

# Smart Digital-Process Gas Detector

# MULTI-795 (O<sub>2</sub>, H<sub>2</sub>, CO, CH<sub>4</sub>, CO<sub>2</sub>)

## Auto-Suction Type



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**Best Detectors,  
Best Service**

# 1. Product Introduction

## 1> Product Overview

The MULTI-795 analysis equipment is an equipment that can measure O<sub>2</sub>, H<sub>2</sub>, CO, CH<sub>4</sub>, and CO<sub>2</sub> gas components using optical, TCD, and NDIR. Continuous measurement is possible using a BLDC motor.

## 2> Product Features

- Automatic suction: Continuous measurement possible using a micro pump
- Various signal output: 4-20mA, 1 Step-Relay, RS-485 various outputs
- Because it uses an optical sensor, it can be used even in places where combustible gases are present
- Because it is not affected by miscellaneous gases, oxygen concentration can be measured in various environments
- Accurate measurement of CO, CH<sub>4</sub>, CO<sub>2</sub> gases is possible using an NDIR sensor
- Data LOG USB backup

## 3> Specifications by gas

### 1. O<sub>2</sub>

Classification	Contents
Measured gas	Oxygen (O <sub>2</sub> )
Measuring method	Optical
Detection range	0.00 ~ 30.00 %VOL
Output (Channel 1)	4~20mA, 1 step-Relay contact(Alarm)

### 2. H<sub>2</sub>

Classification	Contents
Measured gas	Hydrogen(H <sub>2</sub> )
Measuring method	TCD
Detection range	0.00 ~ 30.00 %VOL
Output (Channel 2)	4~20mA, 1 step-Relay contact(Alarm)

### 3. CO

Classification	Contents
Measured gas	Carbon Monoxide (CO)
Measuring method	NDIR
Detection range	0.00 ~ 30.00 %VOL
Output (Channel 3)	4~20mA, 1 step-Relay contact(Alarm)

### 4. CH<sub>4</sub>

Classification	Contents
Measured gas	Methane (CH <sub>4</sub> )
Measuring method	NDIR
Detection range	0.00 ~ 30.00 %VOL
Output (Channel 4)	4~20mA, 1 step-Relay contact(Alarm)

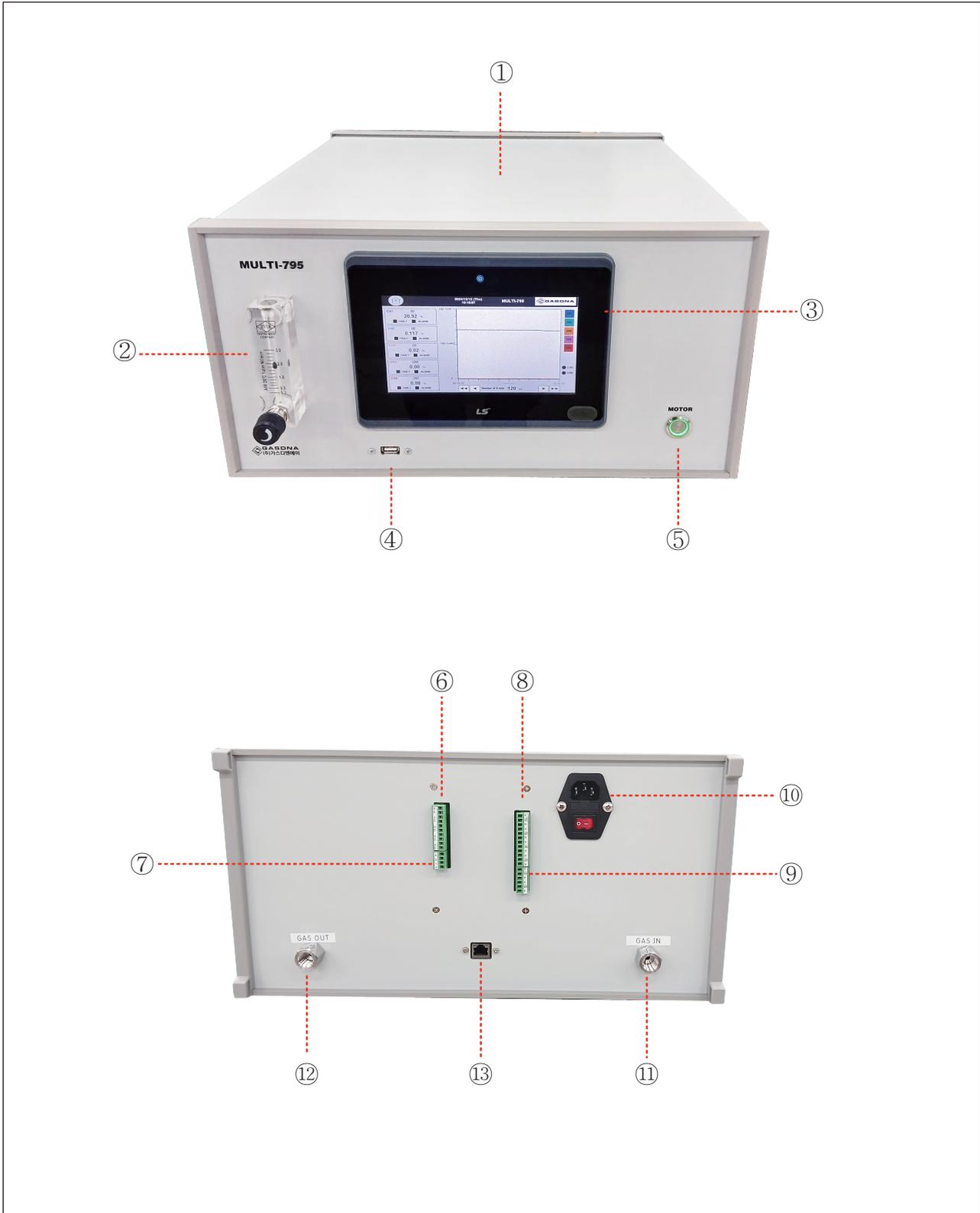
### 5. CO<sub>2</sub>

Classification	Contents
Measured gas	Carbon dioxide (CO <sub>2</sub> )
Measuring method	NDIR
Detection range	0.00 ~ 30.00 %VOL
Output (Channel 5)	4~20mA, 1 step-Relay contact(Alarm)

#### 4> Product Specifications

Classification	Contents
Measured gas	O <sub>2</sub> ,H <sub>2</sub> ,CO,CH <sub>4</sub> ,CO <sub>2</sub>
Measuring principle	Optical, TCD, NDIR
Measuring range	0.00 ~ 30.00%
Response time	T90(within 15 seconds)
Detection method	Suction Type
Input power	AC 110 ~220 V
Suction flow rate	0.2 liter/min ~ 3 liter/min
Accuracy	≤ ±0.5% / Full Scale
Output signal	Channel 1,2,3,4,5 (4-20mA DC/F.S)
Display	7" TFT LED (800 X 480)
Alert display	Alarm - LCD lamp ALARM(RED)
	Failure alarm - LCD lamp FAULT(RED)
Alarm value setting	Alarm alarm-User arbitrary setting
Alarm delay time	0~99 seconds User arbitrary setting
Alarm release	Manual and automatic reset
Alarm output	Alarm alarm RELAY CONTACT
Operating temperature	-10℃ ~ 60℃
Operating humidity	5 ~ 95%RH (Non-Condensing)
Installation method	Desktop
Gas intake	Female 1/4"
Output options	RS-485 communication
USB Host	USB 2.0 (Data Log)

**2. Names and main functions of each part**



## 1> Name Description

### 1) Cover Case

▷ Protects the Sensor, Pump, and PCB board mounted inside from external impact and environmental changes.

### 2) Flow Meter

▷ Displays the flow rate of sample gas. Adjust the flow rate by the position of the BOLL.

### 3) Display(7" TFT 800X480)

▷ Displays the gas concentration value measured by the sensor and the setting parameters.

### 4) USB PORT

▷ USB PORT dedicated for DATA LOG BACKUP

### 5) Motor Power Switch

▷ Motor Power ON/OFF Switch

### 6) Channel (1~5) Analog Output (4~20mA)



### 7) RS-485 + External DI Input Terminal



### 8) FAULT, CH1, CH2, CH3 Alarm Terminal



### 9) CH4, CH5 Alarm Terminal



### 10) AC Power Switch

▷ AC Power ON/OFF Switch

### 11) Sample Gas Inlet

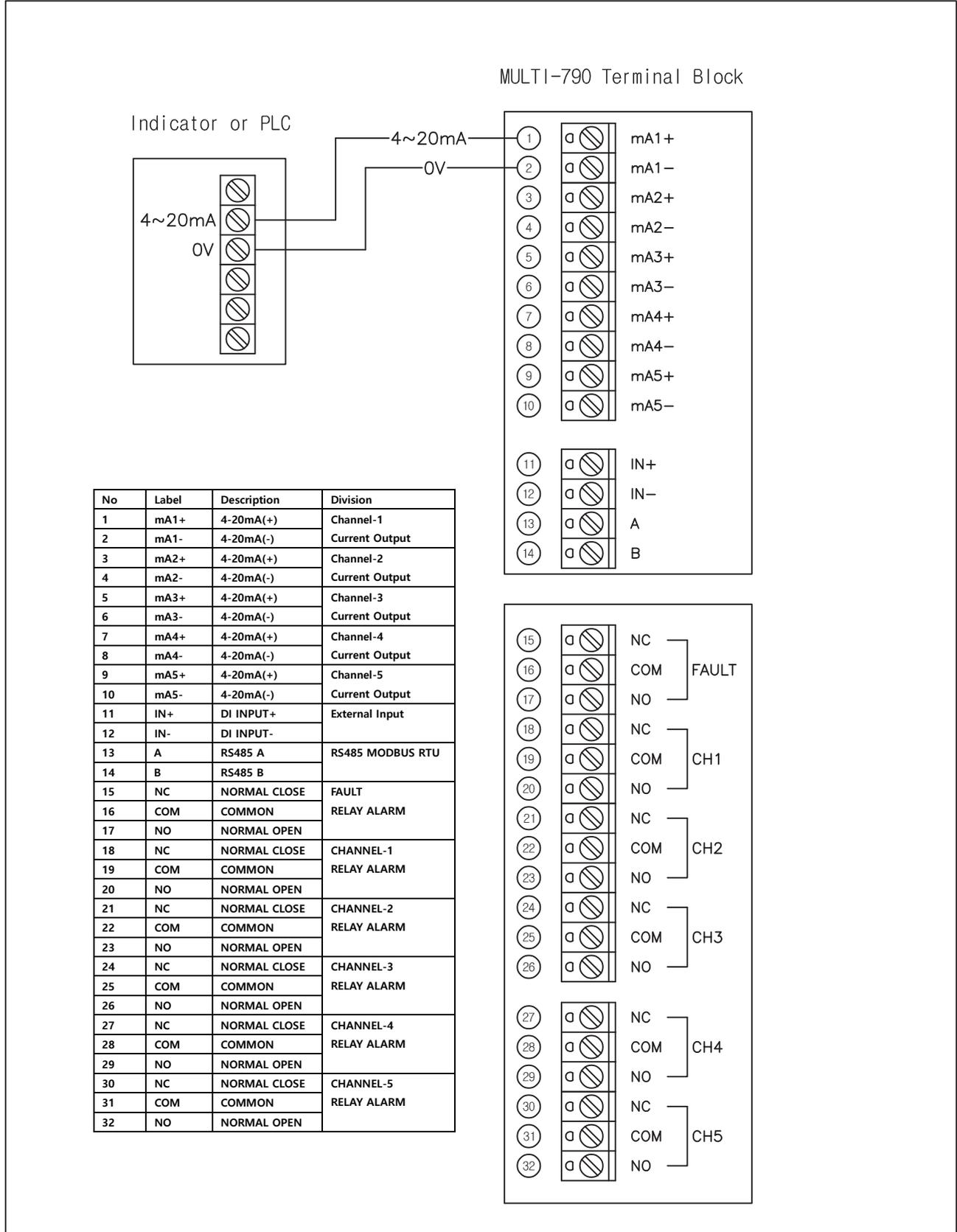
▷ Sample Gas Inlet Port(1/4")

### 12) Sample Gas Outlet

▷ Sample Gas Outlet Port(1/4")

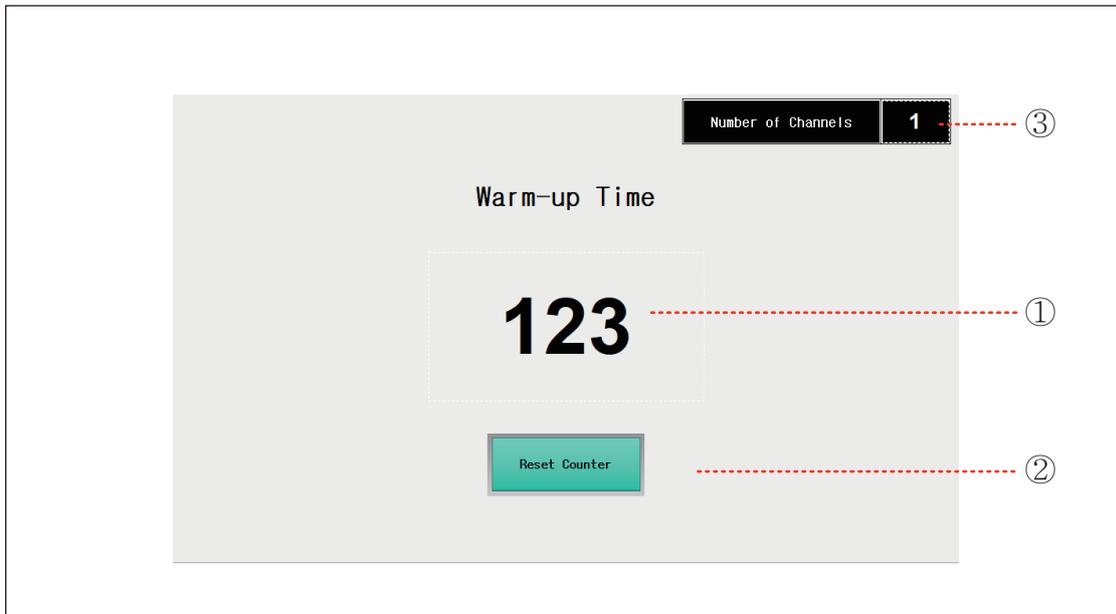
### 13) LAN Port(Optional)

## 2> Terminal block description



### 3. Display Configuration and Description

#### 1) Warm-up Time



##### 1) Warming up Time counter

- ▷ This is the first screen that appears when booting.
- ▷ When the equipment warming up time reaches 0, it moves to the main screen.

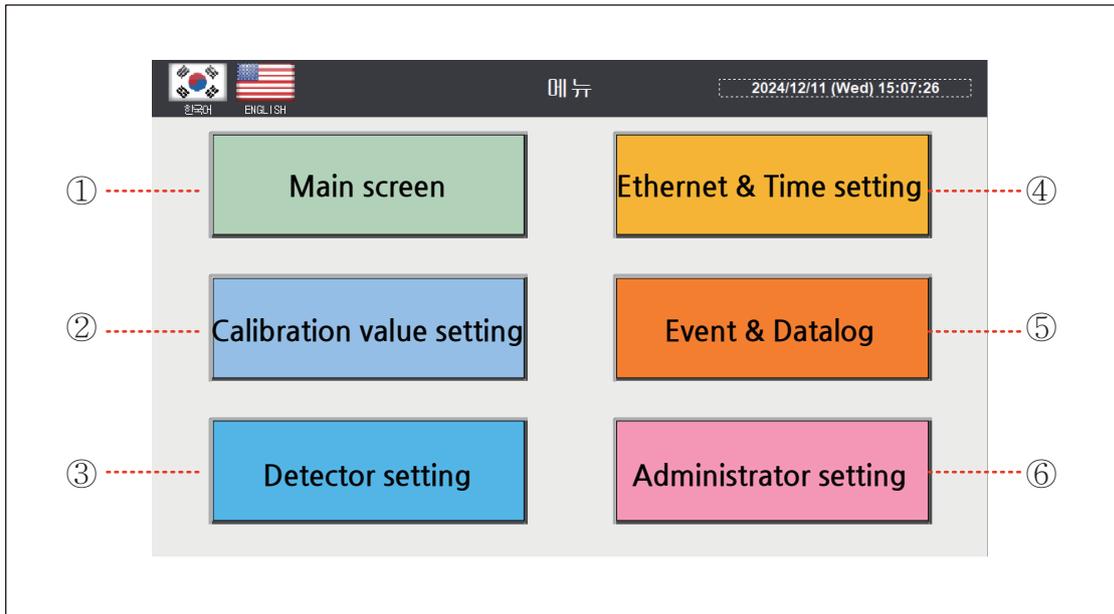
##### 2) Counter Reset

- ▷ Forcely reset the counter to 0 and move to the main screen.

##### 2) ③ Channel number display

- ▷ Displays the number of channels being used on the device.

## 2> Menu screen



### 1) Main screen

▷ Move to the gas meter main display screen.

### 2) Setting the correction value

▷ Move to the screen for correcting the analog ZERO and SPAN.

### 3) Detector Settings

▷ Go to the screen where you can change the settings for the detector.

### 4) Ethernet & Settings

▷ Go to the touchscreen status display, IP change, and time setting screens.

### 5) Event & Data Log

▷ Go to the screen to check and save the detector's alarm event and concentration value data.

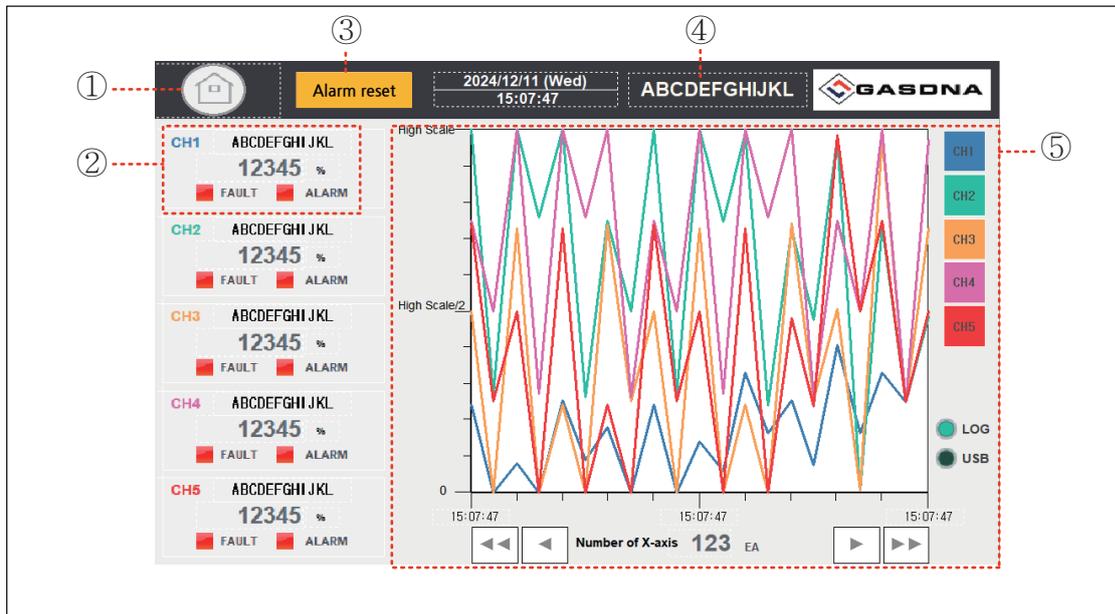
### 6) Administrator Settings

- ▷ Go to the Administrator Settings screen. Enter your password to go to the screen.
- ▷ Administrator Settings (Common): Password: 1111
- ▷ Administrator Settings (Channel): Password: 7420

(Note)

When changing data in administrator mode, malfunction may occur.  
Do not change data except in special cases.

### 3> Main screen



#### 1) Menu screen move button

▷ Moves to the menu screen.

#### 2) Detector Channel Monitoring

- ▷ Displays gas name, concentration value, error status, etc. for each channel.
- ▷ Display windows appear as many as the number of channels used.

#### 3) Alarm Reset Button

- ▷ Appears when the alarm reset method is set to 'Manual' in the administrator settings.
- ▷ When set to 'Automatic', the device is automatically reset when the error condition is resolved.

#### 4) Displays the equipment model name.

#### 5) Display detector concentration graph

- ▷ Displays detector concentration values proportionally based on the maximum scale value.
- ▷ Select graph display: Select the graph you want to display by pressing the button on the right side of the graph.
- ▷ Number of X-axis: Select the number of time axis data of the graph. (3 to 120)
- ▷ Data movement button: Click the arrow button at the bottom to view the previous or next data.



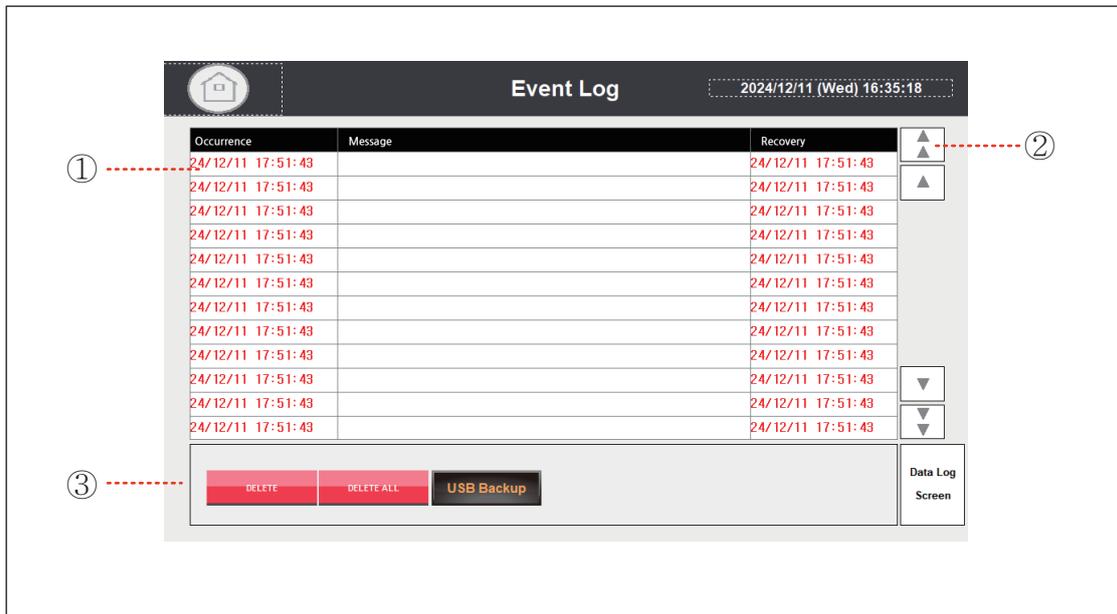
Go to oldest or most recent data.



Moves data forward or backward in units of 5.



## 4) Event & Data Log-2



### 1) Alarm Event Display

- ▷ Occurrence: Displays the time when the alarm occurs.
- ▷ Message: Displays the alarm content.
- ▷ Recovery: Displays the time when the alarm is recovered.

### 2) Data Move Button

- ▷ Move alarm data by line or page to check.

### 3) Alarm Event Related Button Description

- ▷ DELETE: Deletes the selected alarm history.
- ▷ DELETE ALL: Deletes the entire alarm history.
- ▷ USB Save: Saves the alarm event history to a USB memory stick.

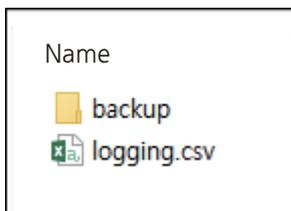
### <Directory and file name when saving log & event data to USB>

- When the internal memory is full during logging, it is automatically saved to USB.
- When saving to USB, a logging file is created in CSV file format.
- 50,000 consecutive logging data are saved in one CSV file.
- ※ The maximum logging internal memory is 1700, but up to 50,000 are saved when saving as a CSV file.



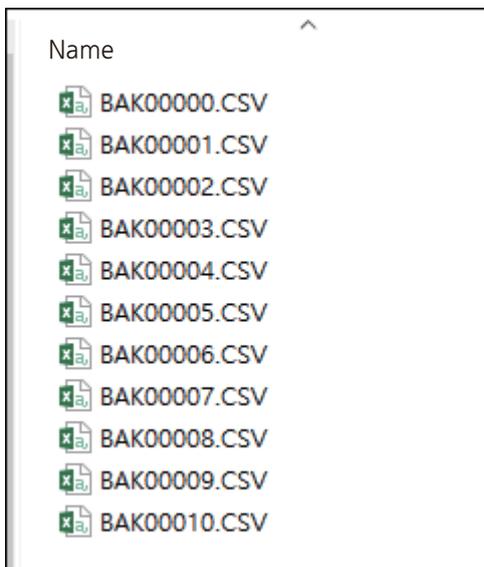
-When saving to USB, a folder is created as shown in the picture.

<Logging, alarm data folder in USB memory>



- There is a backup folder containing files that have been backed up in the logging folder.
- The 'logging.csv' file is the file where the current logging data is saved.
- When 50,000 data are acquired, the file is saved in the backup folder with the name 'BAK+number.CSV' as shown in the figure below.
- Alarm data is also saved in the same format, and the number of data in the CSV file is 512.

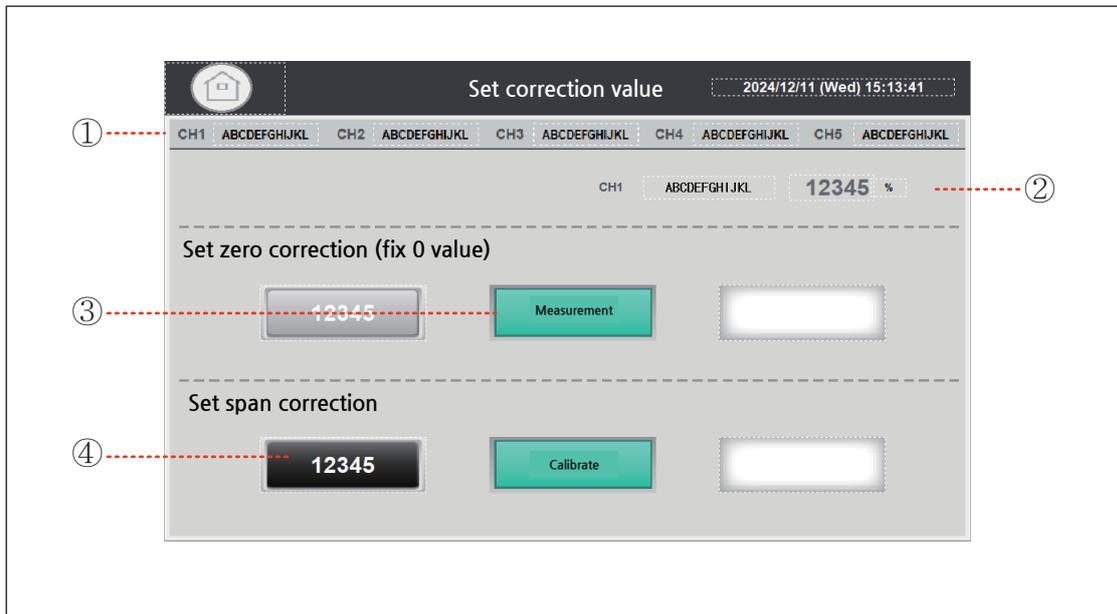
<Logging folder>



- You can see that files with 50,000 data items are created in order in the backup folder based on the logging file.

<Backup folder>

## 5. Setting the correction value



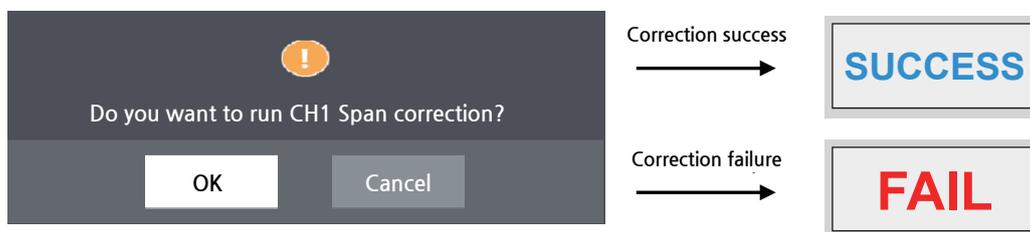
### 1) Select the detector channel to be calibrated

- ▷ Select the channel you want to calibrate.

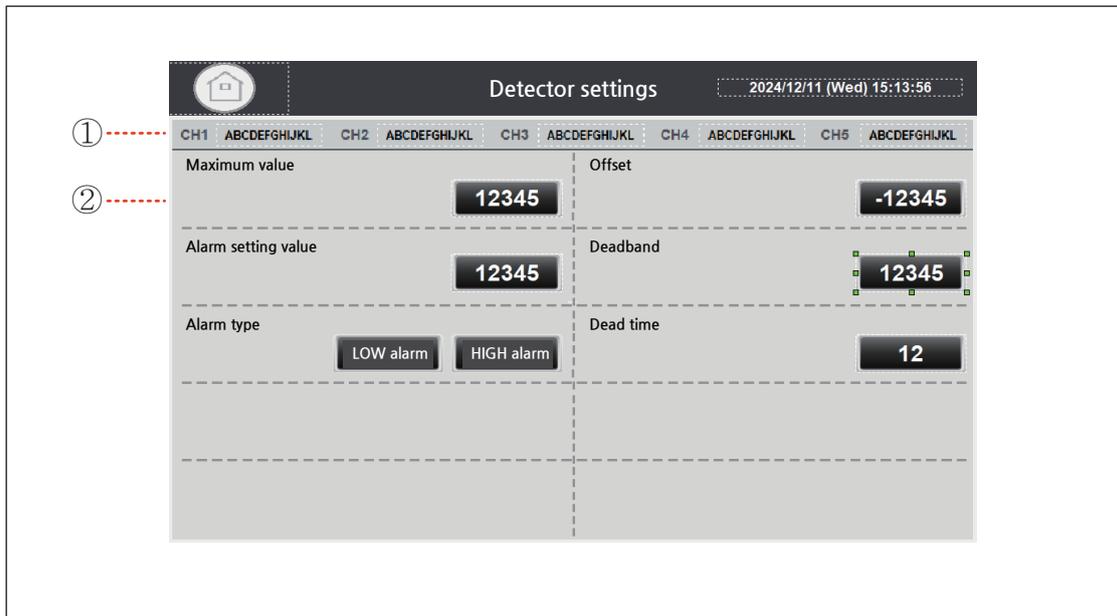
### 2) Displays the current concentration of the selected channel.

### 3) Zero/Span Calibration Sequence

- ▷ Enter the value to be calibrated. (Zero calibration is fixed to 0.)
- ▷ Enter the 'Calibrate' button.
- ▷ A window asking whether to perform calibration will appear. Click OK to perform calibration.
- ▷ The calibration result will be displayed as a message.



## 6. Detector Settings



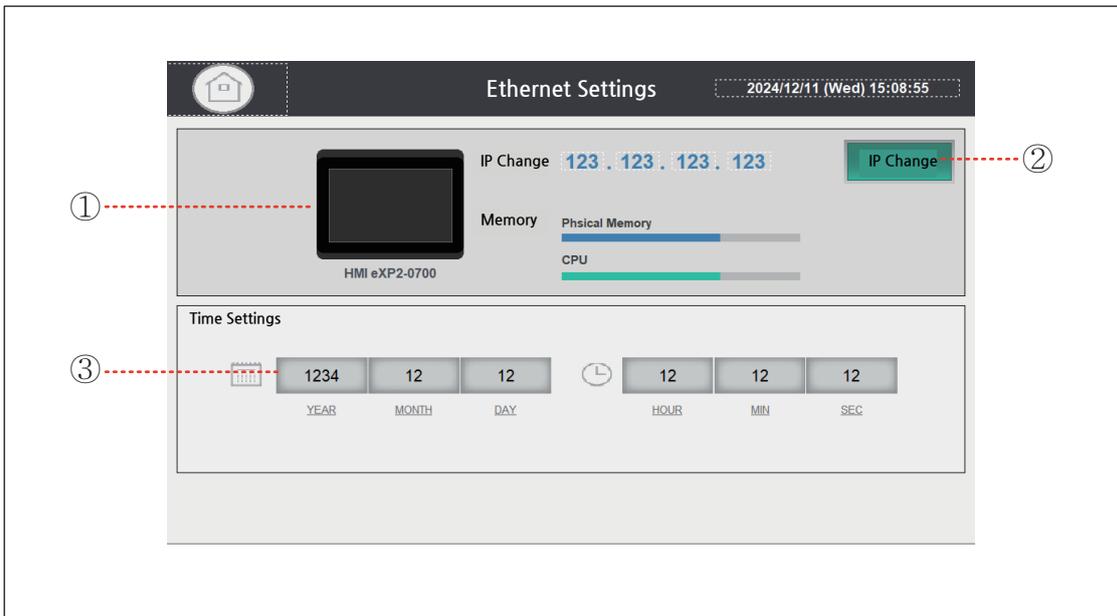
### 1) Select the detector channel

- ▷ Select the channel you want to set.

### 2) Detector Settings

- ▷ Maximum: Sets the maximum sensor value.
- ▷ Alarm setting value: Sets the reference value for alarm operation.
- ▷ Alarm type LOW alarm: An alarm occurs when the concentration value falls below the alarm setting value.
- ▷ Alarm type HIGH alarm: An alarm occurs when the concentration value rises above the alarm setting value.
- ▷ Offset: Adjusts the error range for the measured concentration value.
- ▷ Deadband: Sets the invalid range for alarm return recognition.
- ▷ Deadtime: Sets the elapsed time from when the alarm is recognized until the change in relay output is recognized.

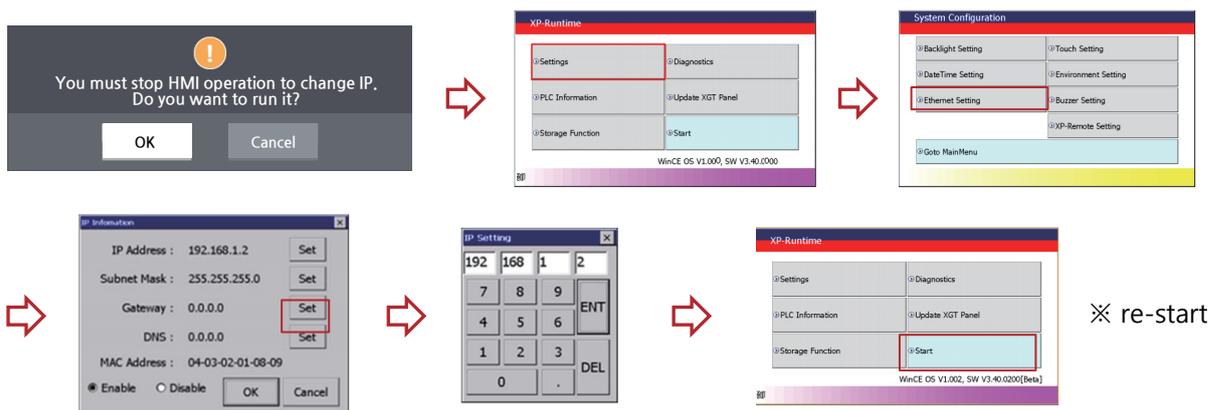
## 7. Ethernet & Time Settings



### 1) Display touchscreen IP and memory usage

### 2) IP Settings

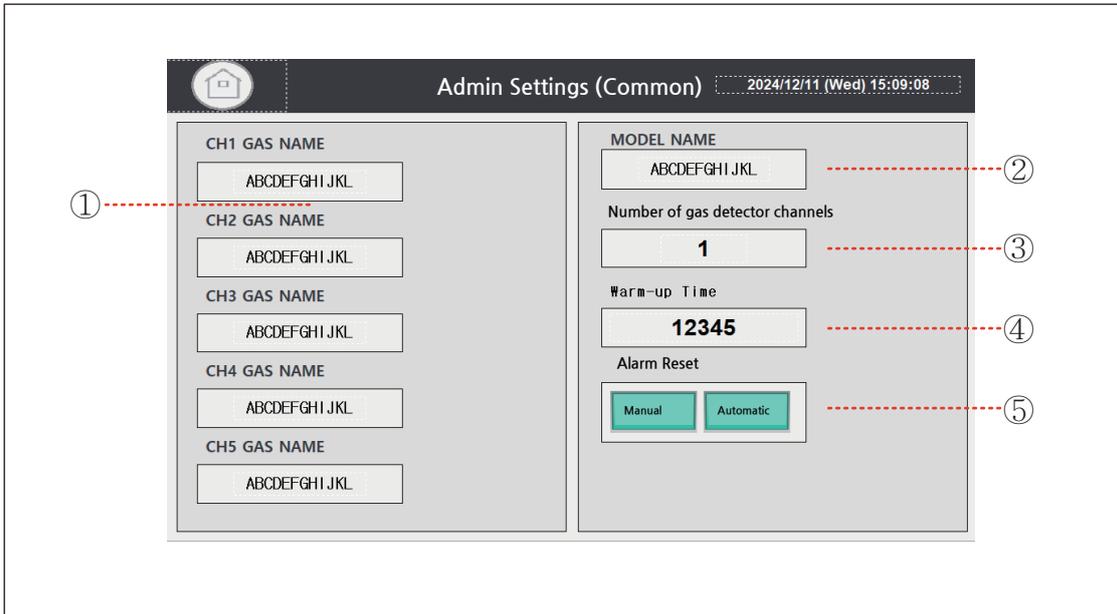
- ▷ When you press the button, a window will appear. When you press OK, the program will close and you will be taken to the touchscreen (HMI) environment settings screen.
- ※ Change it by referring to the image below.



### 2) Time Setting

- ▷ Change the HMI time.

## 8. Administrator Settings (Common)



The screenshot shows the 'Admin Settings (Common)' interface. At the top, there is a home icon, the title 'Admin Settings (Common)', and the date/time '2024/12/11 (Wed) 15:09:08'. The settings are organized into two columns:

- Left Column:** Five input fields for gas names, labeled CH1 through CH5. Each field contains the placeholder text 'ABCDEFGHIJKL'. A red dashed line with a circled '1' points to the first field.
- Right Column:**
  - 'MODEL NAME' input field containing 'ABCDEFGHIJKL'. A red dashed line with a circled '2' points to this field.
  - 'Number of gas detector channels' input field containing '1'. A red dashed line with a circled '3' points to this field.
  - 'Warm-up Time' input field containing '12345'. A red dashed line with a circled '4' points to this field.
  - 'Alarm Reset' section with two buttons: 'Manual' and 'Automatic'. A red dashed line with a circled '5' points to these buttons.

1) Enter the gas name for each channel.

2) Enter the equipment model name.

3) Number of gas detector channels

▷ Set the number of gas channels to use.

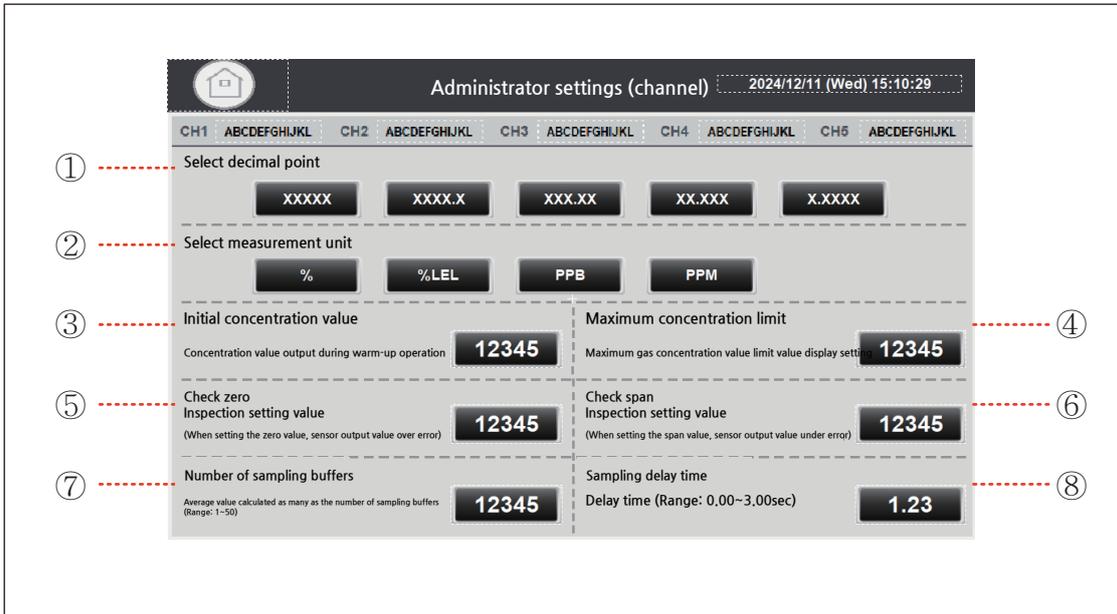
4) Set the warm-up time

▷ Set the warm-up time after powering on.

5) Select alarm reset method

▷ Set the alarm reset method when the equipment alarms.

## 8. Administrator Settings (Channel)



Administrator settings (channel) 2024/12/11 (Wed) 15:10:29

CH1 ABCDEFGHIJKL CH2 ABCDEFGHIJKL CH3 ABCDEFGHIJKL CH4 ABCDEFGHIJKL CH5 ABCDEFGHIJKL

① Select decimal point  
 XXXXX XXXX.X XXX.XX XX.XXX X.XXXX

② Select measurement unit  
 % %LEL PPB PPM

③ Initial concentration value  
 Concentration value output during warm-up operation 12345

Maximum concentration limit  
 Maximum gas concentration value limit value display setting 12345 ④

⑤ Check zero inspection setting value  
 (When setting the zero value, sensor output value over error) 12345

Check span inspection setting value  
 (When setting the span value, sensor output value under error) 12345 ⑥

⑦ Number of sampling buffers  
 Average value calculated as many as the number of sampling buffers (Range: 1-50) 12345

Sampling delay time  
 Delay time (Range: 0.00-3.00sec) 1.23 ⑧

- 1) Select the number of decimal places.
- 2) Select the unit of measurement.
- 3) Set the initial concentration value.
- 4) Set the maximum concentration limit.
- 5) Set the check zero value.
- 6) Set the check span value.
- 7) Set the sampling buffer size.
- 8) Set the sampling delay time.

## 4. External dimensions

