# R1 Series Remote I/O R1X PC CONFIGURATOR Model: R1CON

# **Users Manual**

## CONTENTS

1.	GE	NERAL	3
	1.1	FEATURES OF R1CON	.3
	1.2	HARDWARE REQUIREMENTS	.3
	1.3	INSTALLING & DELETING THE PROGRAM	.4
2.	BAS	SIC OPERATIONS	5
	2.1	STARTING / QUITTING THE R1CON	.5
	2.2	VIEW COMPONENTS AND FUNCTIONS	.6
	2.3.	SETTING EXAMPLE	.8
3.	CO	NFIGURATION WINDOW FOR EACH CHANNEL	6
	3.1	R1x-GH21	16
	3.2	R1M-J31	17
	3.3	R1M-D11	17
	3.4	R1M-A11	8
	3.5	R1M-P41	9
	3.6	R1MS-GH3	20
4.	CO	NFIGURATION SUB-WINDOWS2	1
	4.1	TYPE SETTING	21
	4.2	MODBUS SETTINGS (RTU)	22
	4.3	BURNOUT TYPE	22
	4.4	COUNT DATA	22
	4.5	LINE NOISE FILTER TYPE	23
	4.6	CJC SENSOR (CJM) SETTINGS	23
	4.7	LEADWIRE RESISTANCE COMPENSATION	24
	4.8	ZERO/SPAN ADJUSTMENTS	25
	4.9	COUNT SETTING FOR EACH CHANNEL	26
	4.10	COUNT SETTING COMMON TO ALL CHANNELS	26
	4.11	ALARM OUTPUT SET	27

# 1. GENERAL

In this manual, user is assumed that he/she is already familiar with operating Windows and terminology used in these operating systems.

If you need to know about particular operation or terminology on Windows, please refer to manuals provided with the system.

## 1.1 FEATURES OF R1CON

The model R1x can accept direct sensor inputs from thermocouples and other sensors, with independent sensor type and temperature range settings for each channel. Most of the general settings are configured on the hardware, therefore the user does not need to use the R1CON PC Configurator Software except for advanced settings.

Available R1x models are:

R1M-GH2	DC mV, V, mA and thermocouple inputs, 16 points
R1C-GH2	DC mV, V, mA and thermocouple inputs, 16 points, CC-Link
R1D-GH2	DC mV, V, mA and thermocouple inputs, 16 points, DeviceNet
R1MS-GH3	DC mV, V, mA and thermocouple inputs, 8 points, channel-to-channel isolation
R1M-J3	RTD and potentiometer inputs, 8 points
R1M-A1	Contact inputs, 32 points
R1M-D1	Open collector (alarm) outputs, 32 points
R1M-P4	Totalized counter inputs, 4 points; Contact inputs, 8 points; Contact outputs, 8 points

The R1CON software is used to help you program input type, burnout action, cold junction compensation, filter time constant of model R1x, connected via the special cable.

General functions of the R1CON are as follows:

#### ■ COMMUNICATION CONFIGURATION

Parameters concerning Modbus communication such like node address or baud rate can be configured.

#### ■ PARAMETERS CONFIGURATION FOR EACH CHANNEL

For models R1x-GH2 and R1MS-GH3, thermocouple type and voltage/current range per channel can be programmed.

For model R1M-J3, RTD type and potentiometer range per channel can be programmed.

#### FILE MANAGING

The parameter configuration for each channel can be saved as a file on the PC. Therefore, you can configure a set of parameters without actually connecting the R1x to your PC.

Reading (downloading) parameter files helps you to configure multiple modules easily and accurately.

#### MONITORING

You can check analog input data using configured data.

For discrete I/O modules, ON/OFF status of each channel can be monitored. For model R1M-A1 Ver. 3.0 or higher, the totalized count and the preset count are also monitored.

For model R1M-P4, the totalized count, the preset count and the momentary count value can be monitored.

#### ■ CALIBRATION

For models R1x-GH2 and -J3 and R1MS-GH3, zero and span adjustments, adjustment required when replacing the CJC sensor are available.

For model R1M-J3, leadwire resistance compensation is available.

#### **1.2 HARDWARE REQUIREMENTS**

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

## 1.3 INSTALLING & DELETING THE PROGRAM

The program, provided as compressed archive, can be downloaded at our web site.

#### ■ INSTALL

Decompress the archive and execute 'setup.exe' to start up the R1CON installer program. Follow instructions on the Windows.

#### DELETE

Open [Control Panel > Add/Remove Programs]. Select [R1CON] from the program list and click <Delete> button.

#### **CAUTION !**

If you have already the R1CON program installed in your PC, remove it before installing a new one.

# 2. BASIC OPERATIONS

Connect the R1x module to the PC. Confirm the hardware connection in order to write the setting data to the remote I/O module.

## 2.1 STARTING / QUITTING THE R1CON

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

#### ■ STARTING THE R1CON

Press [Start] on the task bar and choose [R1CON] from [Program] menu. The main view appears on the screen as shown below.



#### ■ QUITTING THE R1CON

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

#### **CAUTION !**

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

## 2.2 VIEW COMPONENTS AND FUNCTIONS

The R1CON view is composed of the menu bar and tool buttons at the top, the hardware type and version information window at the left, and the configuration window for each channel with several popping-up sub-windows at the right. In this section, functions of menu bar and various buttons, and of each frame are explained.

#### ■ MENU BAR

🗟 R1C0	ON						
File(F)	Connect	Model	Configuration	Monitor	Adjustment	Alarm	Help(H)

Menu	Submeu	Function
File( <u>F</u> )	Open	Reading the specified file and displaying its contents.
	Save	Saving the configuration of all the channels as the current file.
	Save as	Saving the configuration of the all the channels as a new file.
	End	Quitting the R1CON program.
Connect	Connect	Connecting to the communication line.
	Disconnect	Disconnecting from the communication line.
Model	GH2	Displaying the configuration window for type GH2.
	J3	Displaying the configuration window for type J3.
	GH3	Displaying the configuration window for type GH3.
Configuration	Modbus	Opening the Modbus Communication Parameter Setting window.
	Burnout Type	Opening the Burnout Type setting window.
	Filter time const.	Opening the Filter Time Constant setting window.
	Line noise filter	Opening the Line Noise Filter Type window (model R1MS-GH3).
	CJM	Used when replacing the Cold Junction Compensation sensor.
	Count Set	Opening the Count Settings window for all channels.
	Upload	Uploading the configuration.
	Download	Downloading the configuration.
Monitor	Start	Starting monitoring of input signals.
	Stop	Stopping monitoring of input signals.
Adjustment	Zero/Span	Opening the Zero/Span Adjustments window.
	Compensation	Opening the Leadwire Compensation window.
Alarm	Alarm out	Opening the Alarm Output Set window.
Help( <u>H</u> )	Index	Not available
	Contents	Not available
	Version	Indicating Version No. of the R1CON.

## ■ TOOL BUTTONS

🛎 🖬 🖪 🚳 💼 😤 💡
---------------

Name (from left to right)	Function
Open File	Reading the specified file and displaying its contents.
Save	Saving the configuration of all the channels as the current file.
Save as	Saving the configuration of the all the channels as a new file.
Start	Starting monitoring of input signals.
Stop	Stopping monitoring of input signals.
Upload	Uploading the configuration.
Download	Downloading the configuration.
Help	Not available

#### ■ HARDWARE TYPE & VERSION INFORMATION WINDOW

GH2	Name	Function
GIIZ	Model Name	Model No. of the R1x
<u>Model Name</u>	Hardware Version	Hardware version No.
R1M_GH2	Firmware Version	Firmware version No.
Hardware Version	Serial Number	Serial No. of the R1x
R1M_GH2_V00.02	Manufacture Date	Manufacturing date of the R1x
Firmware Version	Calibration Date	Date of latest calibration
R1M_FGH2_V03.03		
Serial Number		
3D036119		
Manufacture Date		
2013/05/01		
Calibration Date		

2013/05/01

M-SYSTEM CO.,LTD

## 2.3. SETTING EXAMPLE

The R1CON can be used on-line or off-line (the R1x connected or disconnected to/from communication line. In this section, the following procedures are explained with examples.

- i ) On-line operation with types GH2, GH3 and J3
- ii ) On-line operation with types A1 and D1
- iii ) Off-line operation

#### 2.3.1 ON-LINE OPERATION WITH TYPES GH2 / GH3 / J3

- (1) Starting up the R1CON program
- (2) Connecting to the communication line
- (3) Confirming the hardware type (GH2 or J3) and current setting
- (4) Modifying parameters
- (5) Downloading the parameters to the R1x
- (6) Confirming new configuration
- (7) Monitoring
- (8) Closing the communication line

#### ■ STARTING UP THE R1CON PROGRAM

Press [Start] on the task bar and choose [R1CON] from [Program] menu. The main view appears on the screen as shown below.

R1CON	١		0.8				1.00			-	_ <b>D X</b>
File(F)	Connect	Model	Configu	ration	Monitor	Adjustment	Alarm	Help(H)			
<b>-</b>	<b>M</b> (0) 1	:▲	?								
	M-SYST	ЕМ СО	LTD								
	5767	00.	,								

#### ■ CONNECTING TO THE COMMUNICATION LINE

Connecting the R1x module to the communication line.

Choose [Connect] from [Connect] on the menu bar and the following dialog box appears on the screen.

📑 R1C0	N			
File(F)	Connect	Model	Configuration	
🛩 🖬 层	Conn	lect		
	DisCo	onnect		
	Comn ◎ com ○ com	nunica 1 2	ok	

Confirm that the power is supplied to the R1x and that the configurator jack of the R1x and the COM1 port of the PC is firmly connected with the attached cable.

Choose COM1 (See left) and click OK.

With the communication line established, the version No. of the hardware and current parameter setting are displayed.

If a message appears saying that the connection is unsuccessful, confirm again the connection between the R1x and PC, and the COM1 port driver status on the PC.

Only COM1 and COM2 can be specified as standard. In order to use COM3 and other communication ports, change the port numbers following instructions in the appendix.

#### ■ CONFIRMING THE HARDWARE TYPE & CURRENT SETTING

With the communication line established, the type No. and version No. of the hardware (left) and current parameter setting (right) are displayed on the screen. The example below and the following explanation is one with model R1C-GH2.

🖰 R1CON 📃 🗖 📈							
File(F) Connect Model Configuration Monitor Adjustment Alarm Help(H)							
GH2	Ch. Input Input No. Type Real	Raw CJC Input SW Status					
Model Name	1 -20 to 20V 2 -5 to 5V	<u>0</u>					
R1M_GH2         3         -1 to 1V           Hardware Version         4         -800 to 800mV           5         -200 to 200mV							
R1M_GH2_V00.02 Firmware Version	6 -50 to 50mV 7 (PR)	ON 0					
R1M_FGH2_V03.03	8 K(CA) 9 E(CRC) 10 J((C)						
3D036119	11 T(CC) 12 B(RH)						
<u>Manufacture Date</u> 2013/05/01	13 R 14 S	OFF O OFF O					
<u>Calibration Date</u> 2013/05/01	15 C(Wre 5-26) 16 N	OFF OFF					
M-SYSTEM CO.,LTD	Burnout Type None Filter Time Const. 0.000 Sec.	Trigger Input OFF					

With the R1C-GH2's firmware version V1.xx, the model name may be indicated as 'R1M,' though the programming is performed correctly.

#### ■ MODIFYING PARAMETERS

Click a channel No. button on the right window and Type Setting window appears as shown below.

#### Modifying [Input Type] of Ch. 4 from '-800 to 800mV' to '-1 to 1V'

Choose '4' from [Channel] pull-down menu. Choose '-1 to 1V' from [Input Type]. Confirm the new setting at Ch. 4 on the right window.

Type Setting							
Channel							
Input Type							
-800 to 8	00mV -						
CJC SW							
C OFF	C OFF @ ON						
Prev.	Next						
Сору	Copy Paste						
Download	Exit						

#### Applying the setting of Ch. 9 to Ch. 10

Choose '9' from [Channel] pull-down menu.

Press <Copy> button. Then press <Next> button and confirm that the window shows current setting of Ch. 10. Press <Paste> button and confirm the new setting on the dialog box.

Confirm the new setting at Ch. 10 on the right window.

Type Setting	Type Setting
Channel Input Type E(CRC) • CJC SW COFF © ON	Channel 10 - Input Type E(CRC) - CJC SW C OFF © ON
Prev. Next	Prev. Next
Copy Paste	Copy Paste
Download Exit	Download Exit

Pressing <Exit> button closes the dialog box. The figure below shows the result of the above modification.

R1CON	_		_	_	-		
File(F) Connect Model Config	uration	Monitor Adjustment Alar	m Help(I	H)			
<b>Fe M * *</b>							
GH2	Ch. No.	Input Type	Input Real		Raw Input	CJC SW	Status
	1	-20 to 20V					
Model Name	2	-5 to 5V					
R1M_GH2	3	-1 to 1V					$\bigcirc$
	4	-800 to 800mV					<u> </u>
Hardware Version	5	-200 to 200mV					<u> </u>
R1M_GH2_V00.02	6	-50 to 50mV					
Firmware Version	7	(PR)				ON	
R1M FGH2 V03.03	8	K(CA)				ON	0
	9	E(CRC)				ON	<u> </u>
Serial Number	10	E(CRC)				ON	<u> </u>
3D036119	11	T(CC)				ON	<u> </u>
	12	B(RH)				ON	$\bigcirc$
Manufacture Date	13	R				OFF	
2013/05/01	14	S				OFF	
Calibration Date	15	C(Wre 5-26)				OFF	
2013/05/01	16	Ν				OFF	$\bigcirc$
M-SYSTEM CO.,LTD		Burnout Type Filter Time Const.	None 0.000	Sec.	Trigger In	put OF	F

#### **CAUTION !**

The above new modification is not applied to the device unless the following DOWNLOAD is executed.

#### ■ DOWNLOADING PARAMETERS TO THE R1x

To download the parameters for all channels, choose [Configuration] > [Download] or click < • > button.

To download the parameters for single channel, click <Download> in [Type Setting] dialog box of that channel.

#### ■ CONFIRMING NEW CONFIGURATION

The R1CON automatically uploads the configuration after every downloading. Therefore you can confirm that new configuration has been applied by comparing the currently displayed setting with applied changes.

#### ■ MONITORING

You can monitor analog input values on the display. Choose [Monitor] > [Start] from the menu bar or click < M > tool button.

R1CON								
File(F) Connect Model Configu	Iration	Monitor Adjustment Ala	rm Help	(H)				
0110	Ch.	Input	Input		Raw		CJC	
GHZ	No.	Туре	Real		Input		SW	Status
	1	-20 to 20V	-0.002	v	-0.002	V		
Model Name	2	-5 to 5V	0.000	v	0.000	V		
R1M_GH2	3	-1 to 1V	0.000	v	0.000	V		
	4	-800 to 800mV	0.015	mV	0.015	mV		
Hardware Version	5	-200 to 200mV	-0.019	mV	-0.012	mV		<u> </u>
R1M_GH2_V00.02	6	-50 to 50mV	0.016	mV	0.012	mV		0
Firmware Version	7	-50 to 50mV	0.016	mV	0.008	mV		<u> </u>
R1M FGH2 V03.03	8	-10 to 10mV	-0.002	mV	-0.001	mV		
	9	(PR)	31.788	degC	-0.004	mV	ON	0
Serial Number	10	(PR)	-0.375	degC	-0.002	mV	OFF	•
3D036119	11	E(CRC)	32.551	degC	-0.012	mV	ON	<u> </u>
	12	J(IC)	31.943	degC	-0.023	mV	ON	•
Manufacture Date	13	T(CC)	32.572	degC	0.004	mV	ON	•
2013/05/01	14	B(RH)	79.200	degC	0.017	mV	ON	•
Calibration Date	15	R	-0.780	degC	0.008	mV	OFF	•
2013/05/01	16	S	1.126	degC	0.020	mV	OFF	•
2010/03/01		Burnout Type	None					
M-SYSTEM CO.,LTD		Filter Time Const.	0.000	Sec.	Trig	iger l	nput OF	F

In order to stop monitoring, choose [Monitor] > [Stop] from the menu or click < 🔤 > tool button.

#### ■ CLOSING THE COMMUNICATION LINE

Disconnecting the R1x module to the communication line. Choose [Disconnect] from [Connect] on the menu bar.

#### 2.3.2 ON-LINE OPERATION WITH TYPES A1 / D1

- (1) Starting up the R1CON program (See 2.3.1)
- (2) Connecting to the communication line (See 2.3.1)
- (3) Confirming the hardware type (A1 or D1) and current setting
- (4) Monitoring
- (5) Closing the communication line (See 2.3.1)

#### ■ CONFIRMING THE HARDWARE TYPE & CURRENT SETTING

With the communication line established, the type No. and version No. of the hardware (left) and current parameter setting (right) are displayed on the screen. The example below and the following explanations is one with model R1M-D1.

R1CON			_	_ <b>D</b> X
File(F) Connect Model Configu	uration Monitor Adjustme	ent Alarm Help(H	)	
D1	Output Contacts			
Model Name				
R1M_D1				
	1: OFF	9: OFF	17: OFF	25: OFF
Hardware Version	2' OFF	10: OFF	18: OFF	26: OFF
R1M_D1_V02.00	2. 011			
Firmware Version	3: OFF	11: OFF	19: OFF	27: OFF
R1M_FD1_V03.02	4: OFF	12: OFF	20: OFF	28: OFF
<u>Serial Number</u> WC013111	5: OFF	13: OFF	21: OFF	29: OFF
Manufacture Date	6: OFF	14: OFF	22: OFF	30: OFF
2009/03/13	7: OFF	15: OFF	23: OFF	31: OFF
	8: OFF	16: OFF	24: OFF	32: OFF
M-SYSTEM CO.,LTD				

#### ■ MODIFYING PARAMETERS

First, start monitoring. Choose [Monitor] > [Start] from the menu bar or click < M > tool button. All contacts are at OFF state at default. Buttons to the right of each channel No. are alternate buttons to switch ON/OFF, indicating their state at the same time.

#### Turning the contact outputs ON for Ch. 1 to Ch. 8.

Click the buttons to the right of Ch. 1 to Ch. 8 and confirm that they turned ON on the screen.

Confirm also that the LEDs for these channels on the R1M-D1.

In order to stop monitoring, choose [Monitor] > [Stop] from the menu or click <  $\square$  > tool button.

R1CON			_	
File(F) Connect Model Configu	ration Monitor Adjustme	ent Alarm Help(H	)	
D1		Output (	Contacts	
Model Name				
R1M_D1	1: ON	9: OFF	17: OFF	25: OFF
R1M_D1_V02.00	2: ON	10: OFF	18: OFF	26: OFF
Firmware Version	3: ON	11: OFF	19: OFF	27: OFF
R1M_PD1_V03.02	4: ON	12: OFF	20: OFF	28: OFF
<u>Serial Number</u> WC013111	5: ON	13: OFF	21: OFF	29: OFF
Manufacture Date	6: ON	14: OFF	22: OFF	30: OFF
2009/03/13	7: ON	15: OFF	23: OFF	31: OFF
	8: ON	16: OFF	24: OFF	32: OFF
M-SYSTEM CO.,LTD				

#### 2.3.3 OFF-LINE OPERATION

- (1) Selecting the hardware type
- (2) Creating or modifying parameters
- (3) Saving parameter files

#### ■ SELECTING THE HARDWARE TYPE

When creating a new parameter file, choose the hardware type from [Model] pull-down menu.

If you want to modify an existing file, choose [File] > [Open] from the menu bar and select the file name.

The following window appears when type J3 is selected for a new file.

R1CON	and the second s			_ <b>D</b> X
File(F) Connect Model Config	uration Monitor Adjustment	Alarm Help(H)		
J3	Ch. Input No. Type	Input Real	Raw Input	Status
				<u> </u>
	2			•
	3			•
	4			0
	5			•
	6			•
	7			•
	8			•
M-SYSTEM CO.,LTD	Burnout Type Filter Time Cons	st. Sec.	Trigger Inp	put

#### ■ CREATING OR MODIFYING PARAMETERS

Click a channel No. button on the right window and Type Setting window appears as shown below.

Specifying [Input Type] of Ch. 1 as 'JPt100 (JIS '97)' and [Burnout Type] to 'None' (no burnout protection)

Choose '1' from [Channel] pull-down menu.

Type Setting		
Channel Input Type JPt100(JIS'89)		
Prev.	Next	
Copy Paste		
Download	wnload Exit	

Choose 'JPt100 (JIS '97)' from [Input Type]. Confirm the new setting at Ch. 1 on the right window.

#### Specifying [Input Type] of Ch. 2 as '0 to 500 ohm' and [Burnout Type] to 'Up' (upscale burnout)

Click < Next > button and Type Setting dialog box for Ch. 2 appears. Choose '0 to 500 ohm' from [Input Type].

Type Setting			
Channel 2 • Input Type 0 to 5000hm •			
Prev.	Next		
Сору	Paste		

Confirm the new setting at Ch. 2 on the right window. Pressing < Exit > button closes the dialog box. The figure below shows the result of the above modification.

#### ■ SAVING PARAMETER FILES

Choose [Save as] from [File] pull-down menu, or click < ⊌ > button and specify a file name.

R1CON	and the second se	2		
File(F) Connect Model Config	<b>juration</b> Monitor Adjustment Al	larm Help(H)		
J3	Ch. Input No. Type	input Real	Raw Input	Status
	1 Pt100(JIS'97)			0
	2 0 to 500ohm			•
,	3			•
	4			•
	5			•
	6			0
	7			0
	8			0
M-SYSTEM CO.,LTD	_Burnout Type _Filter Time Const	. Sec.	Trigger Inp	out

# 3. CONFIGURATION WINDOW FOR EACH CHANNEL

## 3.1 R1x-GH2

R1CON								
File(F) Connect Model Config	uration	Monitor Adjustment Alar	m Help	(H)				
#R <b>B #@</b> \$ <b>\$</b> ?								
GH2	Ch. No.	Input Type	Input Real		Raw Input		CJC SW	Status
	1	-20 to 20V	0.002	V	0.000	v		0
Model Name	2	-5 to 5V	0.000	۷	0.000	V		0
R1M_GH2	3	-1 to 1V	0.000	۷	0.000	V		0
	4	-800 to 800mV	0.015	mV	0.046	mV		0
Hardware Version	5	-200 to 200mV	-0.004	mV	-0.012	mV		•
R1M_GH2_V00.02	6	-50 to 50mV	0.006	mV	0.006	mV		•
Firmware Version	7	(PR)	29.578	degC	-0.002	mV	ON	•
R1M_FGH2_V03.03	8	K(CA)	29.821	degC	-0.004	mV	ON	<u> </u>
K1W_PGH2_V03.03	9	E(CRC)	-0.066	degC	-0.004	mV	OFF	•
<u>Serial Number</u>	10	J(IC)	-0.154	degC	-0.008	mV	OFF	•
3D036119	11	T(CC)	0.078	degC	0.011	mV	OFF	•
	12	B(RH)	40.000	degC	0.000	mV	OFF	•
Manufacture Date	13	R	0.000	degC	0.000	mV	OFF	•
2013/05/01	14	S	0.375	degC	0.008	mV	OFF	•
Calibration Date	15	C(Wre 5-26)	-0.312	degC	0.008	mV	OFF	•
2013/05/01	16	N	0.156	degC	0.004	mV	OFF	•
		Burnout Type	None		-			
M-SYSTEM CO.,LTD		Filter Time Const.	0.000	Sec.	Triç	ger li	nput OF	·F

Item	Function
Ch. No.	Channel No.
Input Type	Input Type
Input Real	Input value in engineering unit
Raw Input	Input voltage or resistance before conversion
CJC SW	Enable/disable the cold junction compensation
Status	Analog input status
	Green ON: Normal input
	Red ON: Abnormal input (out of range)
Burnout Type	Burnout protection action
Filter Time Const.	Filter's time constant
Trigger Input	Trigger input status

## 3.2 R1M-J3

Ch. No.	Input Type	Input Real		Raw Input		Status
1	JPt100(JIS'89)	560.000	degC	-450.974	ohm	•
2	Pt100(JIS'97)	900.000	degC	-450.974	ohm	•
3	Ni508.4	330.000	degC	1023.941	ohm	•
4	Pt1000	900.000	degC	4041.293	ohm	•
5	0 to 100ohm	200.000	%	100.000	%	•
6	0 to 500ohm	200.000	%	100.000	%	•
7	0 to 1Kohm	200.000	%	100.000	%	٠
8	0 to 10Kohm	200.000	%	100.000	%	•
	Burnout Type Filter Time Const.	Up illegal <sup>S</sup>	ec.	Trigge	r Input	OFF

Item	Function
Ch. No.	Channel No.
Input Type	Input Type
Input Real	Input value in engineering unit
Raw Input	Input voltage or resistance before conversion
Status	Analog input status
	Green ON: Normal input
	Red ON: Abnormal input (out of range)
Burnout Type	Burnout protection action
Filter Time Const.	Filter's time constant
Trigger Input	Trigger input status

#### 3.3 R1M-D1



## 3.4 R1M-A1

#### ■ Versions earlier than 3.0

-	Input Contacts					
1: OFF	9: OFF	17: OFF	25: OFF			
2: OFF	10: OFF	18: OFF	26: OFF			
3: OFF	11: OFF	19: OFF	27: OFF			
4: OFF	12: ON	20: OFF	28: OFF			
5: OFF	13: ON	21: OFF	29: OFF			
6: OFF	14: OFF	22: OFF	30: OFF			
7: OFF	15: OFF	23: OFF	31: OFF			
8: OFF	16: OFF	24: OFF	32: OFF			
	Count Data					



#### ■ Ver. 3.0 or later versions

Ch. No.	32bit Count Data	Count Preset Data	Ch. No.	32bit Count Data	Count Preset Data
1:	10	10	9:	0	0
2:	0	0	10:	0	0
3:	0	0	11:	0	0
4:	100	100	12:	0	0
5:	0	0	13:	0	0
6:	0	0	14:	0	0
7:	0	0	15:	0	0
-	2000	2000	16:	0	0

<Upload> buttonUpload the current setting for the R1x module to the window.<Download> buttonDownload the setting on the current display to the R1x module.<Exit> buttonClose the window.

Item	Function
Ch. No.	Channel No., 1 through 16
32 bit Count Data	Totalized count, 0 to 999 999 999
Count Preset Data	Counter's preset count, 0 to 999 999 999

## 3.5 R1M-P4

Pulse channel inputs (channel numbers A through D) are not available on this window.

R1CON						
File(F) Connect Model Config	File(F) Connect Model Configuration Monitor Adjustment Alarm Help(H)					
20 <b>* * *</b>						
P4	Ch. No.	Discrete Input	Discrete Output	32bit Count	Count Preset	Count Rate
Model Name	1	OFF	OFF	0	0	0
R1M_P4	2	OFF	OFF	0	0	0
Hardware Version R1M_P4_V01.00	3	OFF	OFF	100	100	0
Firmware Version	4	OFF	OFF	50	50	0
R1M_FP4_V03.05	5	OFF	OFF	0	0	0
2G011700	6	OFF	OFF	0	0	0
<u>Manufacture Date</u> 2012/07/13	7	OFF	OFF	0	0	0
Calibration Date	8	OFF	OFF	0	0	0
M-SYSTEM CO.,LTD						

Item	Function
Ch. No.	Channel No., 1 through 16
Discrete Input	Discrete input status
Discrete Output	Discrete output status
32 bit Count	Totalized count
Count Preset	Counter's preset count
Count Rate	Counter's momentary value

## 3.6 R1MS-GH3

In order to be able to use the R1CON to change the R1MS-GH3 setting, be sure to set the operating mode setting, rotary switch located at the rear of the unit, to '0.'

R1CON			_	_	-		. 🗆 🗙
File(F) Connect Model Configu	uration Monitor Adjustment	Alarm Hel	р(Н)				
FR # # ?							
GH3	Ch. Input No. Type	Input Real		Raw Input		CJC SW	Status
Mar da Chianna	1 -10 to 10V	0.000	v	0.000	v		•
R1MS_GH3	2 K(CA)	1470.000	degC	102.109	mV	ON	•
Herdware Version	3 J(IC)	1300.000	degC	101.996	mV	ON	•
R1MS_GH3_V00.01	4 T(CC)	500.000	degC	102.177	mV	ON	•
Eirmware Version	5 B(RH)	1920.000	degC	102.076	mV	ON	•
R1MS_FGH3_V01.10	6 C(Wre 5-26)	2415.000	degC	102.108	mV	ON	•
Serial Number	N	1400.000	degC	102.174	mV	ON	•
WD024077	8 L	1000.000	degC	101.984	mV	ON	•
<u>Manufacture Date</u> 2009/05/07	<u>Bu</u> Lin Filt	rnout Type e Noise Filte er Time Con	er Type	Up 50/60H	lz Sec.		
M-SYSTEM CO.,LTD	Trigger	Input OFF		Alarm Ou	tput O	FF	

Item	Function	
Ch. No.	Channel No.	
Input Type	Input Type	
Input Real	nput value in engineering unit	
Raw Input	Input voltage or resistance before conversion	
CJC SW	Enable/disable the cold junction compensation	
Status	Analog input status	
	Green ON: Normal input	
	Red ON: Abnormal input (out of range)	
Burnout Type	Burnout protection action	
Line Noise Filter Type	Filtering frequency for the line noise filter	
Filter Time Const.	Filter's time constant	
Trigger Input	Trigger input status	
Alarm Output	Alarm output status	

# 4. CONFIGURATION SUB-WINDOWS

## 4.1 TYPE SETTING

Type Setting		
Channel 10 • Input Type E(CRC) •		
CJC SW		
Prev.	Next	
Сору	Paste	
Download	Exit	

<prev.> button</prev.>	Move to the previous channel.
<next> button</next>	Move to the next channel.
<copy> button</copy>	Copy the setting on the current display.
<paste> button</paste>	Paste the copied setting.
<download> button</download>	Download the setting on the current display to the R1x module.
<exit> button</exit>	Close the window without downloading the current setting.

Item	Function	Selections for GH2	Selections for J3	Selections for GH3
Channel	Channel No.	1 to 16	1 to 8	1 to 8
Input Type	Input type	-20 to 20 V	JPt 100 (JIS '89)	-10 to 10 V
		-5 to 5 V	Pt 100 (JIS '89)	
		-1 to 1 V	Pt 100 (JIS '97, IEC)	
		-800 to 800 mV	Pt 50 (JIS '81)	
		-200 to 200 mV	Ni 508.4	
		-50 to 50 mV	Pt 1000	
		-10 to 10 mV		
		(PR)	0 to 100 ohms	(PR)
		K (CA)	0 to 500 ohms	K (CA)
		E (CRC)	0 to 1k ohms	E (CRC)
		J (IC)	0 to 10k ohms	J (IC)
		T (CC)		T (CC)
		B (RH)		B (RH)
		R		R
		S		S
		C (Wre 5-26)		C (Wre 5-26)
		Ν		Ν
		U		U
		L		L
		P (Platinel II)		P (Platinel II)
CJC SW	Enable/disable CJC	ON or OFF		ON or OFF

## 4.2 MODBUS SETTINGS (RTU)

Modbus Settings(RTU)				
Node Address 1	Bit Length 8 bit -	Stop Bits     1 bit		
Baud Rate 38400 -	Parity ODD -	Floating Type Normal Float -		
Upload	Download	System Restart Exit		

Selection
Displaying the current node address setting.
9600 / 19200 / 38400 (*)
8 bit
NONE / ODD (*) / EVEN
1 bit (*) / 2 bit
Normal Float (*) / Swapped Float

With the model R1C and R1D, Modbus setting is not necessary.

Do not operate Modbus settings (Upload, Download, and System Restart).

\* Factory default setting

## 4.3 BURNOUT TYPE



Selection	Function
Up	Upscale burnout
Down	Downscale burnout
None	No burnout

## 4.4 COUNT DATA

Line Noise Filter Type	
50/60Hz ▼ 50/60Hz 50Hz 60Hz	
Download Exit	
Count Data	
Count Data	
Count Data	

<Download> button Download the setting on the current display to the R1x module. <Exit> button Close the window without downloading the current setting.

Item	Selection
Count Data	0.1 to 500 seconds
CJC Sensor(CJ	IM) Settings
CJM Temp. 0.000 < 25.000	degC < 100.000
CJM Voltage 0.400 < 0.613	V < 0.700
Upload	oad Exit

#### CAUTION !

Filter time constant is not available for the R1M-GH2 or -J3, R1C-GH2, Ver. 2.01 or earlier versions.

#### 4.5 LINE NOISE FILTER TYPE

<upload> button <download> button <exit> button</exit></download></upload>	Upload the current setting for the R1x module to the window. Download the setting on the current display to the R1x module. Close the window without downloading the current setting.	
Selection	Function	
50 Hz	50 Hz mode	
60 Hz	60 Hz mode	
50/60 Hz	50/60 Hz mode	

## 4.6 CJC SENSOR (CJM) SETTINGS

This setting is used only when replacing the CJC sensor. DO NOT change this setting when you have the CJC sensor originally calibrated at the factory and attached to the product.

<download> button</download>	Download the setting on the current display to the R1x module.
<exit> button</exit>	Close the window without downloading the current setting.

Item	Function
CJM Temp.	Reference junction temperature in °C
CJM Voltage	Reference junction voltage (V)

## 4.7 LEADWIRE RESISTANCE COMPENSATION

#### RTD

Shortcircuit the leadwires when conducting the leadwire resistance compensation for an RTD.

<u>Compensation</u>	
Channel 3 -	
Input Real 330.000 deç	
Raw Real 1023.941 ohr	
Prev. Next	
Line Res.	
Reset Exit	

#### POTENTIOMETER

Set the potentiometer at 0% for 0% compensation, at 100% for 100% compensation.

<u>Compensation</u>		
Channel g	5 -	
Input Real 200.000	%	
Raw Real 100.000	%	
Prev.	Next	
0%	100%	
Reset	Exit	

<prev.> button</prev.>	Move to the previous channel.
<next> button</next>	Move to the next channel.
<line res.=""> button</line>	Requesting resistance compensation for the RTD.
<0%> button	Requesting resistance compensation of 0% value for the potentiometer.
<100%> button	Requesting resistance compensation of 100% value for the potentiometer.
<reset> button</reset>	Reset the compensation value.
<exit> button</exit>	Close the window without downloading the current setting.

Item	Function
Channel	Channel No.
Input Real	Input value in engineering unit
Raw Real	Input voltage or resistance before conversion

## 4.8 ZERO/SPAN ADJUSTMENTS

Zero and span adjustments are available independently for each channel. First set Zero and go to Span. <Reset> button clears both of zero and span adjustments automatically.

#### **CAUTION !**

If you have changed the Input Type for a channel, the zero and span adjustments for this channel are reset.

#### ZERO/SPAN

Zero/Span Adj.		
Channel 1		
Prev.	Next	
Zero	Span	
Reset	Exit	

<Prev.> button <Next> button <Zero> button <Span> button <Reset> button <Exit> button Move to the previous channel. Move to the next channel. Open the Zero Adjustment window. Open the Span Adjustment window. Reset the current zero/span adjustments. Close the window without downloading the current setting.

#### ZERO

Zero Adj. Setting	
Input Real 29.841	degC
Offset data -0.007	degC
Real data 30	deaC
ок	Exit

<ok> button</ok>	Apply the zero adjustment data.
<exit> button</exit>	Close the window without downloading the current setting.

Item	Function
Input Real	Input value in engineering unit
Offset data	Offset value of the zero point
Real data	Real value of the zero point

#### SPAN

Span Adj. Setting	
Input Real 29.944	degC
Span coeffic 20.123	ient %
Real data 30.01	degC
ОК	Exit

<OK> buttonApply the span adjustment data.<Exit> buttonClose the window without downloading the current setting.

Item	Function
Input Real	Input value in engineering unit
Span coefficient	Calculated gain
Real data	Real value of the span point

## 4.9 COUNT SETTING FOR EACH CHANNEL

<u>Count</u>	Setting
Channel	
DO © OFF	O ON
Count Pre	set
Prev.	Next
Сору	Paste
Download	Exit

Count Preset

<prev.> button</prev.>	Move to the previous channel.
<next> button</next>	Move to the next channel.
<copy> button</copy>	Copy the setting on the current display.
<paste> button</paste>	Paste the copied setting.
<download> button</download>	Download the setting on the current display to the R1x module.
<exit> button</exit>	Close the window without downloading the current setting.
Itom	Eurotian & Calastian
item	
Channel	Channel No., 1 through 8
DO	Contact output, OFF or ON

## 4.10 COUNT SETTING COMMON TO ALL CHANNELS

Count Settings		
Pulse Edge.		
"H"or"OPEN">"GND"	○ "GND">"H"or"OPEN"	
Count Zero.		
○ Clear	Non Clear	
Count Rate Mem		
Non Backup Data	Backup Data	

<Upload> buttonUpload the current setting for the R1x module to the window.<Download> buttonDownload the setting on the current display to the R1x module.<Exit> buttonClose the window without downloading the current setting.

Counter's preset count, 0 to 999 999 999

Item	Function
Pulse Edge.	Pulse edge to count
Count Zero.	Clear counters for all channels
Count Rate Mem	Backup memory for momentary values

## 4.11 ALARM OUTPUT SET

Simulated alarm output for testing purpose is available for the R1MS-GH3.

Alarm Output Set
○ ON
@ OFF
Download Exit

<Download> button Set a simulated alarm output to the R1x module. <Exit> button Close the window without downloading the current setting.

#### ■ HOW TO CHANGE THE COM PORT NUMBERS

(1) Open Control Panel and double-click System icon and press System Properties in the System dialog box. Choose Hardware tub > Device Manager. (View examples with Windows 7)

(2) Locate the COM port under Port (COM & LPT) of which you wish to change the number and show its properties by clicking it with the right mouse button.

General	Port Settings Driver Details
	Bits per second: 9600 🔹
	Data bits: 8
	Parity. None
	Stop bits: 1
	Flow control: None
	Advanced Restore Defaults

- (3) Press Advanced button under Port Setting tub.
- (4) Choose a desired COM Port number and press OK.

COM Port Number: COM1	•	ОК
USB Transfer Sizes Select lower settings to correct performance	blems at low baud rates.	Cancel
Select higher settings for faster performan		Defaults
Receive (Bytes):	•	
Transmit (Bytes):	•	
BM Options	Miscellaneous Options	
Select lower settings to correct response p	ns. Serial Enumerator	
Latency Timer (msec):	<ul> <li>Serial Printer</li> </ul>	E
	Cancel If Power Off	[
Timeouts	Event On Surprise Removal	
Minimum Read Timeout (msec):	✓ Set RTS On Close	[
Mainum Weite Trace & Group)	Disable Modem Ctrl At Startup	