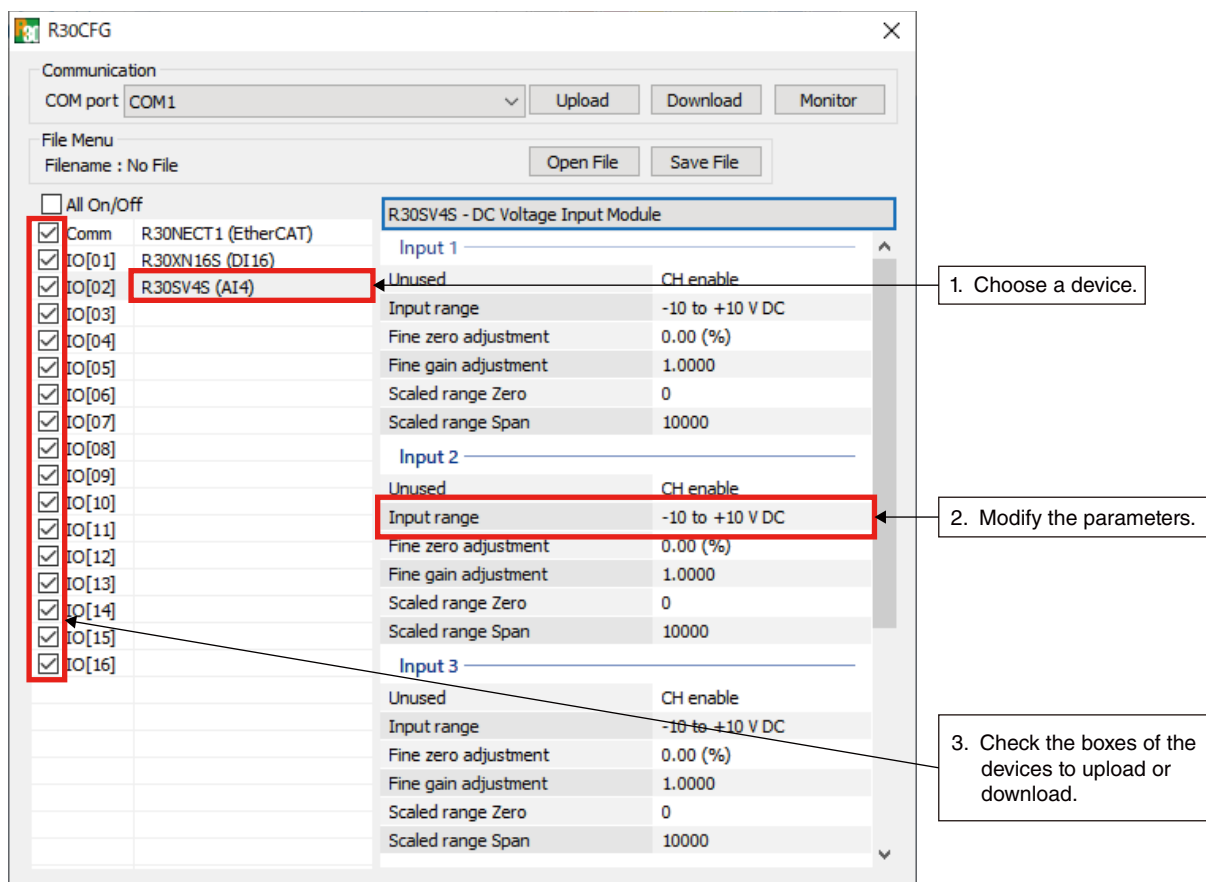
The parameters of the slots without the checkmarks are not uploaded.



2.2.2 MODIFICATION EXAMPLE

The initial view is composed of the R30 module configuration to the left and the parameters of the selected module to the right.

The example below shows the R30NECT1 Interface Module, Discrete Input Module (slot 1) and DC Voltage/Current Input Module (slot 2).



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

2.2.3 WRITING NEW PARAMETERS (DOWNLOAD)

- 1) Click on [Download] button at the top of the window.
- 2) When the indicator showing progress of the download reaches the right end without showing any error message, the new parameters are correctly updated, downloaded to the device, and immediately valid.

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 the file.

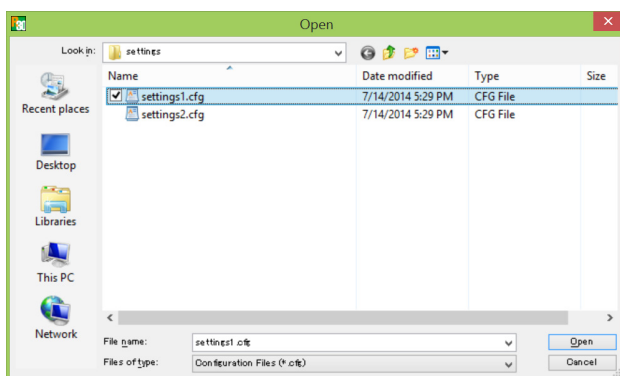
By combining [Upload] / [Download] functions with [Save File] / [Open File], a backup file of those presently used in the device can be created.

2.3.1 READING PARAMETERS SAVED AS FILE

Clicking on [Open File] button calls up the Windows-standard Open dialog box, depending on the PC's operating system on which the program is running.

NOTE

The dialog box is displayed in the language of the OS.



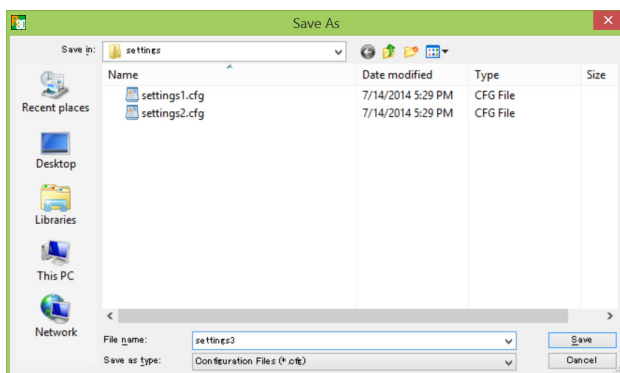
Select a parameter file and click on [Open] button to show a stored parameter setting.

2.3.2 SAVING PARAMETERS IN A FILE

Clicking on [Save File] button calls up the Windows-standard Save dialog box, depending on the PC's operating system on which the program is running.

NOTE

The dialog box is displayed in the language of the OS.

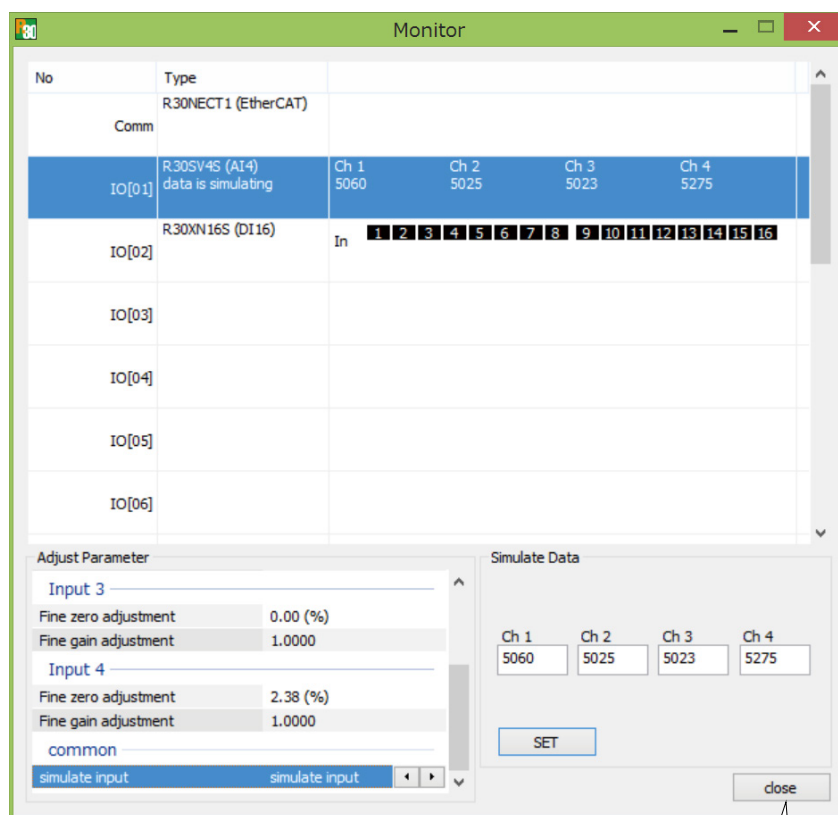


Enter a desired file name to File Name field and click on [Save] button to store a parameter setting.

2.4 MONITORING I/O STATUS

The Monitoring function is used to show I/O status of each device connected to the PC on the window, conduct fine adjustments, and set simulate I/O.

Click on [Monitor] button. When the communication is established, the following window appears on the screen.
(The window shows an example where the R30SV4 and the R30YN16A are mounted to the base.)



Click on to quit the Monitor screen.

The following table explains the window above.

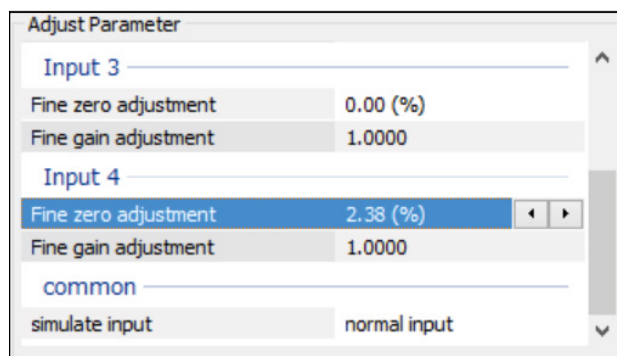
ITEMS	DESCRIPTION
(1) I/O	Shows the types of modules mounted to the base, followed by each I/O status with scaled value. Click on an I/O module to show 2) the fine zero/gain adjustments and 3) the simulate I/O.
(2) Fine adjustment	Conduct the fine zero/gain adjustments for the analog I/O. Also enable or disable the simulate I/O. The setting is immediately valid. When temperature channels of R30US2/US4 (T/C or RTD input), R30TS4 or R30RS4 are selected, the setting of these parameters are not available if the same value is set to the zero base and full base. This area is blank for the I/O modules without the fine adjustment function.*1 For R30PA2, it is required to set the preset value in this area.
(3) Simulate I/O	Set simulate I/O value. Click on [SET] button and the setting is immediately valid. Set the scaled value. (This area is blank for the I/O modules without the simulate I/O function.) For simulated I/O, input available range is -32768 to 32767. When an out-of-range value is entered, it is changed to -32768 or 32767. (For R30CT4E, refer to 4.11.8)

*1. Refer to 4.10.2 for R30MS4.

2.4.1 SETTING FINE ZERO / GAIN ADJUSTMENTS

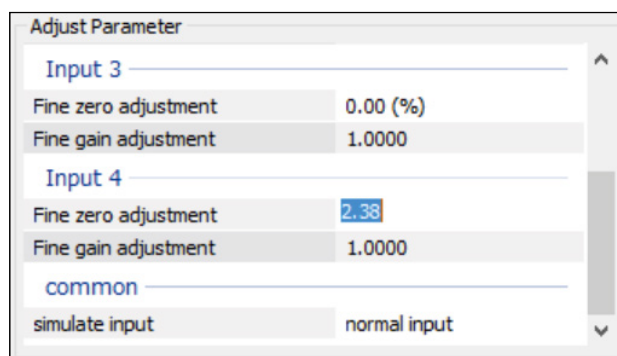
Click on [Fine zero adjustment] or [Fine gain adjustment] to display  buttons.

Each time you click on the left or right arrow of  buttons, the fine adjustment value will be incremented or decremented (by 0.01 for the fine zero adjustment, and by 0.0001 for the gain).



Adjust Parameter	
Input 3	
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Input 4	
Fine zero adjustment	2.38 (%)
Fine gain adjustment	1.0000
common	
simulate input	normal input

Double-click on [Fine zero adjustment] or [Fine gain adjustment] to enter the value.

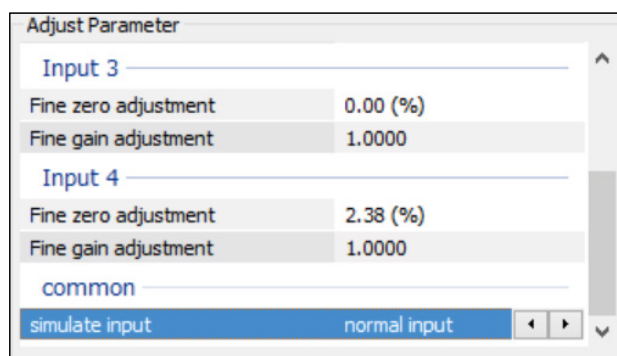


Adjust Parameter	
Input 3	
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Input 4	
Fine zero adjustment	2.38
Fine gain adjustment	1.0000
common	
simulate input	normal input

2.4.2 SETTING SIMULATE INPUT/OUTPUT

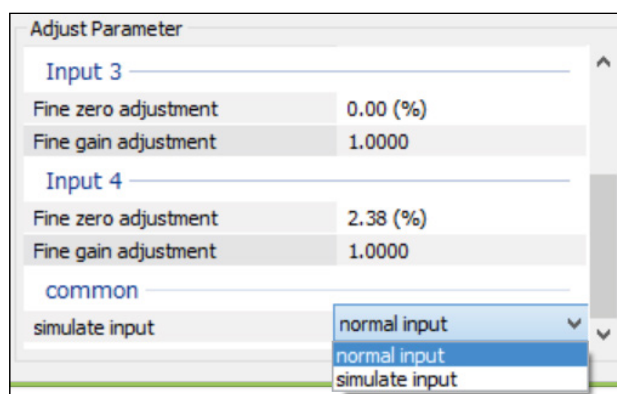
Click on [Simulate input] ([Simulate output]) to display  buttons.

Click on the right arrow to select the simulate input (simulate output) or the left arrow to select the normal input (normal output).



Adjust Parameter	
Input 3	
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Input 4	
Fine zero adjustment	2.38 (%)
Fine gain adjustment	1.0000
common	
simulate input	normal input

Double-click on [Simulate input] ([Simulate output]) and select the simulate input (simulate output) or normal input (normal output) from the drop-down menu.



Adjust Parameter	
Input 3	
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Input 4	
Fine zero adjustment	2.38 (%)
Fine gain adjustment	1.0000
common	
simulate input	normal input

NOTE

Each time the fine zero/gain adjustment or the simulate I/O is set on the Monitor screen, the program communicates with the device to write the settings to it.

After closing the Monitor screen, the initial view still shows the previous settings.

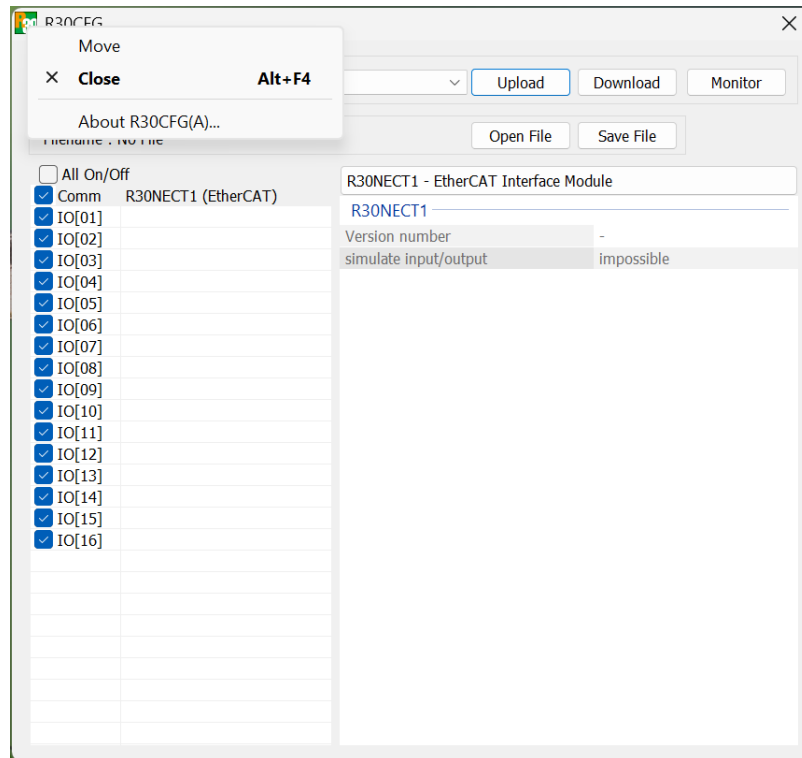
To reflect the new settings on the screen, click on [Upload] button.

* The simulate I/O setting returns to the normal input (normal output) mode in starting up the device.

2.5 DISPLAYING VERSION

Confirm the RCFG-R30CFG version in the following step.

- 1) Right-click on the top of the window.
- 2) Click [About R30CFG(A)...] to display the version.



3. PARAMETER DETAILS OF INTERFACE MODULE

3.1 R30NECT1 - EtherCAT INTERFACE MODULE

The R30NECT1 does not have setting items, only displaying.

3.1.1 VERSION NUMBER

Version number of the firmware is displayed.

This is not editable.

When not uploaded, “—” is displayed.

R30NECT1	
Version number	1.01.04
simulate input/output	impossible

3.1.2 SETTING SIMULATE INPUT/OUTPUT

Displays possible/impossible of the simulation input/output for R30XN16Sx, R30YN16Sx.

This is not editable.

Simulation input/output is possible when the the version of the interface module is 3.00 or later.

For the analog I/O module supporting simulation I/O, Simulation I/O is available regardless of the indication.

R30NECT1	
Version number	1.01.04
simulate input/output	impossible

3.2 R30NCIE1 - CC-Link IE FIELD NETWORK INTERFACE MODULE

3.2.1 NETWORK NO

Set the network No.

The range is 1 to 239, initial value is 1.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

3.2.2 STATION ID

Station ID set in the R30NCIE1 is displayed. It is not available to change.

When not uploaded, “—” is displayed.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

3.2.3 MAC ADDRESS

MAC address of the R30NCIE1 is displayed. It is not available to change.

When not uploaded, “–” is displayed.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

3.2.4 LINK STATUS

Data link status at upload is displayed. It is not available to change.

Upload when display needs update.

When not uploaded, “–” is displayed.

- CYCLIC: Cyclic communication status
- TOKEN-PASS: Token-pass status
- DISCONNECT: When communication is not established.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

3.2.5 VERSION NUMBER

Version number of the firmware is displayed.

This is not editable.

When not uploaded, “–” is displayed.

R30NCIE1	
Version number	1.01.01
simulate input/output	impossible

3.2.6 SIMULATE INPUT/OUTPUT

Displays the availability of simulate input/output in R30XN16Sx and R30YN16Sx.

This is not editable.

This is available with the network module version 3.00 or later.

Analog I/O modules that support simulate input/output can perform simulate input/output regardless of the display.

R30NCIE1	
Version number	1.01.01
simulate input/output	impossible

3.3 R30NE1 - Modbus/TCP INTERFACE MODULE

IMPORTANT

Be sure to reboot R30NE1 when its settings have changed.
The new settings are effective only after turning off and on the power supply to R30NE1.

3.3.1 TIME OUT

Set the communication timeout period.
When there is no communication within this time period, RUN LED turns off, RUN contact turns off, and each output module which is connected enters the state of 'output at the loss of communication'.

Setting range: 0.2 to 3200.0 sec.
Factory default: 3.0 sec.

Ethernet (Modbus/TCP)	
Time out	3.0
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
Port 1	502
Port 2	502
Port 3	502
Port 4	502
Linger time	180.0 (sec)
MAC address	00-10-9C-00-FF-FE

3.3.2 IP ADDRESS, SUBNET MASK, DEFAULT GATEWAY

Setting range: 0 to 255
Factory default:
IP address 192.168.0.1
Subnet mask 255.255.255.0
Default gateway 192.168.0.100

Ethernet (Modbus/TCP)	
Time out	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
Port 1	502
Port 2	502
Port 3	502
Port 4	502
Linger time	180.0 (sec)
MAC address	00-10-9C-00-FF-FE

3.3.3 PORT NUMBER 1 TO 4

Set the Port Number.
It is normally set to 502.

Setting range: 1 to 32000
Factory default: 502

Ethernet (Modbus/TCP)	
Time out	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
Port 1	502
Port 2	502
Port 3	502
Port 4	502
Linger time	180.0 (sec)
MAC address	00-10-9C-00-FF-FE

3.3.4 LINGER TIME

Linger time is set for monitoring no communication time.

When there is no communication within the preset time period, communication is disconnected.

Setting range: 3.0 to 3200.0 sec.

Factory default: 180.0 sec.

Ethernet (Modbus/TCP)	
Time out	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
Port 1	502
Port 2	502
Port 3	502
Port 4	502
Linger time	180.0
MAC address	00-10-9C-00-FF-FE

3.3.5 MAC ADDRESS

MAC address of R30NE1 is displayed.

The MAC address is not editable.

‘—’ is displayed when it is yet to be uploaded.

Ethernet (Modbus/TCP)	
Time out	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
Port 1	502
Port 2	502
Port 3	502
Port 4	502
Linger time	180.0 (sec)
MAC address	00-10-9C-00-FF-FE

3.3.6 FIRMWARE VERSION

The firmware version of R30NE1 is displayed.

This is not editable.

‘—’ is displayed when it is yet to be uploaded.

R30NE1	
Version number	1.01.04
simulate input/output	impossible

3.3.7 SIMULATE INPUT/OUTPUT

Displays the availability of simulate input/output in R30XN16Sx and R30YN16Sx.

This is not editable.

This is available with the network module version 3.00 or later.

Analog I/O modules that support simulate input/output can perform simulate input/output regardless of the display.

R30NE1	
Version number	1.01.04
simulate input/output	impossible

3.4 R30NOUA1 - NETWORK MODULE FOR OPC-UA DA SERVER

3.4.1 ANONYMOUS LOGIN

Set whether or not to allow anonymous login (No user authentication).

To allow anonymous login, select the data access level between 'Read only' and 'R/W'.

Log in	
Anonymous Log in	No Log in
User Log in	No Log in
Permission01	Read only
Log in ID	AdminA
Password	admin123
Permission02	Read only
Log in ID	
Password	

3.4.2 USER LOGIN

Set whether or not to allow user login (User authentication by username and password).

When user login is allowed, up to 2 sets of username and password can be set.

Log in	
Anonymous Log in	Read only
User Log in	non-permission
Permission01	non-permission
Log in ID	permission
Password	admin123
Permission02	Read only
Log in ID	
Password	

3.4.3 PERMISSION01 / 02

Set the data access level for each Log In ID.

Log in	
Anonymous Log in	Read only
User Log in	non-permission
Permission01	Read only
Log in ID	Read only
Password	Read/Write
Permission02	Read only
Log in ID	
Password	

3.4.4 LOG IN ID & PASSWORD

Set User name and Password for each Log In ID.

Use alphanumerical characters (upper & lower cases) only.

Log In ID: If the parameter is left blank, the password will be initialized and user login becomes invalid.

Password: If the parameter is left blank, user login becomes invalid.

Log in	
Anonymous Log in	Read only
User Log in	non-permission
Permission01	Read only
Log in ID	AdminA
Password	admin123
Permission02	Read only
Log in ID	
Password	

3.4.5 IP ADDRESS, SUBNET MASK, DEFAULT GATEWAY, DNS SERVER

Setting range: 0 to 255

Default values

IP address : 192.168.0.1
Subnet mask : 255.255.255.0
Default gateway : 192.168.0.100
DNS server : 192.168.13.1

Com. setting	
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
DNS Server01	192.168.13.1
DNS Server02	192.168.13.1
card01 UA data type	not define
card02 UA data type	not define
card03 UA data type	not define
card04 UA data type	not define
card05 UA data type	not define

3.4.6 DATA TYPE

Set the data types for I/O modules mounted on the respective slots of the R30 installation base.

Default setting: 'not define'

* When the setting is 'not define', the data type is automatically set depending on the type of I/O module.

Discrete module: 'boolean'

Analog module: 'int16'

* For example, when the R30PA2 module is used, set as 'uint32' so that data is handled in 32 bits (2-word) and will not be separated.

Com. setting	
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
DNS Server01	192.168.13.1
DNS Server02	192.168.13.1
card01 UA data type	boolean
card02 UA data type	not define
card03 UA data type	boolean
card04 UA data type	uint16
card05 UA data type	int16
card06 UA data type	uint32

3.4.7 COMMUNICATION TIMEOUT MONITORING TIMER

Set the timer value for communication timeout. When there is no access from an OPC-UA client before the timeout period elapses, a timeout error occurs.

Setting range: 0 to 32757 (0 to 3275.7 seconds)

Set to 0 for no monitoring.

Default setting: 300 (30 seconds)

card16 UA data type	not define
Communication time out 100ms.	300
MACAddress	00-10-9C-47-02-8C

3.4.8 MAC ADDRESS

MAC address of the R30NOUA1 is indicated, which is not editable.

'-' is displayed when the parameters are yet to be uploaded from the device.

card16 UA data type	not define
Communication time out 100ms.	300
MACAddress	00-10-9C-47-02-8C

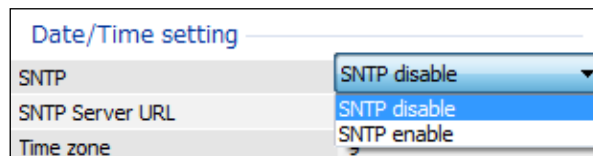
3.4.9 SNTP TIME SYNCHRONIZATION

Set whether or not to allow time synchronization with the SNTP server.

When set to 'SNTP enable', time synchronization is performed at power-on, 0:00, 06:00, 12:00, and 18:00.

Default setting: 'SNTP disable'

* When set to 'SNTP enable', be sure to set 'DNS Server', 'SNTP Server URL', and 'Time zone'.



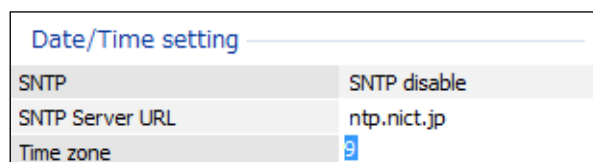
Date/Time setting	
SNTP	SNTP disable
SNTP Server URL	SNTP disable
Time zone	SNTP enable

3.4.10 TIME ZONE

Set the UTC time zone.

Setting range: -12 to 14

Default setting: 9 (Japan time)



Date/Time setting	
SNTP	SNTP disable
SNTP Server URL	ntp.nict.jp
Time zone	9

3.4.11 CONFIRMING VERSION NO.

The firmware version of the R30NOUA1 is indicated, which is not editable.

'-' is displayed when the parameters are yet to be uploaded from the device.



R30NOUA1	
Version number	1.01.17

3.4.12 DATE / TIME SETTING

Date and time can be set on the Monitor screen.

Edit 'yyyy/mm/dd hh:mm:ss' and press "Enter" to validate the new setting.

In order to minimize time until the set date and time is reflected, it is highly recommended to perform data/time setting with no I/O module but the R30NOUA1 mounted on the base.

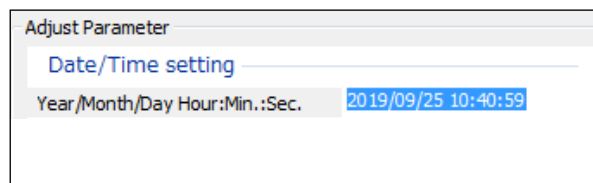
Setting range

Year	: 2001 to 2099
Month	: 1 to 12
Date	: 1 to 31
Hour	: 0 to 23
Min.	: 0 to 59
Sec.	: 0 to 59

Default value : 2013/01/01 00:00:00

Do NOT enter a date which does not exist (e.g., February 31).

If such a date is entered, the value will not be reflected and the setting will remain unchanged.



Adjust Parameter	
Date/Time setting	
Year/Month/Day Hour:Min.:Sec.	2019/09/25 10:40:59

3.5 R30NCIT1 - CC-Link IE TSN Interface Module

3.5.1 STATION ID

Station ID set in the R30NCIT1 is displayed. It is not available to change.

When not uploaded, “–” is displayed.

CC-Link IE TSN	
Station ID	0001
MAC address	00-10-9C-00-FF-FE

3.5.2 MAC ADDRESS

MAC address of the R30NCIT1 is displayed. It is not available to change.

When not uploaded, “–” is displayed.

CC-Link IE TSN	
Station ID	0001
MAC address	00-10-9C-00-FF-FE

3.5.3 VERSION NUMBER

Version number of the firmware is displayed.

This is not editable.

When not uploaded, “–” is displayed.

R30NCIT1	
Version number	1.02.08
simulate input/output	impossible

3.5.4 SIMULATE INPUT/OUTPUT

Displays the availability of simulate input/output in R30XN16Sx and R30YN16Sx.

This is not editable.

This is available with the network module version 3.00 or later.

Analog I/O modules that support simulate input/output can perform simulate input/output regardless of the display.

R30NCIT1	
Version number	1.02.08
simulate input/output	impossible

3.6 R30NEIP1 - NETWORK MODULE FOR EtherNet/IP

3.6.1 DATA SIZE

Area size of input/output data is set.

Select from 38word (32+6), 70word (64+6), 134word (128+6) or 252word (246+6).

EtherNet/IP	
Data size	38word (32 +6) ▾
Network failure detection time	38word (32 +6)
IP address	70word (64 + 6)
Subnet mask	134word (128 + 6)
Default gateway	252word (246 + 6)
Default gateway	192.168.0.1
MAC address	-

3.6.2 NETWORK FAILURE DETECTION TIME

When there is no EtherNet/IP communication for the specified time period, an abnormal communication is detected.

Setting range: 0 to 3200.0 seconds

EtherNet/IP	
Data size	38word (32 +6)
Network failure detection time	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
MAC address	-

3.6.3 IP ADDRESS, SUBNET MASK, DEFAULT GATEWAY

Network configurations for EtherNet/IP communication.

Setting range: 0.0.0.0 to 255.255.255.255

EtherNet/IP	
Data size	38word (32 +6)
Network failure detection time	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
MAC address	-

3.6.4 MAC ADDRESS

MAC address of the R30NEIP1 is displayed.

This is not editable.

When not uploaded, “-” is displayed.

EtherNet/IP	
Data size	38word (32 +6)
Network failure detection time	3.0 (sec)
IP address	192.168.0.250
Subnet mask	255.255.255.0
Default gateway	192.168.0.1
MAC address	-

3.6.5 VERSION NUMBER

Version number of the firmware is displayed.

This is not editable.

When not uploaded, “-” is displayed.

R30NEIP1	
Version number	-
simulate input/output	impossible

3.6.6 SIMULATE INPUT/OUTPUT

Displays the availability of simulate input/output in R30XN16Sx and R30YN16Sx.

This is not editable.

R30NEIP1	
Version number	-
simulate input/output	impossible

4. PARAMETER DETAILS OF I/O MODULES

4.1 R30XN16x - DISCRETE INPUT MODULE, 16 POINTS

When the version of the network module is 3.00 or higher, the simulate input setting can be configurable.

When the version is 2.xx or earlier, the R30XN16x does not have any setting items.

4.1.1 SIMULATE INPUT SETTING

Switching normal input or simulate input.

Also configurable in fine adjustment on monitor screen.

Set the simulate input value on monitor screen.

common	
simulate input	normal input
	normal input
	simulate input

4.2 R30YN16x - DISCRETE OUTPUT MODULE, 16 POINTS

When the version of the R30YN16x is 3.00 or higher, the simulate input setting can be configurable.

When the version is 2.xx or earlier, the R30YN16x does not have any setting items.

4.2.1 SIMULATE OUTPUT SETTING

Switching normal output or simulate output.

Also configurable in fine adjustment on monitor screen.

Set the simulate output value on monitor screen.

common	
simulate output	normal output
	normal output
	simulate output

*How to Perform Simulate Input/Output

Adjust Parameter	
common	simulate output
Simulate Data	
01	08 09 16
17	24 25 32
SET	
close	

Select the I/O module on the monitor screen, and select the simulate data in the "adjust parameter".

Check the channel to output (input) the simulate data, and click SET button to activate the simulate data.

In case of simulate input, the discrete input status indicator LEDs of R30XN16x will not turn on.

4.3 R30SV4 (R30SV2) - DC VOLTAGE/CURRENT INPUT MODULE, 4 POINTS (2 POINTS)

The number of inputs for R30SV2 is 2 points.

4.3.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable
Input range	CH enable
Fine zero adjustment	CH disable
Fine gain adjustment	0.0000
Scaled range Zero	0
Scaled range Span	10000

4.3.2 SETTING INPUT RANGE

Choose the input range for the enabled inputs.

Input 1	
Unused	CH enable
Input range	-10 to +10 V DC
Fine zero adjustment	-10 to +10 V DC
Fine gain adjustment	-5 to +5 V DC
Scaled range Zero	-1 to +1 V DC
Scaled range Span	0 to 10 V DC
Input 2	
Unused	0 to 5 V DC
Input range	0 to 1 V DC
Fine zero adjustment	-0.5 - +0.5 V DC
	-20 - +20 mA DC
	4 - 20 mA DC
	0 - 20 mA DC

4.3.3 SETTING FINE ZERO / GAIN ADJUSTMENTS, AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure below shows an example for setting the scaled range Span.

Input 1	
Unused	CH enable
Input range	-10 to +10 V DC
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000

PARAMETER	DESCRIPTION	AVAILABLE RANGE
Fine zero adjustment	Zero (bias) adjustment value	-320.00 to +320.00
Fine gain adjustment	Gain (span) adjustment value	-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%	-32000 to +32000
Scaled range Span	Scaled value 100%	-32000 to +32000

NOTE

Calculation is carried out in the order of the fine gain, fine zero, and scaled range Zero/Span.

• Calculation example of fine zero/gain adjustments

Used for fine adjustment such as calibration.

Fine zero adjustment = 100.00 (%), fine gain adjustment = 2.0000

With the raw value 50.00%,

$$50.00 (\%) \times \underbrace{2.0000}_{\text{Fine gain adj.}} + \underbrace{100.00 (\%)}_{\text{Fine zero adj.}} = \underbrace{200.00 (\%)}_{\text{Calculated input value}}$$

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the measured value 50.00% (5000) after calculating the fine adjustments with the scaled range Zero 0 and Span 10000,

$$\underbrace{(10000 - (-10000))}_{\text{Scaled range Span}} \div \underbrace{10000}_{\text{Scaled range Zero}} \times \underbrace{5000}_{\text{50.00 (\%)}} + \underbrace{(-10000)}_{\text{Scaled range Zero}} = \underbrace{0}_{\text{Calculated scaled value}} \text{ (0.00\%)}$$

(Scaled range Span - Scaled range Zero)
in measuring 50.00%

4.3.4 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“—” is shown when not uploaded.

common	
Version number	1.01.05
Conversion rate	80ms
simulate input	simulate input

4.3.5 SETTING CONVERSION RATE

Choose one of the input signal conversion rates among 10, 20, 40 and 80 milliseconds.

The conversion accuracy depends on the rate. Refer to the data sheet of R30SV4 (R30SV2) for the detailed information.

Setting per input is not available. Set the rate for all inputs.

common	
Version number	1.01.05
Conversion rate	80ms
simulate input	simulate input

4.3.6 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

Specify the simulate input value between -32768 and +32767. If entering a value under -32768, -32768 is set.

If above +32767, +32767 is set.

common	
Version number	1.01.05
Conversion rate	80ms
simulate input	simulate input

4.4 R30SVF4 - HIGH-SPEED DC VOLTAGE/CURRENT INPUT MODULE, 4 POINTS

4.4.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable
Input range	CH enable
Fine zero adjustment	CH disable
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000

4.4.2 SETTING INPUT RANGE

Choose the input range for the enabled inputs.

Input 1	
Unused	CH enable
Input range	-10 to +10 V DC
Fine zero adjustment	-10 to +10 V DC
Fine gain adjustment	-5 to +5 V DC
Scaled range Zero	-1 to +1 V DC
Scaled range Span	0 to 10 V DC
Input 2	
Unused	0 to 5 V DC
Input range	1 to 5 V DC
Fine zero adjustment	0 to 1 V DC
Unused	-0.5 - +0.5 V DC
Input range	-20 - +20 mA DC
Fine zero adjustment	4 - 20 mA DC

4.4.3 SETTING FINE ZERO / GAIN ADJUSTMENTS, AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure below shows an example for setting the scaled range Span.

Input 1	
Unused	CH enable
Input range	-10 to +10 V DC
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000

PARAMETER	DESCRIPTION	AVAILABLE RANGE
Fine zero adjustment	Zero (bias) adjustment value	-320.00 to +320.00
Fine gain adjustment	Gain (span) adjustment value	-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%	-32000 to +32000
Scaled range Span	Scaled value 100%	-32000 to +32000

NOTE

Calculation is carried out in the order of the fine gain, fine zero, and scaled range Zero/Span.

• Calculation example of fine zero/gain adjustments

Used for fine adjustment such as calibration.

Fine zero adjustment = 100.00 (%), fine gain adjustment = 2.0000

With the raw value 50.00%,

$$50.00 (\%) \times \underbrace{2.0000}_{\text{Fine gain adj.}} + \underbrace{100.00 (\%) }_{\text{Fine zero adj.}} = \underbrace{200.00 (\%) }_{\text{Calculated input value}}$$

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the measured value 50.00% (5000) after calculating the fine adjustments with the scaled range Zero 0 and Span 10000,

$$\underbrace{(10000 - (-10000))}_{\text{Scaled range Span}} \div \underbrace{10000}_{\text{Scaled range Zero}} \times \underbrace{5000}_{\text{50.00 (\%)}} + \underbrace{(-10000)}_{\text{Scaled range Zero}} = \underbrace{0 (0.00\%)}_{\text{Calculated scaled value}}$$

(Scaled range Span - Scaled range Zero)
in measuring 50.00%

4.4.4 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“—” is shown when not uploaded.

common	
Version number	0.01.03
Averaging Number	1
simulate input	normal input

4.4.5 SETTING AVERAGING NUMBER

Choose the averaging number.

Setting per input is not available. Set the averaging number for all inputs.

common	
Version number	0.01.03
Averaging Number	1
simulate input	1
	2
	4
	8
	16
	32
	64
	128
	256

4.4.6 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

Specify the simulate input value between -32768 and +32767. If entering a value under -32768, -32768 is set. If above +32767, +32767 is set.

common	
Version number	0.01.03
Averaging Number	1
simulate input	normal input ▼
	normal input
	simulate input

4.5 R30US4 (R30US2) - UNIVERSAL INPUT MODULE, 4 POINTS (2 POINTS)

The number of inputs for R30US2 is 2 points.

4.5.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable ▼
Input type	CH enable
Unit	CH disable
Zero Base	0.000
Full Base	0.000
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	Up
CJC	Eneable
First Order Lag filter	0.0 (sec)

4.5.2 SETTING INPUT TYPE

Choose the input type for the enabled inputs.

Depending on the input type, some parameters are unavailable and grayed out.

- | | |
|---|--|
| <ul style="list-style-type: none"> • DC Current <ul style="list-style-type: none"> -20 - +20 mA DC • DC Voltage <ul style="list-style-type: none"> -1000 - +1000 mV DC -10 - +10 V DC • Potentiometer <ul style="list-style-type: none"> POT 0 - 4000 Ω POT 0 - 2500 Ω POT 0 - 1200 Ω POT 0 - 600 Ω POT 0 - 300 Ω POT 0 - 150 Ω • Resistor <ul style="list-style-type: none"> Resistance 0 - 4000 Ω | <ul style="list-style-type: none"> • Thermocouple <ul style="list-style-type: none"> TC PR TC K TC E TC J TC T TC B TC R TC S TC C TC N TC U TC L TC P |
|---|--|

Input 1	
Unused	CH enable
Input type	-10 - +10 V DC ▼
Unit	-20 - +20 mA DC
Zero Base	-1000 - +1000 mV DC
Full Base	-10 - +10 V DC
Fine zero adjustment	POT 0 - 4000 Ω
Fine gain adjustment	POT 0 - 2500 Ω
Scaled range Zero	POT 0 - 1200 Ω
Scaled range Span	POT 0 - 600 Ω
Wiring	POT 0 - 300 Ω
Burnout	POT 0 - 150 Ω
CJC	Resistance 0 - 4000 Ω
First Order Lag filter	RTD PT100
	RTD PT500
	RTD PT1000
	RTD PT50
	RTD JPT100
	RTD Ni5084
	RTD CU10
	TC PR
	TC K
	TC E
	TC J
	TC T
	TC B
	TC R
	TC S
	TC C
	TC N
	TC U
	TC L
	TC P

4.5.3 SETTING TEMPERATURE UNIT

Choose the temperature unit from degC (Centigrade), degF (Fahrenheit) and K (absolute temperature).

This parameter is available only when a thermocouple or RTD is selected for the input type.

Input 1	
Unused	CH enable
Input type	TC K
Unit	degC
Zero Base	degC
Full Base	degF
	K
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	Up
CJC	Eneable
First Order Lag filter	0.0 (sec)

4.5.4 SETTING ZERO / FULL BASES, FINE ZERO / GAIN ADJUSTMENTS, AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure below shows an example for setting the scaled range Span.

If the same value is entered for the zero base and full base, the scaled values are not calculated but the engineering unit temperature values are returned for thermocouple and RTD inputs. Also, the input ranges corresponding to the individual input types are scaled for DC current, DC voltage, potentiometer and resistor inputs. (e.g. If “-10 - +10 V DC” is specified for the input type and “0” is entered for both the zero base and full base, the scaling calculation is conducted by regarding the zero base to be “-10.0” and full base “10.0.”)

Input 1	
Unused	CH enable
Input type	TC K
Unit	degC
Zero Base	0.0
Full Base	1000.0
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	Up
CJC	Eneable
First Order Lag filter	0.0 (sec)

*1. Factory settings for the zero base and full base are “0.”

*2. If the zero base and full base parameters having the same value are downloaded and then uploaded, “0” is shown for the zero base and full base.

*3. If the zero base and full base parameters having the minimum and maximum values in the input range respectively are downloaded and then uploaded, “0” is shown for the zero base and full base. (e.g. When “-10 - +10 V DC” is specified for the input type, if the zero base and full base parameters having the values “-10.0” and “+10.0” respectively are downloaded and then uploaded, “0” is shown for the zero base and full base.

PARAMETER	DESCRIPTION	INPUT TYPE	AVAILABLE RANGE
Zero Base / Full Base	0% setting value / 100% setting value	-20 - +20 mA	-32.000 to +32.000
		-10 - +10 V	
		POT	-320.00 to +320.00
		-1000 - +1000 mV	-3200.0 to +3200.0
		RTD, TC (degC, K)	
		RTD, TC (degF)	-32000 to +32000
		0 - 4000 Ω	
Fine zero adjustment	Zero (bias) adjustment value	Independent from the input type	-320.00 to +320.00
Fine gain adjustment	Gain (span) adjustment value		-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%		-32000 to +32000
Scaled range Span	Scaled value 100%		-32000 to +32000

NOTE

Calculation is carried out in the order of the zero base/full base, fine gain, fine zero, and scaled range Zero/Span.

• Calculation example of zero base/full base

Convert engineering unit value to 0 – 100% value

Zero base = -100.0 (°C), full Base = 100.0 (°C)

With the measured value 50.0 (°C),

$$\frac{\text{Measured value (°C)} - \text{Zero base (°C)}}{\text{Full base (°C)} - \text{Zero base (°C)}} \times \text{Fixed value} = \text{0 - 100\% conversion value}$$

$$(50.0 - (-100.0)) / (100.0 - (-100.0)) \times 10000 = 7500 \text{ (75.00\%)}$$

• Calculation example of fine zero/gain adjustments

Used for fine adjustment such as calibration.

Fine zero adjustment = 100.00 (%), fine gain adjustment = 2.0000

With the raw value 50.00% (with the 0 – 100% conversion value of the zero base/full base 50.00% for temperature),

$$\text{Fine gain adj.} \times \text{Calculated input value} + \text{Fine zero adj.} = \text{Result}$$

$$50.00 (\%) \times 2.0000 + 100.00 (\%) = 200.00 (\%)$$

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the measured value 50.00% (5000) after calculating the fine adjustments with the scaled range Zero 0 and Span 10000,

$$\frac{\text{Scaled range Span} - \text{Scaled range Zero}}{\text{Scaled range Span} - \text{Scaled range Zero}} \times \text{50.00 (\%)} + \text{Scaled range Zero} = \text{Calculated scaled value}$$

$$(10000 - (-10000)) / 10000 \times 5000 + (-10000) = 0 \text{ (0.00\%)}$$

4.5.5 SETTING WIRING (RTD CONNECTION)

Choose “2wire” or “3wire” in accordance with the number of connection wires of the RTD or resistor.

This parameter is available only for the input types of RTD and resistor.

Input 1	
Unused	CH enable
Input type	RTD PT100
Unit	degC
Zero Base	0.0
Full Base	0.0
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	2wire
CJC	3wire
First Order Lag filter	0.0 (sec)

4.5.6 SETTING BURNOUT

Specify the direction for the burnout.

This parameter is available only for the input types of thermocouple, RTD, potentiometer, and resistor.

Input 1	
Unused	CH enable
Input type	RTD PT100
Unit	degC
Zero Base	0.0
Full Base	0.0
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	Up
CJC	None
First Order Lag filter	Up

4.5.7 SETTING CJC

Specify whether or not to enable cold junction compensation when using a thermocouple.

This parameter is available only for the input types of thermocouple.

Input 1	
Unused	CH enable
Input type	TC K
Unit	degC
Zero Base	0.0
Full Base	0.0
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	Up
CJC	Eneable
First Order Lag filter	Disable

Input 2	
CJC	Eneable

4.5.8 SETTING FIRST ORDER LAG FILTER

Specify the time constant for the first order lag filtering.
Filtering is not performed when "0.0" is entered for this parameter.

Available range: 0.5 – 60.0 (seconds)

Input 1	
Unused	CH enable
Input type	TC K
Unit	degC
Zero Base	0.0
Full Base	0.0
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Wiring	3wire
Burnout	Up
CJC	Eneable
First Order Lag filter	0.0

4.5.9 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

"—" is shown when not uploaded.

common	
Version number	1.01.09
simulate input	normal input

4.5.10 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

Specify the simulate input value between -32000 and +32000. If entering a value under -32000, -32000 is set.

If above +32000, +32000 is set.

common	
Version number	1.01.09
simulate input	normal input
	normal input
	simulate input

4.6 R30YV4 - DC VOLTAGE OUTPUT MODULE, 4 POINTS

4.6.1 SETTING UNUSED OUTPUT

Enable or disable each output.

Disable the unused outputs.

Output 1	
Unused	CH enable
Output range	CH enable
Fine zero adjustment	CH disable
Fine gain adjustment	0.00 (%)
Scaled range Zero	1.0000
Scaled range Span	0
output at offline or Power ON	10000
	-15.00 (%)

4.6.2 SETTING OUTPUT RANGE

Choose the output range for the enabled outputs.

Output 1	
Unused	CH enable
Output range	-10 to +10 V DC
Fine zero adjustment	-10 to +10 V DC
Fine gain adjustment	-5 to +5 V DC
Scaled range Zero	0 to 10 V DC
Scaled range Span	0 to 5 V DC
output at offline or Power ON	1 to 5 V DC
	-15.00 (%)

4.6.3 SETTING FINE ZERO / GAIN ADJUSTMENTS AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure below shows an example of setting the scaled range Span.

Output 1	
Unused	CH enable
Output range	-10 to +10 V DC
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
output at offline or Power ON	-15.00 (%)

PARAMETER	DESCRIPTION	AVAILABLE RANGE
Fine zero adjustment	Zero adjustment value	-320.00 to +320.00
Fine gain adjustment	Gain adjustment value	-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%	-32000 to +32000
Scaled range Span	Scaled value 100%	-32000 to +32000

NOTE

Calculation is carried out in the order of the scaled range Zero/Span, fine zero, and fine gain.

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the output setting value 50% (5000),

$$\underbrace{(5000 - (-10000))}_{\text{Output setting value}} \times \underbrace{10000 / (10000 - (-10000))}_{\text{Scaled range Span}} = \underbrace{7500}_{\text{Calculated scaled value (value converted to 0 - 10000 scale)}} \text{ (75.00\%)} \quad \begin{matrix} \text{Scaled range Zero} & \text{Scaled range Zero} \end{matrix}$$

• Calculation of fine zero/gain adjustments

Used for fine adjustment such as calibration.

Fine zero adjustment = 5.00 (%), fine gain adjustment = 1.0100

With the output setting value (value converted to 0 - 10000 scale) 75.00%,

$$\underbrace{75.00 \text{ (\%)}}_{\text{Calculated output setting value}} \times \underbrace{1.0100}_{\text{Fine gain adj.}} + \underbrace{5.00 \text{ (\%)}}_{\text{Fine zero adj.}} = \underbrace{80.75 \text{ (\%)}}_{\text{Calculated output setting value}}$$

* The calculation of scaled range zero/span and fine zero/gain adjustment are calculated by signed 16 bit value. When the process or result of calculation overflows, it is calculated by replacing with upper limit or lower limit of signed 16 bit value. Therefore result may not be the value calculated by above mentioned calculation formula.

4.6.4 SETTING OUTPUT AT OFFLINE OR POWER ON

Specify output for the period from power on until output value is set.

Enter a percent data value.

Available range: -15.00 to +115.00

Output 1	
Unused	CH enable
Output range	-10 to +10 V DC
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
output at offline or Power ON	-15.00

NOTE

Enter a percent data value even if the scaled ranges are specified.

If fine adjustments are specified, the value after adjustments is output.

4.6.5 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“—” is shown when not uploaded.

common	
Version number	1.01.03
simulate output	normal output
output at offline	preset

4.6.6 SETTING SIMULATE OUTPUT

Choose normal output or simulate output.

The setting is also available on the Monitor screen.

Specify the simulate output value between -32000 and +32000. If entering a value under -32000, -32000 is set.

If above +32000, +32000 is set.

common	
Version number	1.01.03
simulate output	normal output
output at offline	normal output
	simulate output

4.6.7 SETTING OUTPUT AT OFFLINE

Specify the output value to be used when there is a problem in communication with the host or in R30's internal communication.

When “Hold” is specified, the last value used during normal communication is output. When “preset” is specified, the value entered in “4.6.4 SETTING OUTPUT AT OFFLINE OR POWER ON” is output.

Note that the fine zero/gain adjustments are valid.

common	
Version number	1.01.03
simulate output	normal output
output at offline	Hold
	Hold
	preset

4.7 R30YS4 - DC CURRENT OUTPUT MODULE, 4 POINTS

4.7.1 SETTING UNUSED OUTPUT

Enable or disable each output.

Disable the unused outputs.

Output 1	
Unused	CH enable
Fine zero adjustment	CH enable
Fine gain adjustment	CH disable
Scaled range Zero	0
Scaled range Span	10000
output at offline or Power ON	-15.00 (%)

4.7.2 SETTING FINE ZERO / GAIN ADJUSTMENTS AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure in right shows an example of setting the scaled range Span.

Output 1	
Unused	CH enable
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
output at offline or Power ON	-15.00 (%)

PARAMETER	DESCRIPTION	AVAILABLE RANGE
Fine zero adjustment	Zero adjustment value	-320.00 to +320.00
Fine gain adjustment	Gain adjustment value	-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%	-32000 to +32000
Scaled range Span	Scaled value 100%	-32000 to +32000

NOTE

Calculation is carried out in the order of the scaled range Zero/Span, fine zero, and fine gain.

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the output setting value 50% (5000),

$$\begin{array}{c}
 \text{Scaled range Zero} \qquad \qquad \qquad \text{Scaled range Zero} \\
 (5000 - (-10000)) \times 10000 / (10000 - (-10000)) = 7500 \text{ (75.00\%)} \\
 \text{Output setting value} \qquad \qquad \qquad \text{Scaled range Span} \qquad \qquad \qquad \text{Calculated scaled value} \\
 \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \text{(value converted to 0 - 10000 scale)}
 \end{array}$$

• Calculation of fine zero/gain adjustments

Used for fine adjustment such as calibration.

Fine zero adjustment = 5.00 (%), fine gain adjustment = 1.0100

With the output setting value (value converted to 0 - 10000 scale) 75.00%,

$$\begin{array}{c}
 75.00 \text{ (\%)} \times 1.0100 + 5.00 \text{ (\%)} = 80.75 \text{ (\%)} \\
 \text{Fine gain adj.} \quad \text{Fine zero adj.} \quad \text{Calculated output setting value}
 \end{array}$$

4.7.3 SETTING OUTPUT AT OFFLINE OR POWER ON

Specify output for the period from power on until output value is set.

Enter a percent data value.

Available range: -15.00 to +115.00

Output 1	
Unused	CH enable
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
output at offline or Power ON	-15.00

NOTE

Enter a percent data value even if the scaled ranges are specified.

If fine adjustments are specified, the value after adjustments is output.

4.7.4 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“—” is shown when not uploaded.

common	
Version number	1.01.05
simulate output	normal output
output at offline	preset

4.7.5 SETTING SIMULATE OUTPUT

Choose normal output or simulate output.

The setting is also available on the Monitor screen.

Specify the simulate output value between -32000 and +32000. If entering a value under -32000, -32000 is set. If above +32000, +32000 is set.

common	
Version number	1.01.05
simulate output	normal output
output at offline	normal output
	simulate output

4.7.6 SETTING OUTPUT AT OFFLINE

Specify the output value to be used when there is a problem in communication with the host or in R30's internal communication.

When “Hold” is specified, the last value used during normal communication is output. When “preset” is specified, the value entered in "4.7.3 SETTING OUTPUT AT OFFLINE OR POWER ON" is output.

Note that the fine zero/gain adjustments are valid.

common	
Version number	1.01.05
simulate output	normal output
output at offline	preset
	Hold
	preset

4.8 R30TS4 - THERMOCOUPLE INPUT MODULE, 4 points

4.8.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable
Input type	CH enable
Unit	CH disable
Zero Base	0.0 (degC)
Full Base	0.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up
CJC	Eneable

4.8.2 SETTING INPUT SENSOR TYPE

Choose the input sensor type for the enabled inputs.

The sensors shown below are available.

- K (CA)
- E (CRC)
- J (IC)
- T (CC)
- B (RH)
- R
- S
- C (WRe 5-26)
- N
- U
- L
- P (Platinel II)
- (PR)

Input 1	
Unused	CH enable
Input type	K (CA)
Unit	K (CA)
Zero Base	E (CRC)
Full Base	J (IC)
Fine zero adjustment	T (CC)
Fine gain adjustment	B (RH)
Scaled range Zero	R
Scaled range Span	S
Burnout	C (WRe5-26)
CJC	N
	U
	L
	P (Platinel II)
	(PR)

4.8.3 SETTING TEMPERATURE UNIT

Choose the temperature unit from degC (Centigrade), degF (Fahrenheit) and K (absolute temperature).

Input 1	
Unused	CH enable
Input type	K (CA)
Unit	degC
Zero Base	degC
Full Base	degF
Fine zero adjustment	K
Fine gain adjustment	0.00 (%)
Scaled range Zero	1.0000
Scaled range Span	0
Burnout	10000
CJC	Up
	Eneable

4.8.4 SETTING ZERO / FULL BASES, FINE ZERO / GAIN ADJUSTMENTS, AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure on right shows an example for setting the scaled range Span.

If the same value is entered for the zero base and full base, the scaled values are not calculated but the engineering unit temperature values are returned for thermocouple inputs.

*1. Factory settings for the zero base and full base are "0."

*2. If the zero base and full base parameters are not set (zero base and full base both are "0"), fine zero/gain adjustment is not available. Fine adjustment processing is invalid.

Input 1	
Unused	CH enable
Input type	K (CA)
Unit	degC
Zero Base	0.0 (degC)
Full Base	1000.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up
CJC	Eneable

PARAMETER	DESCRIPTION	TEMPERATURE UNIT	AVAILABLE RANGE
Zero Base / Full Base	0% setting value / 100% setting value	degC, K	-3200.0 to +3200.0
		degF	-32000 to +32000
Fine zero adjustment	Zero (bias) adjustment value	Independent from the input type	-320.00 to +320.00
Fine gain adjustment	Gain (span) adjustment value		-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%		-32000 to +32000
Scaled range Span	Scaled value 100%		-32000 to +32000

NOTE

Calculation is carried out in the order of the zero base/full base, fine gain, fine zero, and scaled range Zero/Span.

CAUTION FOR ZERO BASE/FULL BASE SETTING

• Example of zero base/full base, scaled range zero and scaled range span

When scaling 0 – 100°C to 0 – 10000, set as follows.

Zero base = 0 (°C), Full base = 100 (°C)

Scaled range zero = 0, Scaled range span = 10000

• Calculation example of zero base/full base

Convert engineering unit value to 0 – 100% value

Zero base = 0 (°C), full Base = 100.0 (°C)

With the measured value 50.0 (°C),

$$\frac{\text{Measured value (°C)} - \text{Zero base (°C)}}{\text{Full base (°C)} - \text{Zero base (°C)}} \times \text{Fixed value} = \text{0 - 100\% conversion value}$$

$$\frac{(50.0 - (0))}{(100.0 - (0))} \times 10000 = 5000 \text{ (50.00\%)}$$

• Fine adjustment calculation

% value, which is converted by zero base/full base, is compensated by following formula.

Value after compensation = % value x gain adjustment value + zero adjustment value

Refer to "7.1 SETTING EXAMPLE OF FINE ADJUSTMENT" for setting example.

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the measured value 50.00% (5000) after calculating the fine adjustments with the scaled range Zero 0 and Span 10000,

$$\frac{\text{Scaled range Span} - \text{Scaled range Zero}}{\text{Scaled range Span} - \text{Scaled range Zero}} \times \text{50.00 (\%)} + \text{Scaled range Zero} = \text{Calculated scaled value}$$

$$\frac{(10000 - (-10000))}{10000 - 5000 + (-10000)} = 0 \text{ (0.00\%)}$$

4.8.5 SETTING BURNOUT

Specify the direction for the burnout.

Input 1	
Unused	CH enable
Input type	K (CA)
Unit	degC
Zero Base	0.0 (degC)
Full Base	1000.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up
CJC	None
Input 2	
	Down

4.8.6 SETTING CJC

Specify whether or not to enable cold junction compensation.

Input 1	
Unused	CH enable
Input type	K (CA)
Unit	degC
Zero Base	0.0 (degC)
Full Base	1000.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up
CJC	Eneable
Input 2	
	Disable
	Eneable

4.8.7 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“—” is shown when not uploaded.

common	
Version number	1.01.03
Conversion rate	500ms
simulate input	normal input

4.8.8 SETTING CONVERSION RATE

Choose one of the input signal conversion rates for R30TS4.

Setting per input is not available. Set the rate for all inputs.

common	
Version number	-
Conversion rate	500ms
simulate input	500ms
	250ms

4.8.9 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

Specify the simulate input value between -32768 and +32767. If entering a value under -32768, -32768 is set. If above +32767, +32767 is set.

common	
Version number	-
Conversion rate	500ms
simulate input	normal input
	normal input
	simulate input

4.9 R30RS4 - RTD INPUT MODULE, 4 points

4.9.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable
Input type	CH enable
Unit	degC
Zero Base	0.0 (degC)
Full Base	0.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up

4.9.2 SETTING INPUT SENSOR TYPE

Choose the input sensor type for the enabled inputs.

The sensors shown below are available.

- Pt100 (JIS '97, IEC)
- Pt100 (JIS '89)
- JPt100 (JIS '89)
- Pt50 (JIS '81)
- Ni100
- Cu10 (25°C)
- Cu50

Input 1	
Unused	CH enable
Input type	Pt100 (JIS'97,IEC)
Unit	Pt100 (JIS'97,IEC)
Zero Base	Pt100 (JIS'89)
Full Base	JPt100 (JIS'89)
Fine zero adjustment	Pt50 (JIS'81)
Fine gain adjustment	Ni100
Scaled range Zero	Cu10(25degC)
Scaled range Span	Cu50
Burnout	Up

4.9.3 SETTING TEMPERATURE UNIT

Choose the temperature unit from degC (Centigrade), degF (Fahrenheit) and K (absolute temperature).

Input 1	
Unused	CH enable
Input type	Pt100 (JIS'97,IEC)
Unit	degC
Zero Base	degC
Full Base	degF
	K
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up

4.9.4 SETTING ZERO / FULL BASES, FINE ZERO / GAIN ADJUSTMENTS, AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure on right shows an example for setting the scaled range Span.

If the same value is entered for the zero base and full base, the scaled values are not calculated but the engineering unit temperature values are returned for RTD inputs.

*1. Factory settings for the zero base and full base are "0."

*2. If the zero base and full base parameters are not set (zero base and full base both are "0"), fine zero/gain adjustment is not available. Fine adjustment processing is invalid.

Input 1	
Unused	CH enable
Input type	Pt100 (JIS'97,IEC)
Unit	degC
Zero Base	0.0 (degC)
Full Base	1000.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up

PARAMETER	DESCRIPTION	TEMPERATURE UNIT	AVAILABLE RANGE
Zero Base / Full Base	0% setting value / 100% setting value	degC, K	-3200.0 to +3200.0
		degF	-32000 to +32000
Fine zero adjustment	Zero (bias) adjustment value	Independent from the input type	-320.00 to +320.00
Fine gain adjustment	Gain (span) adjustment value		-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%		-32000 to +32000
Scaled range Span	Scaled value 100%		

NOTE

Calculation is carried out in the order of the zero base/full base, fine gain, fine zero, and scaled range Zero/Span.

CAUTION FOR ZERO BASE/FULL BASE SETTING

• Example of zero base/full base, scaled range zero and scaled range span

When scaling 0 – 100°C to 0 – 10000, set as follows.

Zero base = 0 (°C), Full base = 100 (°C)

Scaled range zero = 0, Scaled range span = 10000

• Calculation example of zero base/full base

Convert engineering unit value to 0 – 100% value

Zero base = 0 (°C), full Base = 100.0 (°C)

With the measured value 50.0 (°C),

$$\begin{array}{ccccccc}
 \text{Zero base (°C)} & & \text{Zero base (°C)} & & & & \\
 \text{Measured value (°C)} & \text{Full base (°C)} & \text{Fixed value} & \text{0 - 100\% conversion value} & & & \\
 (50.0 - 0) / (100.0 - 0) \times 10000 = 5000 \text{ (50.00\%)}
 \end{array}$$

- **Fine adjustment calculation**

% value, which is converted by zero base/full base, is compensated by following formula.

Value after compensation = % value x gain adjustment value + zero adjustment value

Refer to "7.1 SETTING EXAMPLE OF FINE ADJUSTMENT" for setting example.

- **Calculation example of scaled range Zero / Span**

Scaled range Zero = -10000, scaled range Span = 10000

With the measured value 50.00% (5000) after calculating the fine adjustments with the scaled range Zero 0 and Span 10000,

$$\frac{(10000 - (-10000))}{10000} \times 50.00\% - 10000 = 0 \text{ (0.00\%)}$$

Scaled range Span
(Scaled range Span - Scaled range Zero)
in measuring 50.00%
Scaled range Zero
Calculated scaled value

4.9.5 SETTING BURNOUT

Specify the direction for the burnout.

Input 1	
Unused	CH enable
Input type	Pt100 (JIS'97,IEC)
Unit	degC
Zero Base	0.0 (degC)
Full Base	1000.0 (degC)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Burnout	Up
Input 2	
Unused	None
	Up
	Down

4.9.6 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

"—" is shown when not uploaded.

common	
Version number	1.01.03
Conversion rate	500ms
simulate input	normal input

4.9.7 SETTING CONVERSION RATE

Choose one of the input signal conversion rates for R30RS4.

Setting per input is not available. Set the rate for all inputs.

common	
Version number	-
Conversion rate	500ms
simulate input	500ms
	250ms

4.9.8 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

Specify the simulate input value between -32768 and +32767. If entering a value under -32768, -32768 is set.

If above +32767, +32767 is set.

common	
Version number	-
Conversion rate	500ms
simulate input	normal input
	normal input
	simulate input

4.10 R30MS4 - POTENTIOMETER INPUT MODULE, 4 points

4.10.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable
Zero Base	CH enable
Full Base	CH disable
Scaled range Zero	0
Scaled range Span	10000

4.10.2 SETTING ZERO / FULL BASES AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure on right shows an example for setting the scaled range Span.

If the same value is entered for the zero base and full base, the scaled values are not calculated.

Input 1	
Unused	CH enable
Zero Base	0.00 (%)
Full Base	100.00 (%)
Scaled range Zero	0
Scaled range Span	10000

*1. Factory settings for the zero base and full base are "0.00" and "100.00".

*2. If the zero base and full base parameters are not set (zero base and full base both are same value), scaling is calculated as zero base and full base are "0.00" and "100.00".

PARAMETER	DESCRIPTION	AVAILABLE RANGE
Zero Base / Full Base	0% setting value / 100% setting value	-320.00 to +320.00
Scaled range Zero	Scaled value 0%	-32000 to +32000
Scaled range Span	Scaled value 100%	

NOTE

Calculation is carried out in the order of the zero base/full base, scaled range Zero/Span.

CAUTION FOR ZERO BASE/FULL BASE SETTING

• Example of zero base/full base, scaled range zero and scaled range span

For R30MS4, fine adjustment is performed by setting of zero base/full base, scaled range zero and scaled range span.

Set zero base to the no scaled value of 0% input (0% position of potentiometer), full base to the no scaled value of 100% input (100% position of potentiometer). The no scaled value is indicated on the monitor screen (Refer to "4.10.6 MONITOR SCREEN AND FINE ADJUSTMENT"). Set scaled range zero to the scale value of 0% input (0% position of potentiometer), scaled range span to the scale value of 100% input (100% position of potentiometer).

When no scaled value: 0.20 at 0% input, no scaled value: 99.85 at 100% input, setting as follow to scale the value zero/span adjusted to 0 to 10000.

Zero base: 0.20, Full base: 99.85

Scaled range zero: 0, Scaled range span: 10000

• Calculation example of scaled range Zero / Span

Scaled range Zero = -10000, scaled range Span = 10000

With the measured value 50.00% (5000) with the scaled range Zero 0 and Span 10000,

$$\begin{array}{ccccccc}
 & \text{Scaled range Zero} & & 50.00\% & \text{Scaled range Zero} & & \text{Calculated scaled value} \\
 & \text{Scaled range Span} & & \text{(Scaled range Span - Scaled range Zero)} & & & \\
 (10000 - (-10000)) / 10000 - 5000 + (-10000) = 0 \text{ (0.00\%)} \\
 & \text{Scaled range Span} & & \text{(Scaled range Span - Scaled range Zero)} & & & \\
 & & & \text{in measuring 50.00\%} & & &
 \end{array}$$

4.10.3 CONFIRMING VERSION NO.

The firmware version is shown.
This is not editable.
“—” is shown when not uploaded.

common	
Version number	1.01.03
Conversion rate	80ms
simulate input	normal input

4.10.4 SETTING CONVERSION RATE

Choose one of the input signal conversion rates for R30MS4.

The conversion accuracy depends on the rate. Refer to the data sheet of R30MS4 for the detailed information.
Setting per input is not available. Set the rate for all inputs.

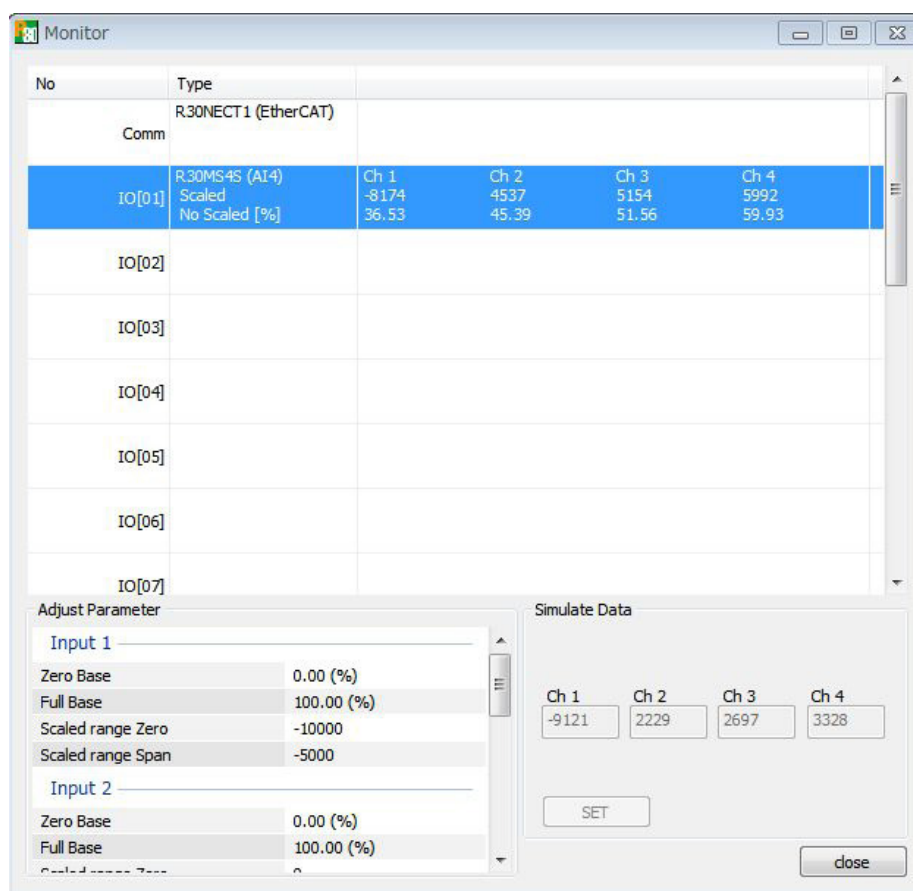
common	
Version number	—
Conversion rate	80ms
simulate input	80ms
	40ms
	20ms
	10ms

4.10.5 SETTING SIMULATE INPUT

Choose normal input or simulate input.
The setting is also available on the Monitor screen.
Specify the simulate input value between -32768 and +32767. If entering a value under -32768, -32768 is set.
If above +32767, +32767 is set.

common	
Version number	—
Conversion rate	80ms
simulate input	normal input
	normal input
	simulate input

4.10.6 MONITOR SCREEN AND FINE ADJUSTMENT



- For monitor screen of R30MS4, also no scaled value is indicated. (0 to 100% data before scaling). Zero/Span adjustment is performed with use of no scaled value. (Refer to "4.10.2 SETTING ZERO / FULL BASES AND SCALED RANGE ZERO / SPAN".)
- Zero/Span adjustment is performed with the settings of zero/full base, scaled range zero and scaled range span in the column "Adjust Parameter".

4.11 R30CT4E - AC CURRENT INPUT MODULE, 4 points

4.11.1 SETTING UNUSED INPUT

Enable or disable each input.

Disable the unused inputs.

Input 1	
Unused	CH enable
Senser Type	CH enable
Fine zero adjustment	CH disable
Fine gain adjustment	0.0000
Scaled range Zero	0
Scaled range Span	0
Low-end cutout	1.0 (%)

4.11.2 SETTING INPUT SENSOR TYPE

Choose the input sensor type for the enabled inputs.

The sensors shown below are available.

- CLSE-60: 0 – 600 A AC
- CLSE-40: 0 – 400 A AC
- CLSE-20: 0 – 200 A AC
- CLSE-10: 0 – 100 A AC
- CLSE-05: 0 – 50 A AC
- CLSE-R5: 0 – 5 A AC

Input 1	
Unused	CH enable
Senser Type	CLSE-60 (0-600A)
Fine zero adjustment	CLSE-60 (0-600A)
Fine gain adjustment	CLSE-40 (0-400A)
Scaled range Zero	CLSE-20 (0-200A)
Scaled range Span	CLSE-10 (0-100A)
Low-end cutout	CLSE-05 (0-50A)
	CLSE-R5 (0-5A)
	1.0 (%)

4.11.3 FINE ZERO / GAIN ADJUSTMENTS, AND SCALED RANGE ZERO / SPAN

Specify the setting values. The figure on right shows an example for setting the scaled range Span.

If the same value is entered for the scaled range zero and span, the scaled values are not calculated but the engineering unit values are returned.

Input 1	
Unused	CH enable
Senser Type	CLSE-60 (0-600A)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	10000
Low-end cutout	1.0 (%)

PARAMETER	DESCRIPTION	AVAILABLE RANGE
Fine zero adjustment	0% setting value	-320.00 to +320.00
Fine gain adjustment	100% setting value	-3.2000 to +3.2000
Scaled range Zero	Scaled value 0%	0 to 64000
Scaled range Span	Scaled value 100%	

NOTE

Calculation is carried out in the order of the fine gain, fine zero, and scaled range Zero/Span.

ENGINEERING UNIT VALUE DISPLAY RANGE

SENSOR TYPE	INPUT RANGE	ENGINEERING UNIT VALUE DISPLAY RANGE
CLSE-60	0 – 600 A	0 – 64000
CLSE-40	0 – 400 A	0 – 46000
CLSE-20	0 – 200 A	0 – 23000
CLSE-10	0 – 100 A	0 – 11500
CLSE-05	0 – 50 A	0 – 5750
CLSE-R5	0 – 5 A	0 – 5750

*2. Sometimes display range may be narrower than shown above, due to processing of fine adjustment.

CAUTION FOR SCALED RANGE ZERO/SPAN SETTING

If the same value is entered for the scaled range zero/span, the scaled range zero/span are set so that 'engineering unit value x 100' (For CLSE-R5, engineering unit value x 1000).

E.g. For sensor CLSE-60, scaled range zero is set to '0', scaled range span is set to '60000'.

- **Example of scaled range zero and scaled range span**

When scaling 0 – 100% to 0 – 30000, set as follows.

Scaled range zero = 0, Scaled range span = 30000

For sensor CLSE-60, measurement value for 600 A equals '30000'.

- **Fine adjustment calculation**

For fine adjustment, % value is compensated by following formula.

Value after compensation = % value x gain adjustment value + zero adjustment value

(Zero adjustment value is % value)

- **Setting example of fine adjustment**

For R30CT4E, as disable dropout is not able, it cannot measure 0% input value. In this example, adjustment is performed with 5% and 100% input value. As fine adjustment is done with % value, scaled range zero is set to '0', scaled range span is set to '10000'. Dropout is set to not greater than 3%. (Fine zero is set to '0', fine gain is set to '1.0')

Assuming that monitor value when equivalent to 5% input is X_5 , monitor value when equivalent to 100% input is X_{100} . Monitor value X_0 when equivalent to 0% input is calculated by following formula.

$$X_0 = (20 \times X_5 - X_{100}) / 19$$

By using X_0 and X_{100} , fine adjustment setting value is obtained according to "7.1 SETTING EXAMPLE OF FINE ADJUSTMENT". To use with engineering unit value, after fine zero and fine gain are set, set scaled range span to '0'.

- **Calculation example of scaled range**

Scaled range zero = 0 and Scaled range span = 30000 are set. When measurement value after fine adjustment with Scaled range zero = 0 and Scaled range span = 10000 is 50.00% (5000), scaled range value is '0'. (For using CLSE-60, measurement value is '15000' at 300 A.)

$$\begin{array}{c} \text{Scaled range Zero} \quad \text{Scaled range Zero} \quad \text{Calculation value for scaled range} \\ \text{Scaled range Span} \quad \text{50.00 (\%)} \quad \text{Scaled range Zero} \\ (30000 - (0)) / 10000 \times 5000 + (0) = 15000 \\ \text{Scaled range Span} \quad \text{(Scaled range Span - Scaled range Zero 10000 - 0)} \\ \text{at measuring 50.00\%} \end{array}$$

4.11.4 SETTING Low-end CUTOFF

Specify the value for the Low-end cutoff. Setting range is 0.5 to 50.0%, factory setting is 1.0%. The value below the setting value for Low-end cutoff is processed as 0%. The Low-end cutoff is performed on the value after fine adjustment process.

Input 1	
Unused	CH enable
Sensor Type	CLSE-60 (0-600A)
Fine zero adjustment	0.00 (%)
Fine gain adjustment	1.0000
Scaled range Zero	0
Scaled range Span	0
Low-end cutoff	1.0

4.11.5 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“—” is shown when not uploaded

common	
Version number	1.01.06
Conversion rate	80ms
Delay at Power ON	5.0 (sec)
simulate input	normal input

4.11.6 SETTING CONVERSION RATE

Choose one of the input signal conversion rates for R30CT4E.

Measuring accuracy is different by conversion rate. For detailed information, refer to the specification sheet for R30CT4E. Setting per input is not available. Set the rate for all inputs.

common	
Version number	-
Conversion rate	80ms
Delay at Power ON	80ms
simulate input	40ms
	20ms
	10ms

4.11.7 DELAY AT POWER ON

Specify the time from power on to start measuring. Setting the time to stabilize the measuring circuit.

Setting per input is not available. Set the time for all inputs.

Setting range: 0.0 to 60.0 sec.

common	
Version number	-
Conversion rate	80ms
Delay at Power ON	5.0
simulate input	normal input

4.11.8 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

Specify the simulate input value between 0 and 65535.

If entering a value under 0, 0 is set. If above 65535, 65535 is set.

common	
Version number	-
Conversion rate	80ms
Delay at Power ON	5.0 (sec)
simulate input	normal input
	normal input
	simulate input

4.12 R30PA2 - TOTALIZED PULSE INPUT MODULE, 2 points

4.12.1 SETTING MAXIMUM COUNT VALUE OF TOTALIZED PULSE

Specify the upper limit of pulse count value.

When the pulse count value reaches the MAX. Count Value and then a pulse is input, the value becomes the value of Count at overflow.

Setting range: 1 – 4294967295

Factory setting: 4294967295

Input 1	
MAX. Count Value	4294967295
Count at overflow	0

4.12.2 SETTING COUNT AT OVERFLOW

The Count at overflow is the value to which the pulse count value is set back when a pulse is input after reaching the Max. Count value.

Setting range: 0 or 1

Factory setting: 0

Input 1	
MAX. Count Value	4294967295
Count at overflow	0
	0
	1

4.12.3 CONFIRMING VERSION NO.

The firmware version is shown.

This is not editable.

“–” is shown when not uploaded.

common	
Version number	1.01.07
Edge	Down(DI-ON)
Edge for Reset Pulse	Down(DI-ON)
Reset Pulse	disable
Reset/Preset by Master	disable
simulate input	normal input

4.12.4 COUNTING INPUT PULSE UP/DOWN EDGES

Set the edge direction for counting pulses. All the channels are set collectively, so this setting is not available for each channel.

Setting range: Down (DI-ON)

Up (DI-OFF)

Factory setting: Down (DI-ON)

common	
Version number	1.01.07
Edge	Down(DI-ON)
Edge for Reset Pulse	Down(DI-ON)
Reset Pulse	Up(DI-OFF)
Reset/Preset by Master	disable
simulate input	normal input

4.12.5 DETECTING EDGE DIRECTION OF RESET PULSE

Set the edge direction for resetting count value by terminal input.

Setting range: Down (DI-ON)

Up (DI-OFF)

Factory setting: Down (DI-ON)

common	
Version number	1.01.07
Edge	Down(DI-ON)
Edge for Reset Pulse	Down(DI-ON)
Reset Pulse	Down(DI-ON)
Reset/Preset by Master	Up(DI-OFF)
simulate input	normal input

4.12.6 EDGE DETECTION OF RESET PULSE

Set enable or disable for whether to reset count value by terminal input.

In the case of not using the reset pulse, set disable in order to prevent unwanted resets caused by noises.

Factory setting: disable

common	
Version number	1.01.07
Edge	Down(DI-ON)
Edge for Reset Pulse	Down(DI-ON)
Reset Pulse	disable
Reset/Preset by Master	enable
simulate input	disable
	normal input

4.12.7 RESETTING/PRESETTING BY MASTER

Set 'enable' or 'disable' for whether to reset/preset by master via network.

Factory setting: disable

common	
Version number	1.01.07
Edge	Down(DI-ON)
Edge for Reset Pulse	Down(DI-ON)
Reset Pulse	disable
Reset/Preset by Master	disable
simulate input	enable
	disable

4.12.8 SETTING SIMULATE INPUT

Choose normal input or simulate input.

The setting is also available on the Monitor screen.

The simulate input setting is not written to R30PA2 even if downloaded. The device starts in normal input mode when powered on.

Factory setting: normal input

■Setting simulate input value

Set the simulate input value on the Monitor screen.

common	
Version number	1.01.07
Edge	Down(DI-ON)
Edge for Reset Pulse	Down(DI-ON)
Reset Pulse	disable
Reset/Preset by Master	disable
simulate input	normal input
	normal input
	simulate input

Without being limited by the setting values of MAX. Count Value and Count at overflow, the simulate input value is settable within the range below.

However, for the disabled channel, the input value of Count at CH Disable is overridden.

If a negative number is specified, which is modified to 0. If a number greater than 4,294,967,295 is specified, which is modified to 4,294,967,295.

Setting range: 0 – 4,294,967,295

4.12.9 PRESETTING PULSE COUNT

It is possible to set in advance any value within the specified range of the pulse count value. Set the preset value on the Monitor screen. Enter the preset value and press "Enter" key so that the setting is enabled.

Adjust Parameter	
Input 1	
Preset Count	1234

Preset setting range: 0 – MAX. Count Value of totalized pulse.

If a value from more than the MAX. Count Value to 4,294,967,295 is specified, which will be ignored (The error message is not displayed.).

4.13 R30GCIE1 - CC-Link IE Field NETWORK INTERFACE MODULE

4.13.1 NETWORK NO.

Set the network No.

The range is 1 to 239, initial value is 1.

CC-Link IE Field	
NetWork No.	1
Station ID	2
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

4.13.2 STATION ID

Station ID set in the R30GCIE1 is displayed. It is not available to change.

When not uploaded, “-” is displayed.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

4.13.3 MAC ADDRESS

MAC address of the R30GCIE1 is displayed. It is not available to change.

When not uploaded, “-” is displayed.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

4.13.4 LINK STATUS

Data link status at upload is displayed. It is not available to change.

Upload when display needs update.

When not uploaded, “-” is displayed.

- CYCLIC: Cyclic communication status
- TOKEN-PASS: Token-pass status
- DISCONNECT: When communication is not established.

CC-Link IE Field	
NetWork No.	1
Station ID	12
MAC address	00-10-9C-00-FF-FE
Link Status	DISCONNECT

4.13.5 VERSION NUMBER

Version number of the firmware is displayed.

This is not editable.

When not uploaded, “-” is displayed.

common	
Version number	1.01.03
simulate input/output	normal input/output

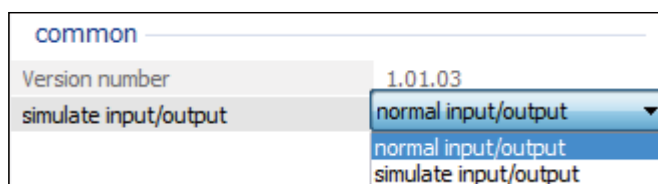
4.13.6 SETTING SIMULATE I/O

Choose normal I/O or simulation data.

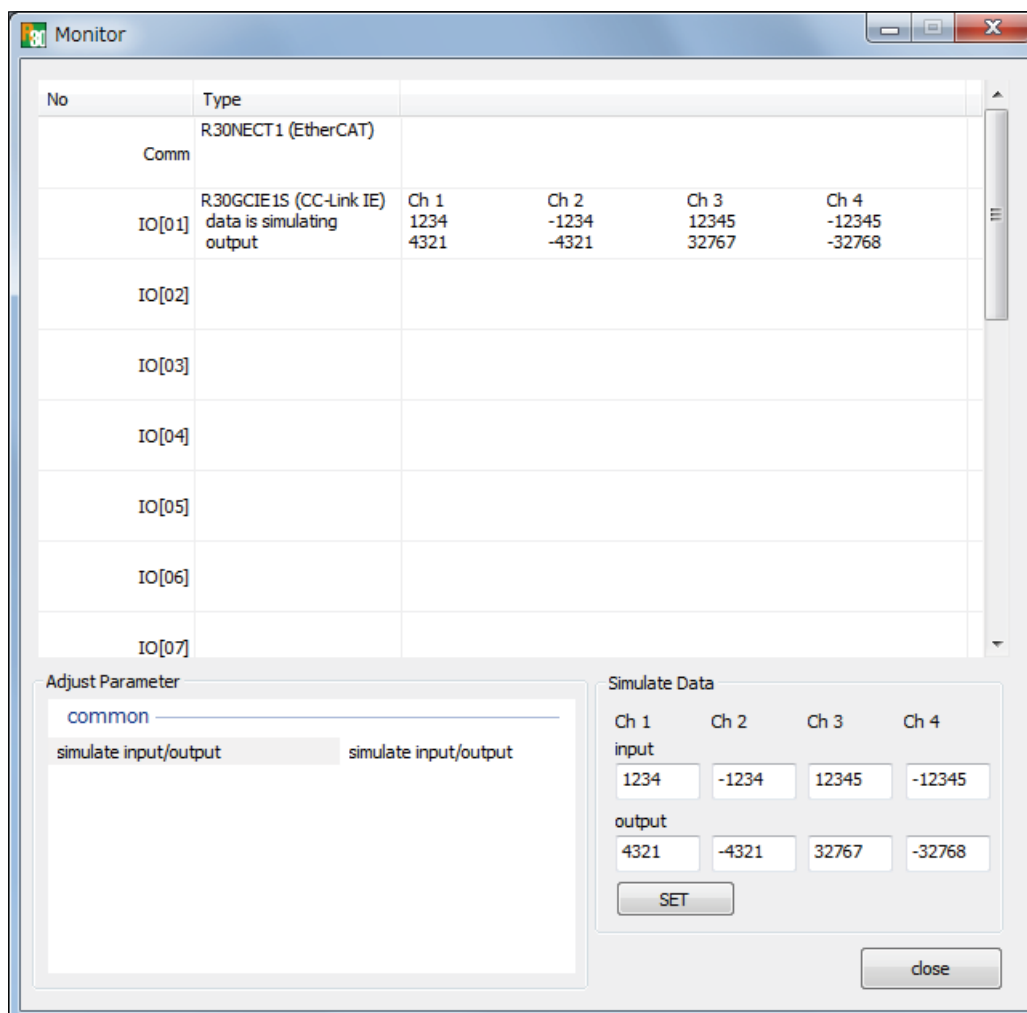
The setting is also available on the Monitor screen.

The simulate I/O setting is not written to R30GC1E1 even if downloaded. The device starts in normal I/O mode when powered on.

Factory setting: normal I/O



4.13.7 MONITOR SCREEN AND SIMULATION DATA



On the Monitor screen, input values and out values are displayed as signed integers. As input values, RWw0 (Ch1) to RWw3 (Ch4) are displayed and RWr0 (Ch1) to RWr3 (Ch4) are displayed as output values.

When simulate I/O is selected, simulation data can be set. Specify the simulation data between -32768 and +32767. If entering a value under -32768, -32768 is forcibly set. If above +32767, +32767 is set.

4.14 R30GECT1 - EtherCAT INTERFACE MODULE

Device parameters are not available for R30GECT1.

Only 'simulate input/output' can be set.

4.14.1 VERSION NUMBER

Version number of the firmware is displayed, which cannot be edited.

When the parameters are yet to be uploaded from the device, '-' is displayed.

common	
Version number	1.01.02
simulate input/output	normal input/output

4.14.2 SETTING SIMULATE I/O

Select 'normal input/output' or 'simulate input/output'.

The setting is also available on the Monitor screen.

The 'simulate input/output' setting is not written to R30GECT1 even if the parameters are downloaded.

The device starts in 'normal input/output' mode when powered on.

Factory setting: normal input/output

common	
Version number	1.01.02
simulate input/output	normal input/output ▼
	normal input/output
	simulate input/output

4.14.3 MONITOR SCREEN AND SIMULATE INPUT/OUTPUT

On the Monitor screen, input values and output values are displayed as signed integers.

When 'simulate input/output' is selected, simulate input/output can be set.

Set a value within the range of -32768 to +32767.

If the entered value is under -32768, -32768 is forcibly set.

If the value is above +32767, +32767 is set.

4.15 R30GOUA1 - NETWORK INTERFACE MODULE FOR OPC-UA SERVER

4.15.1 ANONYMOUS LOGIN

Set whether or not to allow anonymous login (No user authentication).

To allow anonymous login, select the data access level between 'Read only' and 'R/W'.

Log in	
Anonymous Log in	No Log in
User Log in	No Log in
Permission01	Read only
Log in ID	AdminA
Password	admin123
Permission02	Read only
Log in ID	
Password	

4.15.2 USER LOGIN

Set whether or not to allow user login (User authentication by username and password).

When user login is allowed, up to 2 sets of username and password can be set.

Log in	
Anonymous Log in	Read only
User Log in	non-permission
Permission01	non-permission
Log in ID	permission
Password	admin123
Permission02	Read only
Log in ID	
Password	

4.15.3 PERMISSION01 / 02

Set the data access level for each Log In ID.

Log in	
Anonymous Log in	Read only
User Log in	non-permission
Permission01	Read only
Log in ID	Read only
Password	Read/Write
Permission02	Read only
Log in ID	
Password	

4.15.4 LOG IN ID & PASSWORD

Set User name and Password for each Log In ID.

Use alphanumeric characters (upper & lower cases) only.

Log In ID: If the parameter is left blank, the password will be initialized and user login becomes invalid.

Password: If the parameter is left blank, user login becomes invalid.

Log in	
Anonymous Log in	Read only
User Log in	non-permission
Permission01	Read only
Log in ID	AdminA
Password	admin123
Permission02	Read only
Log in ID	
Password	

4.15.5 IP ADDRESS, SUBNET MASK, DEFAULT GATEWAY, DNS SERVER

Setting range: 0 to 255

Default values

IP address : 192.168.0.1
Subnet mask : 255.255.255.0
Default gateway : 192.168.0.100
DNS server : 192.168.13.1

Com. setting	
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
DNS Server01	192.168.13.1
DNS Server02	192.168.13.1
data type	not define
Communication time out 100ms.	300
MACaddress	00-10-9C-47-03-42

4.15.6 DATA TYPE

Set the data types for R30GOUA1.

Default setting: 'not define'

* When the setting is 'not define', the data type is automatically set 'uint16'

* When the 2-word and 4-word data are used, select 'uint64' to prevent being separated.

Com. setting	
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
DNS Server01	192.168.13.1
DNS Server02	192.168.13.1
data type	not define
Communication time out 100ms.	not define
MACaddress	uint16
	uint64

4.15.7 COMMUNICATION TIMEOUT MONITORING TIMER

Set the timer value for communication timeout. When there is no access from an OPC-UA client before the timeout period elapses, a timeout error occurs.

Setting range: 0 to 32757 (0 to 3275.7 seconds)

Set to 0 for no monitoring.

Default setting: 300 (30 seconds)

Com. setting	
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
DNS Server01	192.168.13.1
DNS Server02	192.168.13.1
data type	not define
Communication time out 100ms.	300
MACaddress	00-10-9C-47-03-42

4.15.8 MAC ADDRESS

MAC address of the R30GOUA1 is indicated, which is not editable.

'-' is displayed when the parameters are yet to be uploaded from the device.

Com. setting	
IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.100
DNS Server01	192.168.13.1
DNS Server02	192.168.13.1
data type	not define
Communication time out 100ms.	300
MACaddress	00-10-9C-47-03-42

4.15.9 SNTP TIME SYNCHRONIZATION

Set whether or not to allow time synchronization with the SNTP server.

When set to 'SNTP enable', time synchronization is performed at power-on, 0:00, 06:00, 12:00, and 18:00.

Default setting: 'SNTP disable'

* When set to 'SNTP enable', be sure to set 'DNS Server', 'SNTP Server URL', and 'Time zone'

Date/Time setting	
SNTP	SNTP disable
SNTP Server URL	SNTP disable
Time zone	SNTP enable

4.15.10 TIME ZONE

Set the UTC time zone.

Setting range: -12 to 14

Default setting: 9 (Japan time)

Date/Time setting	
SNTP	SNTP disable
SNTP Server URL	ntp.nict.jp
Time zone	9

4.15.11 CONFIRMING VERSION NO.

The firmware version of the R30GOUA1 is indicated, which is not editable.

'-' is displayed when the parameters are yet to be uploaded from the device.

common	
Version number	1.01.05
simulate input/output	normal input/output

4.15.12 SETTING SIMULATE INPUT/OUTPUT

Choose normal input (normal output) or simulate input (simulate output).

The setting is also available on the Monitor screen.

The simulate input (simulate output) setting is not written to R30GOUA1 even if downloaded. The device starts in normal input (normal output) mode when powered on.

common	
Version number	1.01.05
simulate input/output	normal input/output ▾
	normal input/output
	simulate input/output

Factory setting: normal input (normal output)

4.15.13 MONITOR SCREEN AND SIMULATION DATA

On the Monitor screen, input values and out values are displayed as signed integers.

When simulate I/O is selected, simulation data can be set. Specify the simulation data between -32768 and +32767.

If entering a value under -32768, -32768 is forcibly set. If above +32767, +32767 is set

4.15.14 DATE /TIME SETTING

To set the date and time, connect USB cable to USB connector on the R30GOUA1.

After started up and connected the R30CFG, upload to recognize the R30GOUA1 as interface module.

Date and time can be set on the Monitor screen.

Clicking 'R30GOUA1' in the 'comm' row, 'Date and Time setting' appears in the 'Adjust Parameter'.

Edit 'yyyy/mm/dd hh:mm:ss' and press "Enter" to validate the new setting.

Setting range

Year : 2001 to 2099
Month : 1 to 12
Date : 1 to 31
Hour : 0 to 23
Min. : 0 to 59
Sec. : 0 to 59

Default value : 2013/01/01 00:00:00

Do NOT enter a date which does not exist (e.g., February 31).

If such a date is entered, the value will not be reflected and the setting will remain unchanged.

Adjust Parameter	
Date/Time setting	
Year/Month/Day Hour:Min.:Sec.	2020/03/10 13:55:41

5. BASIC PARAMETERS OF TABLET RECORDER

5.1 TR30

R30 I/O modules mounted on the same installation base with TR30 can be configured using this program.
Use the dedicated configurator software (model: TRGCFG) to configure basic settings of the TR30.

6. BASIC PARAMETERS OF WEB DATA LOGGER

6.1 DL30

R30 I/O modules mounted on the same installation base with DL30 can be configured using this program.
Use the dedicated configurator software (model: DL30GCFG) to configure basic settings of the DL30.

7. REMARKS

7.1 SETTING EXAMPLE OF FINE ADJUSTMENT

Fine zero/gain adjustment is used for fine adjustment of calibration.

7.1.1 ONLY FINE ZERO ADJUSTMENT IS PERFORMED

Change the fine zero adjustment value on the monitor screen to adjust.

For example, while applying the voltage equivalent to 0% from voltage source, adjust fine zero adjustment value so that monitor value becomes 0%. (When input type is thermocouple, cold junction compensation must be disabled during adjustment.)

7.1.2 FINE ZERO/GAIN ADJUSTMENT IS PERFORMED

Adjustment is available for any two points. Fine adjustment with two points such as Y0 %, Y1 %.

1)

- When input type is thermocouple, cold junction compensation must be disabled during adjustment.
- Set fine zero adjustment to "0.00", fine gain adjustment to "1.0000".
- Set scaled range zero to "0", scaled range span to 10000.

2) While applying the voltage equivalent to Y0 % from voltage source, record the monitor value (X0).

3) While applying the voltage equivalent to Y1 % from voltage source, record the monitor value (X1).

4) Calculate zero/gain adjustment value by following formula.

- Gain adjustment value = $(Y1 - Y0) / (X1 - X0)$
- Zero adjustment value = $Y0 - (X0 \times \text{gain adjustment value})$

5) Set zero/gain adjustment value obtained at step 4, confirm the monitor value after adjustment on the monitor screen.

E.g. Monitor value at 0% input is -85, monitor value at 100% input is 9810.

Y0 = 0, X0 = -0.85

Y1 = 100, X1 = 98.10

Gain adjustment value = $(100 - 0) / (98.10 - (-0.85)) \approx 1.0106$

Zero adjustment value = $0 - (-0.85 \times 1.0106) \approx 0.86$