For Super-mini Signal Conditioners with Display Mini-M M2E Series

M2EA CONFIGURATOR SOFTWARE

M2EACFG

USERS MANUAL

MG CO., LTD. www.mgco.jp
5-2-55 Minamitsumori, Nishinari-ku, Osaka 557-0063 JAPAN

CONTENTS

1. INTRODUCTION

1-1. GENERAL DESCRIPTION

The M2EACFG is used to program parameters for Super-mini Signal Conditioners with Display and Alarm M2E series (referred hereunder as 'device'). The following major functions are available:

1) Edit parameters online (connected to the device) in real time
2) Edit parameters offline (not connected to the device)
3) Download parameters to the device, upload parameters from the device
4) Save parameters as files, read parameters from files
5) Compare parameters edited on the screen with the ones stored in the device

1-2. APPLICABLE DEVICES

The M2EACFG is applicable to the following products:

FUNCTION	MODEL	SYMBOL	VERSION
DC Alarm	M2EAXV	V	1.01.0035
Potentiometer Alarm	M2EAXM	M	1.01.0027
Self-Synch Alarm	M2EAXS	S	1.01.0023
Thermocouple Alarm	M2EAXT	T	1.01.0033
RTD Alarm	M2EAXR	R	1.01.0028
TWO-WIRE Transmitter Alarm	M2EAXDY	DY	1.00.0028

The lowest software version applicable to each hardware model is indicated in the above table.
Confirm that the software you have is compatible with the hardware you have.

The latest version of the M2EACFG is downloadable at our web site if you need higher version software.

In this manual, descriptions given with the above symbols are applied only to the models those symbols are assigned to. Other descriptions with no specific symbol are applied to all models.

1-3. PC REQUIREMENTS

The following PC performance is required for adequate operation of the M2EACFG.

PC	IBM PC compatible
OS	Windows 7 (32 bit / 64 bit) (English / Japanese) Windows 8.1 (32 bit / 64 bit) (English / Japanese) Windows 10 (32 bit / 64 bit) (English / Japanese) The software may not operate adequately in certain conditions.
CPU	Must meet the relevant Windows' requirements.
Memory	
Communication Port	COM port (RS-232-C) or USB port

One of the dedicated cables as listed below is also required to connect the device to the PC.

Port	PC Configurator Cable Model No.
RS-232-C	MCN-CON
USB	COP-US

Use "Smaller - 100%" of "Make text and other items larger or smaller" on the display of the Windows.
The display may be jumbled with other than the text size "Smaller - 100%".

1-4. INSTALLING & UNINSTALLING THE PROGRAM

INSTALL

The program is provided as compressed archive. Decompress the archive and execute "setup.exe" to start up the M2EACFG installer program. Follow instructions on the Windows.

UNINSTALL

For Windows 7 and 8.1, open Control Panel > Uninstall a program, or Uninstall or change a program.
Select the M2EACFG from the program list and click [Uninstall] button.
For Windows 10, open Settings from Start menu > System > Apps & features.
Select the M2EACFG from the program list and click [Uninstall] button.

2. GETTING STARTED

2-1. STARTING THE M2EACFG

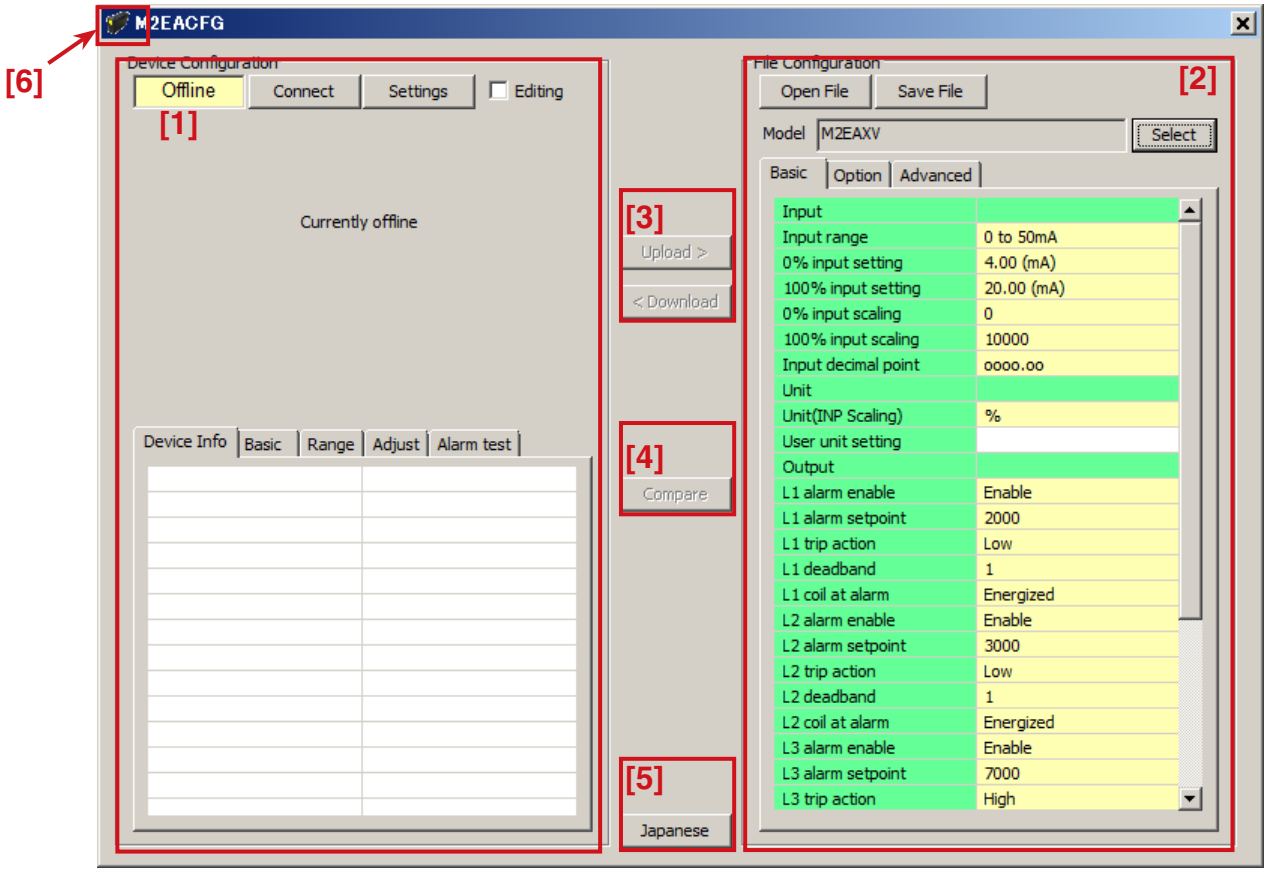
For Windows 7, open Program > M-SYSTEM > Configurator > M2EACFG,
for Windows 8.1, open All Apps on the Start screen > M-SYSTEM > M2EACFG, and
for Windows 10, open All Apps on the Start menu > M-SYSTEM > M2EACFG
to start up the M2EACFG on the Windows PC.

2-2. TERMINATION

To terminate the program, click the Close button [X] on the right-top of the window.

2-3. SCREEN COMPONENT IDENTIFICATION

The following table shows descriptions of each screen component.



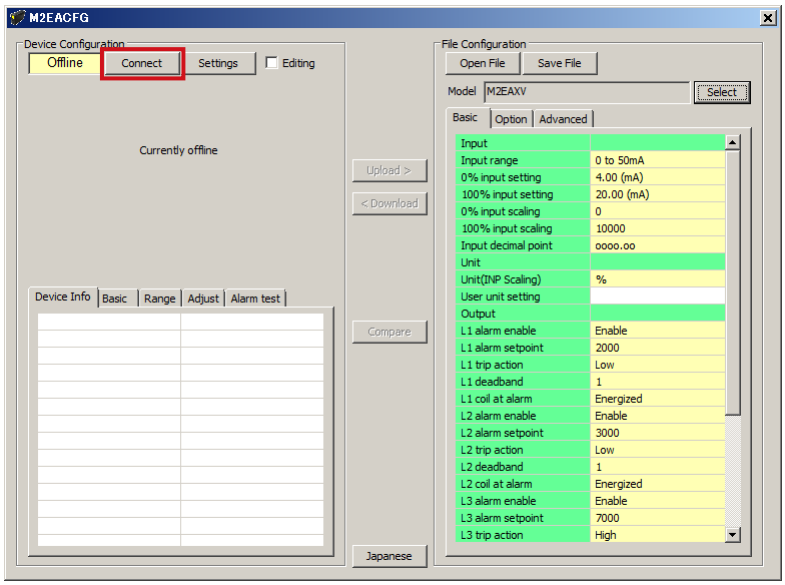
[1] Device Configuration	You can set a communication port, connect and disconnect the M2EACFG with the device. Basic parameters of the device presently connected are shown and can be edited online, which are reflected in the device in real time.
[2] File Configuration	All parameters are shown and can be edited regardless of the connection with the device. The edited parameters can be saved in files and a parameter setting saved in a file can be read.
[3] Upload Download	[Upload] button is to read parameters of a device and show them in the [File Configuration] frame, and [Download] button is to write edited parameters into a device.
[4] Compare	A button to compare the parameters of the connected device with those edited in the [File Configuration] frame. The parameters showing difference are highlighted in the red background.
[5] English / Japanese	A button to switch the display language. Clicking the button switches between English and Japanese. The program starts up in English mode as initial state when the OS is other than Japanese version. You can switch to Japanese only when the OS supports Japanese language.
[6] Version	Click (or right-click) on the left-top of the window to show the menu. Click [About M2EACFG...], and the version No. dialog box will appear.

2-4. CONNECTING TO THE DEVICE

When the PC starts communication with the device, the [Device Info], [Basic], [Range], [Adjust] and [Alarm test] in the [Device Configuration] frame are shown, where you can edit and adjust the parameters.

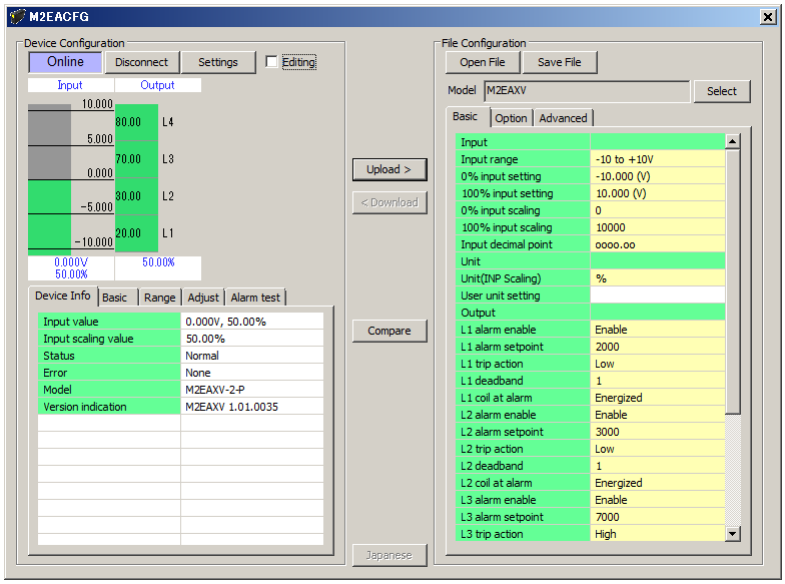
Note 1: The connected device needs to be in Lock state since the configuration with the M2EACFG is not available if the device is in Unlock state.

Note 1: The [File Configuration] shows initial values of the model indicated in the [Model] field, and they may be different from the setting parameters in the [Device Configuration] frame. Click [Upload] to read setting parameters from the device connected to the M2EACFG and show them in the [File Configuration] frame.

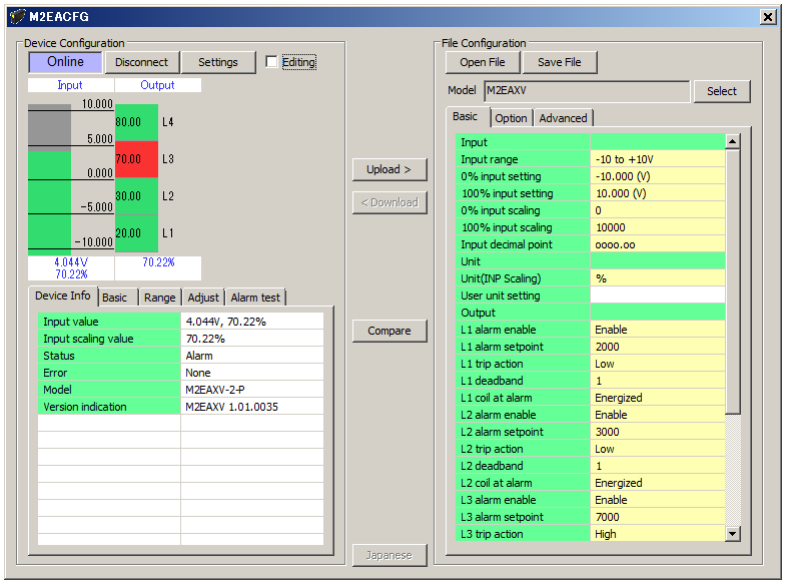


Click [Settings] to choose the COM port number to which the device is connected. Once a COM port is specified after the M2EACFG has been installed and started, you do not need to repeat the setting procedure until you want to change the COM port setting.
Click [Connect] button to start communication with the connected device.

The device's present parameters are uploaded and shown in the [Device Configuration] frame.



The bargraph on the screen show real time input status of the device, and the lamps show the alarm output status. You can now access to the menu tabs such as [Device Info], [Basic], [Range], [Adjust] and [Alarm test].

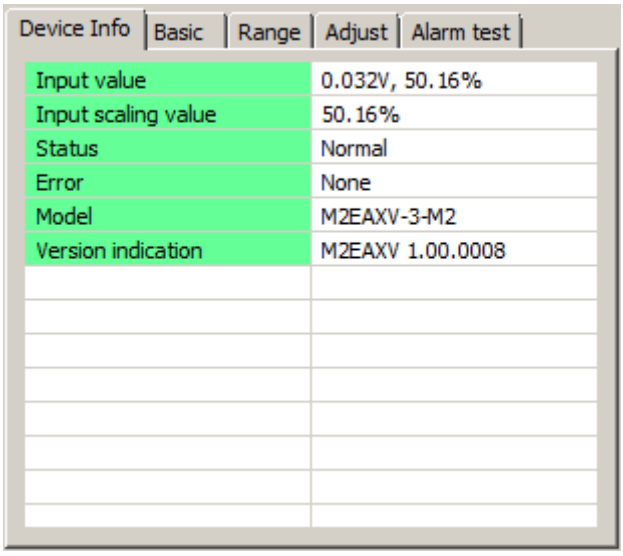


The scales of the input bargraph are determined automatically by [0% input setting] and [100% input setting]. Input of S is determined for 0 to 360°. Red alarm output lamps show alarm and green lamps show normal condition.

When the configurator cable is disconnected, the display in the [Device Info] tab disappears and the M2EACFG is ready to be connected to another device. In order to continue, just connect a new device. You do not need to click [Connect] button. The device is automatically connected when the cable is inserted. Click [Disconnect] to terminate the communication with the device.

3. DEVICE INFO - DEVICE INFORMATION

When the PC starts to communicate with the device, the [Device Configuration] shows present I/O data and status, model number and other information.



ITEM	EXPLANATIONS		
Input value	Current input value is indicated in engineering unit and in percentage.		
Input scaling value V M S DY	Current input scaling value is indicated.		
Status	Current device status shown below is indicated: (When multiple status displays occur at the same time, the highest priority status is displayed.)		
	Display	Priority	Status
	Fixed Out	1	I/O is fixed with the M2EACFG operation. (The fixed I/O with the front button control of the device is not indicated here.) (Device display: none)
	Alarm	2	An alarm is provided.
	Unlock	3	Settings are being changed with the front buttons of the connected device. (When the device is in this state, settings cannot be changed with the M2EACFG. The checkmark of the [Editing] box will be automatically disabled.) (Device display: Unlock)
	Normal	4	The device is operating normally. (Device display: Lock)
Error	Present errors of the device are shown. Device errors shown below are indicated: (When multiple errors occur at the same time, the highest priority error is displayed.)		
	Error Message	Priority	Error Meaning
	BURNOUT ERROR D T R	1	Input wires broken (output downward)
	BURNOUT ERROR U T R	1	Input wires broken (output upward)
	OVER RANGE D	2	Input value is less than -5% (for DY, less than -7.5%).
	OVER RANGE U	2	Input value exceeds 105% (for DY, exceeds 107.5%).
	SCALING ERROR D V M S DY	3	Calculated result of input scaling value is less than -99999.
	SCALING ERROR U V M S DY	3	Calculated result of input scaling value exceeds 999999.
	None	4	No error
CJM temperature T	Shows the temperature measured with the Cold Junction Compensation Sensor (CJM) of the device. Or shows the set temperature in using the fixed terminal temperature without using the CJM.		
Input EMF value T	Shows the electromotive force of the thermocouple connected to the device.		
RTD resistance R	Show the resistance value of the RTD connected to the device.		
Model	Model number of the device Note: Ex-factory model number is indicated. Actual model suffix codes may differ if the I/O has been changed at site.		
Version indication	Firmware revision number of the device		

4. SETTING PARAMETERS

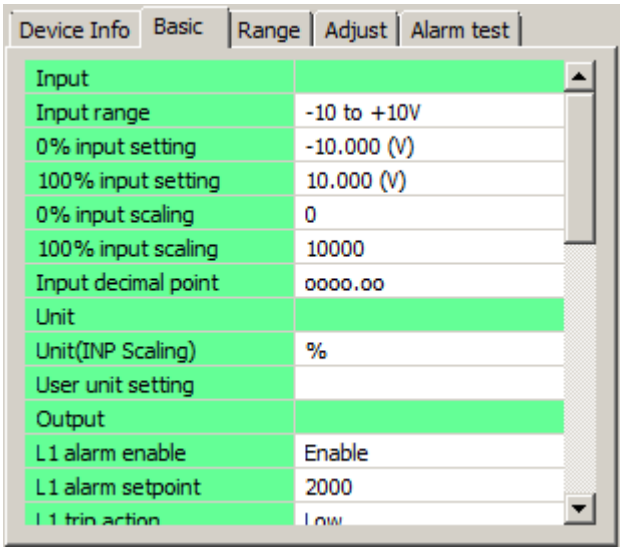
To set parameters, [Device Configuration] to edit the basic settings in real time such like input range and scaling of the device, and [File Configuration] to edit all setting parameters regardless of the communication with the device are available.

4-1. PARAMETER SETTING IN [DEVICE CONFIGURATION]

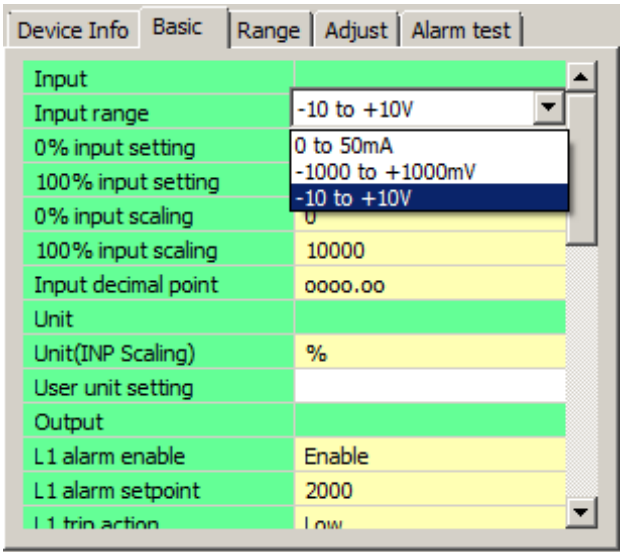
The [Device Configuration] includes [Basic] to modify each setting value and [Range] to set the 0% and 100% input using actual input signals.

4-1-1. BASIC - BASIC SETTING

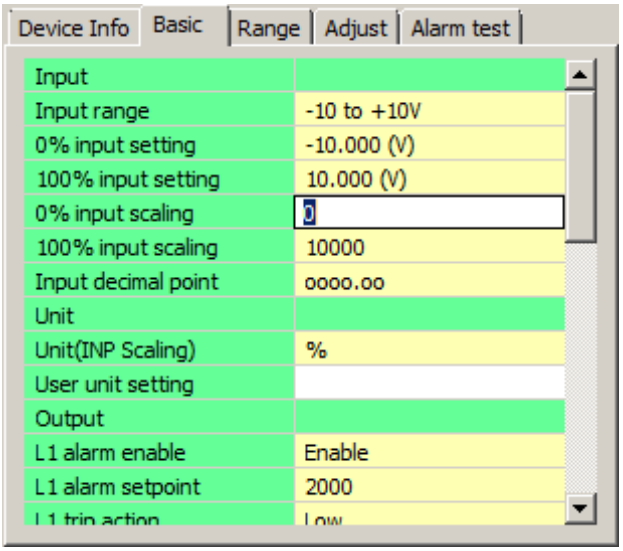
Parameters in the [Basic] tab can be edited. The parameter items on the screen depend upon models.



Check the [Editing] box, and the modifiable parameters will be highlighted in the light yellow background. Click such a parameter field to show a pull-down list or an edit box to modify the value. Modifications are reflected in the device immediately.



Pull-down menu: For example, click the [Input range] field. When a pull-down menu is displayed as shown below, select your desired range.

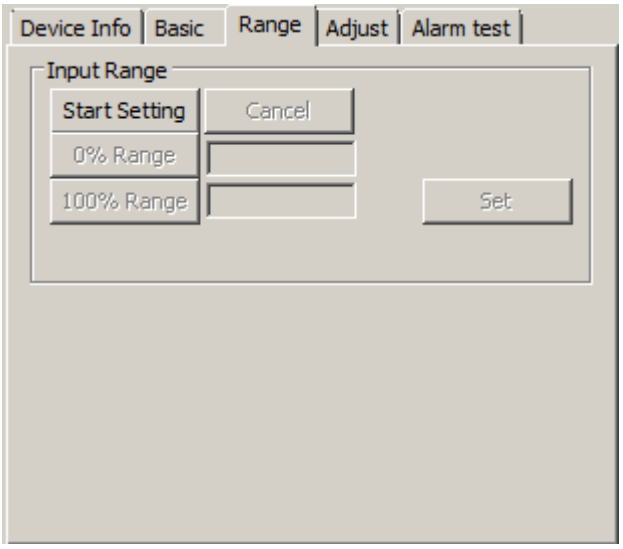


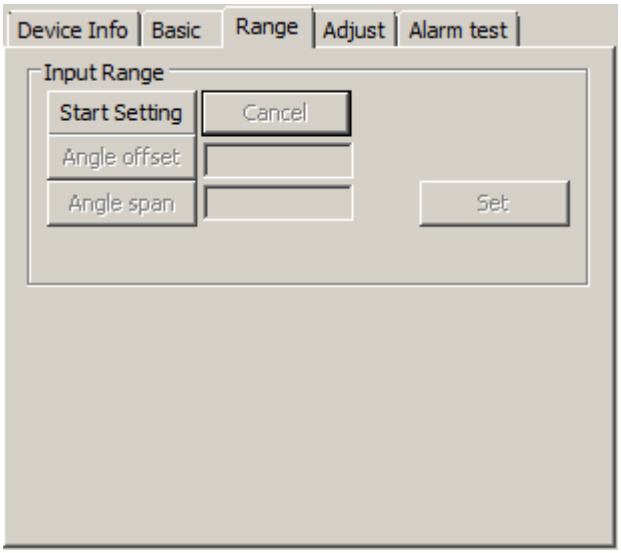
Edit box: For example, click the [0% input scaling] field. When an edit box is displayed as shown below, enter your desired value and press Enter key.

Model specific setting parameter items and ranges are explained in “8. PARAMETER DETAILS” on page 25.

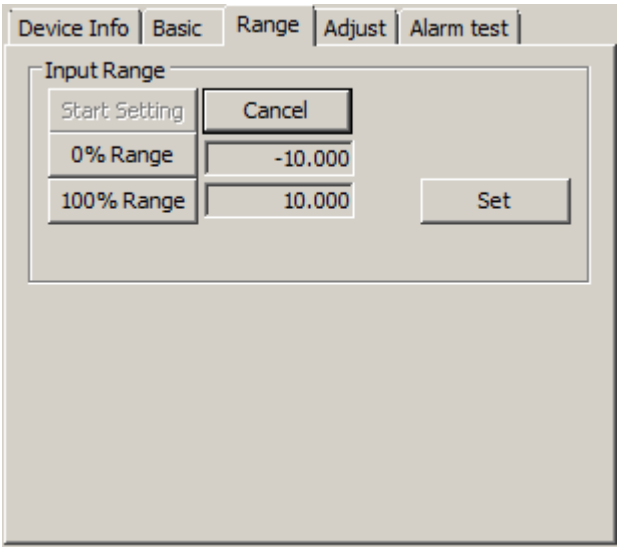
4-1-2. RANGE - RANGE SETTING

[0% input setting] and [100% input setting] can be performed using the actual input signals in the [Range] tab.
(For S [Angle offset], [Angle span])

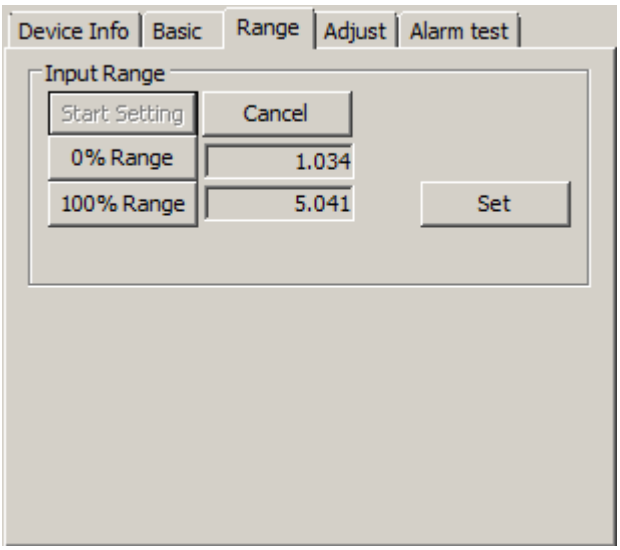




4-1-2-1. M2EAXV



1) Click [Start Setting] button in the [Input Range] to move on to the mode where [0% input setting] and [100% input setting] can be set with the actual input. [0% Range], [100% Range], [Set], and [Cancel] buttons are enabled as shown left.



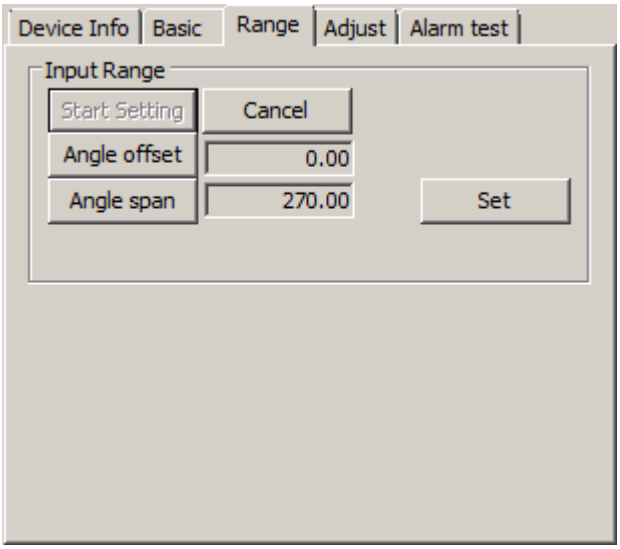
2) Apply desired 0% input value to the device and click [0% Range] button. Then apply desired 100% input value and click [100% Range] button. Each input in the engineering unit is indicated next to each button. For example, input 1 V and click [0% Range] button, then input 5 V and click [100% Range] button. The screen will be as shown left.

Click [Set] button, and the indicated values will be set to [0% input setting] and [100% input setting] in the [Basic] tab.

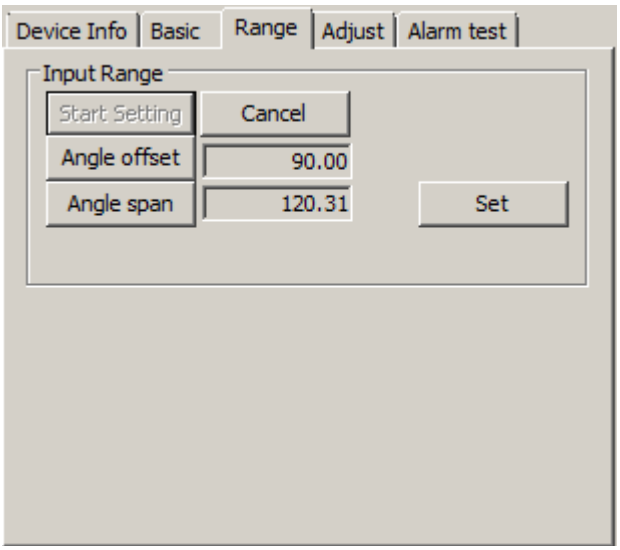
Click [Cancel] button to cancel the range setting mode and discard the set values.

The same procedure is available for M, T, R, DY.

4-1-2-2. M2EAXS



1) Click [Start Setting] button in the [Input Range] to move on to the mode where [Angle offset] and [Angle span] can be set with the actual input. [Angle offset], [Angle span], [Set], and [Cancel] buttons are enabled as shown left.



2) Apply desired 0% input value to the device and click [Angle offset] button. Then apply desired 100% input value and click [Angle span] button. Angle offset value and angle span value are indicated next to each button. For example, input 90° and click [Angle offset] button, then input 210° and click [Angle span] button. The screen will be as shown left.

Click [Set] button, and the indicated values will be set to [Angle offset] and [Angle span] in the [Basic] tab.

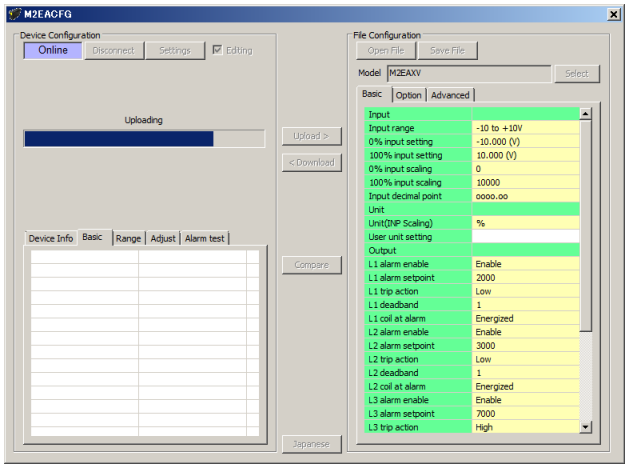
Click [Cancel] button to cancel the range setting mode and discard the set values.

4-2. PARAMETER SETTING IN [FILE CONFIGURATION]

All setting parameters can be edited in the [File Configuration] frame. Read parameters from the device (upload), edit them, and then write them to the device (download). You can also save settings in a file, read, write, and edit a file without connecting to the device. To save and read files, refer to “7. READING / SAVING FILES” on page 24.

4-2-1. UPLOAD

Click [Upload] while the PC communicates with the device. The M2EACFG starts reading parameters stored in the connected device. A progress bar [Uploading] is indicated on the screen until the uploading is complete.

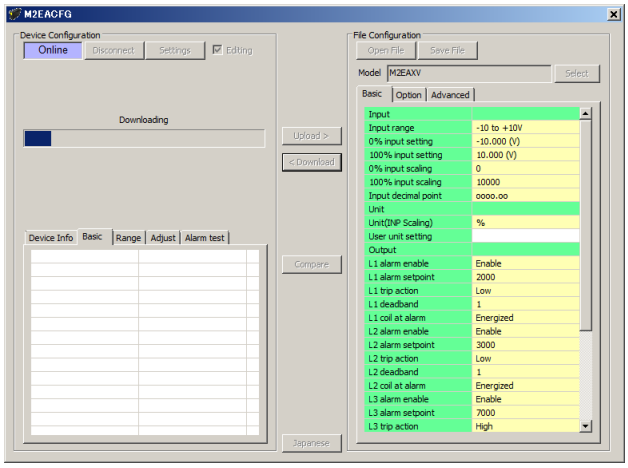


When the uploading is complete, the parameters are shown within the [File Configuration] frame and can be edited.

Caution! DO NOT turn off the power supply to the device or disconnect the configurator cable while uploading.

4-2-2. DOWNLOAD

When you finish editing parameters, click [Download] while the PC communicates with the device. The M2EACFG starts writing parameters edited on the screen to the connected device. A progress bar [Downloading] is indicated on the screen until the downloading is complete.



When the downloading is complete, the setting parameters edited in the [File Configuration] frame are written into the device.

Caution! DO NOT turn off the power supply to the device or disconnect the configurator cable while downloading.

4-2-3. EDIT

Click a value field, and a pull-down menu or an edit box will be displayed. Select or enter your desired value. The procedure is the same as that described in “4-1-1. BASIC - BASIC SETTING” on page 9.
When you finish editing parameters, write them to the device in order to reflect them immediately in the same procedure as that described in “4-1-1. BASIC - BASIC SETTING” on page 9. To save them in a file, refer to “7-2. SAVING PARAMETERS IN A FILE” on page 24.

Model specific setting parameter items and ranges are explained in “8. PARAMETER DETAILS” on page 25.

4-3. COMPARING SETTING VALUES IN THE DEVICE

Setting parameters presently edited on the screen (file setting) and those stored in the connected device (device setting) can be compared side by side. Edited parameters can be compared with those in a file if you open it in advance with [Open File] button, or with those of another device if you upload in advance with [Upload] button.

Clicking [Compare] button starts reading setting parameters from the connected device.

The parameters are compared and listed on the screen side by side in order of the items in [Basic], [Option] and [Advanced] and [Linearizer] tabs.

The rows showing differences between [Device Configuration] and [File Configuration] are highlighted in the red background. The total number of non-matching parameters is mentioned at the bottom.

Caution! DO NOT turn off the power supply to the device or disconnect the configurator cable while comparing.

4-4. HOW TO SETUP I/O (EXAMPLE)

General configurations that can be performed using the M2EACFG are described using examples.

4-4-1. CONNECTING TO THE DEVICE

Start up the M2EACFG. Click [Settings] button and choose or confirm the COM port to which the device is connected and click [Connect].
The PC starts to communicate with the device. Present parameter setting is uploaded and displayed under the [Device Configuration] on the screen. Check the [Editing] box so that you can now change the parameters in the [Device Configuration] frame.

Note 1: The connected device needs to be in Lock state since the [Editing] box cannot be checked if the connected device is in Unlock state.
Note 2: Disable Fixed I/O since the [Editing] box cannot be checked during an alarm test (fixed I/O).
Note 3: It is not necessary to check the [Editing] box to edit the parameters in the [File Configuration] frame. Click [Upload] to read the parameters from the device.

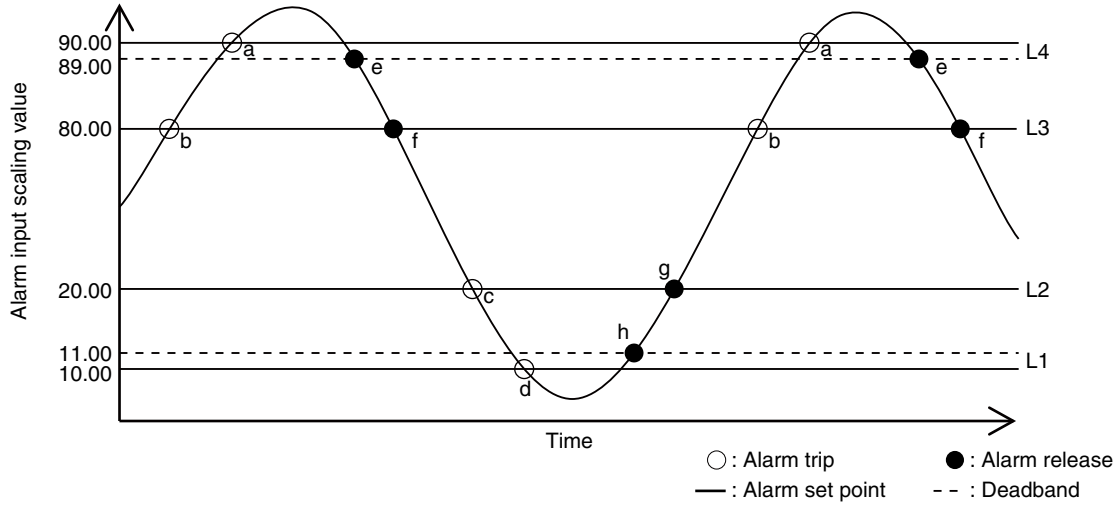
4-4-2. BASIC CONFIGURATION EXAMPLES

Basic configuration examples per model are described here. The edited parameters are reflected in the device immediately.

Note: The edited parameters in the [File Configuration] frame are not reflected in the device in real time. Click [Download] button to write them to the device.

4-4-2-1. M2EAXV

The procedure to configure the I/O of the M2EAXV-2 (N.O.) to the following specifications is described here:
Input: 4 to 20 mA DC scaled to 0 to 100.00
Output L1 alarm: ON with the input scaling value being 10.00 or less, and OFF with exceeding 11.00 (Dead band 1.00)
L2 alarm: ON with the input scaling value being 20.00 or less, and OFF with exceeding 20.00
L3 alarm: ON with the input scaling value being 80.00 or more, and OFF with less than 80.00
L4 alarm: ON with the input scaling value being 90.00 or more, and OFF with less than 89.00 (Dead band 1.00)
(ON: Connected, OFF: Not connected)



a: Input scaling value not lower than 90.00
b: Input scaling value not lower than 80.00
c: Input scaling value not higher than 20.00
d: Input scaling value not higher than 10.00
e: Input scaling value not higher than 88.99
f: Input scaling value not higher than 79.99
g: Input scaling value not lower than 20.01
h: Input scaling value not lower than 11.01

1) Input

Set [Input range] according to the specification of input signal.

• [Input range]

0 – 50 mA
-1000 – +1000 mV
-10 – +10 V

For 4 – 20 mA DC input, choose the input type “0 – 50 mA”.

When [Input range] is selected, [0% input setting] and [100% input setting] are automatically set to the initial values of the selected [Input range]. Set them to your desired values.

Set [0% input setting] and [100% input setting] within the selected [Input range].

Set [0% input setting] to 4.00 and [100% input setting] to 20.00 for 4 – 20 mA DC.

Set [0% input scaling] to 0, [100% input scaling] to 10000 and [Input decimal point] to oooo.oo.

2) Output

Set [L1 alarm enable] to enable, [L1 alarm setpoint] to 1000, [L1 trip action] to low, [L1 deadband] to 100 and [L1 coil at alarm] to energized.

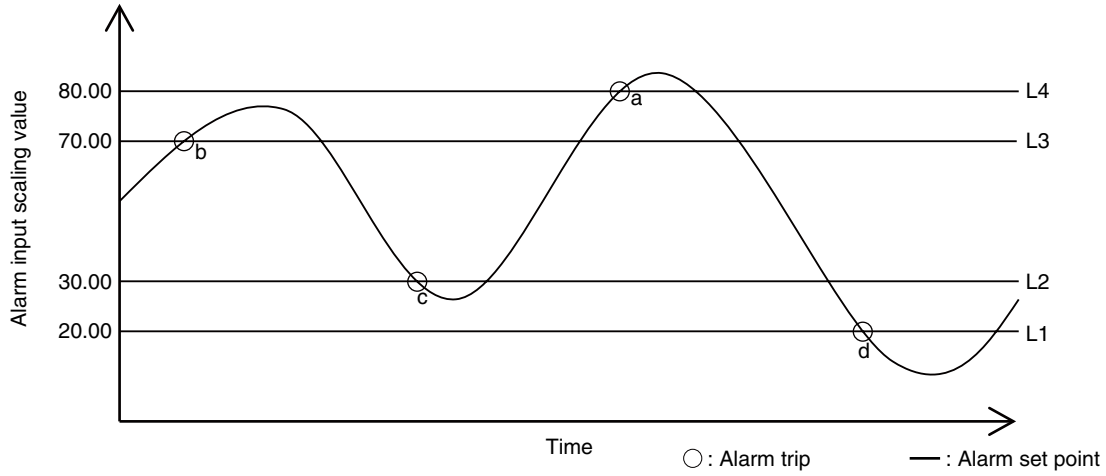
Set [L2 alarm enable] to enable, [L2 alarm setpoint] to 2000, [L2 trip action] to low, [L2 deadband] to 0 and [L2 coil at alarm] to energized.

Set [L3 alarm enable] to enable, [L3 alarm setpoint] to 8000, [L3 trip action] to high, [L3 deadband] to 0 and [L3 coil at alarm] to energized.

Set [L4 alarm enable] to enable, [L4 alarm setpoint] to 9000, [L4 trip action] to high, [L4 deadband] to 100 and [L4 coil at alarm] to energized.

4-4-2-2. M2EAXM

The procedure to configure the I/O of the M2EAXM-3 (N.C.) to the following specifications is described here:
Input: 100 to 600 Ω scaled to 0.00 to 100.00
Output: L1 alarm: ON with the input scaling value being 20.00 or less, and return to ON continue with exceeding 20.00
L2 alarm: ON with the input scaling value being 30.00 or less, and return to ON continue with exceeding 30.00
L3 alarm: ON with the input scaling value being 70.00 or more, and return to ON continue with less than 70.00
L4 alarm: ON with the input scaling value being 80.00 or more, and return to ON continue with less than 80.00
(ON: Connected, OFF: Not connected)



a: Input scaling value not lower than 80.00
b: Input scaling value not lower than 70.00
c: Input scaling value not higher than 30.00
d: Input scaling value not higher than 20.00

1) Input

Set [0% input setting] to 100 and [100% input setting] to 600.

Set [0% input scaling] to 0, [100% input scaling] to 10000 and [Input decimal point] to oooo.oo.

2) Output

Set [L1 alarm enable] to enable, [L1 alarm setpoint] to 2000, [L1 trip action] to low, and [L1 coil at alarm] to de-energized.

Set [L2 alarm enable] to enable, [L2 alarm setpoint] to 3000, [L2 trip action] to low, and [L2 coil at alarm] to de-energized.

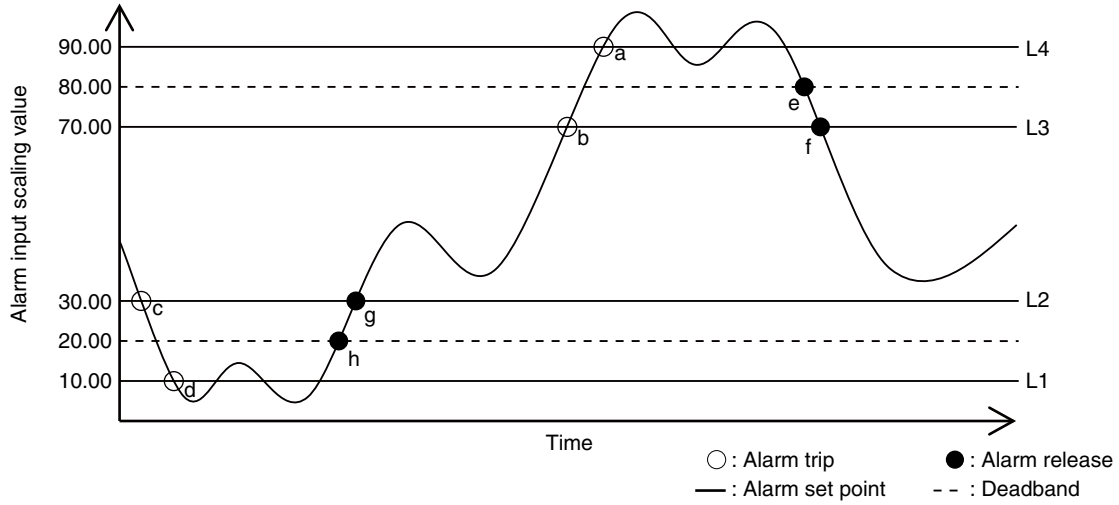
Set [L3 alarm enable] to enable, [L3 alarm setpoint] to 7000, [L3 trip action] to high, and [L3 coil at alarm] to de-energized.

Set [L4 alarm enable] to enable, [L4 alarm setpoint] to 8000, [L4 trip action] to high, and [L4 coil at alarm] to de-energized.

Set [Latching alarm] to enable.

4-4-2-3. M2EAXS

The procedure to configure the I/O of the M2EAXS-2 (N.O.) to the following specifications is described here:
Input: 60° to 260°
Output L1 alarm: ON with the input scaling value being 10.00 or less, and OFF with exceeding 20.00 (Deadband 10.00)
L2 alarm: ON with the input scaling value being 30.00 or less, and OFF with exceeding 30.00
L3 alarm: ON with the input scaling value being 70.00 or more, and OFF with less than 70.00
L4 alarm: ON with the input scaling value being 90.00 or more, and OFF with less than 80.00 (Deadband 10.00)
(ON: Connected, OFF: Not connected)



a: Input scaling value not lower than 90.00
b: Input scaling value not lower than 70.00
c: Input scaling value not higher than 30.00
d: Input scaling value not higher than 10.00
e: Input scaling value not higher than 79.99
f: Input scaling value not higher than 69.99
g: Input scaling value not lower than 30.01
h: Input scaling value not lower than 20.01

1) Input

Set [Angle offset] to 60.00 and [Angle span] to 200.00.

Set [0% input scaling] to 0, [100% input scaling] to 10000 and [Input decimal point] to oooo.oo.

2) Output

Set [L1 alarm enable] to enable, [L1 alarm setpoint] to 1000, [L1 trip action] to low, [L1 deadband] to 1000 and [L1 coil at alarm] to energized.

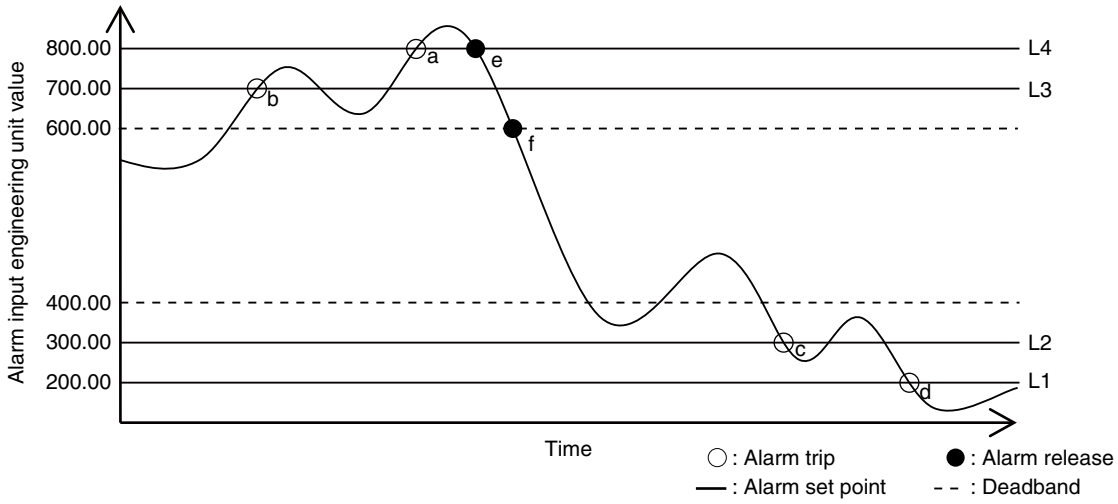
Set [L2 alarm enable] to enable, [L2 alarm setpoint] to 3000, [L2 trip action] to low, [L2 deadband] to 0 and [L2 coil at alarm] to energized.

Set [L3 alarm enable] to enable, [L3 alarm setpoint] to 7000, [L3 trip action] to high, [L3 deadband] to 0 and [L3 coil at alarm] to energized.

Set [L4 alarm enable] to enable, [L4 alarm setpoint] to 9000, [L4 trip action] to high, [L4 deadband] to 1000 and [L4 coil at alarm] to energized.

4-4-2-4. M2EAXT

The procedure to configure the I/O of the M2EAXT-3 (N.C.) to the following specifications is described here:
Input: K (CA) 0.00 to 1000.00°C
Output L1 alarm: ON with the input engineering unit value being 200.00°C or less, and OFF with exceeding 200.00°C
L2 alarm: ON with the input engineering unit value being 300.00°C or less, and OFF with exceeding 400.00°C (Deadband 100.00°C)
L3 alarm: ON with the input engineering unit value being 700.00°C or more, and OFF with less than 600.00°C (Deadband 100.00°C)
L4 alarm: ON with the input engineering unit value being 800.00°C or more, and OFF with less than 800.00°C (ON: Connected, OFF: Not connected)



a: Input engineering unit value not lower than 800.00°C
b: Input engineering unit value not lower than 700.00°C
c: Input engineering unit value not higher than 300.00°C
d: Input engineering unit value not higher than 200.00°C
e: Input engineering unit value not higher than 799.99°C
f: Input engineering unit value not higher than 599.99°C

1) Input

Set [Temperature Unit]

• [Temperature Unit]

deg C
deg F
K

Select [deg C].

Set [Input Range] for type of input signal.

• [Input Range]

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

Select [K (CA)].

When [Input Range] is selected, [0% input setting] and [100% input setting] is set to initial value of selected [Input Range]. Set the value for use.
Set [0% input setting] and [100% input setting] within the range of selected [Input Range].

For 0.00 to 1000.00°C, set [0% input setting] to 0.00, [100% input setting] to 1000.00 and [Input decimal point] to oooo.oo.

2) Output

Set [L1 alarm enable] to enable, [L1 alarm setpoint] to 200.00, [L1 trip action] to low, [L1 deadband] to 0.00 and [L1 coil at alarm] to energized.

Set [L2 alarm enable] to enable, [L2 alarm setpoint] to 300.00, [L2 trip action] to low, [L2 deadband] to 100.00 and [L2 coil at alarm] to energized.

Set [L3 alarm enable] to enable, [L3 alarm setpoint] to 700.00, [L3 trip action] to high, [L3 deadband] to 100.00 and [L3 coil at alarm] to energized.

Set [L4 alarm enable] to enable, [L4 alarm setpoint] to 800.00, [L4 trip action] to high, [L4 deadband] to 0.00 and [L4 coil at alarm] to energized.

4-4-2-5. M2EAXR

The procedure to configure the I/O of the M2EAXR-2 (N.O.) to the following specifications is described here:

Input: Pt 100 (JIS '97, IEC) 0 to 100°C

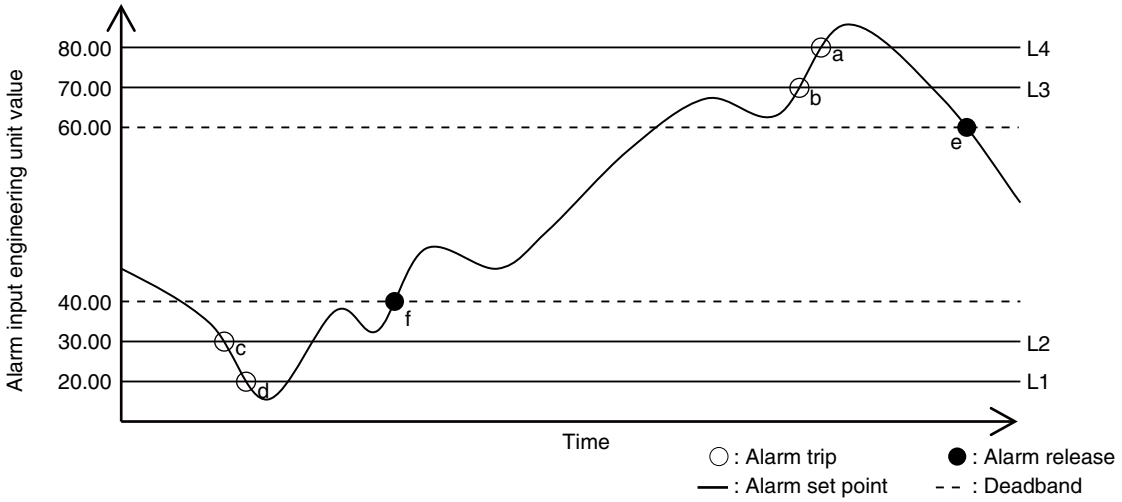
Output L1 alarm: ON with the input engineering unit value being 20.00°C or less, and OFF with exceeding 40.00°C (Deadband 20.00°C)

L2 alarm: ON with the input engineering unit value being 30.00°C or less, and OFF with exceeding 40.00°C (Deadband 10.00°C)

L3 alarm: ON with the input engineering unit value being 70.00°C or more, and OFF with less than 60.00°C (Deadband 10.00°C)

L4 alarm: ON with the input engineering unit value being 80.00°C or more, and OFF with less than 60.00°C (Deadband 20.00°C)

(ON: Connected, OFF: Not connected)



a: Input engineering unit value not lower than 80.00°C
b: Input engineering unit value not lower than 70.00°C
c: Input engineering unit value not higher than 30.00°C
d: Input engineering unit value not higher than 20.00°C
e: Input engineering unit value not higher than 59.99°C
f: Input engineering unit value not lower than 40.01°C

1) Input

Set [Temperature Unit]

• [Temperature Unit]

deg C
deg F
K

Select [deg C].

Set [Input Range] for type of input signal.

• [Input Range]

JPt 100 (JIS '89)
Pt 100 (JIS '89)
Pt 100 (JIS '97, IEC)
Pt 50 Ω (JIS '81)
Ni 508.4 Ω
Pt 1000
Ni 100
Cu 10 (25 deg C)

Select [JIS '97, IEC].

When [Input Range] is selected, [0% input setting] and [100% input setting] is set to initial value of selected [Input Range]. Set the value for use.
Set [0% input setting] and [100% input setting] within the range of selected [Input Range].

For 0.00 to 100.00°C, set [0% input setting] to 0.00, [100% input setting] to 100.00 and [Input decimal point] to ooo.oo.

2) Output

Set [L1 alarm enable] to enable, [L1 alarm setpoint] to 20.00, [L1 trip action] to low, [L1 deadband] to 20.00 and [L1 coil at alarm] to energized.

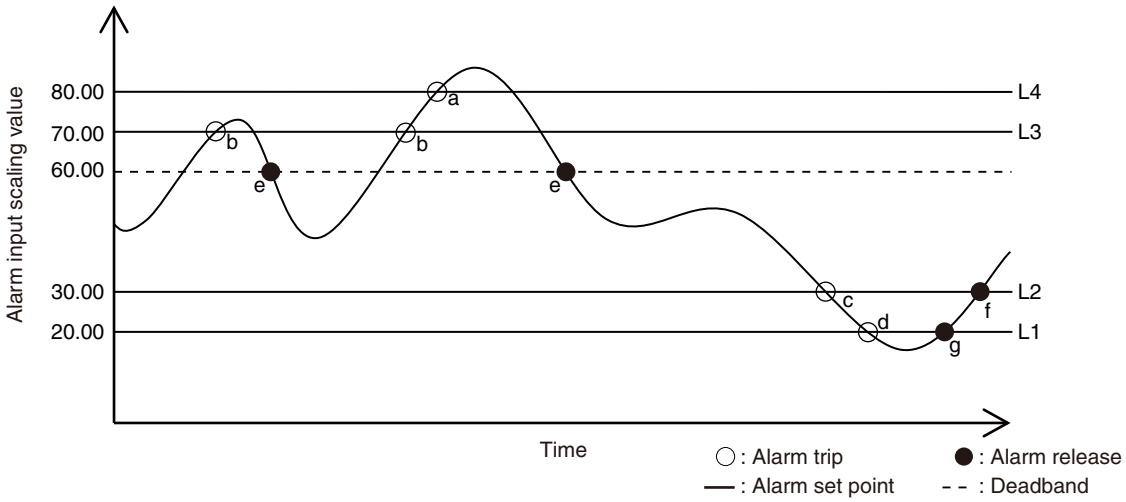
Set [L2 alarm enable] to enable, [L2 alarm setpoint] to 30.00, [L2 trip action] to low, [L2 deadband] to 10.00 and [L2 coil at alarm] to energized.

Set [L3 alarm enable] to enable, [L3 alarm setpoint] to 70.00, [L3 trip action] to high, [L3 deadband] to 10.00 and [L3 coil at alarm] to energized.

Set [L4 alarm enable] to enable, [L4 alarm setpoint] to 80.00, [L4 trip action] to high, [L4 deadband] to 20.00 and [L4 coil at alarm] to energized.

4-4-2-6. M2EAXDY

The procedure to configure the I/O of the M2EAXDY-3 (N.C.) to the following specifications is described here:
Input: 4.00 – 20.00 mA scaled to 0.00 – 100.00
Output L1 alarm: OFF with the input scaling value being 20.00 or less, and ON with exceeding 20.00
L2 alarm: OFF with the input scaling value being 30.00 or less, and ON with exceeding 30.00
L3 alarm: OFF with the input scaling value being 70.00 or more, and ON with less than 60.00 (Dead band 10.00)
L4 alarm: OFF with the input scaling value being 80.00 or more, and ON with less than 60.00 (Dead band 20.00)
(ON: connected, OFF: Not connected)



a: Input scaling value not lower than 80.00
b: Input scaling value not lower than 70.00
c: Input scaling value not higher than 30.00
d: Input scaling value not higher than 20.00
e: Input scaling value not higher than 59.99
f: Input scaling value not lower than 30.01
g: Input scaling value not lower than 20.01

1) Input

Set [0% input setting] to 4.00 and [100% input setting] to 20.00.
Set [0% input scaling] to 0, [100% input scaling] to 10000 and [Input decimal point] to oooo.oo.

2) Output

Set [L1 alarm enable] to enable, [L1 alarm setpoint] to 2000, [L1 trip action] to low, [L1 deadband] to 0 and [L1 coil at alarm] to energized.

Set [L2 alarm enable] to enable, [L2 alarm setpoint] to 3000, [L2 trip action] to low, [L2 deadband] to 0 and [L2 coil at alarm] to energized.

Set [L3 alarm enable] to enable, [L3 alarm setpoint] to 7000, [L3 trip action] to high, [L3 deadband] to 1000 and [L3 coil at alarm] to energized.

Set [L4 alarm enable] to enable, [L4 alarm setpoint] to 8000, [L4 trip action] to high, [L4 deadband] to 2000 and [L4 coil at alarm] to energized.

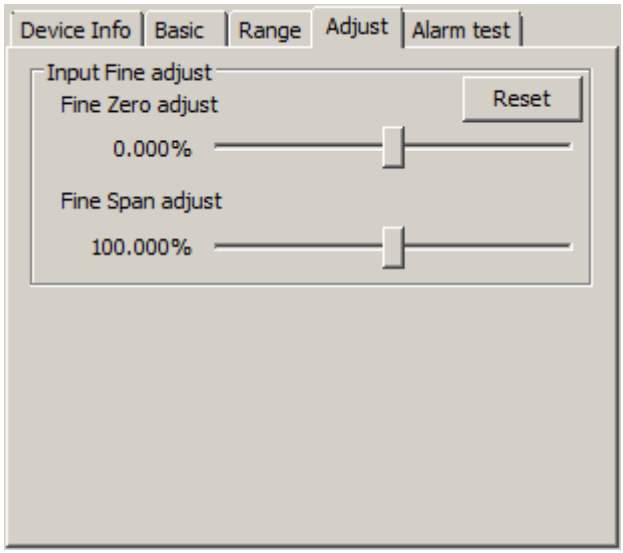
4-4-3. OTHER SETTINGS

Edit other setting parameters in the [File Configuration]. Read the parameters with [Upload] from the device, edit them, and write them to the device with [Download].

Model specific setting parameter items and ranges are explained in “8. PARAMETER DETAILS” on page 25.

5. ADJUST - FINE ADJUSTMENTS

Input fine adjustments can be conducted. Fine Zero adjust is the offset adjustment, while Fine Span adjust is the gain adjustment. Drag each slider left or right to adjust. Click either side of the sliders or use arrow keys to apply minimum step adjustments.



Perform Input Fine Adjustment while monitoring the input indicated on the display of the device or in the upper part in the [Device Configuration] frame of the M2EACFG.

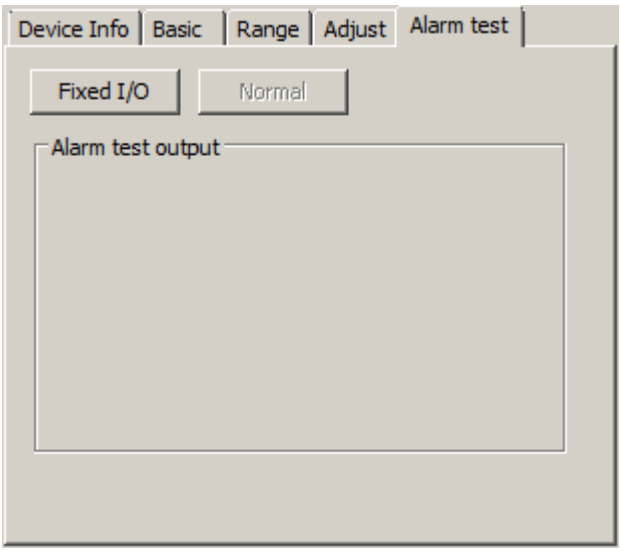
1) Apply the value you want to set to input value 0%.
2) Adjust the sliding potentiometer until the monitored input signal shows 0% input.
3) Apply the value you want to set to input value 100%.
4) Adjust the sliding potentiometer until the monitored input signal shows 100% input.

To reset the Input Fine Adjustments to the ex-factory state, click [Reset] button.

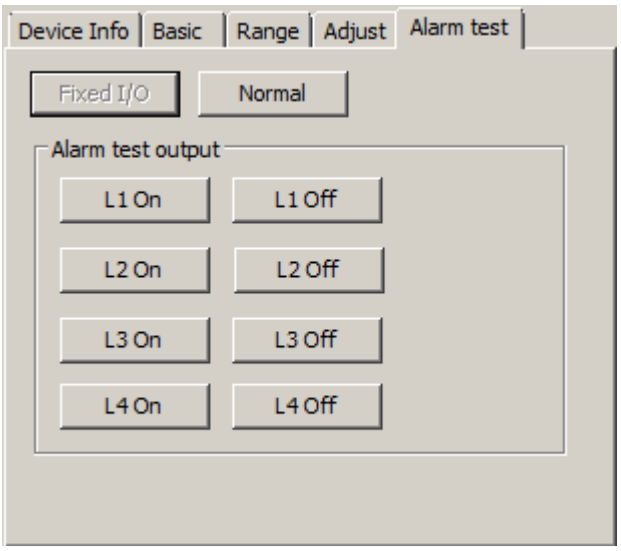
Note: The Input Fine Adjustments are not available for S.

6. ALARM TEST

(This is available only when [Editing] box is unchecked)
The device output signal can be simulated without actual input signals to conduct an alarm test.



1) Click [Fixed I/O] button. The output signal is fixed according to present input, and even when the input varies, the output remains fixed. Now you can turn the output on and off manually as shown left.



2) Click [L1 On] to [L4 On], or [L1 Off] to [L4 Off] button, and the corresponding output will be provided.

3) Click [Normal] button to cancel the alarm test mode.

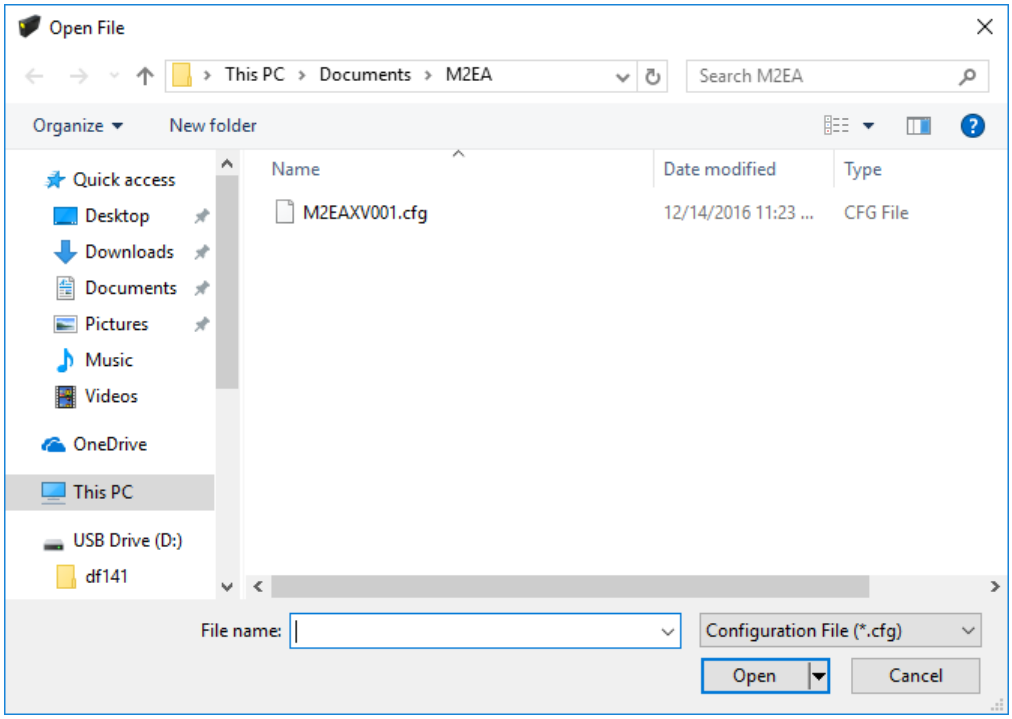
Note 1: If the communication or the configurator cable is disconnected from the connected device during Fixed I/O, the device Fixed I/O will be disabled after a certain time.
Note 2: The [Editing] box cannot be checked during Fixed I/O.
Note 3: DO NOT perform the alarm test with the M2EACFG and the front button operation of the device at the same time.

7. READING / SAVING FILES

The setting parameters edited in the [File Configuration] can be saved as a file. You can write the same settings to other devices easily.

7-1. READING SETTING PARAMETERS SAVED AS FILE

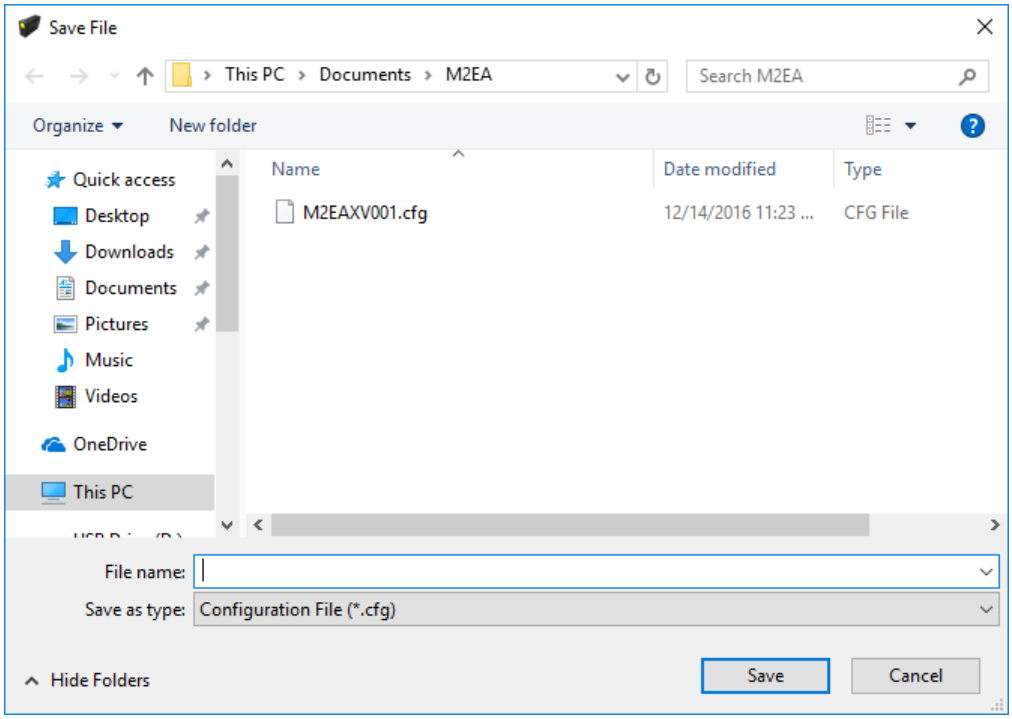
Clicking [Open File] calls up the Windows-standard Open File dialog box.



Select a parameter file to show a stored parameter setting in the [File Configuration] frame.
In order to download the parameters to the connected device, click [Download] button.

7-2. SAVING PARAMETERS IN A FILE

Clicking [Save File] calls up the Windows-standard Save File dialog box.



Enter a desired file name to File Name field and click [Save] to store the parameter setting in the [File Configuration] frame.
Note: Do not overwrite the saved files with a text editor, otherwise errors may occur in reading.

8. PARAMETER DETAILS

8-1. PARAMETER LIST

Supported parameters depend upon model types as shown in the following table.

		M2EAXV	M2EAXM	M2EAXS	M2EAXT	M2EAXR	M2EAXDY	PAGE
Basic setting	Temperature Unit				✓	✓		26
	Input range	✓			✓	✓		26
	0% input setting / 100% input setting	✓	✓		✓	✓	✓	27
	Angle offset / Angle span			✓				27
	Input rotation direction			✓				27
	0% input scaling / 100% input scaling	✓	✓	✓			✓	27
	Input scaling decimal point	✓	✓	✓			✓	27
	Input decimal point				✓	✓		27
	Low cut						✓	28
	Low cut point						✓	28
	Unit (INP Scaling)	✓	✓	✓			✓	28
	User unit setting	✓	✓	✓			✓	28
	L1 – L4 alarm enable	✓	✓	✓	✓	✓	✓	28
	L1 – L4 alarm setpoint	✓	✓	✓	✓	✓	✓	28
	L1 – L4 trip action	✓	✓	✓	✓	✓	✓	28
	L1 – L4 deadband	✓	✓	✓	✓	✓	✓	29
	L1 – L4 coil at alarm	✓	✓	✓	✓	✓	✓	29
	Alarm ON-delay time	✓	✓	✓	✓	✓	✓	29
	Power ON-delay time	✓	✓	✓	✓	✓	✓	29
	Latching alarm	✓	✓	✓	✓	✓	✓	29
Option	Burnout				✓	✓		29
	Cold junction compensation				✓			30
	Preset fixed terminal temperature				✓			30
	Sensor wires					✓		30
	Wire resistance					✓		30
	Filter time constant	✓	✓	✓	✓	✓	✓	30
	Input Zero fine adjust / Input Span fine adjust	✓	✓		✓	✓	✓	30
Advance	Upper display setting	✓	✓	✓	✓	✓	✓	30
	Lower display setting	✓	✓	✓	✓	✓	✓	31
	Brightness	✓	✓	✓	✓	✓	✓	31
	Display timeout	✓	✓	✓	✓	✓	✓	31
Linearizer	Linearization						✓	31
	Number of point						✓	32
	Table						✓	32

8-2. BASIC - BASIC SETTING

8-2-1. TEMPERATURE UNIT T R

Set temperature unit for [0% input value], [100% input value], [L1 – L4 alarm setpoint], [L1 – L4 deadband], [preset fixed terminal temperature], [input zero fine adjust] and [input span fine adjust]. Choose temperature unit among below.

deg C
deg F
K

'deg C' represents Celsius' temperature (°C), 'deg F" represents Fahrenheit temperature (°F).

Note 1: When temperature unit is changed, [0% input value], [100% input value], [L1 – L4 alarm setpoint], [L1 – L4 deadband], [preset fixed terminal temperature] (only for T) and [wire resistance](only for R) are returned to initial value.

8-2-2. INPUT RANGE V T R

Select input range of the device from the following table:

SYMBOL	INPUT RANGE	MODEL
V	0 – 50 mA -1000 – +1000 mV -10 – +10 V	M2EAXV
T	(PR) K (CA) E (CRC) J (IC) T (CC) B (RH) R S C (WRe 5-26) N U L P (Platinel II)	M2EAXT
R	JPt 100 (JIS '89) Pt 100 (JIS '89) Pt 100 (JIS '97, IEC) Pt 50 Ω (JIS '81) Ni 508.4 Ω Pt 1000 Ni 100 Cu 10 (25 deg C)	M2EAXR

Note 2: For V , when [Input range] is changed, [0% input setting] and [100% input setting] are returned to initial value. For T, R, after setting, [0% input setting], [100% input setting], [L1 – L4 alarm setpoint], [L1 – L4 deadband], [preset fixed terminal temperature] (only for T), [wire resistance](only for R) are returned to initial value.

Note 3: For V , when [Input range] is changed, turn the power off, and change the wiring to the input terminals of the device.

8-2-3. 0% INPUT SETTING / 100% INPUT SETTING V M T R DY

0% and 100% input signals can be configured within the setting range. For example, when the input signal is 1 – 5 V DC with the [Input range] -10 – +10 V, set [0% input setting] to 1.000 and [100% input setting] to 5.000. 1.000 to 5.000 V input will be scaled to 0% to 100%.

SYMBOL	INPUT	SETTING RANGE	MIN. SPAN
V	0 – 50 mA	0.00 – 50.00	2.00
	-1000 – +1000 mV	-1000.0 – 1000.0	100.0
	-10 – +10 V	-10.000 – 10.000	1.000
M	–	0 – 10000	500
T	(PR)	0.0 – 1760.00 (°C)	20.00 (°C)
	K (CA)	-270.00 – +1370.00 (°C)	
	E (CRC)	-270.00 – +1000.00 (°C)	
	J (IC)	-210.00 – +1200.00 (°C)	
	T (CC)	-270.00 – +400.00 (°C)	
	B (RH)	0.00 – 1820.00 (°C)	
	R	-50.00 – +1760.00 (°C)	
	S	-50.00 – +1760.00 (°C)	
	C (WRe 5-26)	0.00 – +2315.00 (°C)	
	N	-270.00 – +1300.00 (°C)	
	U	-200.00 – +600.00 (°C)	
	L	-200.00 – +900.00 (°C)	
	P (Platinel II)	0.00 – 1395.00 (°C)	
R	JPt 100 (JIS '89)	-200.00 – +500.00 (°C)	20.00 (°C)
	Pt 100 (JIS '89)	-200.00 – +650.00 (°C)	
	Pt 100 (JIS '97, IEC)	-200.00 – +850.00 (°C)	
	Pt 50 Ω (JIS '81)	-200.00 – +649.00 (°C)	
	Ni 508.4 Ω	-50.00 – +200.00 (°C)	
	Pt 1000	-200.00 – +850.00 (°C)	
	Ni 100	-50.00 – +200.00 (°C)	
	Cu 10 (25 deg C)	-50.00 – +250.00 (°C)	
DY	–	0.00 – 20.00	1.00

8-2-4. ANGLE OFFSET / ANGLE SPAN S

Angle offset and angle span of input signals can be configured.
For example, when you set [Angle offset] to 50.00, [Angle span] to 100.00, 50.00 to 150.00° of input is converted to 0 to 100%.

	SETTING RANGE
Angle offset	0.00 – 359.99°
Angle span	60.00 – 359.99°

8-2-5. INPUT ROTATION DIRECTION S

Choose rotation direction of your Self-Synch from below.

CW
CCW

8-2-6. 0% INPUT SCALING / 100% INPUT SCALING V M S DY

Scaling values for [0% input setting] and [100% input setting] can be configured.
For example of V, when you set [0% input setting] to -10.000, [100% input setting] to 10.000, [0% input scaling] to 0 and [100% input scaling] to 10000, -10 to +10 V input will be scaled to 0 to 10000 and shown on the display of the device.
Set [0% input scaling] and [100% input scaling] within the range of -99999 to 999999.

8-2-7. INPUT SCALING DECIMAL POINT V M S DY

Set decimal point position for [Input scaling] among no decimal point to 5 places of decimals.

8-2-8. INPUT DECIMAL POINT T R

Set decimal point position for [Input setting] among no decimal point to 2 places of decimals.

8-2-9. LOW CUT DY

Enable or disable low cut.

Disable
Enable

8-2-10.LOW CUT POINT DY

Set low cut point within the range of 0.00 to 100.00%. Low cut point can be set only when Low cut is enabled.

8-2-11. UNIT (INP SCALING) V M S DY

Set unit for [Input scaling] among the following 68 units:
DC, AC, mV, V, kV, µA, mA, A, kA, mW, W, kW, var, kvar, Mvar, VA, Hz, Ω, kΩ, MΩ, cm, mm, m, m/sec, mm/min, cm/min, m/min, m/h, m/s^2, inch, L, L/s, L/min, L/h, m^3, m^3/sec, m^3/min, m^3/h, Nm^3/h, N·m, N/m^2, g, kg, kg/h, N, kN, Pa, kPa, MPa, t, t/h, °C, °F, K, %RH, J, kJ, MJ, rpm, sec, min, min^{-1}, pH, %, ppm, deg, (blank), User

8-2-12.USER UNIT SETTING V M S DY

Set your desired unit using characters shown below when User is selected in [Unit (INP Scaling)]. Up to 13 characters can be configured.
0–9 A–Z a–z ! " # $ % & ' ( ) = - + * ^ | @ ` [ ] { } ; : < > ? _ , . /

8-2-13.L1 – L4 ALARM ENABLE

Enable or disable alarm outputs.

Disable
Enable

Note 1: When the [Lx alarm enable] is set to disable, other alarm settings of the alarm output will be locked.

8-2-14.L1 – L4 ALARM SETPOINT

Set alarm setpoint. Setting range differs according to model. The setting range for model is as follows.

SYMBOL	ALARM SETPOINT	SETTING RANGE	MODEL
V M S DY	Scaling value	-99999 – 999999	M2EAXV, M2EAXM, M2EAXS, M2EAXDY
T	Engineering unit value	-270.00 – +2315.00 (°C)	M2EAXT
R	Engineering unit value	-200.00 – +850.00 (°C)	M2EAXR

Note: For V, M, S, DY set by the scaling value set with [0% input scaling] and [100% input scaling]. For T, R set by within the range of engineering unit value set with [0% input setting] and [100% input setting].

8-2-15.L1 – L4 TRIP ACTION

Select trip action from the following table:

High
Low

8-2-16.L1 – L4 DEADBAND

Set deadband in the scaling value. The setting range differs according to model. The setting range for model is as follows.

SYMBOL	DEADBAND	INPUT RANGE	SETTING RANGE	MODEL
V M S DY	Scaling value	—	0 – 999999	M2EAXV (*), M2EAXM, M2EAXS, M2EAXDY
T	Engineering unit value	(PR)	0.00 – 1760.00 (°C)	M2EAXT
		K (CA)	0.00 – 1370.00 (°C)	
		E (CRC)	0.00 – 1000.00 (°C)	
		J (IC)	0.00 – 1200.00 (°C)	
		T (CC)	0.00 – 400.00 (°C)	
		B (RH)	0.00 – 1820.00 (°C)	
		R	0.00 – 1760.00 (°C)	
		S	0.00 – 1760.00 (°C)	
		C (WRe 5-26)	0.00 – 2315.00 (°C)	
		N	0.00 – 1300.00 (°C)	
		U	0.00 – 600.00 (°C)	
		L	0.00 – 900.00 (°C)	
		P (Platinel II)	0.00 – 1395.00 (°C)	
R	Engineering unit value	JPt 100 (JIS '89)	0.00 – 500.00 (°C)	M2EAXR
		Pt 100 (JIS '89)	0.00 – 650.00 (°C)	
		Pt 100 (JIS '97, IEC)	0.00 – 850.00 (°C)	
		Pt 50 Ω (JIS '81)	0.00 – 649.00 (°C)	
		Ni 508.4 Ω	0.00 – 200.00 (°C)	
		Pt 1000	0.00 – 850.00 (°C)	
		Ni 100	0.00 – 200.00 (°C)	
		Cu 10 (25 deg C)	0.00 – 250.00 (°C)	

(*) For firmware version earlier than 1.00.0028, the setting range is 0 – 9999.
For information on firmware version, refer to "3. DEVICE INFO - DEVICE INFORMATION" on page 8.

8-2-17. L1 – L4 COIL AT ALARM

Select coil operation at alarm from the following table:

Energized
De-energized

8-2-18.ALARM ON DELAY TIME

Set alarm ON delay time in seconds within the range of 0 to 999 seconds.

8-2-19.POWER ON DELAY TIME

Set power ON delay time in seconds within the range of 0 to 999 seconds.

8-2-20.LATCHING ALARM

Enable or disable latching alarm.

Disable
Enable

8-3. OPTION - OPTION SETTING

8-3-1. BURNOUT T R

Set the operation at burnout.

None
Down
Up

When breaking of sensor wire is detected, it goes upward or downward. When up, 'BURNOUT ERROR U' is displayed. When down, 'BURNOUT ERROR D' is displayed.
No detection setting is available. In that case, when breaking 'OVER RANGE D' or 'OVER RANGE U' is displayed. Refer to the "3. DEVICE INFO - DEVICE INFORMATION" on page 8 for detailed information of error display.

8-3-2. COLD JUNCTION COMPENSATION T

Choose the cold junction compensation method.

CJM
FXD TEMP

When CJM is used, thermoelectric force is compensated by an accompanying cold junction compensation sensor. When FXD TEMP is used, thermoelectric force, which is set by [FIXED TERMINAL TEMPERATURE], is compensated. (Error may be larger as it is different from actual terminal temperature.)

8-3-3. PRESET FIXED TERMINAL TEMPERATURE T

Cold junction compensation temperature is set by fixed terminal temperature. The setting is available with the range between -50.00 to 100.00°C. Only available when FXD TEMP is chosen with [COLD JUNCTION COMPENSATION].

8-3-4. SENSOR WIRES R

Set number of sensor wires for RTD.

2 Wires
3 Wires

8-3-5. WIRE RESISTANCE R

Compensating wire resistance for RTD. Setting range differs according to input range.
Only available when 2 wires is chosen with [SENSOR WIRES].

INPUT RANGE	SETTING RANGE
JPt 100 (JIS '89)	0.00 – 100.000 (Ohm)
Pt 100 (JIS '89)	0.00 – 100.000 (Ohm)
Pt 100 (JIS '97, IEC)	0.00 – 100.000 (Ohm)
Pt 50 Ω (JIS '81)	0.00 – 100.000 (Ohm)
Ni 508.4 Ω	0.00 – 100.000 (Ohm)
Pt 1000	0.00 – 100.000 (Ohm)
Ni 100	0.00 – 100.000 (Ohm)
Cu 10 (25 deg C)	0.00 – 40.000 (Ohm)

8-3-6. FILTER TIME CONSTANT

First order lag filter with the specified time constant can be used. No filter is applied when set to 0. Set the time constant to 0, or within the range of 1 to 30 seconds.

First order lag filter is equivalent to ordinary CR filters and the time constant is the time reaches approx. 63% of the full-scale with step input change from 0% to 100%.

8-3-7. INPUT ZERO FINE ADJUST / INPUT SPAN FINE ADJUST V M T R DY

Input engineering unit value can be adjusted.
The adjustable ranges of the [Input Zero fine adjust] and [Input Span fine adjust] depend on the models as shown in the following table:

SYMBOL	ADJUSTABLE RANGE		MODEL
	INPUT ZERO FINE ADJUST	INPUT SPAN FINE ADJUST	
V M DY	-5.000 – +5.000%	95.000 – 105.000%	M2EAXV, M2EAXM, M2EAXDY
T R	-10.00 – +10.00°C	-10.00 – +10.00°C	M2EAXT, M2EAXR

8-4. ADVANCE - ADVANCED SETTING

8-4-1. UPPER DISPLAY SETTING

Information to be displayed on the upper device display while the device is in the measuring mode can be configured from the following table:

SYMBOL	UPPER DISPLAY SETTING	MODEL
V M S DY	INPUT INPUT (Scaling) PERCENT (*)	M2EAXV, M2EAXM, M2EAXS, M2EAXDY
T	INPUT VOLTAGE PERCENT (*)	M2EAXT
R	INPUT RESISTANCE PERCENT (*)	M2EAXR

(*) Percent value for input.

8-4-2. LOWER DISPLAY SETTING

Information to be displayed on the lower device display while the device is in the measuring mode can be configured from the following table:

SYMBOL	LOWER DISPLAY SETTING	MODEL
V M S DY	ALARM INPUT INPUT (Scaling) PERCENT (*) None	M2EAXV, M2EAXM, M2EAXS, M2EAXDY
T	ALARM INPUT VOLTAGE PERCENT (*) None	M2EAXT
R	ALARM INPUT RESISTANCE PERCENT (*) None	M2EAXR

(*) Percent value for input.

8-4-3. BRIGHTNESS

Adjust display brightness of the device within the range of 1 (dark) to 4 (bright).

8-4-4. DISPLAY TIMEOUT

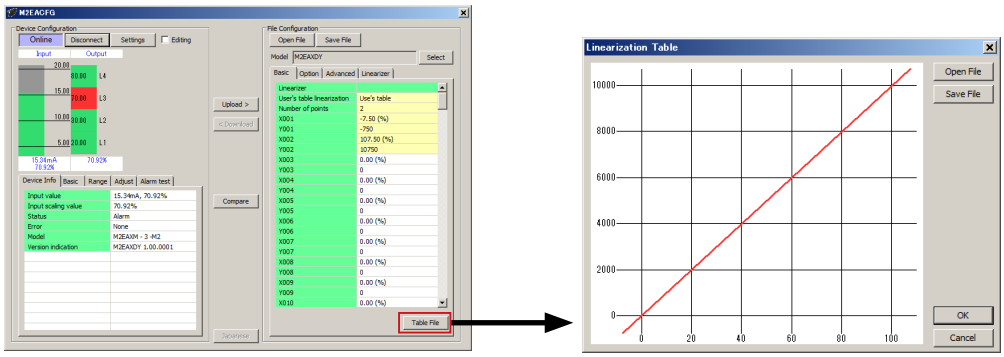
Specify how much idle time must elapse before the display is turned off among 0, or 1 to 60 minutes. The display remains on indefinitely if set to 0.

8-5. LINEARIZER - LINEARIZATION SETTING DY

In the [Linearizer] tab, specified by a segment linearization table with calibration points defined with multiple sets of input (X) and output (Y) values.

A user-specified linearization table in the [Linearizer] tab can be saved as a table file, while those saved as table files can be also imported. Click [Table] to read or save a file.

Note: [Table] button is available only when [User's table] is selected in [Linearization].



Click [Table File] to display the screen shown upper right.

Click [Open File] or [Save File] button to read or save a table file. Refer to "9. APPENDIX" on page 33 for detailed table format.

8-5-1. LINEARIZATION DY

Select the type of linearization.

Linear
Square root
User's table

Linear: The input scaling value is a value proportional to the input.

Square root: The input scaling value obtained by the extraction of square root of the input

User's table: The input is converted into segment linearization using a user specified table, which is set as the input scaling value.

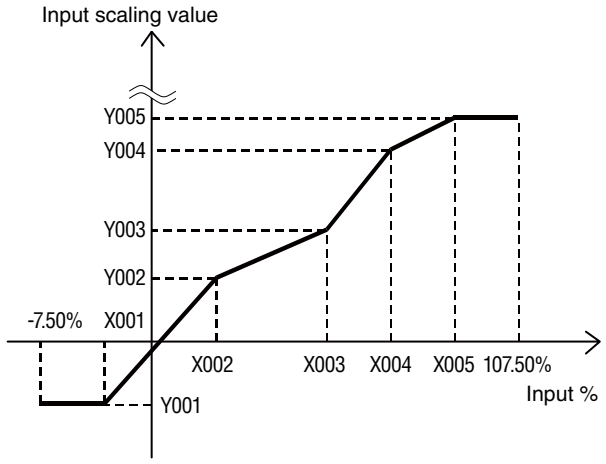
8-5-2. NUMBER OF POINTS DY

Specify the number of calibration points in the linearization table. Adjustable setting range is 2 to 128.
When table file is read, it is automatically updated according to available number of Xn, Yn pair. This setting is available only when [User's table] is selected in [Linearization].

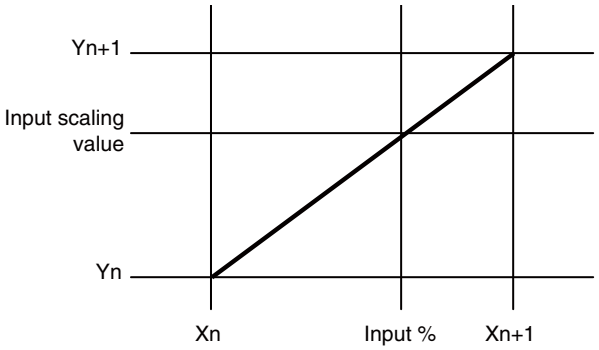
8-5-3. TABLE DY

Configures a user specified table used for conversion. X adjustable range is -7.5 to +107.5%, Y adjustable range is -99999 to 999999. Arrange in order from the smallest X value starting from X001. If you set in different order, precise conversion cannot be achieved.

Conversion using user specified table searches original values from tables containing pairs of X = input (unit %) and Y = input scaling value, and uses Y for the matching table output.



Non-specified Xs and Ys in user specified table, i.e. the range between two calibration points are approximated by a linear line.



9. APPENDIX

9-1. USER TABLE FORMAT DY

The following indicates user specified table file format used in this software.
User specified table to be used for the device X-Y linearization function is saved in a user specified table file. Linearization data is saved in text format with components as indicated below.

```
/* User linearization table comment */
{
        -5.00,          -750
         0.00,           100
        50.00,          4900
       107.50,         10750
}
```

The bracket '{' in the second row indicates the beginning of the table, while the '}' in the last row indicated the end.
Write so that the row contains only '{' or '}'.

Each row contains Xn and Yn paired and separated by comma. For Xn, specify the input value within the range of -7.50 to +107.50% (two decimal places). For Yn, specify the scaling value within the range of -99999 to +999999 (integer). Data must be arranged in order from the smallest Xn. Max. 128 pairs of 'Xn, Yn' can be described.

The row starting with ' / ' is recognized as a comment.

Table file must be saved with extension "txt".