

**For Super-mini Signal Conditioners with Display M1E-UNIT**  
**M1EA CONFIGURATOR SOFTWARE**  
**Model: M1EACFG**

**USERS MANUAL**

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# 1. INTRODUCTION

## 1-1. GENERAL DESCRIPTION

M-System M1EACFG is used to program parameters for Super-mini Signal Conditioners with Display and Alarm M1E-UNIT 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 M1EACFG is applicable to the following products:

FUNCTION	MODEL	SYMBOL	VERSION
DC Alarm (PC programmable, quad or octad alarm trip)	M1EAXV-1	V1	1.00.0004
DC Alarm (2 channels, PC programmable, dual or quad alarm trip)	M1EAXV-2	V2	1.00.0005

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 M1EACFG is downloadable at M-System's web site ([www.m-system.co.jp](http://www.m-system.co.jp)) 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 M1EACFG.

PC	IBM PC compatible
OS	Windows 7 (32bit / 64bit) (English/Japanese) Windows 8.1 (32bit / 64bit) (English/Japanese) Windows 10 (32bit / 64bit) (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 M1EACFG 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 M1EACFG from the program list and click [Uninstall] button.
- For Windows 10, open Settings from Start menu > System > Apps & features. Select the M1EACFG from the program list and click [Uninstall] button.

## 2. GETTING STARTED

### 2-1. STARTING THE M1EACFG

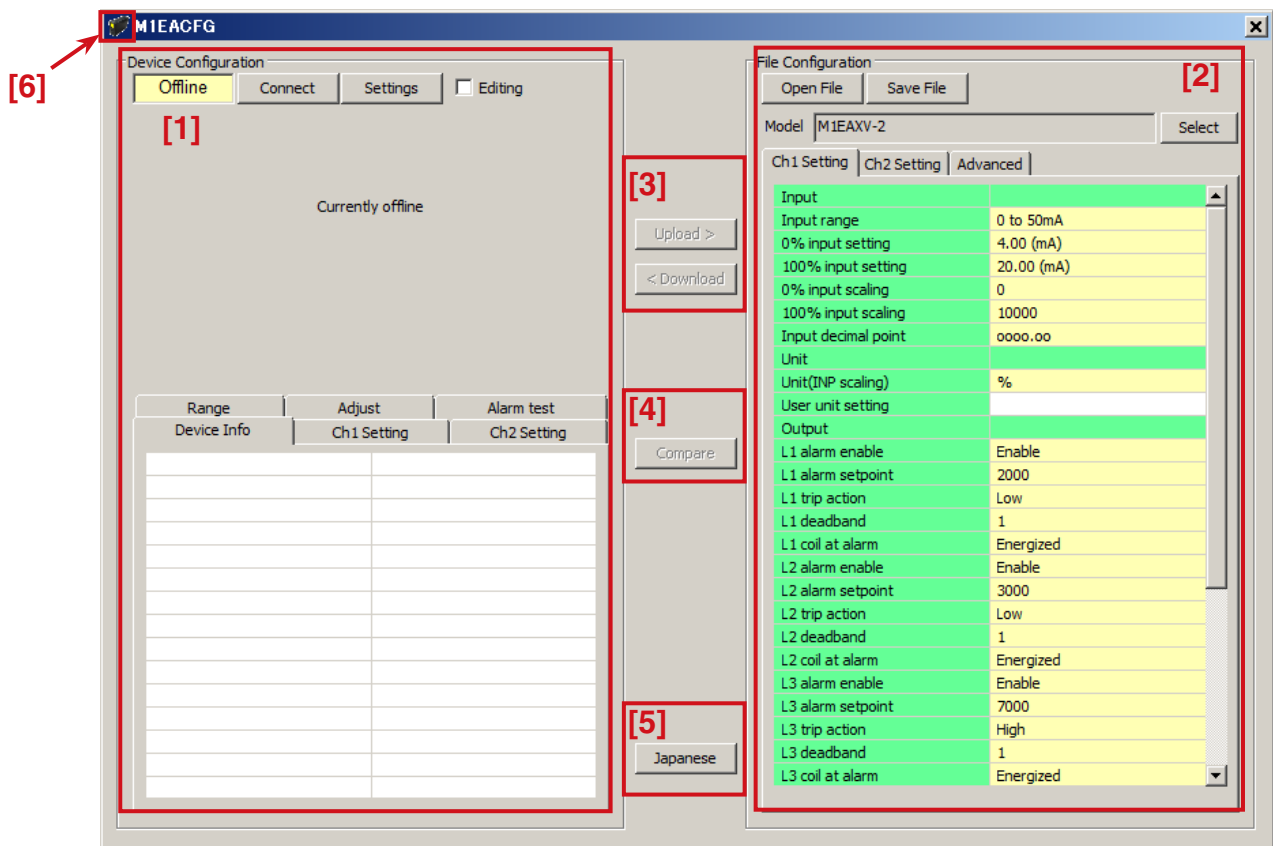
- For Windows 7, open Program > M-SYSTEM > Configurator > M1EACFG
- For Windows 8.1, open All Apps on the Start screen > M-SYSTEM > M1EACFG
- For Windows 10, open All Apps on the Start menu > M-SYSTEM > M1EACFG to start up the M1EACFG on the Windows PC.


### 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 M1EACFG 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 M1EACFG...], and the version No. dialog box will appear.

## 2-4.CONNECTING TO THE DEVICE

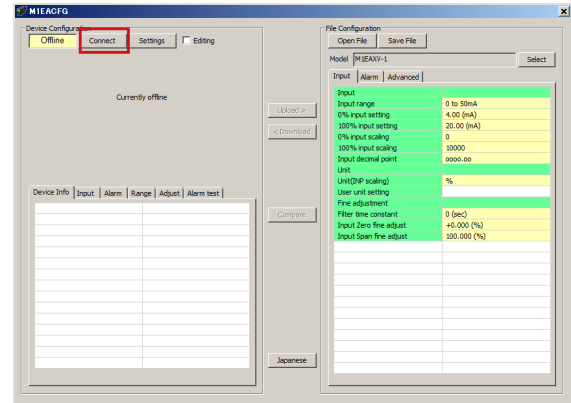
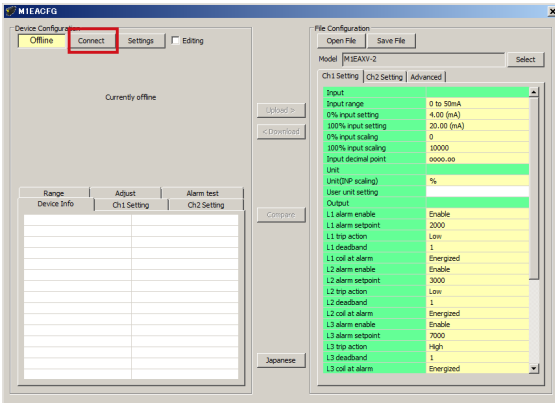
When the PC starts communication with the device, the [Device Info], [Ch1 Setting], [Ch2 Setting] (for V1), [Input Setting], [Alarm Setting], [Range], [Adjust] and [Alarm test] in the [Device Configuration] frame are shown, where you can edit and adjust the parameters.

**Note 1:** The connected device needs to be in Lock state since the configuration with the M1EACFG is not available if the device is in Unlock state.

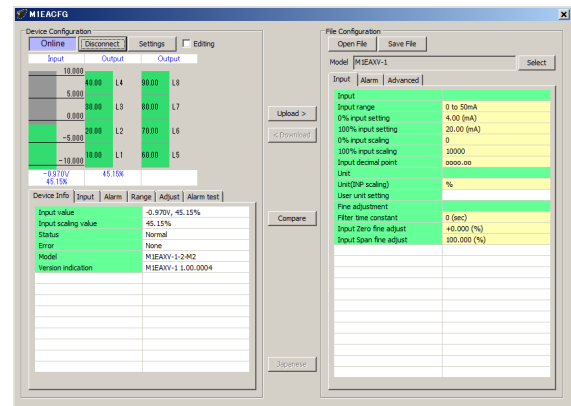
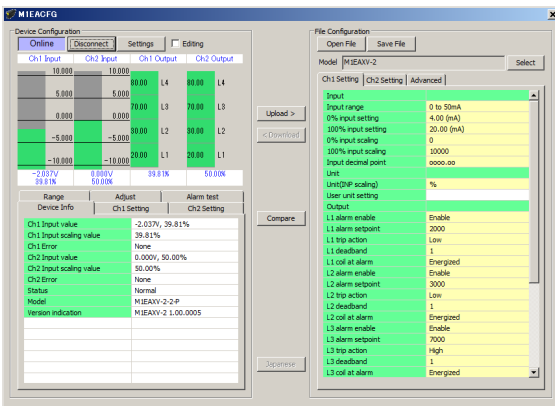
**Note 2:** The [File Configuration] shows initial values of the model indicated in the [Model] field, and they may be different from the setting parameters in the [Device Configuration] frame. Click [Upload] to read setting parameters from the device connected to the M1EACFG and show them in the [File Configuration] frame.

Click [Settings] to choose the COM port number to which the device is connected. Once a COM port is specified after the M1EACFG 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.

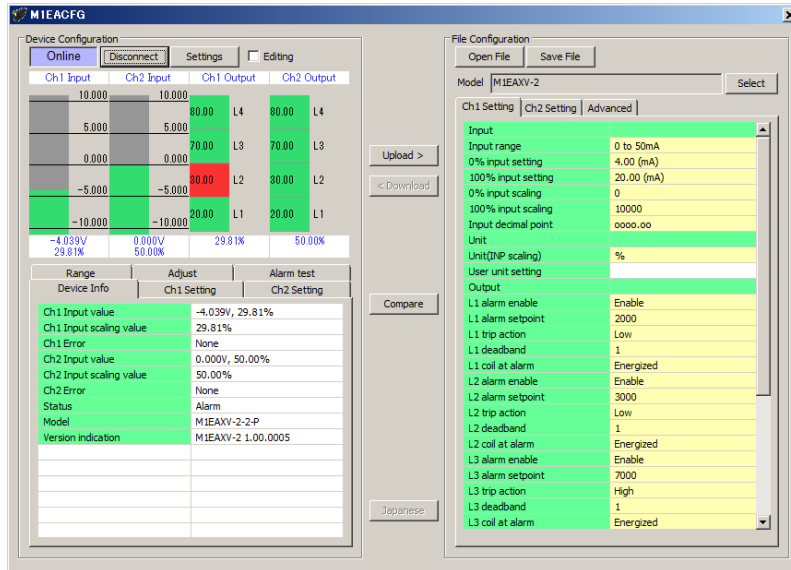


The device's present parameters are uploaded and shown in the [Device Configuration] frame.



The bargraph on the screen shows real time I/O status of the device, and the lamps show the alarm output status. You can now access to the menu tabs such as [Device Info], [Ch1 Setting], [Ch2 Setting], [Range], [Adjust] and [Alarm test].

The scales of the bargraph are determined automatically by [0% input setting] and [100% input setting]. 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 M1EACFG 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.

Range	Adjust	Alarm test
Device Info		Ch2 Setting
Ch1 Input value	1.033V, 55.16%	
Ch1 Input scaling value	55.16%	
Ch1 Error	None	
Ch2 Input value	-0.1mV, 50.00%	
Ch2 Input scaling value	50.00%	
Ch2 Error	None	
Status	Normal	
Model	M1E1AXV-2-P	
Version indication	M1EAXV 1.00.0004	

Device Info	Input	Alarm	Range	Adjust	Alarm test
Input value	-0.971V, 45.15%				
Input scaling value	45.15%				
Status	Normal				
Error	None				
Model	M1EAXV-1-2-M2				
Version indication	M1EAXV-1 1.00.0004				

ITEM	EXPLANATIONS																		
Input value <span>V1</span> Ch1 / Ch2 Input value <span>V2</span>	Current input value is indicated in engineering unit and in percentage.																		
Input scaling value <span>V1</span> Ch1 / Ch2 Input scaling value <span>V2</span>	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.)																		
	<table border="1"> <thead> <tr> <th>Display</th> <th>Priority</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Fixed I/O</td> <td>1</td> <td>I/O is fixed with the M1EACFG operation.(The fixed I/O with the front button control of the device is not indicated here.) (Device display: none)</td> </tr> <tr> <td>Alarm</td> <td>2</td> <td>An alarm is provided</td> </tr> <tr> <td>Unlock</td> <td>3</td> <td>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 M1EACFG. The checkmark of the [Editing] box will be automatically disabled.) (Device display: Unlock)</td> </tr> <tr> <td>Normal</td> <td>4</td> <td>The device is operating normally. (Device display: Lock)</td> </tr> </tbody> </table>	Display	Priority	Status	Fixed I/O	1	I/O is fixed with the M1EACFG 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 M1EACFG. The checkmark of the [Editing] box will be automatically disabled.) (Device display: Unlock)	Normal	4	The device is operating normally. (Device display: Lock)			
Display	Priority	Status																	
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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 M1EACFG. The checkmark of the [Editing] box will be automatically disabled.) (Device display: Unlock)																	
Normal	4	The device is operating normally. (Device display: Lock)																	
Error <span>V1</span> Ch1 / Ch2 Error <span>V2</span>	Current device error shown below is indicated. (When multiple errors occur at the same time, the highest priority error is displayed.)																		
	<table border="1"> <thead> <tr> <th>Error Message</th> <th>Priority</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>OVER RANGE D</td> <td>1</td> <td>Input value is less than -5%.</td> </tr> <tr> <td>OVER RANGE U</td> <td>1</td> <td>Input value exceeds 105%.</td> </tr> <tr> <td>SCALING ERROR D</td> <td>2</td> <td>Calculated result of input scaling value is less than -99999.</td> </tr> <tr> <td>SCALING ERROR U</td> <td>2</td> <td>Calculated result of input scaling value exceeds 999999.</td> </tr> <tr> <td>None</td> <td>3</td> <td>No error</td> </tr> </tbody> </table>	Error Message	Priority	Status	OVER RANGE D	1	Input value is less than -5%.	OVER RANGE U	1	Input value exceeds 105%.	SCALING ERROR D	2	Calculated result of input scaling value is less than -99999.	SCALING ERROR U	2	Calculated result of input scaling value exceeds 999999.	None	3	No error
Error Message	Priority	Status																	
OVER RANGE D	1	Input value is less than -5%.																	
OVER RANGE U	1	Input value exceeds 105%.																	
SCALING ERROR D	2	Calculated result of input scaling value is less than -99999.																	
SCALING ERROR U	2	Calculated result of input scaling value exceeds 999999.																	
None	3	No error																	
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 [Ch1 Setting] and [Ch2 Setting] (for  $\bar{V}1$ , [Input Setting], [Alarm Setting]) to modify each setting value, and [Range] to set the 0% and 100% input using actual input signals.

#### 4-1-1. INPUT SETTING / ALARM SETTING $\bar{V}1$ , CH1 SETTING / CH2 SETTING $\bar{V}2$

Parameters in the [Ch1 Setting] and [Ch2 Setting] (for  $\bar{V}1$ , [Input Setting], [Alarm Setting]) tabs can be edited. The parameter items on the screen depend upon models.

Range	Adjust	Alarm test
Device Info	Ch1 Setting	Ch2 Setting
Input		
Input range	-10 to +10V	
0% input setting	-10.000 (V)	
100% input setting	10.000 (V)	
0% input scaling	0	
100% input scaling	10000	
Input decimal point	0000.00	
Unit		
Unit(INP scaling)	%	
User unit setting		
Output		
L1 alarm enable	Enable	
L1 alarm setpoint	2000	
L1 trip action	Low	
L1 deadband	1	

Device Info	Input	Alarm	Range	Adjust	Alarm test
Input					
Input range	-10 to +10V				
0% input setting	-10.000 (V)				
100% input setting	10.000 (V)				
0% input scaling	0				
100% input scaling	10000				
Input decimal point	0000.00				
Unit					
Unit(INP scaling)	%				
User unit setting					
Fine adjustment					
Filter time constant	0 (sec)				
Input Zero fine adjust	+0.000 (%)				
Input Span fine adjust	100.000 (%)				

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 menu 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.

Range	Adjust	Alarm test
Device Info	Ch1 Setting	Ch2 Setting
Input		
Input range	-10 to +10V	
0% input setting	0 to 50mA	
100% input setting	-1000 to +1000mV	
0% input scaling	-10 to +10V	
100% input scaling	10000	
Input decimal point	0000.00	
Unit		
Unit(INP scaling)	%	
User unit setting		
Output		
L1 alarm enable	Enable	
L1 alarm setpoint	2000	
L1 trip action	Low	
L1 deadband	1	

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.

Range	Adjust	Alarm test
Device Info	Ch1 Setting	Ch2 Setting
<b>Input</b>		
Input range	-10 to +10V	
0% input setting	-10.000 (V)	
100% input setting	10.000 (V)	
0% input scaling	<input type="text" value="0"/>	
100% input scaling	10000	
Input decimal point	0000.00	
Unit		
Unit(INP scaling)	%	
User unit setting		
<b>Output</b>		
L1 alarm enable	Enable	
L1 alarm setpoint	2000	
L1 trip action	Low	
L1 deadhand	1	

Model specific setting parameter items and ranges are explained in “8. PARAMETER DETAILS” on page 21.

#### 4-1-2. RANGE – RANGE SETTING

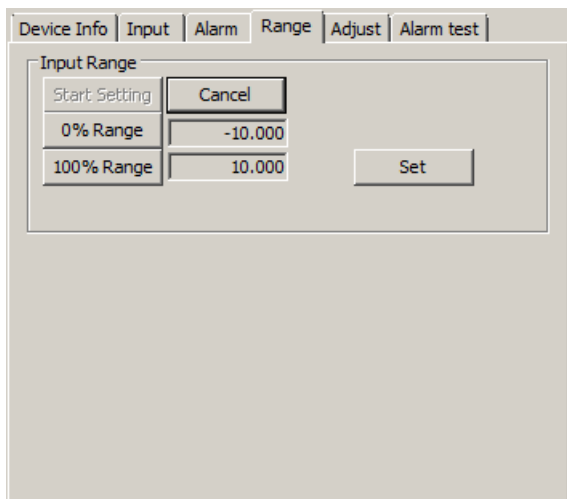
[0% input setting] and [100% input setting] can be performed using the actual input signals in the [Range] tab.

Device Info	Ch1 Setting	Ch2 Setting
Range	Adjust	Alarm test
<b>Input Range</b>		
Start Setting	<input type="text"/>	<input type="text"/>
0% Range	<input type="text"/>	<input type="text"/>
100% Range	<input type="text"/>	<input type="text"/>
		<input type="button" value="Set"/>

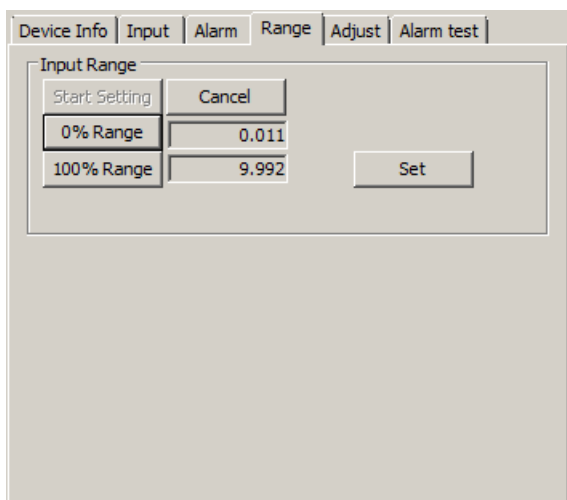
Device Info	Input	Alarm	Range	Adjust	Alarm test
<b>Input Range</b>					
Start Setting	<input type="text"/>				
0% Range	<input type="text"/>				
100% Range	<input type="text"/>				
					<input type="button" value="Set"/>

#### 4-1-2-1. M1EAXV-1 CONFIGURATION EXAMPLE

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 below.



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 0 V and click [0% Range] button, then input 10 V and click [100% Range] button. The screen will be as shown below.

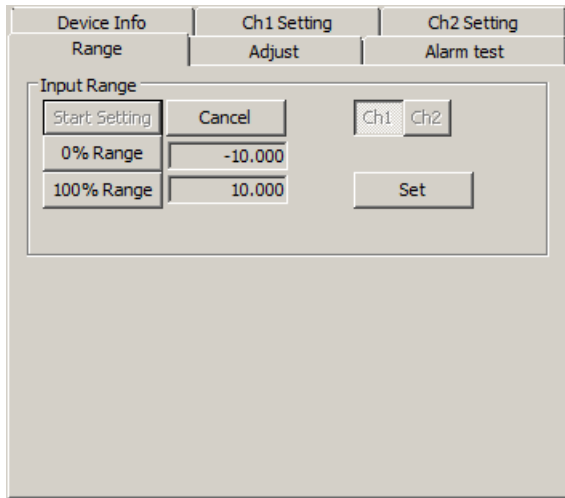


Click [Set] button, and the indicated values will be set to [0% input setting] and [100% input setting] in the [Range] tab.

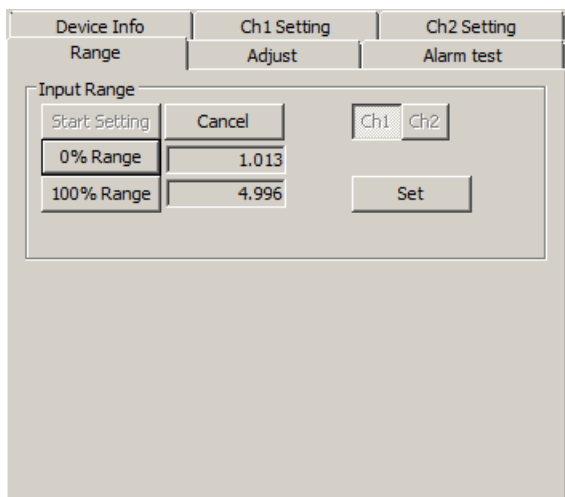
Click [Cancel] button to cancel the range setting mode and discard the set values.

#### 4-1-2-2. M1EAXV-2 CONFIGURATION EXAMPLE

1) Click [Ch1] or [Ch2] button in the [Input Range] to select a channel to set. Then click [Start Setting] button 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 below.



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 below.



Click [Set] button, and the indicated values will be set to [0% input setting] and [100% input setting] in the [Ch1 Setting] tab.

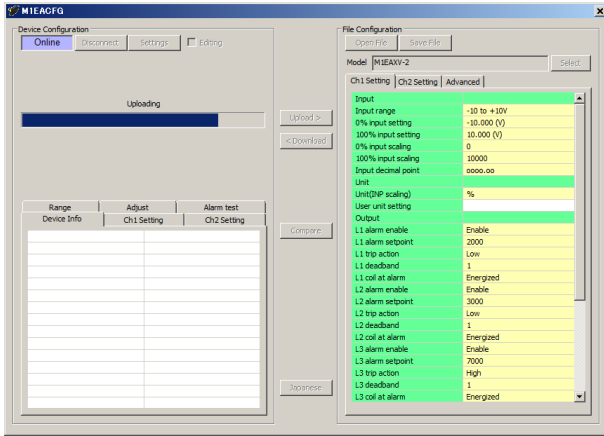
Click [Cancel] button to cancel the range setting mode and discard the set values.

## 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 20.

### 4-2-1. UPLOAD

Click [Upload] while the PC communicates with the device. The M1EACFG starts reading parameters stored in the connected device. A progress bar [Uploading] is indicated on the screen until the uploading is complete.

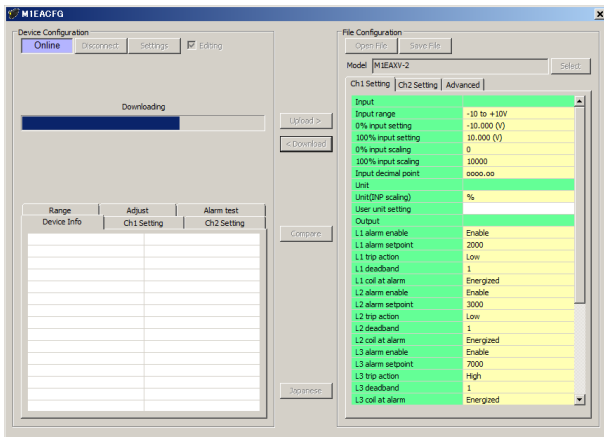


When the uploading is complete, the parameters are shown within the [File Configuration] frame and can be edited.

**Note:** 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 M1EACFG 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.

**Note:** 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. INPUT SETTING / ALARM SETTING  $\overline{V1}$ , CH1 SETTING / CH2 SETTING  $\overline{V2}$ ” 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 “4-2-2. DOWNLOAD” on page 13. To save them in a file, refer to “7-2. SAVING PARAMETERS IN A FILE” on page 20.

Model specific setting parameter items and ranges are explained in “8. PARAMETER DETAILS” on page 21.

### 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.

Setting Mode	Setting Parameter	Device Configuration	File Configuration
Ch1 Setting	Input range	-10 to +10V	0 to 50mA
Ch1 Setting	0% input setting	-10.000 (V)	4.00 (mA)
Ch1 Setting	100% input setting	10.000 (V)	20.00 (mA)
Ch1 Setting	0% input scaling	0	0
Ch1 Setting	100% input scaling	10000	10000
Ch1 Setting	Input decimal point	0000.00	0000.00
Ch1 Setting	Unit(INP scaling)	%	%
Ch1 Setting	User unit setting		
Ch1 Setting	L1 alarm enable	Enable	Enable
Ch1 Setting	L1 alarm setpoint	2000	1500
Ch1 Setting	L1 trip action	Low	Low
Ch1 Setting	L1 deadband	1	500
Ch1 Setting	L1 coil at alarm	Energized	Energized
Ch1 Setting	L2 alarm enable	Enable	Enable
Ch1 Setting	L2 alarm setpoint	3000	2500
Ch1 Setting	L2 trip action	Low	Low
Ch1 Setting	L2 deadband	1	500
Ch1 Setting	L2 coil at alarm	Energized	Energized
Ch1 Setting	L3 alarm enable	Enable	Enable
Ch1 Setting	L3 alarm setpoint	7000	6500
Ch1 Setting	L3 trip action	High	High
Ch1 Setting	L3 deadband	1	500
Ch1 Setting	L3 coil at alarm	Energized	Energized
Ch1 Setting	L4 alarm enable	Enable	Enable

The parameters are compared and listed on the screen side by side in order of [Ch1 Setting], [Ch2 Setting], [Advanced] (for V1), [Input Setting], [Alarm Setting], [Advanced]).

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.

**Note:** 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 M1EACFG are described using examples.

#### 4-4-1. CONNECTING TO THE DEVICE

Start up the M1EACFG. 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. CONFIGURATION EXAMPLES OF INPUT SETTING / ALARM SETTING V1, CH1 SETTING / CH2 SETTING V2

Configuration examples in the [Ch1 Setting] and [Ch2 Setting] (for V1, [Input Setting], [Alarm Setting]) tabs per model are described here. The edited parameters are reflected in the device immediately.

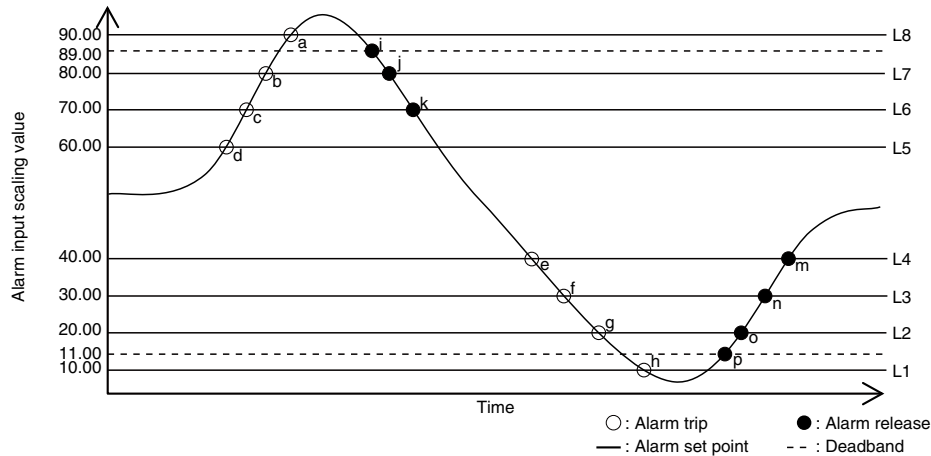
**Note:** The edited parameters in the [File Configuration] frame are not reflected in the device in real time. Click [Download] button to write them to the device.

#### 4-4-2-1. M1EAXV-1

The procedure to configure the M1EAXV-1-2 (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 less than 20.00
  - L3 alarm: ON with the input scaling value being 30.00 or more, and OFF with less than 30.00
  - L4 alarm: ON with the input scaling value being 40.00 or more, and OFF with less than 40.00
  - L5 alarm: ON with the input scaling value being 60.00 or more, and OFF with less than 60.00
  - L6 alarm: ON with the input scaling value being 70.00 or more, and OFF with less than 70.00
  - L7 alarm: ON with the input scaling value being 80.00 or more, and OFF with less than 80.00
  - L8 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 lower than 70.00
- d: Input scaling value not lower than 60.00
- e: Input scaling value not higher than 40.00
- f: Input scaling value not higher than 30.00
- g: Input scaling value not higher than 20.00
- h: Input scaling value not higher than 10.00
- i: Input scaling value not higher than 88.99
- j: Input scaling value not higher than 79.99
- k: Input scaling value not higher than 69.99
- l: Input scaling value not higher than 59.99
- m: Input scaling value not lower than 40.01
- n: Input scaling value not lower than 30.01
- o: Input scaling value not lower than 20.01
- p: 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

Choose “0 – 50 mA” for [Input range] in [Input Setting].

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 .

Make sure to 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 in [Input Setting].

Set [0% input scaling] to 0, [100% input scaling] to 10000 and [Input scaling decimal point] to 0000.00 in [Input Setting].

## 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 in [Alarm Setting].

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 in [Alarm Setting].

Set [L3 alarm enable] to Enable, [L3 alarm setpoint] to 3000, [L3 trip action] to Low, [L3 deadband] to 0 and [L3 coil at alarm] to Energized in [Alarm Setting].

Set [L4 alarm enable] to Enable, [L4 alarm setpoint] to 4000, [L4 trip action] to Low, [L4 deadband] to 0 and [L4 coil at alarm] to Energized in [Alarm Setting].

Set [L5 alarm enable] to Enable, [L5 alarm setpoint] to 6000, [L5 trip action] to High, [L5 deadband] to 0 and [L5 coil at alarm] to Energized in [Alarm Setting].

Set [L6 alarm enable] to Enable, [L6 alarm setpoint] to 7000, [L6 trip action] to High, [L6 deadband] to 0 and [L6 coil at alarm] to Energized in [Alarm Setting].

Set [L7 alarm enable] to Enable, [L7 alarm setpoint] to 8000, [L7 trip action] to High, [L7 deadband] to 0 and [L7 coil at alarm] to Energized in [Alarm Setting].

Set [L8 alarm enable] to Enable, [L8 alarm setpoint] to 9000, [L8 trip action] to High, [L8 deadband] to 100 and [L8 coil at alarm] to Energized in [Alarm Setting].

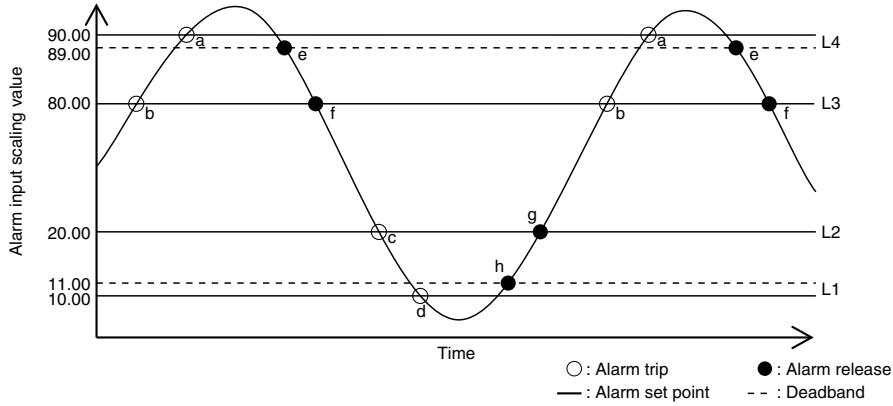


### 4-4-2-2. M1EAXV-2

The procedure to configure the Ch1 of the M1EAXV-2-2 (N.O.) to the following specifications is described here. Use this procedure for Ch2, too.

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      |

Choose “0 – 50 mA” for [Input range] in [Ch1 Setting].

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.

Make sure to 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 in [Ch1 Setting].

Set [0% input scaling] to 0, [100% input scaling] to 10000 and [Input scaling decimal point] to 0000.00.

#### 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 in [Ch1 Setting].

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 in [Ch1 Setting].

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 in [Ch1 Setting].

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 in [Ch1 Setting].

### 4-4-2-3. OTHER SETTINGS

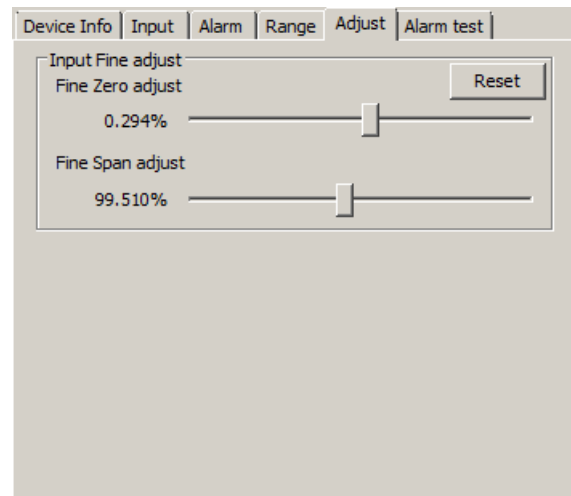
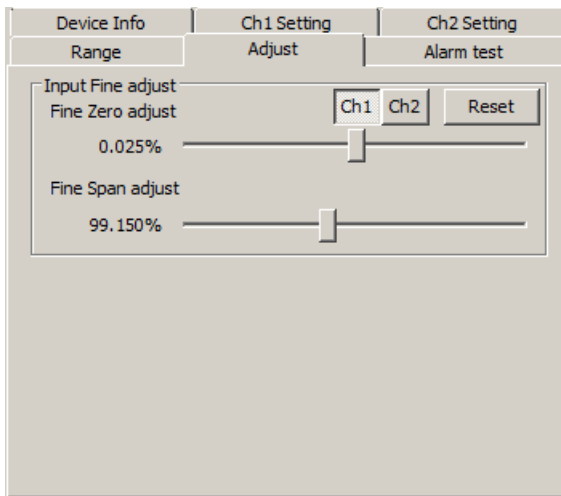
Edit other setting parameters than [Ch1 Setting] and [Ch2 Setting] (for  $\sqrt{1}$ , [Input Setting], [Alarm Setting]) in the [File Configuration]. Read the parameters with [Upload] from the device, edit them, and write them to the device with [Download].

Model specific setting parameter items and ranges are explained in “8. PARAMETER DETAILS” on page 21.

## 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.

For **V2**, click [Ch1] or [Ch2] button to select a channel (for **V1**, skip this step). 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 M1EACFG.

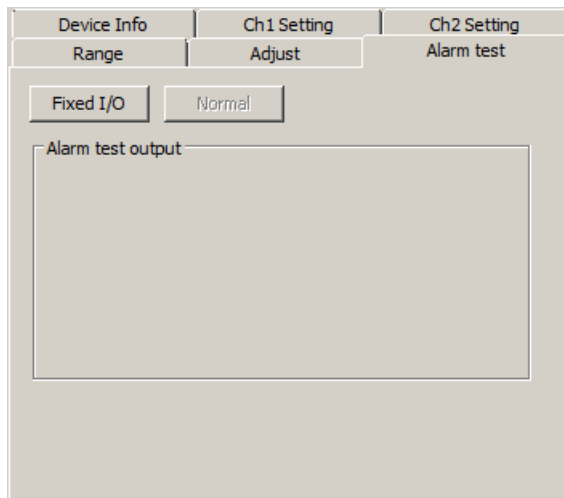
- 1) Apply the value you want to set to input value 0%.
- 2) Adjust the sliding potentiometer until the monitored input signal shows 0% input.
- 3) Apply the value you want to set to input value 100%.
- 4) Adjust the sliding potentiometer until the monitored input signal shows 100% input.

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

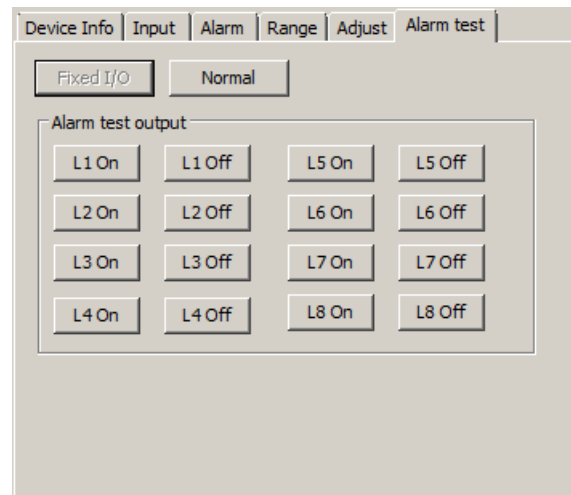
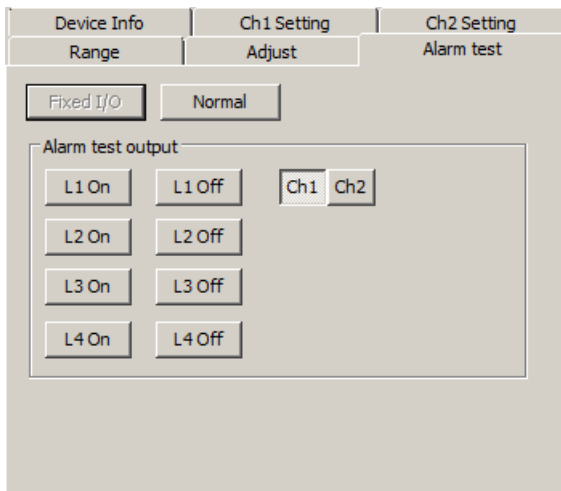
## 6. ALARM TEST

(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.



- 2) For , click [Ch1] or [Ch2] button to select the channel to output alarm test signal (for , skip this step).
- 3) Click [L1 On] to [L4 On] (for , to [L8 On]), or [L1 Off] to [L4 Off] (for , to [L8 Off]) button, and the corresponding output will be provided.
- 4) 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.

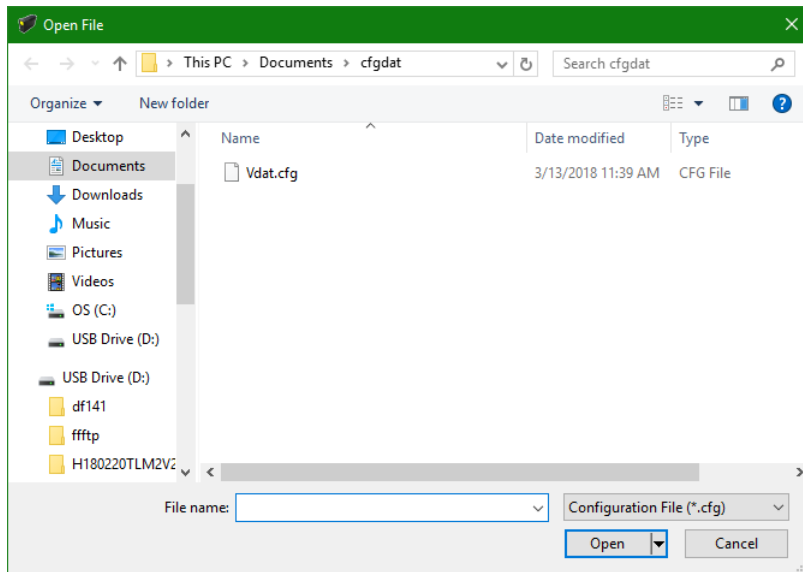
**Note 3:** DO NOT perform the alarm test with the M1EACFG and the front button operation of the device at the same time.

## 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

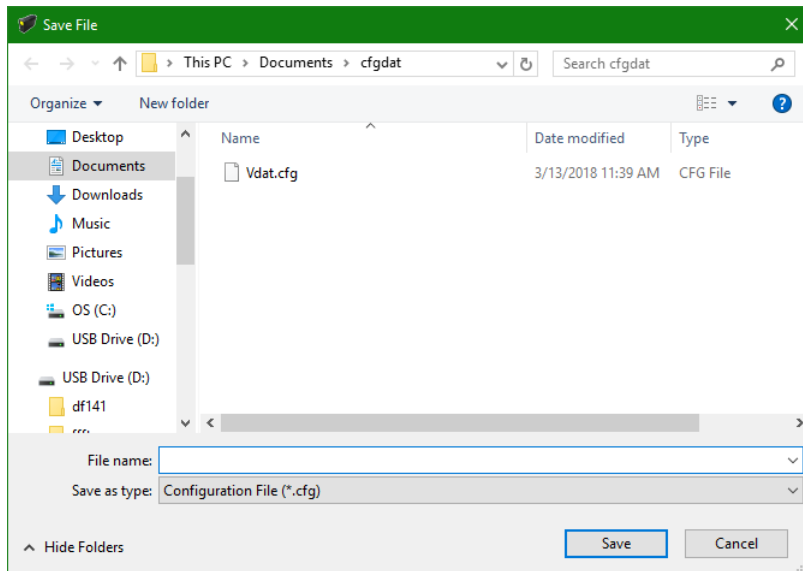
Clicking [Open File] calls up the Windows-standard Open dialog box.



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 As 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.

	M1EAXV-1	M1EAXV-2	Page	
Input Setting <span style="border: 1px solid black; padding: 0 2px;">V1</span> , Ch1 / Ch2 Setting <span style="border: 1px solid black; padding: 0 2px;">V2</span>	Input range	✓	✓	21
	0% input setting / 100% input setting	✓	✓	21
	0% input scaling / 100% input scaling	✓	✓	21
	Input scaling decimal point	✓	✓	21
	Unit (INP scaling)	✓	✓	21
	User unit setting	✓	✓	21
	L1 – L4 (L8) alarm enable	✓	✓	22
	L1 – L4 (L8) alarm setpoint	✓	✓	22
	L1 – L4 (L8) trip action	✓	✓	22
	L1 – L4 (L8) deadband	✓	✓	22
	L1 – L4 (L8) coil at alarm	✓	✓	22
	Alarm ON-delay time	✓	✓	22
	Power ON-delay time	✓	✓	22
	Latching alarm	✓	✓	22
	Filter time constant	✓	✓	22
Input Zero fine adjust / Input Span fine adjust	✓	✓	22	
Advanced	Upper display setting	✓	✓	23
	Lower display setting	✓	✓	23
	Channel enable		✓	23
	Brightness	✓	✓	23
	Display timeout	✓	✓	23

### 8-2. INPUT SETTING / ALARM SETTING V1, CH1 SETTING / CH2 SETTING V2

#### 8-2-1. INPUT RANGE

Select input range of the device from the following table:

SYMBOL	INPUT RANGE	MODEL
<span style="border: 1px solid black; padding: 0 2px;">V1</span> <span style="border: 1px solid black; padding: 0 2px;">V2</span>	0 – 50 mA -1000 – +1000 mV -10 – +10 V	M1EAXV-1, M1EAXV-2

**Note:** After setting input range of a channel, [0% input setting], [100% input setting], [Input Zero fine adjust] and [Input Span fine adjust] of the channel turn to initial values.

#### 8-2-2. 0% INPUT SETTING / 100% INPUT SETTING

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
<span style="border: 1px solid black; padding: 0 2px;">V1</span> <span style="border: 1px solid black; padding: 0 2px;">V2</span>	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

#### 8-2-3. 0% INPUT SCALING / 100% INPUT SCALING

Scaling values for [0% input setting] and [100% input setting] can be configured.

For example, when you set [input range] to -10 – +10 V, [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.

#### 8-2-4. INPUT SCALING DECIMAL POINT

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

#### 8-2-5. UNIT (INP SCALING)

Set unit for [Input scaling] among the following 68 units:

DC, AC, mV, V, kV,  $\mu$ A, mA, A, kA, mW, W, kW, var, kvar, Mvar, VA, Hz,  $\Omega$ , k $\Omega$ , M $\Omega$ , cm, mm, m, m/sec, mm/min, cm/min, m/min, m/h, m/s<sup>2</sup>, inch, L, L/s, L/min, L/h, m<sup>3</sup>, m<sup>3</sup>/sec, m<sup>3</sup>/min, m<sup>3</sup>/h, Nm<sup>3</sup>/h, N·m, N/m<sup>2</sup>, g, kg, kg/h, N, kN, Pa, kPa, MPa, t, t/h, °C, °F, K, %RH, J, kJ, MJ, rpm, sec, min, min<sup>-1</sup>, pH, %, ppm, deg, (blank), User

**8-2-6. USER UNIT**

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 !”# \$ % & ’ ( ) = - + \* ^ | @ ` [ ] { } ; : < > ? \_ , . /

**8-2-7. L1 – L4 (L8) ALARM ENABLE**

Enable or disable alarm outputs.

- Disable
- Enable

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

**8-2-8. L1 – L4 (L8) 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
V1 V2	Scaling value	-99999 – 999999	M1EAXV-1, M1EAXV-2

**Note:** Set the alarm setpoint within the range set in [0% input scaling] and [100% input scaling].

**8-2-9. L1 – L4 (L8) TRIP ACTION**

Select trip action from the following table:

- High
- Low

**8-2-10.L1 – L4 (L8) 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
V1 V2	Scaling value	—	0 – 999999	M1EAXV-1, M1EAXV-2

**8-2-11. L1 – L4 (L8) COIL AT ALARM**

Select coil operation at alarm from the following table:

- Energized
- De-energized

**8-2-12.ALARM ON DELAY TIME**

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

**8-2-13.POWER ON DELAY TIME**

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

**8-2-14.LATCHING ALARM**

Enable or disable latching alarm.

- Disable
- Enable

**8-2-15.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 the output reaches approx. 63% of the full-scale with step input change from 0% to 100%.

**8-2-16.INPUT ZERO FINE ADJUST / INPUT SPAN FINE ADJUST**

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	
V1 V2	-5.000 – +5.000%	95.000 – 105.000%	M1EAXV-1, M1EAXV-2

## 8-3. ADVANCE - ADVANCED SETTING

### 8-3-1. 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
V1	INPUT INPUT (Scaling) PERCENT (*) ALARM DISPLAY	M1EAXV-1
V2	Ch1 INPUT Ch1 INPUT (Scaling) Ch1 PERCENT (*) Ch1 ALARM DISPLAY Ch1 ALARM • INPUT Ch1 ALARM • INPUT (Scaling) Ch1 ALARM • PERCENT (*) Ch2 INPUT Ch2 INPUT (Scaling) Ch2 PERCENT (*) Ch2 ALARM DISPLAY Ch2 ALARM • INPUT Ch2 ALARM • INPUT (Scaling) Ch2 ALARM • PERCENT (*)	M1EAXV-2

(\*) Percent value for input.

### 8-3-2. 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
V1	INPUT INPUT (Scaling) PERCENT (*) ALARM DISPLAY None	M1EAXV-1
V2	Ch1 INPUT Ch1 INPUT (Scaling) Ch1 PERCENT (*) Ch1 ALARM DISPLAY Ch1 ALARM • INPUT Ch1 ALARM • INPUT (Scaling) Ch1 ALARM • PERCENT (*) Ch2 INPUT Ch2 INPUT (Scaling) Ch2 PERCENT (*) Ch2 ALARM DISPLAY Ch2 ALARM • INPUT Ch2 ALARM • INPUT (Scaling) Ch2 ALARM • PERCENT (*) None	M1EAXV-2

(\*) Percent value for input.

### 8-3-3. CHANNEL ENABLE V2

Whether to enable the channels 1 and 2 can be configured from the following table:

- Ch1 enable / ch2 enable
- Ch1 enable / ch2 disable
- Ch1 disable / ch2 enable

**Note:** A disabled channel configuration is available.

### 8-3-4. BRIGHTNESS

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

### 8-3-5. 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.