

**Model M3LT Thermocouple Transmitter**  
**PC CONFIGURATOR SOFTWARE**  
**Model: M3LTCFG**

**USERS MANUAL**

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# 1. GETTING STARTED

## 1.1. PC REQUIREMENTS

The following PC performance is required for adequate operation of the M3LTCFG.

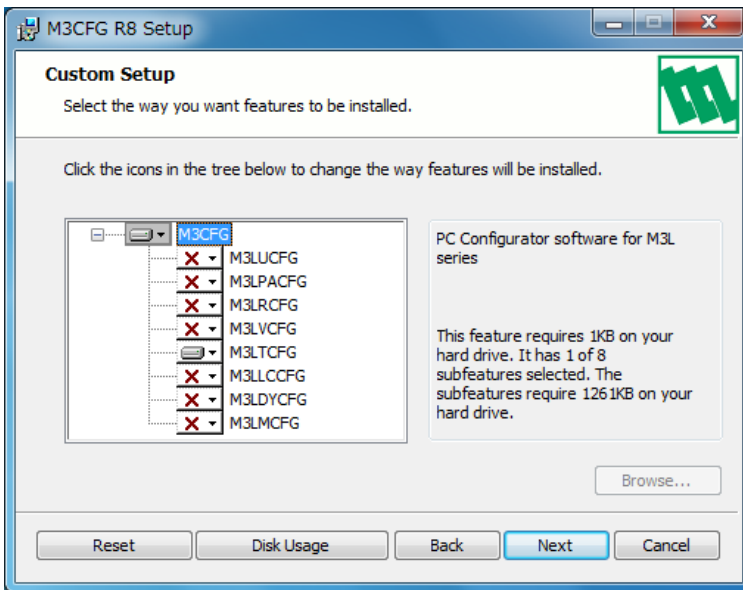
PC	IBM PC compatible
OS	Windows 7 (32-bit, 64-bit) Windows 10 (32-bit, 64-bit) The software may not operate adequately in certain conditions.
CPU/Memory	Must meet the relevant Windows' requirements.
Hard disk	10MB minimum free space
PC configurator cable	Model COP-US (USB) or MCN-CON (RS-232-C)

## 1.2. INSTALLING & DELETING THE PROGRAM

### INSTALL

The program is provided as compressed archive. Decompress the archive and execute 'setup.msi' to start up the M3LTCFG installer program. Follow instructions on the Windows.

In the M3LTCFG installer program, all the software of the M3CFG series will be installed. If you would like to install only M3LTCFG, change to "X" for other software in the window appeared during the installation as shown below.



### DELETE

Open Control Panel > Add/Remove Programs. Select the "M3CFG Rx" from the program list and click Delete button.

### **1.3. STARTING UP THE M3LTCFG**

Connect the model M3LT Thermocouple Transmitter to the PC via the PC configurator cable.

Press Start on the task bar and choose M3CFG > M3LTCFG from the Program menu.

### **1.4. OPTION /A & OPTION /B**

The M3LT with Option /B is not designed for PC configuration but only for monitoring on the PC, while the Option /A version is fully programmable.

#### **OPTION /B**

When you connect the Option /B version to the PC and start up the M3LTCFG program, you can confirm the current setting but these buttons and fields used for configuring the module are greyed out and thus unavailable.

The M3LTCFG features available for the Option /B version are: monitoring, One Step Calibration, zero/span, loop test output and diagnostics.

#### **OPTION /A**

The Option /A version is fully programmable including the following: input sensor type, PV unit, and PV range, analog output type, range and custom TC table.

This version of the M3LT can be programmed and calibrated even when the configuration mode switch (DIP switch SW2-8) is set to DIP SW mode, however, once the power supply to the M3LT is turned off and on, it restarts based on DIP switch configurations. It must be started up with the SW2-8 turned on so that it reads its EEPROM contents regardless of other DIP switch configurations.

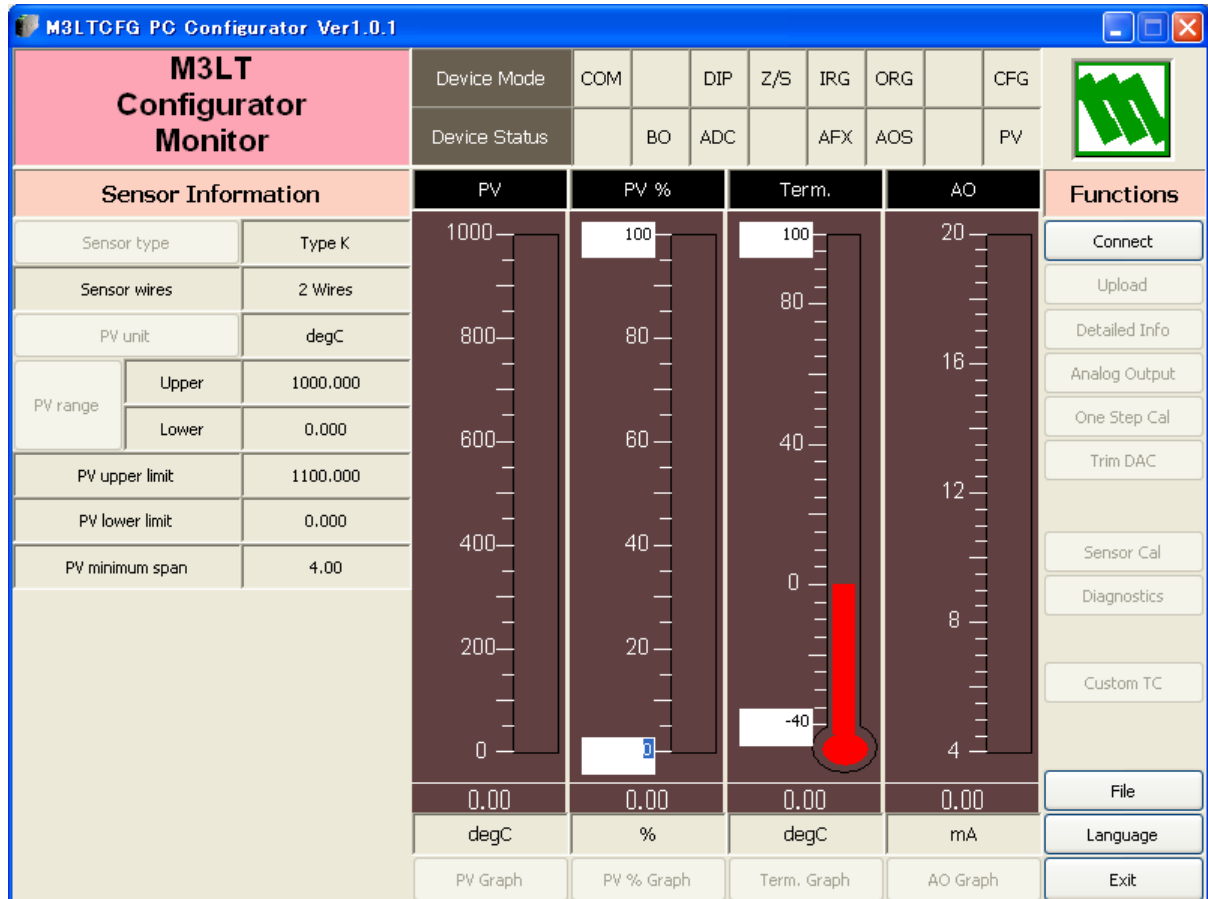
## 2. MONITOR

### 2.1. STARTING UP

Figure 1 shows the initial window of the M3LT CFG PC Configurator window.

In order to enable the tools shown on the screen, the model M3LT Thermocouple Transmitter must be connected to the PC via the PC configurator cable.

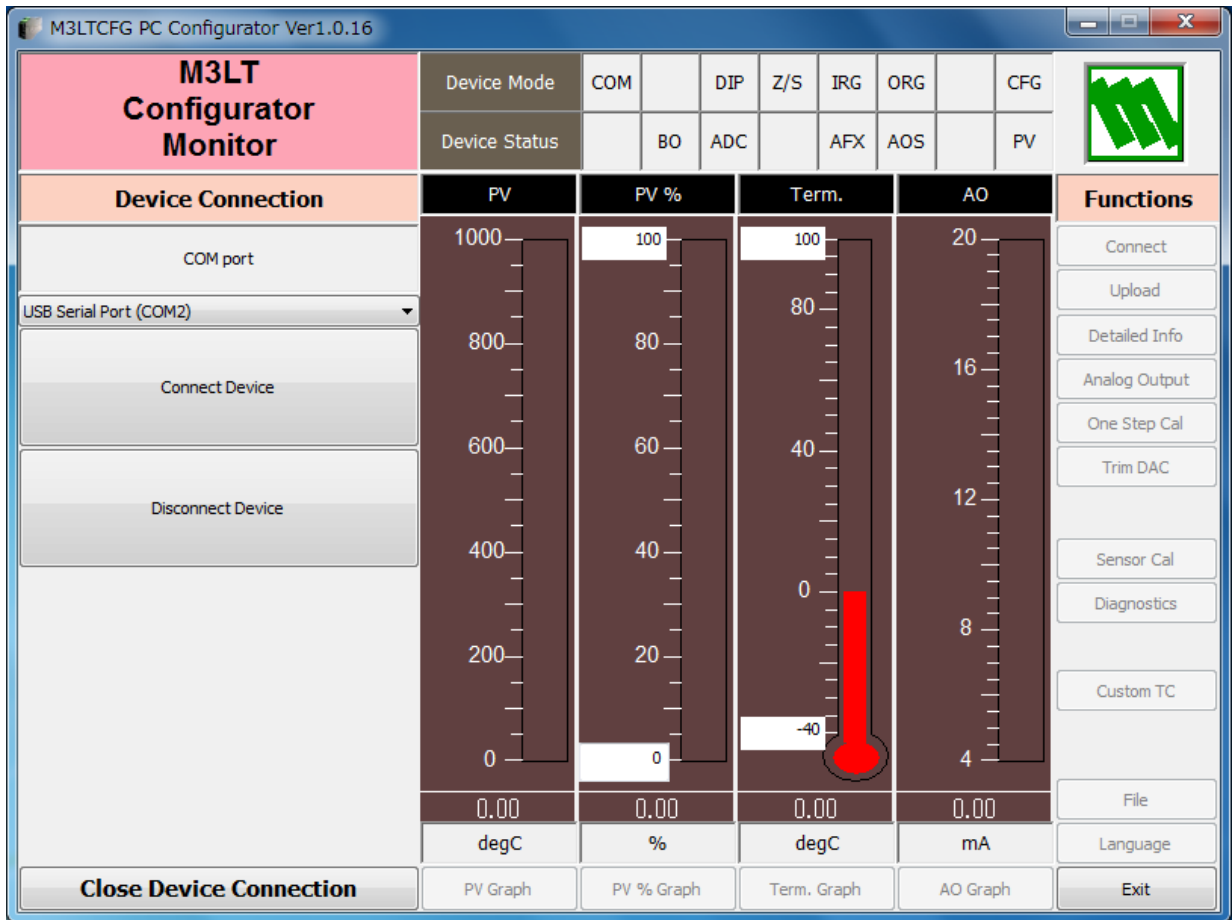
Figure 1. Initial Window



## 2.2. CONNECTING THE DEVICE

On the initial window, click [Connect] and the Device Connection menu appears on the screen.

Figure 2. Device Connection



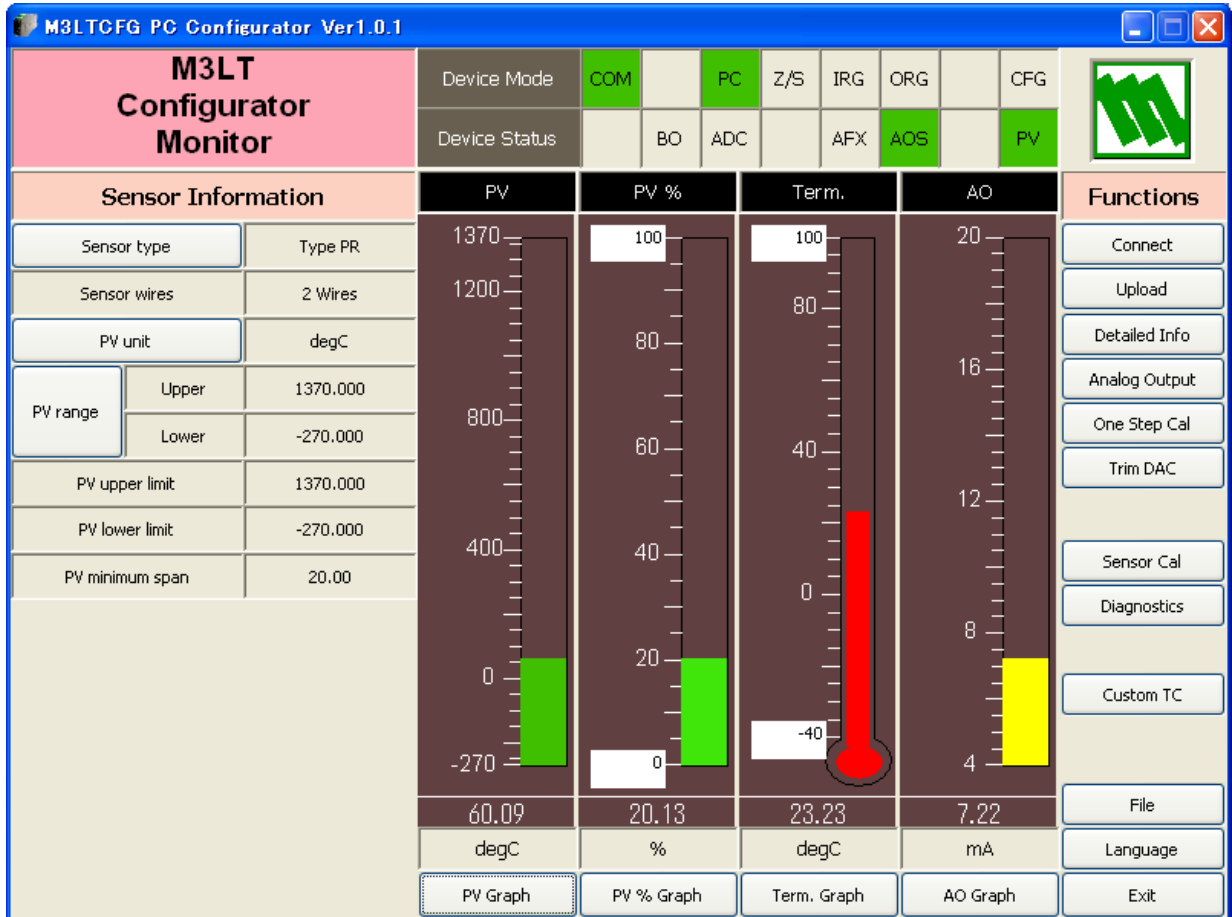
COM port	Choose an adequately configured COM port to be connected.
Connect Device	Connects the device. Once the connection is established, the program uploads the device's configuration information and automatically opens Sensor Information window. The window is the base for various operations to configure the M3LT.
Disconnect Device	Disconnects the currently connected device.
Close Device Connection	Close the Device Connection window.

### 2.3. MONITORING TRENDS

Once the device is connected, the Sensor Information menu and the trend monitors appears on the screen. The user can configure various parameters of the M3LT.

Use [Upload] button to re-load device information e.g. when you replace the module with a new one or when you make changes to M3LT's configuration without using this tool.

Figure 3. Sensor Information





### 2.3.1. DEVICE MODE

Device Mode summarizes the device's current operation status and communications status with the PC by lamps.



or



[COM] lamp	Blinks with the normal communications condition.
[DIP]/[PC] lamp	Shows the device's configuration mode: DIP switch or PC. For the M3LT version /B, only DIP switch mode is available.
[Z/S] lamp	Red light turns on when the device is in the DAC trimming mode.
[IRG] lamp	Red light turns on when the device is in the input one-step calibration mode.
[ORG] lamp	Red light turns on when the device is in the output one-step calibration mode.
[CFG] lamp	Red light turns on when data changes have been done on the configuration software since it was stored the last time. It turns off once the data has been stored into the nonvolatile memory.

### 2.3.2. DEVICE STATUS

Device Status summarizes the current device status by lamps.



[BO] lamp	Red light turns on with 'Input error' detected (ADC overrange or underrange).
[ADC] lamp	Red light turns on with ADC's hardware errors.
[AFX] lamp	Red light turns on when the analog output entered in Fixed AO mode.
[AOS] lamp	Green light turns on when the analog output is diagnosed to be normal. Red light turns on when the output is saturated upscale or downscale.
[PV] lamp	Green light turns on when the sensor input is in the specified range. Red light turns on when it is out of the range.

### 2.3.3. BARGRAPH & TREND GRAPH

Four bargraphs indicating PV (degC, degF or Kelvin), PV in % of the selected range, the terminal temperature and analog output in engineering unit are available.

The graph scales for the PV in % and the terminal temperature can be modified unlike the PV and the analog output in engineering unit of which the scales are automatically determined and fixed according to the selected range.

At the bottom of each bargraph is [Graph] button which opens a trend graph for the item. Use [Start] and [Stop] buttons to start/stop recording data, and click [Close Trend Graph] to close the graph window.

PV Bargraph

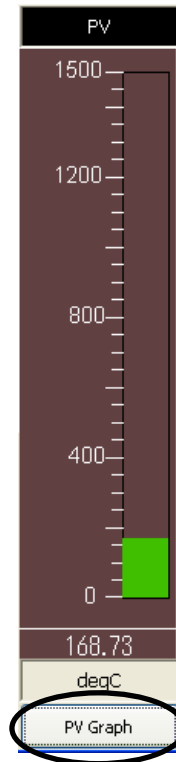
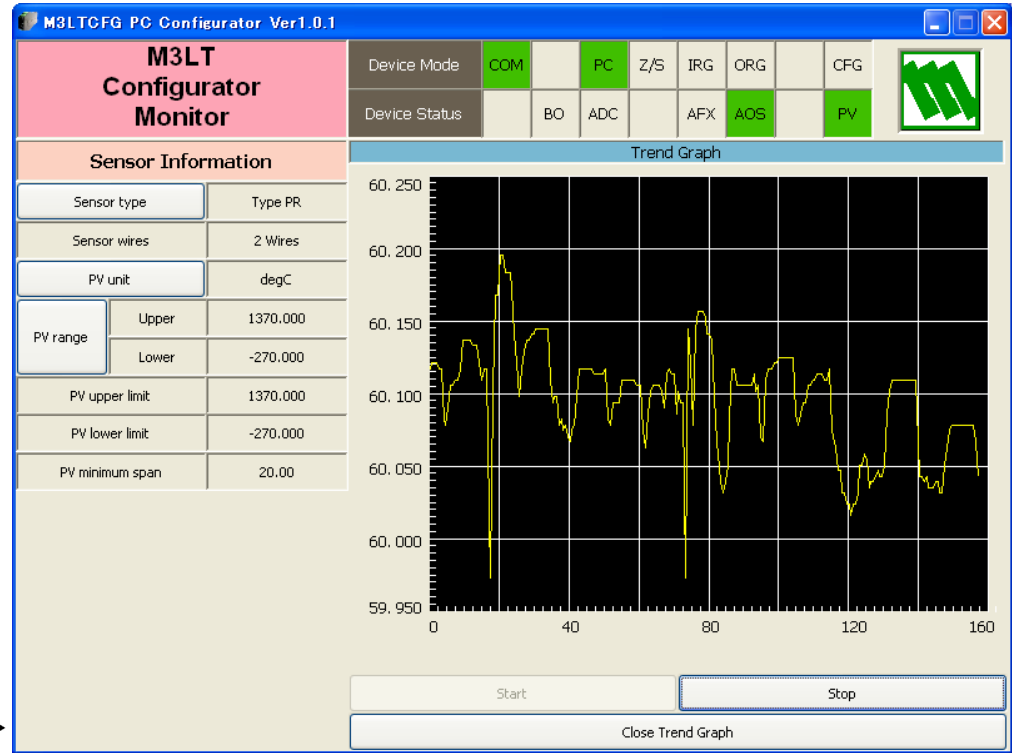


Figure 4. Trend Graph



### 3. CONFIGURATION

#### 3.1. INPUT CONFIGURATION

In Figure 3, the Sensor Information menu on the left shows basic configuration information of the connected device. When you need to change configurations, click the left button for the required parameter to modify its setting.

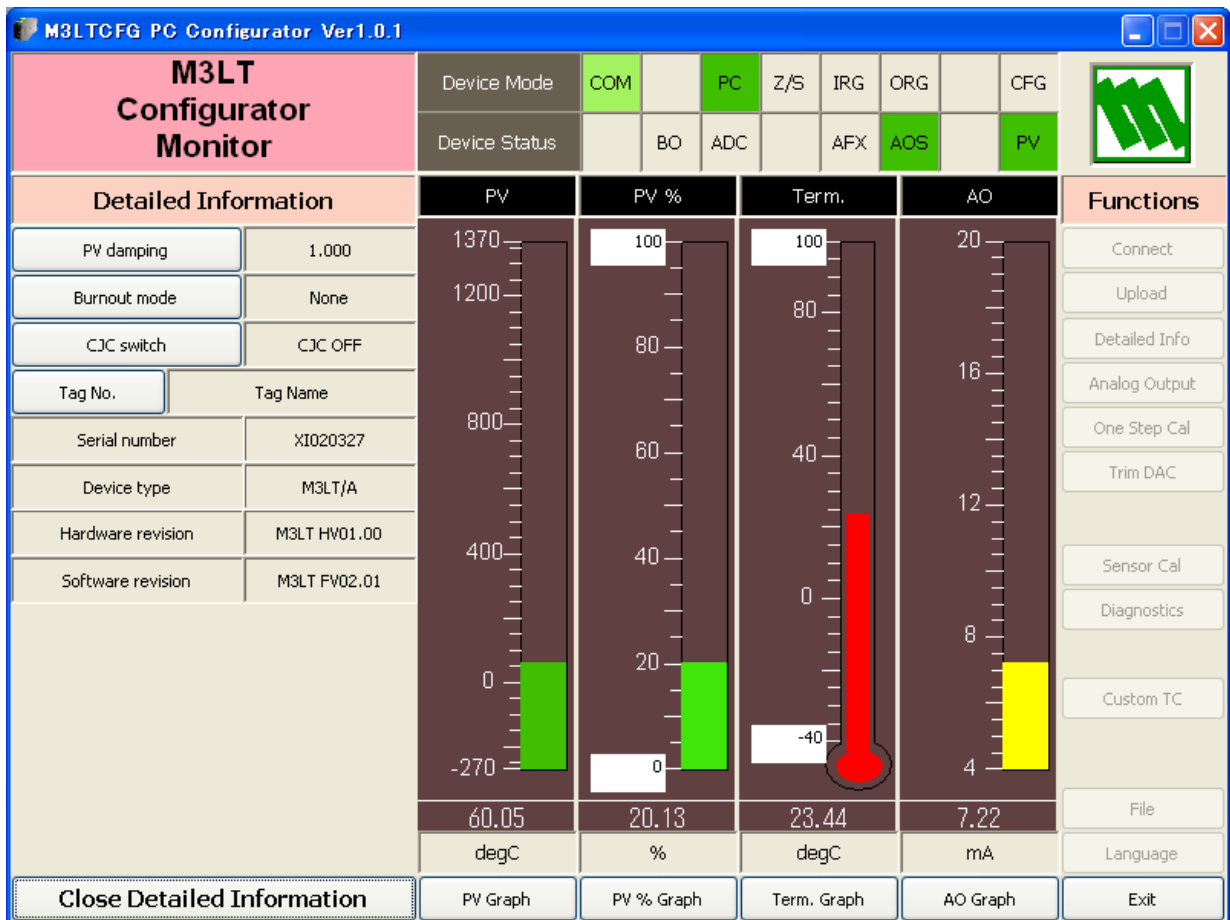
Sensor Information		
Sensor type	Type PR	
Sensor wires	2 Wires	
PV unit	degC	
PV range	Upper	1500.000
	Lower	0.000
PV upper limit	1760.000	
PV lower limit	0.000	
PV minimum span	20.00	

Sensor type	<p>Input sensor types. Sensor types are following 14 types</p> <ul style="list-style-type: none"> <li>Type PR</li> <li>Type K</li> <li>Type E</li> <li>Type J</li> <li>Type T</li> <li>Type B</li> <li>Type R</li> <li>Type S</li> <li>Type C</li> <li>Type N</li> <li>Type U</li> <li>Type L</li> <li>Type P</li> <li>Custom TC</li> </ul> <p>Click [Sensor type] button to choose input sensor type. Choose with SW2-4, 2-5, 2-6, 2-7 in DIP SW mode.</p>
Sensor wires	Shows number of wires.
PV unit	<p>PV and the terminal temperature in engineering unit are displayed. Choose from among this three choices.</p> <ul style="list-style-type: none"> <li>degC</li> <li>degF</li> <li>Kelvin</li> </ul> <p>Click [PV unit] button to choose unit type.</p>
PV range (Upper / Lower)	<p>Specifies input temperature range for 0% and 100%. Click the left button opens a dialog box to change the setting. The input temperature range can be also changed on One Step Calibration mode.</p>
PV upper limit	Shows the usable range information for the selected type of sensor.
PV lower limit	
PV minimum span	

### 3.2. DETAILED INFORMATION

In Figure 3, click [Detailed Info] in Functions menu to the right opens the [Detailed Information] menu as shown in Figure 5.

Figure 5. Detailed Information

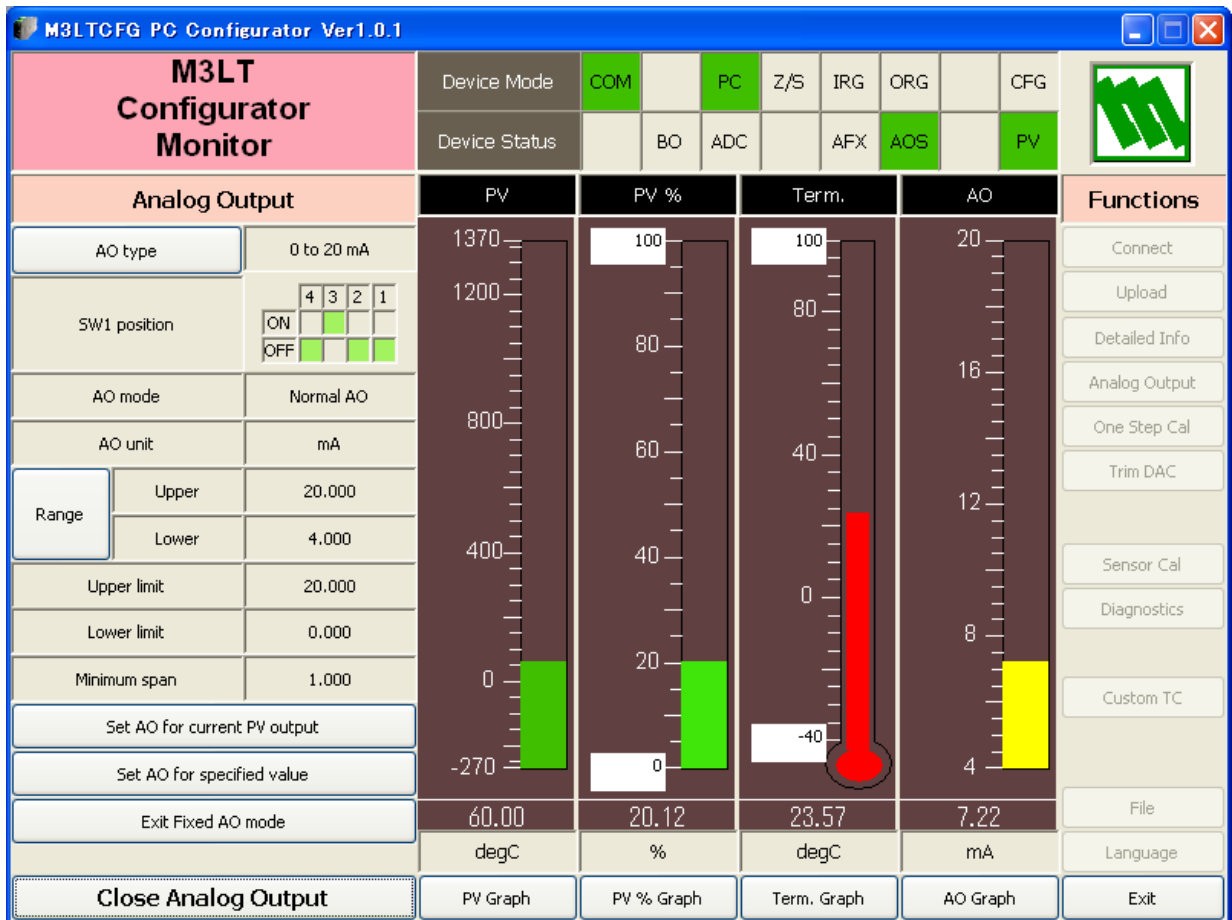


PV damping	Specifies the time constant for the primary input filter. Selectable range is from 0.5 sec. up to 30 sec. When you do not need a filtering, specify '0.'
Burnout mode	Specifies the burnout mode from among three choices. Upscale Downscale None Click [burnout mode] button to specify either the output should go upscale or downscale in case that a wire breakdown is detected.
CJC switch	Specifies the CJC switch from among two choices. CJC OFF CJC ON Click [CJC switch] button enables or disables the cold junction compensation. Note: When CJC ON, PV value varies as thermoelectric force of cold junction compensation is added.
Tag No.	You can enter a tag name using up to 16 alphanumerical characters.
Serial number	Automatically displayed.
Device type	
Hardware revision	
Software revision	
Close Detailed Information	Close the window.

### 3.3. ANALOG OUTPUT

In Figure 3, click [Analog Output] in Functions menu to the right opens the [Analog Output] menu as shown in Figure 6.

Figure 6. Analog Output



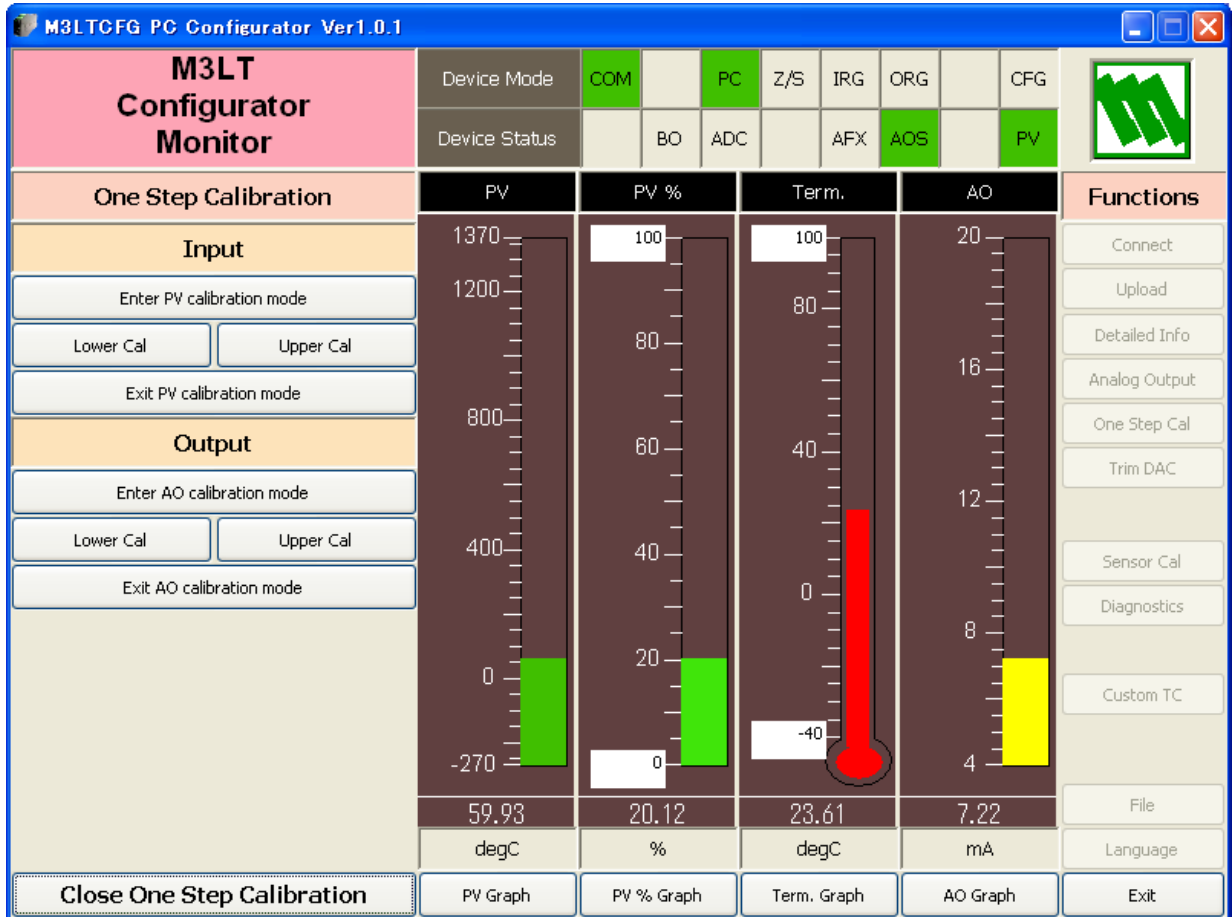
The Analog Output menu on the left shows the output type and ranges. When you need to change configurations, click the left button for the required item to modify the setting.

AO type	Specifies the Analog Output type from among three choices. 0 to 20 mA -2500 to +2500 mV -10 to +10 V Click [AO type] button to specify output type.
SW1 position	Shows DIP SW configuration (hardware setting) required for the selected output type. Confirm actual setting.
AO mode	Shows the output mode. 'Normal AO' is usually displayed.
AO unit	Shows engineering unit for the output signal.
Range (Upper / Lower)	Specifies the output range for 0% and 100%.
Upper limit	Show the usable range information for the selected output type.
Lower limit	
Minimum span	
Set AO for current PV output	The output signal is held at the current value.
Set AO for specified value	You can set a specific value to fix the output in order to perform an output loop simulation test.
Exit Fixed AO mode	Cancels the fixed output mode to return the device into normal output mode.
Close Analog Output	Close the window.

## 4. ONE STEP CALIBRATION

In Figure 3, click [One Step Cal] on the right control panel opens the One Step Calibration menu as shown in Figure 7. The 'One Step Calibration' technique realizes automatic input and output ranging with a signal simulator connected to the module's input terminals.

Figure 7. One Step Calibration



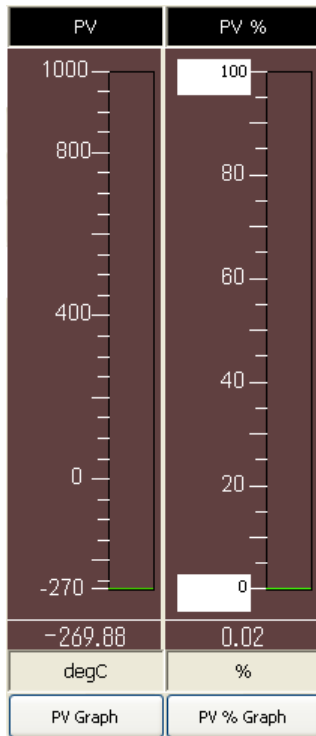
## 4.1. INPUT CALIBRATION MODE

- (1) Connect the M3LT to a simulator as described in the M3LT instruction manual.
- (2) Click [Enter PV calibration mode] in order to turn the module into the input calibration mode. The red [IRG] lamp in [Device Mode] panel at the top turns ON while the module is in this mode.

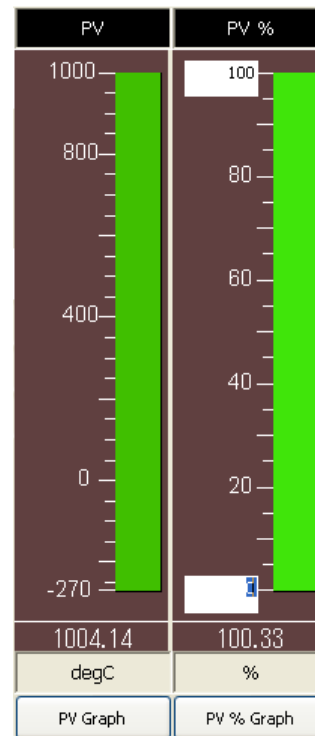


- (3) Apply desired 0% and 100% signal levels and click [Lower Cal] and [Upper Cal] buttons respectively so that the input range is automatically set.

Input: -270 degC (Lower Cal)



Input: 1000 degC (Upper Cal)



- (4) Click [Exit PV calibration mode] when the calibration is complete.

## 4.2. OUTPUT CALIBRATION MODE

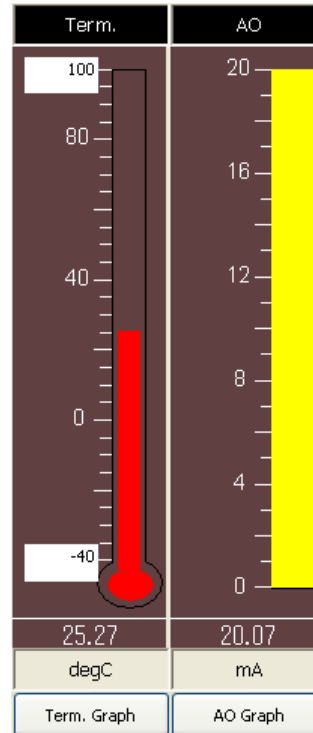
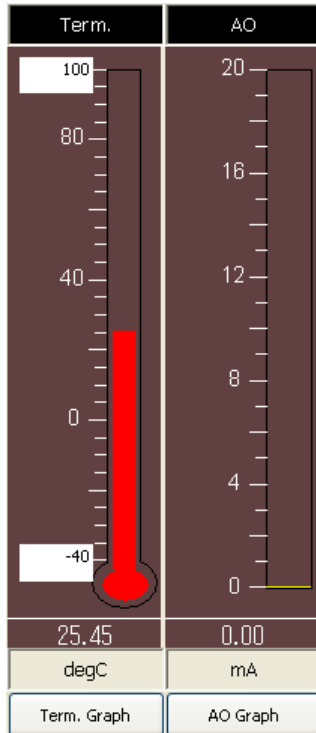
(1) Click [Enter AO calibration mode] in order to turn the module into the output calibration mode. The red [ORG] lamp in [Device Mode] panel at the top turns ON while the module is in this mode.



(2) Increase or decrease the simulated input until the output multimeter shows desired 0% and 100% signal levels and click [Lower Cal] and [Upper Cal] buttons respectively so that the output range is automatically set.

Apply the input so that output become 0%

Apply the input so that output become 100%



(3) Click [Exit AO calibration mode] when the calibration is complete.

Click [Close One Step Calibration] to close the window.



## 5. INPUT / OUTPUT CALIBRATION

### 5.1. DAC TRIMMING

Click [Trim DAC] button to open the Trim DAC window as shown in Figure 8.

Figure 8. Trim DAC (e.g. Upper Range Trim Mode)



#### 5.1.1. LOWER RANGE DAC TRIMMING

- (1) Click [Enter Lower Range Trim mode]. The device outputs a fixed lower range signal level.
- (2) Measure the actual output signal at the receiving instrument to which the device output should be matched.
- (3) Click [Trim by actual measured value] to set the measured value.
- (4) Repeat setting [Trim by actual measured value] until the measured output shows the desired level. Alternately, use [Up] or [Down] buttons. [+], [++] and [+++] have different increments. Deviation from the default value is shown in [Zero offset]. Lower range value is adjustable within  $\pm 15\%$ .

#### 5.1.2. UPPER RANGE DAC TRIMMING

- (1) Click [Enter Upper Range Trim Mode]. The device outputs a fixed upper range signal level.
- (2) Measure the actual output signal at the receiving instrument to which the device output should be matched.
- (3) Click [Trim by actual measured value] to set the measured value.
- (4) Repeat setting [Trim by actual measured value] until the measured output shows the desired level. Alternately, use [Up] or [Down] buttons. [+], [++] and [+++] have different increments. Deviation from the default value is shown in [Span gain]. Upper range value is adjustable within  $\pm 15\%$ .

#### 5.1.3. RESETTING TO THE DEFAULT

Click [Clear Trim DAC data] to return the device to the factory default trimming values (0.0 for both Zero offset and Span gain).

Click [Close Trim DAC] to close the window.

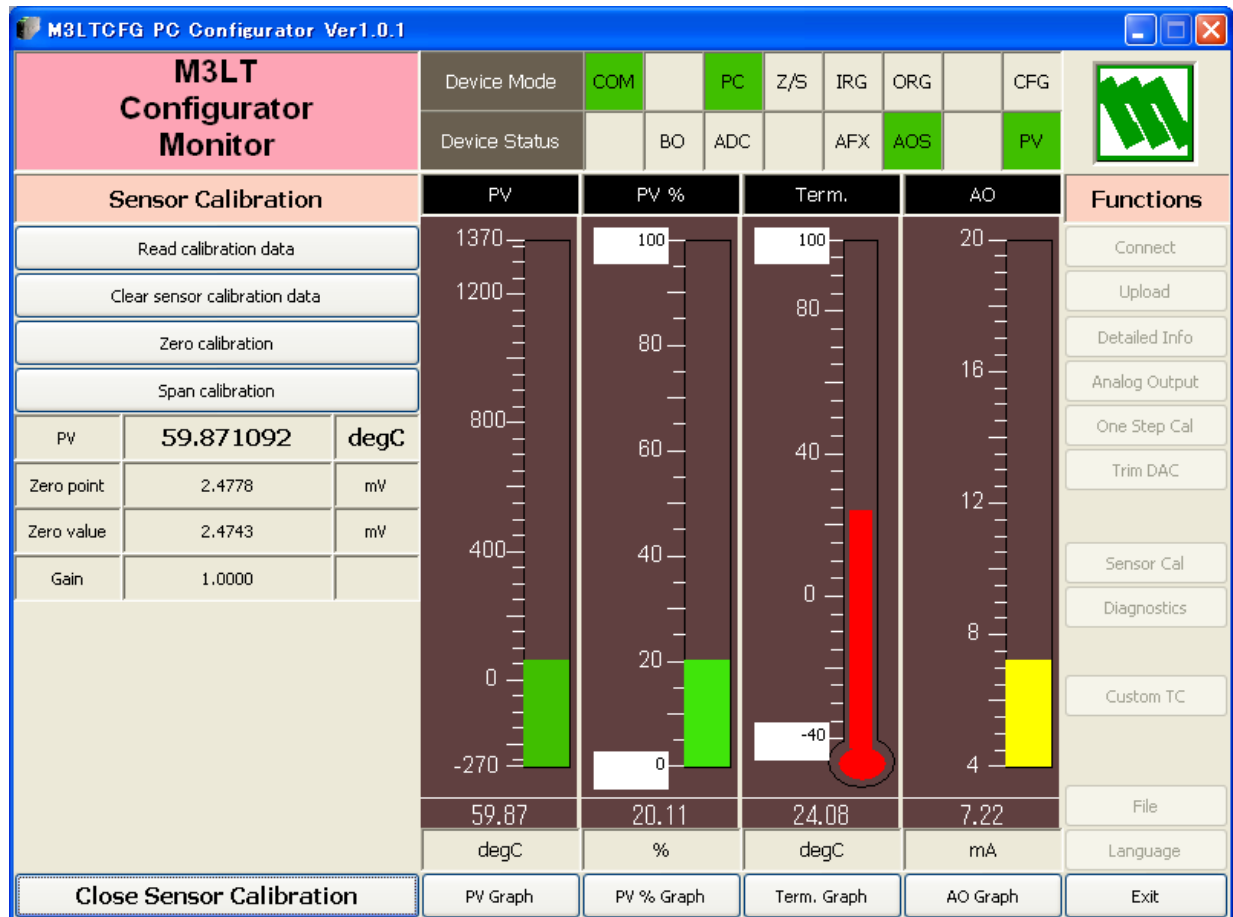
## 5.2. SENSOR CALIBRATION

The input sensor can be calibrated with Zero and Span: Zero is represented as offset at the calibration point, while Span is represented as gain against the zero point. The gain must be set from 0.1 to 10.0.

Calibration points can be specified to any point within the measuring range.

Click [Sensor Cal] button to open the Sensor Calibration window as shown in Figure 9.

Figure 9. Sensor Calibration



The present measured value is indicated in the middle. Refer to this value when calibrating the sensor. It takes several seconds for the calibration result affects the measured value on the display.

Apply zero calibration point input signal and click [Zero calibration] to open the field where you can enter a target value. The result is shown in the PV display field. Data before calibration is shown in the Zero point field, while that after calibration is shown in the Zero value field.

Apply span calibration point input signal and click [Span calibration] to open the field where you can enter a target value. The result is shown in the PV display field. Span point gain against the zero point is shown in the Gain field.

[Read calibration data] calls up and display the present calibrated values in these fields.

Click [Clear sensor calibration data] to return the device to the factory default status.

Factory default settings are: Zero Point = Zero Value = 0 mV, Gain = 1.0.

When the sensor type is changed, the calibration data are reset to these factory default values.

Click [Close Sensor Calibration] to close the window.

## 6. OFFLINE CONFIGURATION AND READ / WRITE FILES

### 6.1. CUSTOM TC

The M3LT supports the user-specific thermocouple table function. In order to use a user-specific table, the data in text format must be defined and registered. The procedure to use user-specific TC is as follows.

1. Create a user-specific table as following steps.
2. Click [Custom TC] button to open the Custom TC.
3. Click [Read table from file] button to read a characteristics data from a file stored in the PC. When uploaded, the file contents summary is indicated under Custom TC Table Contents. Characteristic data longer than 300 points are ignored.
4. Click [Display custom TC graph] button to show characteristics data in a graph.
5. Click [Write table to device] button to download currently displayed characteristics data to the M3LT.
6. When downloading is successfully complete, Status under Custom TC Table Contents shows 'Configured.' Then the option 'TC Spec (Custom TC)' becomes available to choose. If 'TC Spec' has been already selected before this setting is done, you can not download a particular data file.
7. Click [Read table from device] button to upload characteristics table registered in the M3LT. If there is no file registered, Status under Custom TC Table Contents shows 'Non configured.'
8. Click [Close Custom TC] button to close the window.

#### 6.1.1. USER-SPECIFIC TC TABLE

User-specific TC data is defined in the format of texts. The file format is as following.

Define the minimum temperature value in Celsius (integer) at Minimum TC Temperature.

Specify the Temperature Step used in the table, from 1°C to 50°C (integer).

Describe characteristics data within { }. Data must be entered in mV. Up to 300 points can be specified.

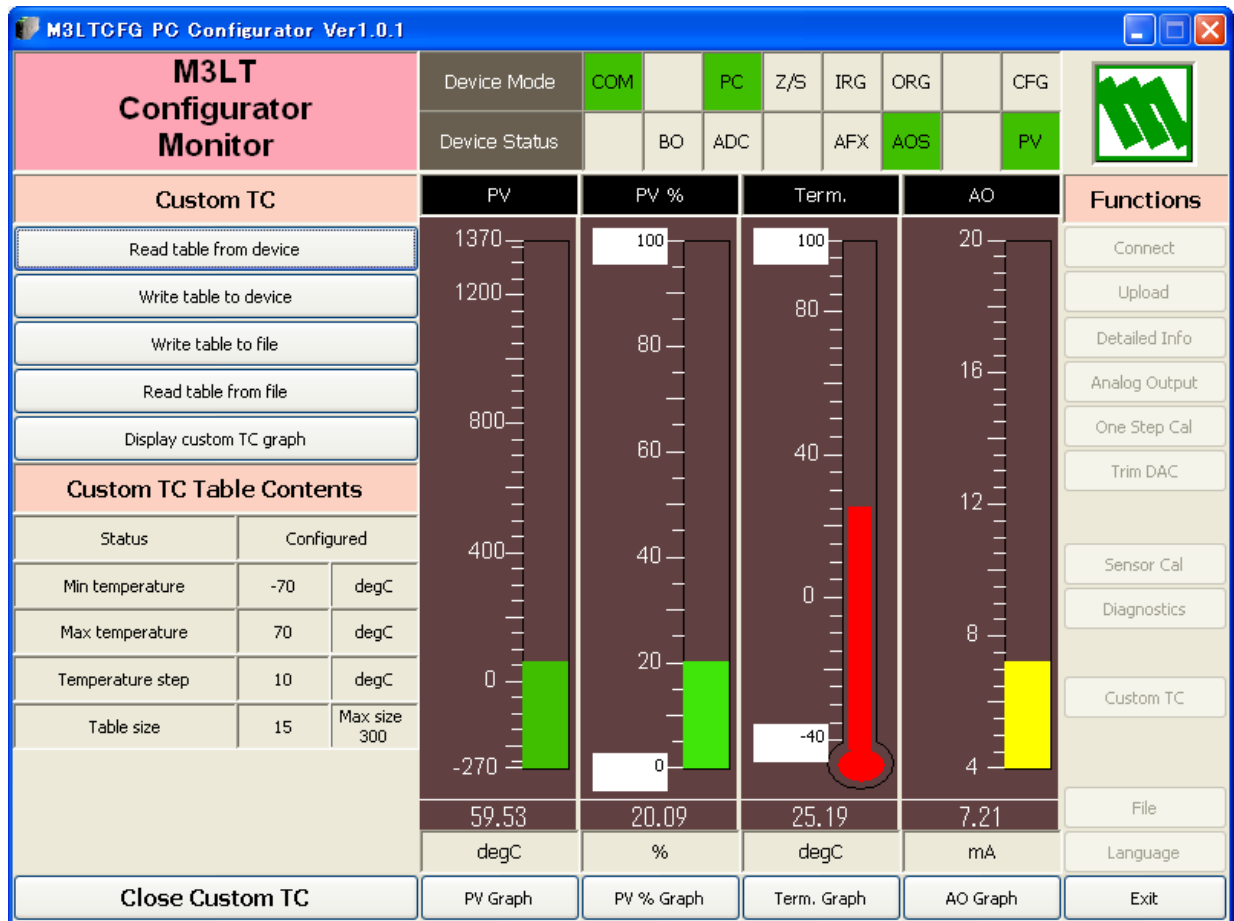
```

/*****
/* Custom TC Table Definition
/* Ti = f(Xi) ( 0 <= i < Size )
/*   Temperature Step (1 to 50 degC)
/*   -70 <= X(i) <= 70 mV
/*   X(i) < X(i+1)
/*   2 <= Size <= 300
/*****
Minimum TC Temperature = 0      <-- Minimum temperature T0 (°C)
Step = 10                      <-- Temperature step (°C)
{
10.0000                        <-- Voltage value for T0 (mV)
:
20.0000                        <-- Voltage for Tmax (mV)
}
```

### 6.1.2. CUSTOM TC WINDOW

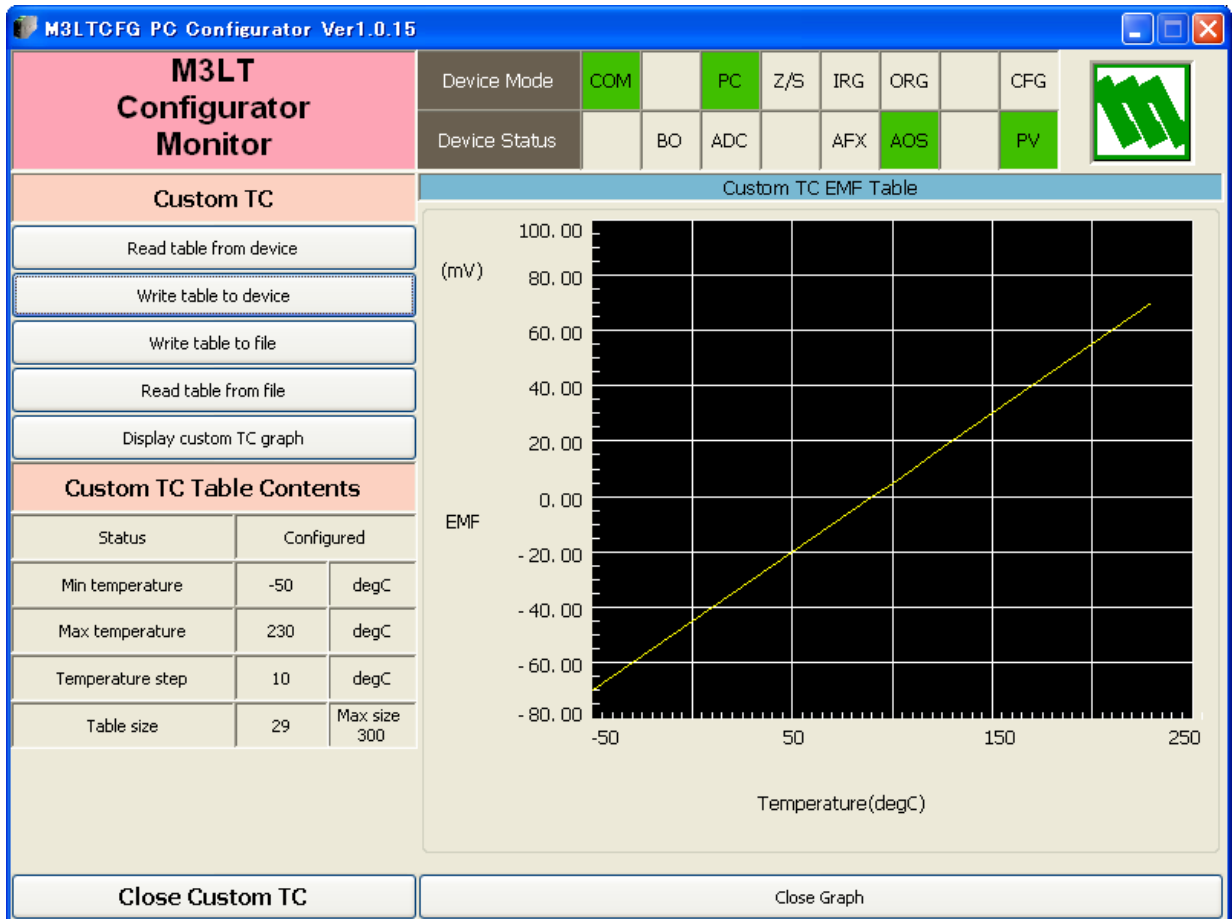
Click [Custom TC] button to open the Custom TC as shown in Figure 10.

Figure 10. Custom TC



Read table from device	The program uploads characteristics table registered in the M3LT. If there is no file registered, Status under Custom TC Table Contents shows 'Non configured.'	
Write table to device	The program downloads currently displayed characteristics to the M3LT. When downloading is successfully complete, Status under Custom TC Table Contents shows 'Configured.'	
Write table to file	The program saves currently displayed characteristics data to a file. After reading the data from M3LT to the table in the PC with [Read table from device], save the data.	
Read table from file	The program uploads a file stored in the PC. When uploaded, the file contents summary is indicated under Custom TC Table Contents.	
Display custom TC graph	Characteristics data can be shown in a graph. (figure 11)	
Custom TC Table Contents	Show the summary of Custom TC Table	
	Status	Show the status of Custom TC Table.
	Min temperature	Minimum temperature in degC
	Max temperature	Maximum temperature in degC
	Temperature step	Temperature step in degC
Table size	Defined number of point	
Close Custom TC	Close the window.	

Figure 11. Custom TC graph



## 6.2. FILE MANAGEMENT

The M3LT's configurations can be saved in a file and then read out to be downloaded to multiple modules.

Click [File] button to open the File Management window as shown in Figure 12.

While this window is active, the device connection is severed, therefore the device can be connected and disconnected freely except during Upload or Download operations.

The window is divided in two sections: 'File Configuration' and 'Device Configuration.' 'File Configuration' shows data transfer (Read or Write) between the PC Configurator and the PC, while 'Device Configuration' shows data transfer (Upload or Download) between the configurator and the device.

Click [Exit] to complete the file management operations. The device will remain disconnected and must be 'Connected' to start monitoring.

### NOTE

- (1) Validity of the selected range values is not verified in this window. Please make sure to set them according to the described specifications.
- (2) Custom TC table data is not handled in this window.
- (3) With the Option /B version, Download is unavailable. However, Upload is possible to save a configuration file, or to compare with other configurations.
- (4) A comment can be entered in 'Description' in File Configuration section, which is saved in a configuration file. It cannot be written in the device. When a setting is uploaded from device, the relevant field in Device Configuration shows the device's serial number.
- (5) It is unavailable to write the calibration data ([DAC Trim], [Sensor Trim]), which is read from configuration, to the device.

Figure 12. File

Properties		File Configuration				Device Configuration			
Description	CHG		<	>					CHG
Tag No.	CHG		<	>					CHG
Sensor type									
Sensor wires	CHG		<	>					CHG
PV unit									
PV upper range	CHG		<	>					CHG
PV lower range									
PV damping	CHG		Sec	<	>		Sec		CHG
Burnout mode	CHG		<	>					CHG
CJC switch	CHG		<	>					CHG
AO type	CHG		<	>					CHG
AO upper range									
AO lower range	CHG		<	>					CHG

### 6.2.1. MODIFYING PARAMETERS

Click [CHG] button at the left of each field to modify the parameter. Fields in which the parameter has been changed will be highlighted in light yellow background color. [CHG] buttons placed across multiple fields indicate that these parameters can be modified in single sequence.

When one parameter has been changed, related fields may be also affected. For example, when 'Sensor type' is modified, 'PV range' may be automatically changed.

Parameters can be copied between 'File Configuration' and 'Device Configuration' using [ < ] and [ > ] buttons. Copied fields will be highlighted in light yellow background color.

Using [ All Copy << ] or [ All Copy >> ] buttons enables transferring all parameters between the sections. Copied fields will be highlighted in light yellow background color.

**Figure 13. Parameters Modified**

M3LTCFG PC Configurator Ver1.0.1									
Exit	Page	Read File	Write File	Upload	Download				
	1	Compare	All Copy <<	>> All Copy	Compare				
Properties		File Configuration				Device Configuration			
Description	CHG	XI020327		<	>	XI020327		CHG	
Tag No.	CHG	Tag Name1		<	>	Tag Name2		CHG	
Sensor type	CHG	Type PR		<	>	Type K		CHG	
Sensor wires	CHG	2 Wires		<	>	2 Wires		CHG	
PV unit	CHG	degC		<	>	mV		CHG	
PV upper range	CHG	1370.000	degC	<	>	1000.000	mV	CHG	
PV lower range	CHG	-270.000	degC	<	>	0.000	mV	CHG	
PV damping	CHG	5.000	Sec	<	>	1.000	Sec	CHG	
Burnout mode	CHG	Downscale		<	>	None		CHG	
CJC switch	CHG	CJC OFF		<	>	CJC OFF		CHG	
AO type	CHG	0 to 20 mA		<	>	0 to 20 mA		CHG	
AO upper range	CHG	20.000	mA	<	>	18.000	mA	CHG	
AO lower range	CHG	6.500	mA	<	>	4.000	mA	CHG	

### 6.2.2. TRANSFERRING DATA TO/FROM DEVICE

Click [Upload] button to connect to the device, to read out its configuration data and to show it in 'Device Configuration' section on the screen (Figure 14). All background colors are back to the initial state.

'Description' indicates the serial number of the product, which cannot be modified or copied from 'File Configuration' section.

Click [Download] button to connect and write the configuration data in 'Device Configuration' fields to the device.

If an error occurs and downloading is stopped during the process, erred data field is highlighted in med pale red background color.

When the downloading is successfully complete, the configuration data is automatically uploaded and the background color returns to the initial state.

**Figure 14. Data Uploaded, first page**

Properties		File Configuration				Device Configuration			
Description	CHG		<	>	X1020327				CHG
Tag No.	CHG		<	>	Tag Name2				CHG
Sensor type					Type PR				
Sensor wires	CHG		<	>	2 Wires				CHG
PV unit					degC				
PV upper range	CHG		<	>	1370.000	degC			CHG
PV lower range					-270.000	degC			
PV damping	CHG				1.000	Sec			CHG
Burnout mode	CHG		<	>	None				CHG
CJC switch	CHG		<	>	CJC OFF				CHG
AO type	CHG		<	>	0 to 20 mA				CHG
AO upper range					18.000	mA			
AO lower range	CHG		<	>	4.000	mA			CHG



### 6.2.3. READING/WRITING FILES

Click [Read File] button to read the configuration data from a specified file and to show it in 'File Configuration' section on the screen (Figure 15). All background colors are back to the initial state.

Click [Write File] button to write the configuration data in 'File Configuration' section to a specified file.

A comment (max. 64 alphanumeric characters) can be entered in 'Description' in File Configuration section, which is saved in a configuration file. It cannot be written in the device. When a setting is uploaded from device, the relevant field in Device Configuration shows the device's serial number.

Figure 15. File Read Out

The screenshot shows the M3LTCFG PC Configurator Ver1.0.1 interface. At the top, there are buttons for Exit, Page 1, Read File, Write File, Upload, Download, Compare, All Copy <<, >> All Copy, and Compare. Below these are two main sections: File Configuration and Device Configuration. Each section has a 'Properties' row and several rows for sensor and AO settings. The File Configuration section shows settings for Description (XIO20327), Tag No. (Tag Name1), Sensor type (Type PR), Sensor wires (2 Wires), PV unit (degC), PV upper range (1370.000 degC), PV lower range (-270.000 degC), PV damping (5.000 Sec), Burnout mode (None), CJC switch (CJC OFF), AO type (0 to 20 mA), AO upper range (20.000 mA), and AO lower range (6.500 mA). The Device Configuration section shows settings for Description (XIO20327), Tag No. (Tag Name2), Sensor type (Type PR), Sensor wires (2 Wires), PV unit (degC), PV upper range (1370.000 degC), PV lower range (-270.000 degC), PV damping (1.000 Sec), Burnout mode (None), CJC switch (CJC OFF), AO type (0 to 20 mA), AO upper range (18.000 mA), and AO lower range (4.000 mA). Each setting has a 'CHG' button and navigation arrows (< and >).

Properties	File Configuration				Device Configuration			
Description	CHG	XIO20327		<	>	XIO20327		CHG
Tag No.	CHG	Tag Name1		<	>	Tag Name2		CHG
Sensor type		Type PR				Type PR		
Sensor wires	CHG	2 Wires		<	>	2 Wires		CHG
PV unit		degC				degC		
PV upper range		1370.000	degC			1370.000	degC	
PV lower range	CHG	-270.000	degC	<	>	-270.000	degC	CHG
PV damping	CHG	5.000	Sec	<	>	1.000	Sec	CHG
Burnout mode	CHG	None		<	>	None		CHG
CJC switch	CHG	CJC OFF		<	>	CJC OFF		CHG
AO type	CHG	0 to 20 mA		<	>	0 to 20 mA		CHG
AO upper range		20.000	mA			18.000	mA	
AO lower range	CHG	6.500	mA	<	>	4.000	mA	CHG

### 6.2.4. COMPARING FILE TO DEVICE

You can compare the configuration data in 'File Configuration' fields and 'Device Configuration' fields.

Click [Compare] button in 'Device Configuration' fields to compare its data to those in 'File Configuration' fields. Deviations will be highlighted in med pale red background color.

Click [Compare] button in 'File Configuration' fields to compare its data to those in 'Device Configuration' fields. Deviations will be highlighted in med pale red background color.

**Figure 16. Parameters Compared**

Properties	File Configuration				Device Configuration			
Description	CHG	XI020327	<	>	XI020327			CHG
Tag No.	CHG	Tag Name1	<	>	Tag Name1			CHG
Sensor type		Type PR			Type PR			
Sensor wires	CHG	2 Wires	<	>	2 Wires			CHG
PV unit		degC			degC			
PV upper range		1370.000			1370.000	degC		
PV lower range	CHG	-270.000	<	>	-270.000	degC		CHG
PV damping	CHG	5.000	<	>	1.000	Sec		CHG
Burnout mode	CHG	None	<	>	None			CHG
CJC switch	CHG	CJC OFF	<	>	CJC OFF			CHG
AO type	CHG	0 to 20 mA	<	>	0 to 20 mA			CHG
AO upper range		20.000			20.000	mA		
AO lower range	CHG	6.500	<	>	4.000	mA		CHG

## 6.2.5. OPERATION EXAMPLE BY FILE MANAGEMENT

Operation procedure to change the configuration of the device with file management.

(1) Click [Read File] button to read the configuration data from a specified file

M3LTCFG PC Configurator Ver1.0.15									
Exit	Page	Read File		Write File		Upload		Download	
	1	Compare		All Copy <<		>> All Copy		Compare	
Properties		File Configuration				Device Configuration			
Description	CHG	XI020327		<	>			CHG	
Tag No.	CHG	Tag Name1		<	>			CHG	
Sensor type	CHG	Type PR		<	>			CHG	
Sensor wires	CHG	2 Wires		<	>			CHG	
PV unit	CHG	degC		<	>			CHG	
PV upper range	CHG	1760.000	degC	<	>			CHG	
PV lower range	CHG	0.000	degC	<	>			CHG	
PV damping	CHG	5.000	Sec	<	>		Sec	CHG	
Burnout mode	CHG	Upscale		<	>			CHG	
CJC switch	CHG	CJC ON		<	>			CHG	
AO type	CHG	0 to 20 mA		<	>			CHG	
AO upper range	CHG	20.000	mA	<	>			CHG	
AO lower range	CHG	4.000	mA	<	>			CHG	

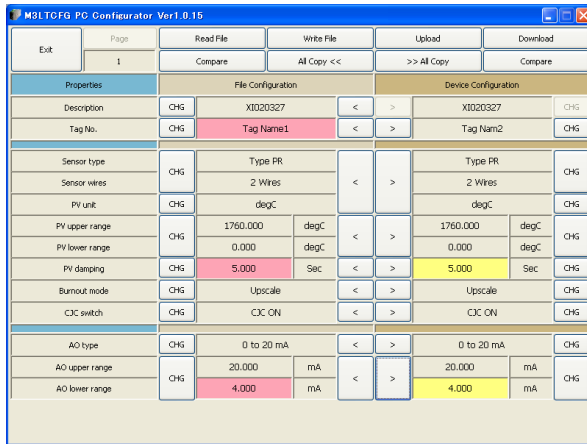
(2) Click [Upload] button to connect to the device, to read out its configuration data.

M3LTCFG PC Configurator Ver1.0.15									
Exit	Page	Read File		Write File		Upload		Download	
	1	Compare		All Copy <<		>> All Copy		Compare	
Properties		File Configuration				Device Configuration			
Description	CHG	XI020327		<	>	XI020327		CHG	
Tag No.	CHG	Tag Name1		<	>	Tag Nam2		CHG	
Sensor type	CHG	Type PR		<	>	Type PR		CHG	
Sensor wires	CHG	2 Wires		<	>	2 Wires		CHG	
PV unit	CHG	degC		<	>	degC		CHG	
PV upper range	CHG	1760.000	degC	<	>	1760.000	degC	CHG	
PV lower range	CHG	0.000	degC	<	>	0.000	degC	CHG	
PV damping	CHG	5.000	Sec	<	>	1.000	Sec	CHG	
Burnout mode	CHG	Upscale		<	>	Upscale		CHG	
CJC switch	CHG	CJC ON		<	>	CJC ON		CHG	
AO type	CHG	0 to 20 mA		<	>	0 to 20 mA		CHG	
AO upper range	CHG	20.000	mA	<	>	20.000	mA	CHG	
AO lower range	CHG	4.000	mA	<	>	0.000	mA	CHG	

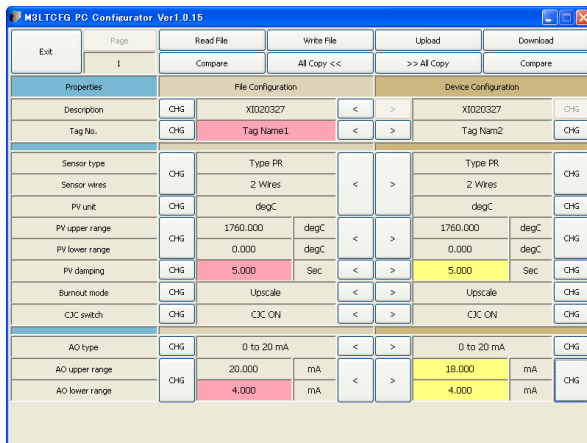
(3) Click [Compare] button in 'File Configuration' fields to compare the data in the file and the data in the device. Deviations will be highlighted in med pale red background color.

M3LTCFG PC Configurator Ver1.0.15									
Exit	Page	Read File		Write File		Upload		Download	
	1	Compare		All Copy <<		>> All Copy		Compare	
Properties		File Configuration				Device Configuration			
Description	CHG	XI020327		<	>	XI020327		CHG	
Tag No.	CHG	Tag Name1		<	>	Tag Nam2		CHG	
Sensor type	CHG	Type PR		<	>	Type PR		CHG	
Sensor wires	CHG	2 Wires		<	>	2 Wires		CHG	
PV unit	CHG	degC		<	>	degC		CHG	
PV upper range	CHG	1760.000	degC	<	>	1760.000	degC	CHG	
PV lower range	CHG	0.000	degC	<	>	0.000	degC	CHG	
PV damping	CHG	5.000	Sec	<	>	1.000	Sec	CHG	
Burnout mode	CHG	Upscale		<	>	Upscale		CHG	
CJC switch	CHG	CJC ON		<	>	CJC ON		CHG	
AO type	CHG	0 to 20 mA		<	>	0 to 20 mA		CHG	
AO upper range	CHG	20.000	mA	<	>	20.000	mA	CHG	
AO lower range	CHG	4.000	mA	<	>	0.000	mA	CHG	

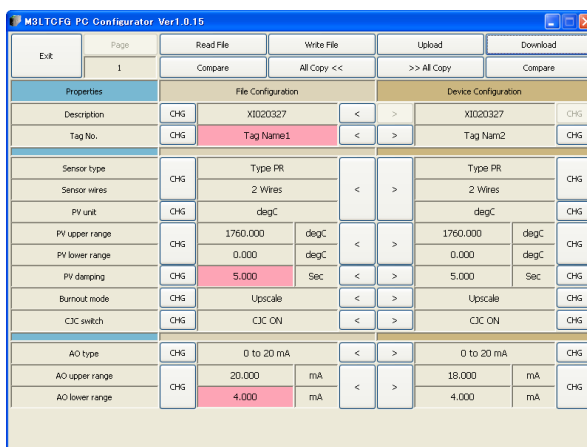
(4) Parameter can be copied from 'File Configuration' to 'Device Configuration' using [ > ] button. Copied fields will be highlighted in light yellow background color.



(5) Click [CHG] button at the left of each field to modify the parameter. Fields in which the parameter has been changed will be highlighted in light yellow background color.



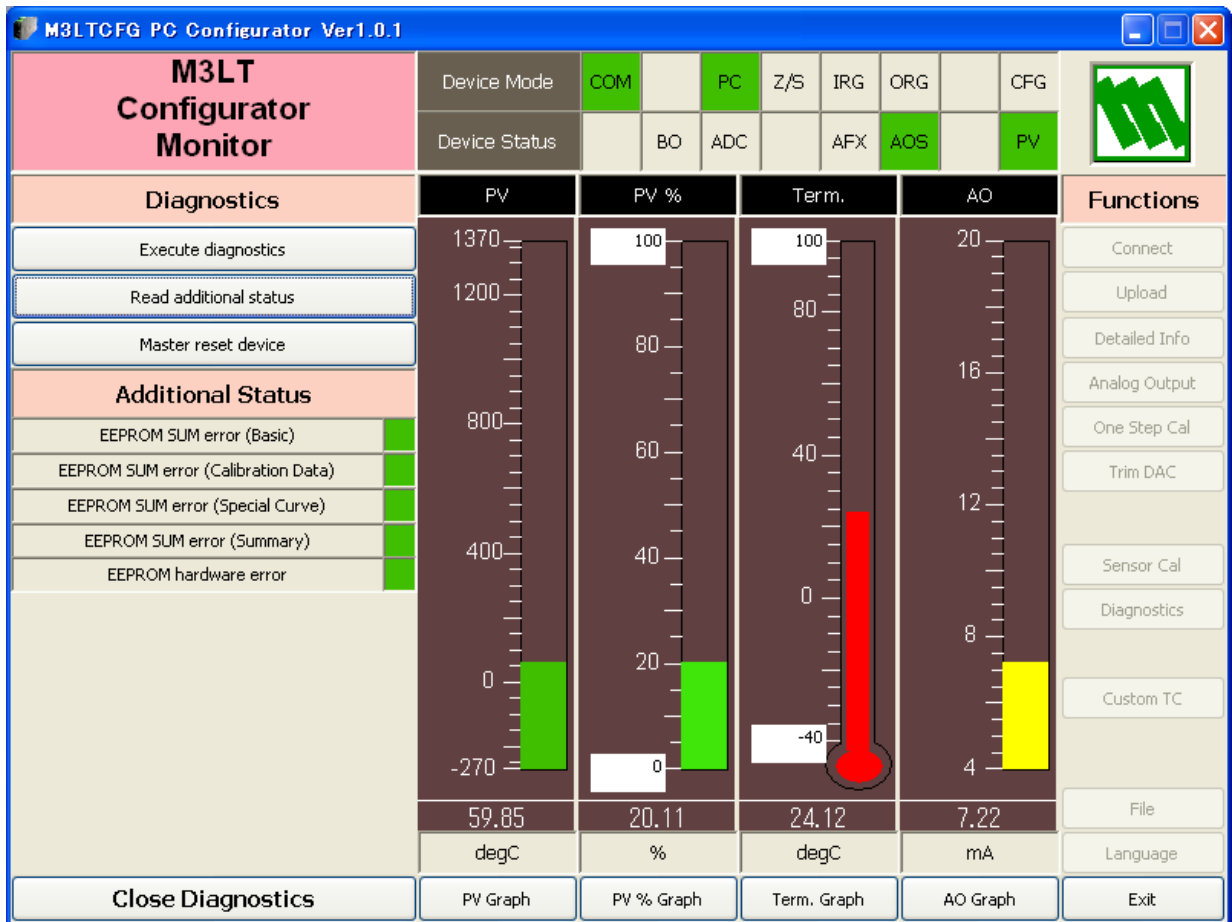
(6) Click [Download] button to write the configuration data in 'Device Configuration' fields to the connected device. When the downloading is successfully complete, the configuration data is automatically uploaded and the background color returns to the initial state.



## 7. DIAGNOSTICS

Click [Diagnostics] button to open the Diagnostics window as shown in Figure 17.

Figure 17. Diagnostics

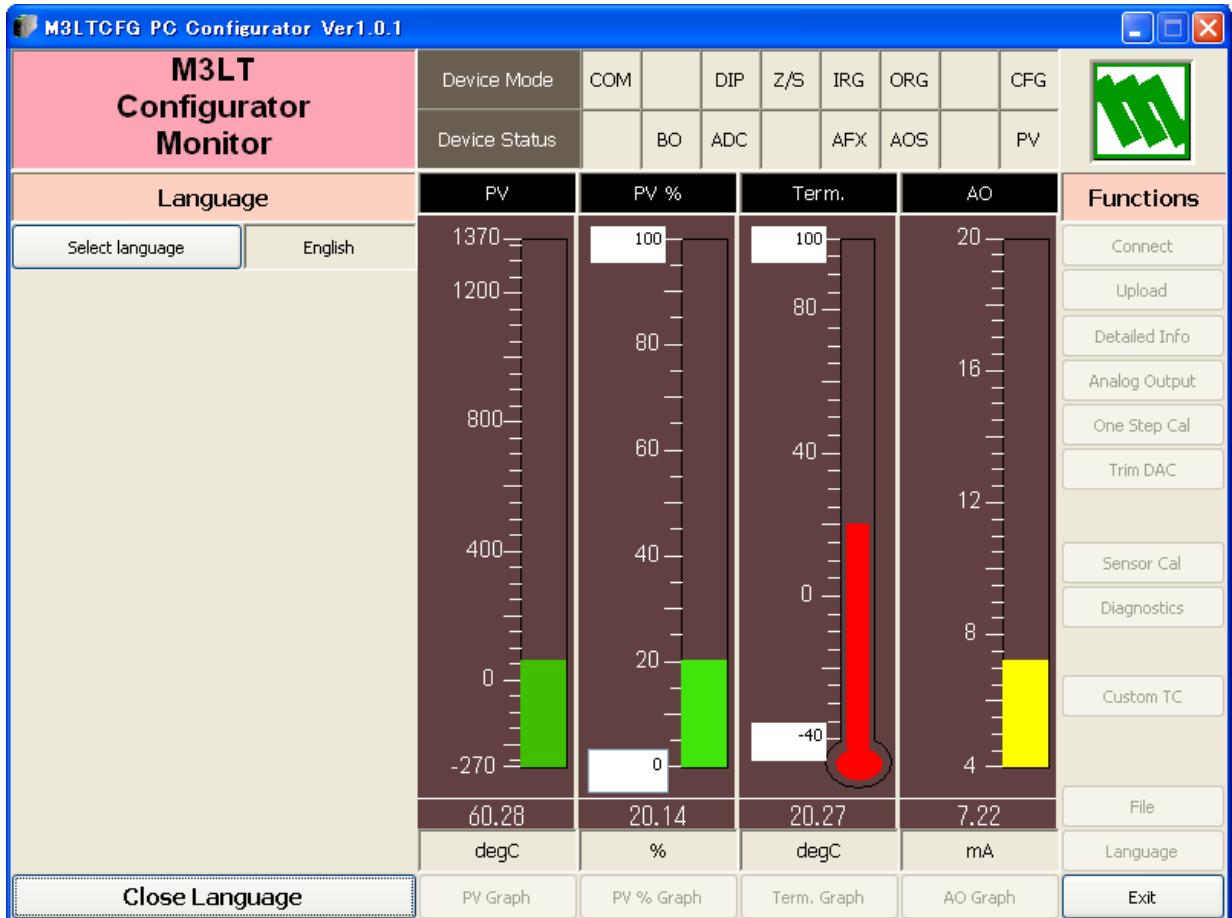


Execute diagnostics		Activates a diagnostics program and results are displayed in Additional Status.
Read additional status		Reads current contents of Additional Status from the device.
Master reset device		Reset and restart the device without actually turning OFF/ON the power supply.
Additional Status	EEPROM SUM error (Basic)	Status is displayed: green in normal status, while red in error.
	EEPROM SUM error (Calibration data)	
	EEPROM SUM error (Special Curve)	
	EEPROM SUM error (Summary)	
	EEPROM SUM hardware error	
Close Diagnostics		Close the window.

## 8. LANGUAGE

Click [Language] button to open the Language window as shown in Figure 18. The user can select the display language of the M3LTCFG.

Figure 18. Language



Click [Select language] to select the available language. The selected language is shown on the screen immediately. English is available in each language version of Windows, while Windows in your PC must support other language in order to display it.

Click [Close Language] to close the window.