

Smart Digital-Process Gas Detector

MULTI-770

Auto-Suction Type



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**Best Detectors,
Best Service**

1. Product Introduction

1. Product Overview

The oxygen analyzer is a product that can quickly and rapidly measure oxygen concentration in various places such as sintering furnaces, secondary battery research labs, process quality control, and TMS.

Continuous measurement is possible using a BLDC motor.

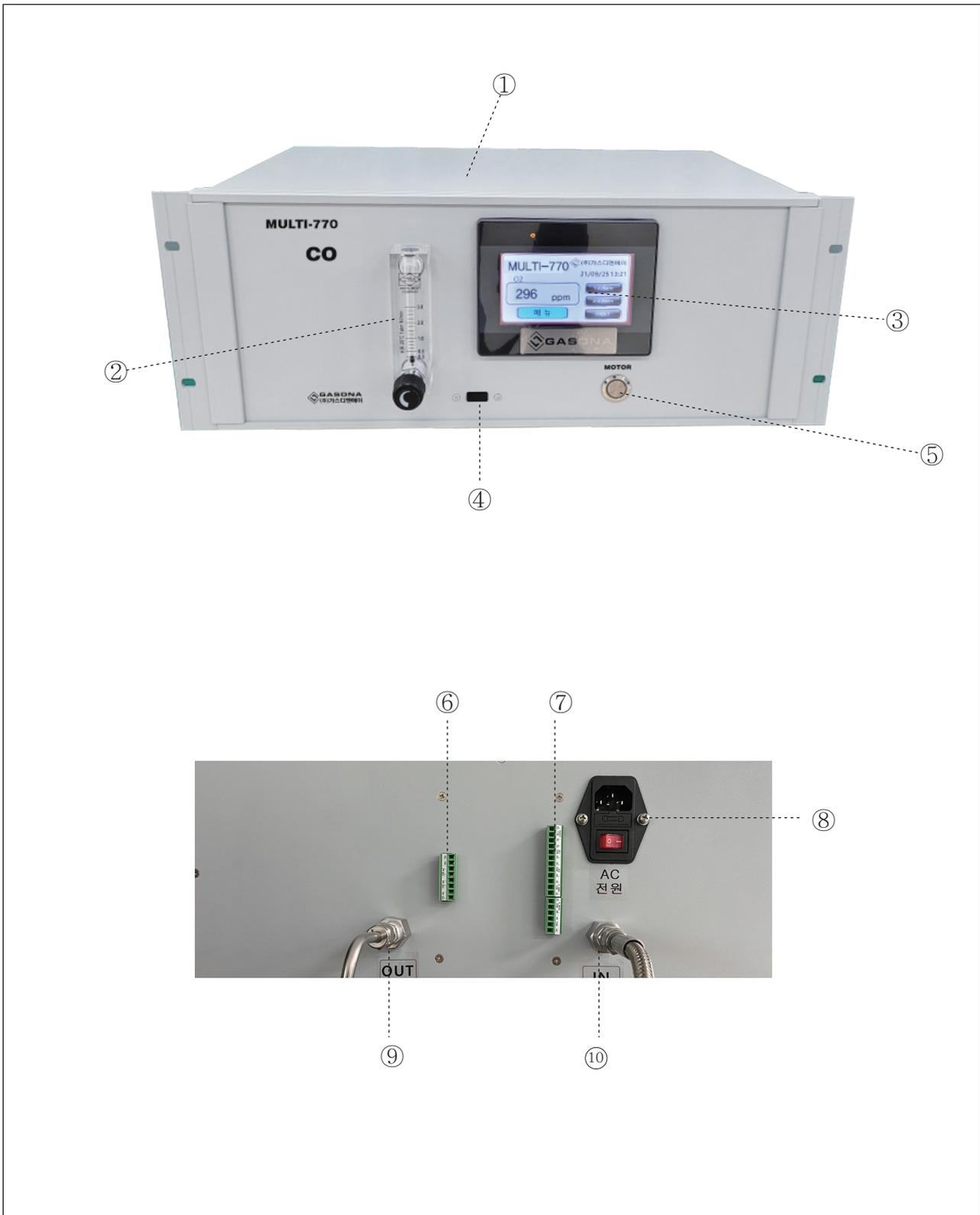
2. Product Features

- **Automatic suction:** Continuous measurement possible using a micro pump
- **Various signal outputs:** 4-20mA, 2 Step-Relay, RS-485 Various outputs
- **Can be used in places where combustible gases are present** because it uses an optical sensor
- **Can measure oxygen concentration in various environments** because it is not affected by miscellaneous gases
- **Data LOG USB backup**

3. Product specifications

Classification	Contents
Measured gas	Oxygen
Measuring principle	Optical
Measuring range	0.00 ~ 100%
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	4-20mA DC/F.S
Display	7" TFT LED (800 X 480)
Alert display	1st alarm - AL1 LCD lamp(YELLOW)
	2nd alarm - LCD lamp(RED)
	Failure alarm - LCD lamp FAULT(RED)
Alarm value setting	AL2/AL1 2-stage alarm-user arbitrary setting
Alarm delay time	0~99 seconds user arbitrary setting
Alarm release	Manual and automatic return
Alarm output	2-stage(AL2/AL1) 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 Download)

2. Names and main functions of each part



1. Name explanation

1) Cover Case

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

2) Flow Meter

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

3) Display(7" TFT 800X480)

- ▷ USB PORT dedicated for DATA LOG BACKUP

4) USB PORT

- ▷ DATA LOG BACKUP 전용 USB PORT

5) Motor Power Switch

- ▷ Motor Power ON/OFF Switch

6) RS485 and 4-20mA Terminal

- ▷ Terminal for connecting Modbus data communication and 4-20mA output.

7) Alarm and correction signal terminal

- ▷ Fault, Alarm1, Alarm2 contact output and SPAN/ZERO correction signal contact output terminal.

8) AC Power Switch

- ▷ AC Power ON/OFF Switch

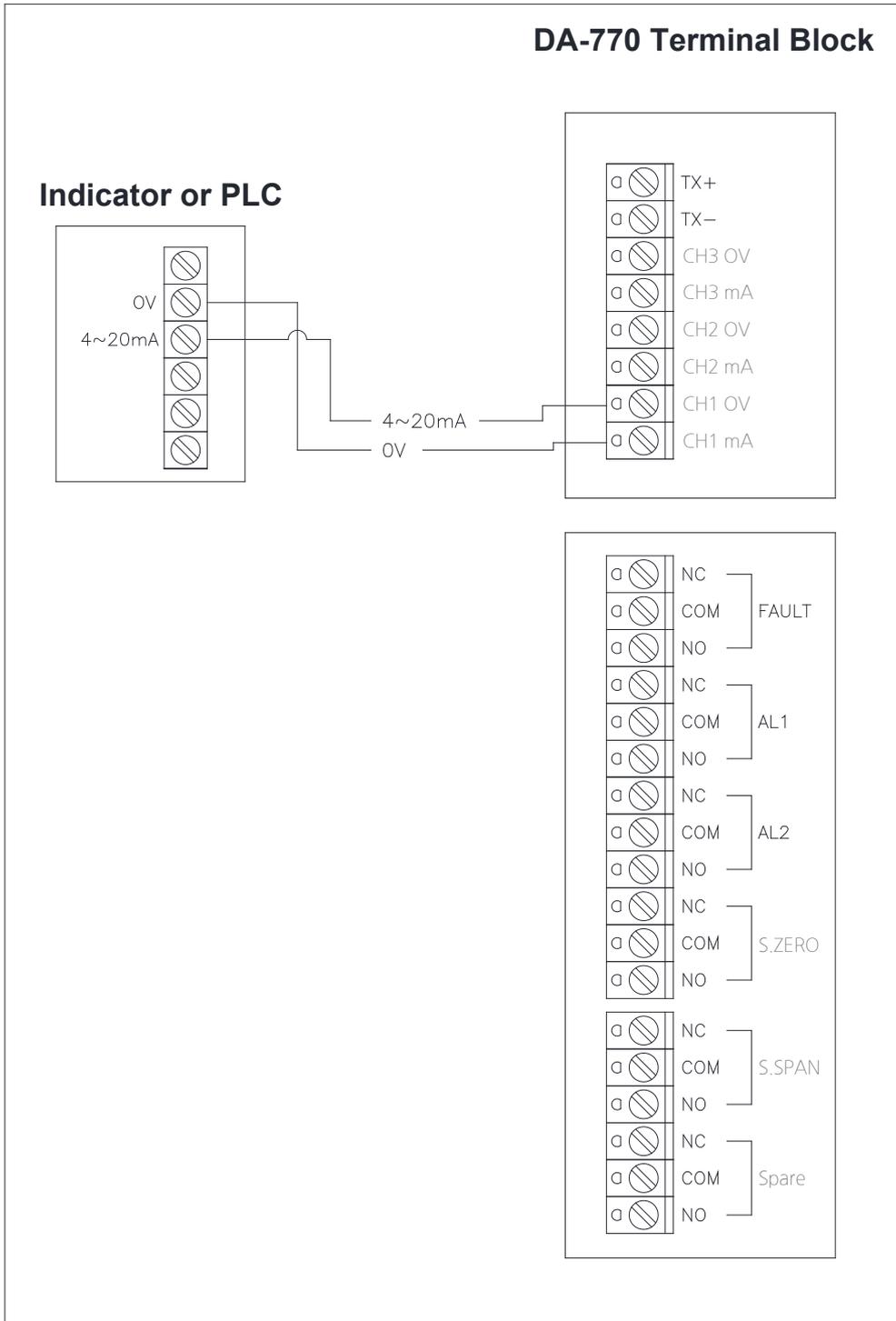
9) Sample Gas Out

- ▷ Sample Gas Vent Port(1/4")

10) Sample Gas Inlet

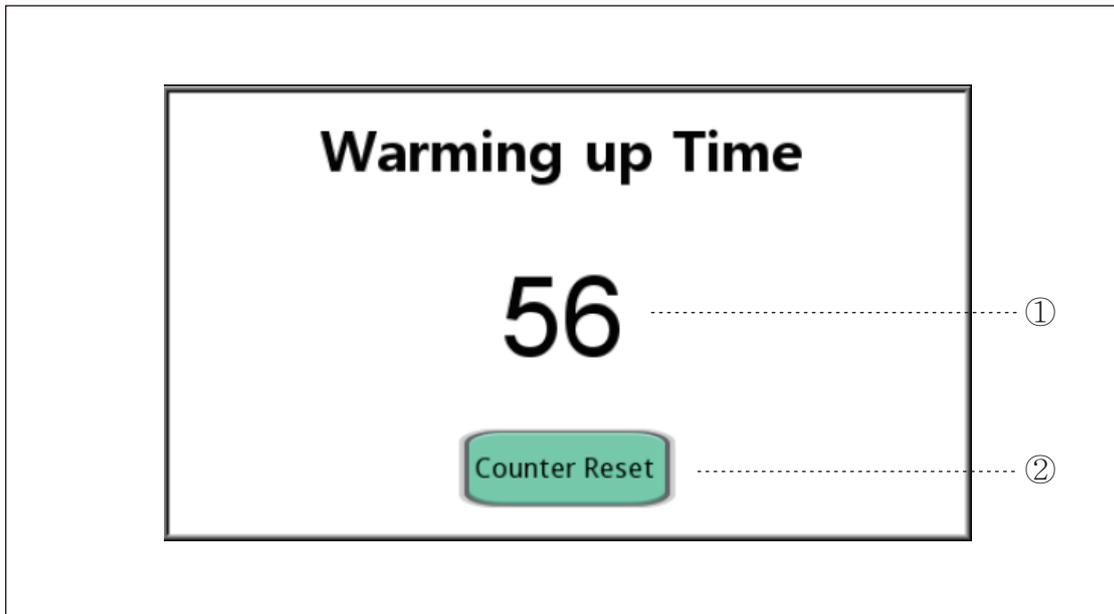
- ▷ Sample Gas Inlet Port(1/4")

2. Terminal block description



3. Display Configuration and Description

1. Warming up Time



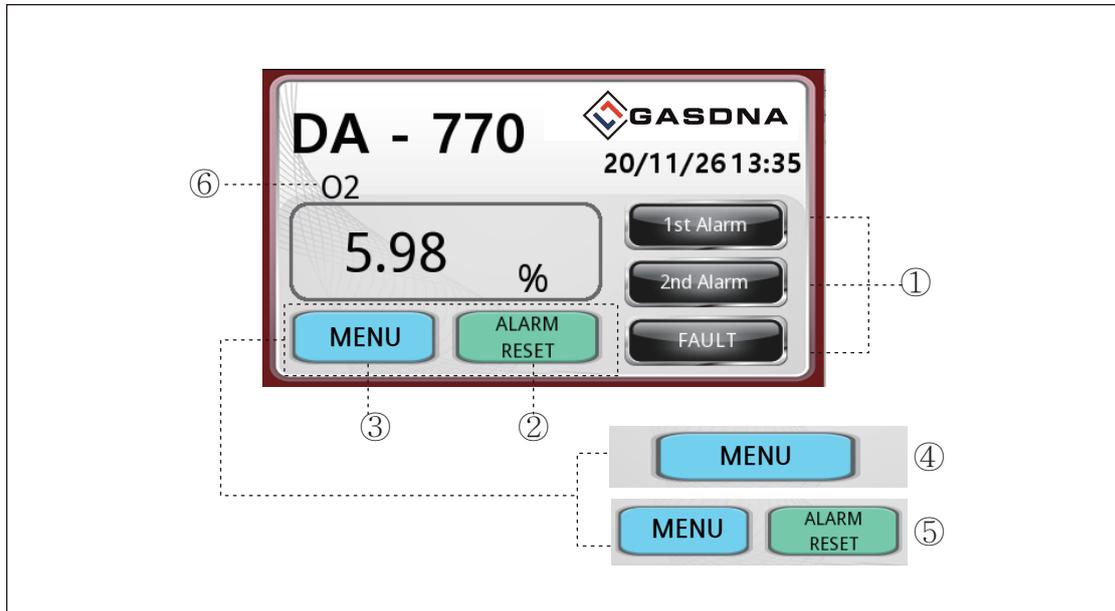
1) Warming up Time Counter

- ▷ This shows the counter for the Warming up Time when first booting. When the value reaches 0, it automatically switches to the main screen.

2) Counter Reset

- ▷ Forces the counter to be reset to 0 and returns to the main screen.

2. DA-770 MAIN



1) Relay alarm display

- ▷ The lamp operates according to the 1st and 2nd detector alarm settings. In case of a failure, the lamp operates in Fault.

2) Alarm Reset

- ▷ Resets the lamp operation for Alarm and Fault that have triggered an alarm. However, it is used when manually selected in the Reset settings.

3) Menu

- ▷ Go to the screen where you can select settings for the detector and data history and charts.

4) Activate the menu button

- ▷ When AUTO mode is selected in the Settings Alarm Reset mode, only the menu button is activated.

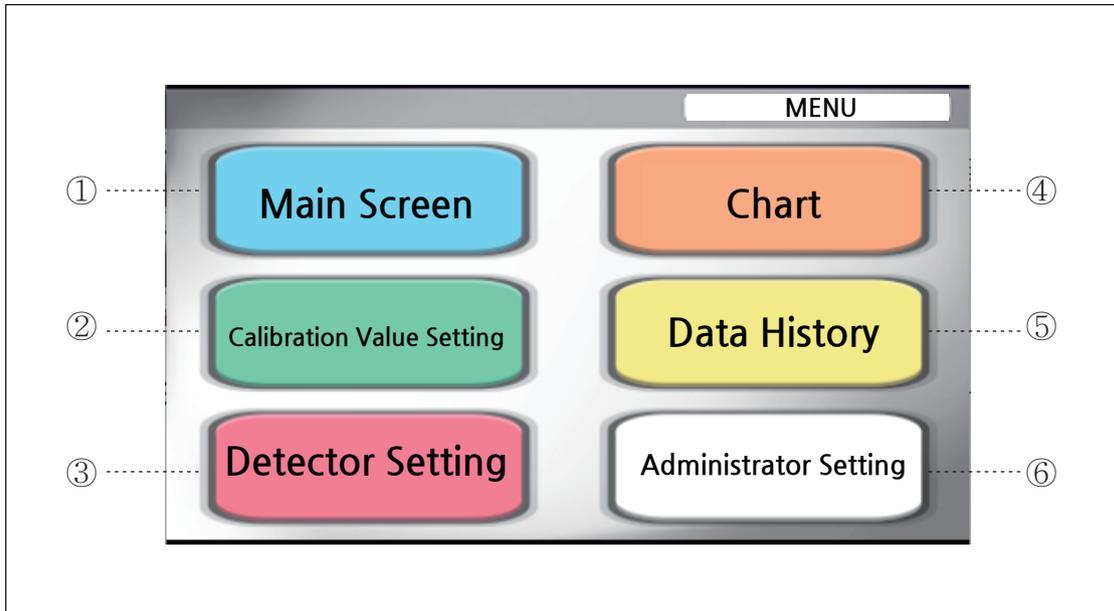
5) Menu and Alarm Reset

- ▷ When MANUAL mode is selected in the Settings Alarm Reset mode, the Menu and Alarm Reset buttons are activated.

6) Gas name

- ▷ This is an indication of the gas being detected.

3. MENU



1) Main screen

▷ Go to the DA-770 main monitoring screen.

2) Setting the correction value

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

3) Detector Settings

▷ Move to the screen where the user can change settings for the detector.

4) Chart

▷ Move to the screen organized in a chart graph format by concentration value.

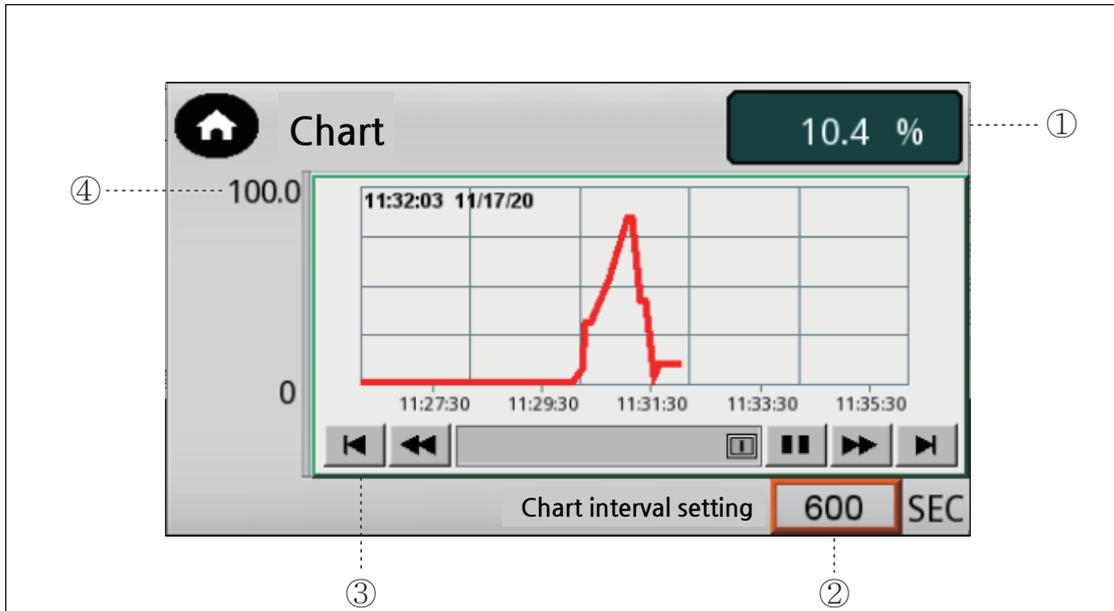
5) Data Histor

▷ ▷ Move to the screen that analyzes data on concentration values by time.

6) Administrator Settings

▷ Move to the settings screen for administrators only, not for users.

4. Chart



1) Current concentration value

- ▷ Displays the current concentration value so that it can be compared with the chart.

2) Chart section time setting

- ▷ You can check the time unit displayed on the chart in the set time zone.
The time unit is composed of SEC units, and the first time the product is booted is 1 minute intervals.
(It is expressed as 0 until the setting is changed after booting.)
After changing the section setting, it is displayed in the changed time zone.

3) Chart

- ▷ Expressed in graph format according to concentration value.
The data cycle measurement time is 5 seconds, and the time to check past data is approximately 1 hour and 20 minutes.

4) Chart Concentration Maximum Value Representation

- ▷ This shows the maximum value for checking the concentration value on the chart.

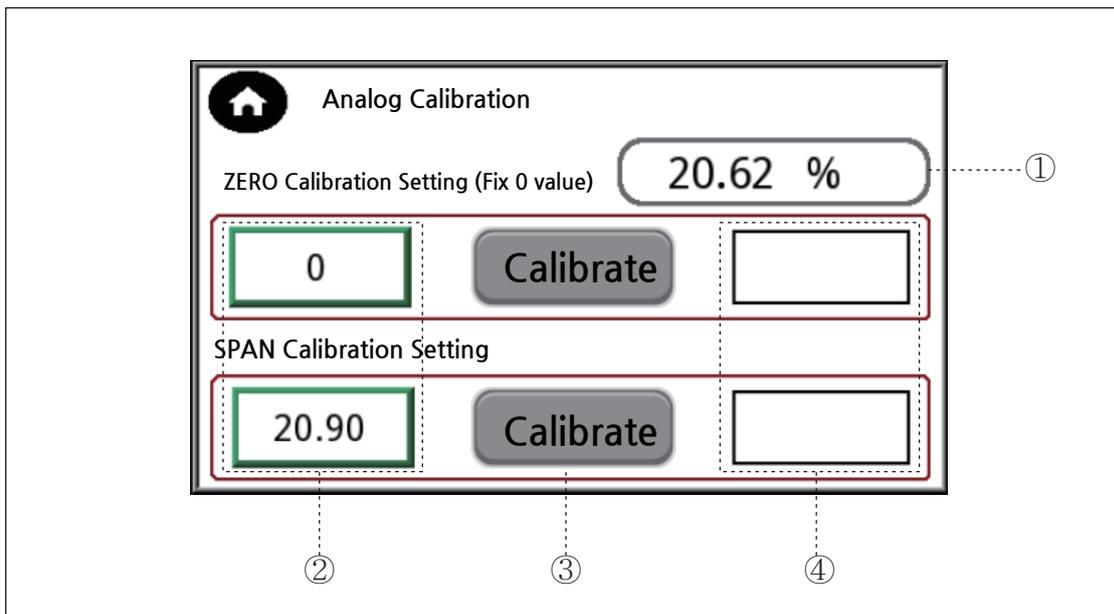
5. Setting the correction value

This is a screen where you can perform ZERO and SPAN corrections based on the current concentration value.

Calibration must be performed based on the current concentration value and the Check ZERO and SPAN values.

*** Note:** Before calibration, proceed after changing the front panel switch located on the sample gas line.

1. Turn the CAL switch to ON.
2. Turn the GAS IN S.V switch OFF.
3. Then, proceed with the calibration.

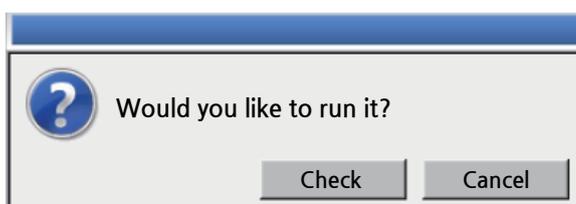


1) This is the current concentration value.

- ▷ This is where you set the concentration value for sensor calibration. When you click the button for the concentration value display, a keypad appears on the screen.
 - ④ The current value appears on the keypad, so you can enter the value to change it.

2) The ZERO correction setting value is fixed at 0, and only the SPAN correction setting needs to be adjusted.

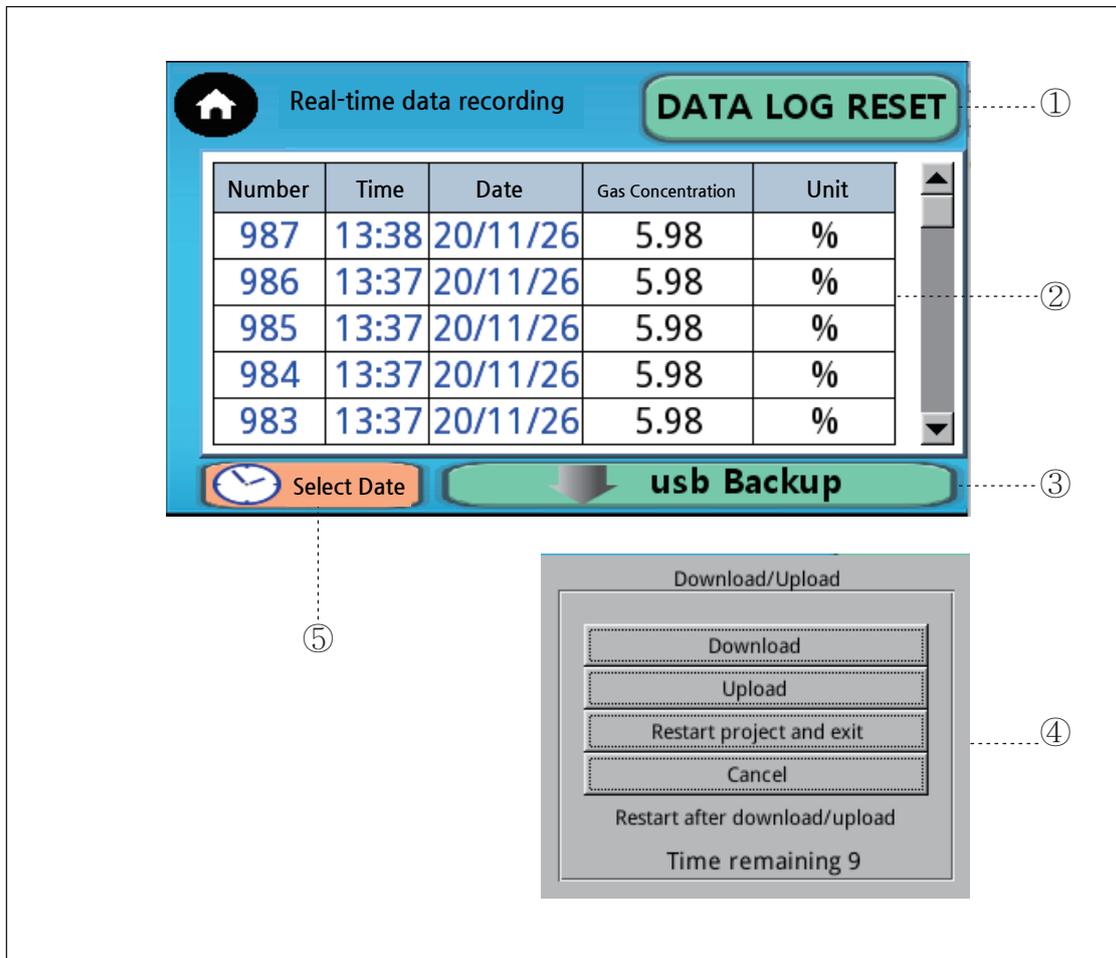
3) After setting the concentration value to be corrected, click the final correction button, and then select OK in the confirmation message.



4) Shows the result values after ZERO and SPAN correction



7. Data recording



1) DATA LOG RESET

- ▷ Not only the data displayed in real time, but also the data records stored internally are deleted. If the data is reset, past data cannot be backed up.

2) DATA LOG

- ▷ This is a screen that saves data by date and time zone in real time. Data is saved in 15-second units.

3) USB Backup

- ▷ You can load past history data as an Excel file using USB. Connection method (USB port terminal - System recognition (content 4) - Click USB backup button) USB path (USB / datalog / DA-770 LOG / Excel file) Backup files are stored in the internal memory, so up to 10 days of data can be loaded.

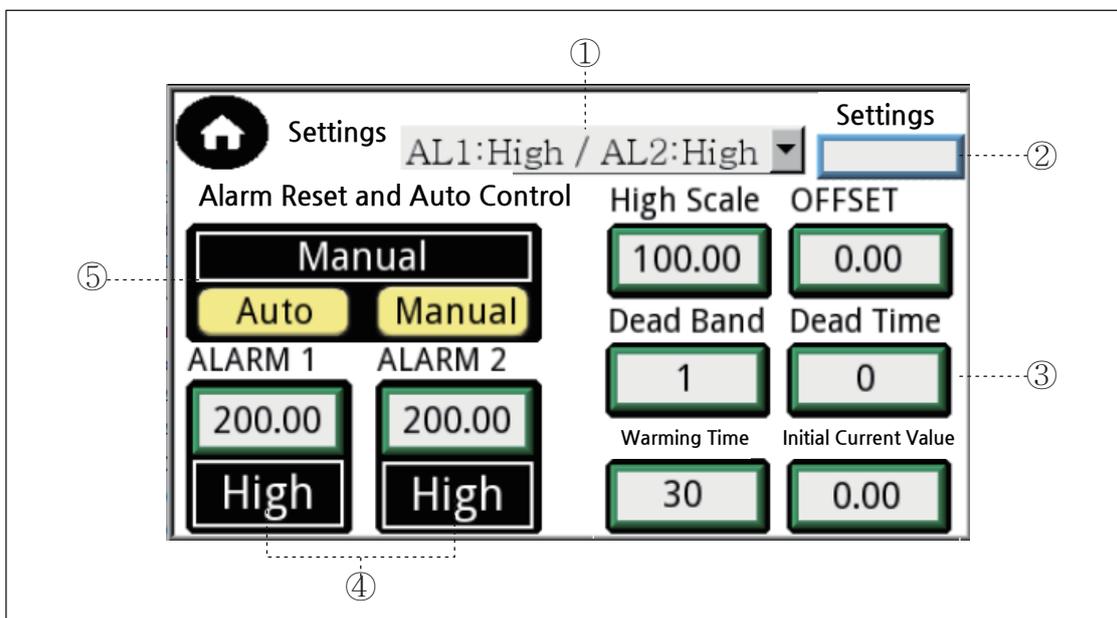
4) USB connection system

- ▷ When you connect the USB, the system window should pop up to indicate that the connection is complete. The system window will disappear if you cancel it or after 10 seconds.

5) Date selection

- ▷ You can select and check the date of past history in real time.

8. Detector settings



1) ALARM TYPE

- ▷ High and Low settings for ALARM 1,2 High -
Operation above alarm setting value / Low - Operation below alarm setting value

2) Data log unit display

- ▷ Unit input for display in data history log Must be specified at first boot

3) High Scale

- ▷ Set 20mA compared to Full Scale

OFFSET

- ▷ Adjusting the error for the measurement value

Dead Band

- ▷ Invalid range for alarm return recognition

Dead Time

- ▷ Time elapsed from when the alarm is recognized until the change in relay output is recognized

Warming time

- ▷ Time setting for initial current to stabilize

Initial current value

- ▷ Current value displayed during warm-up time

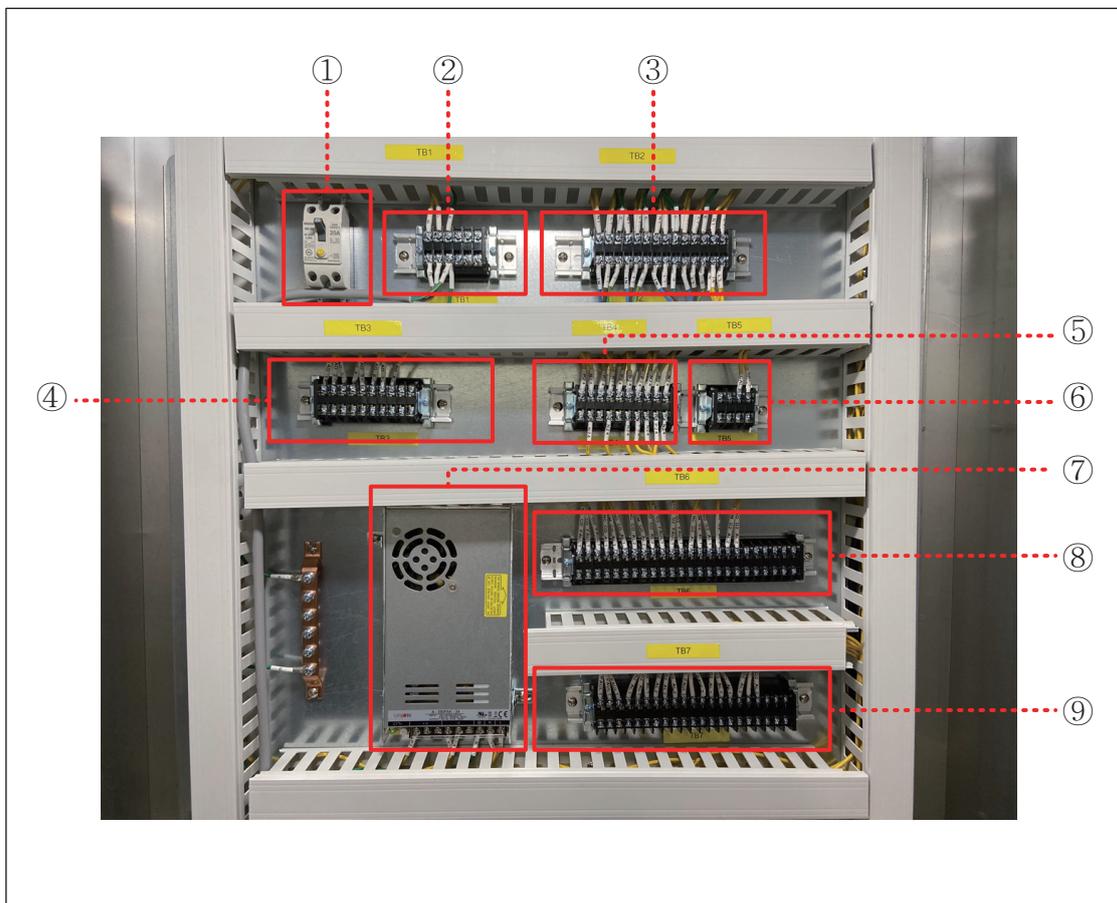
4) ALARM setting

- ▷ Numerical setting for ALARM1/2
Example) When setting ALARM TYPE H&H and numerical value 23 for AL1
AL1 operates when the display value is 23 or higher

5) Alarm reset and automatic control

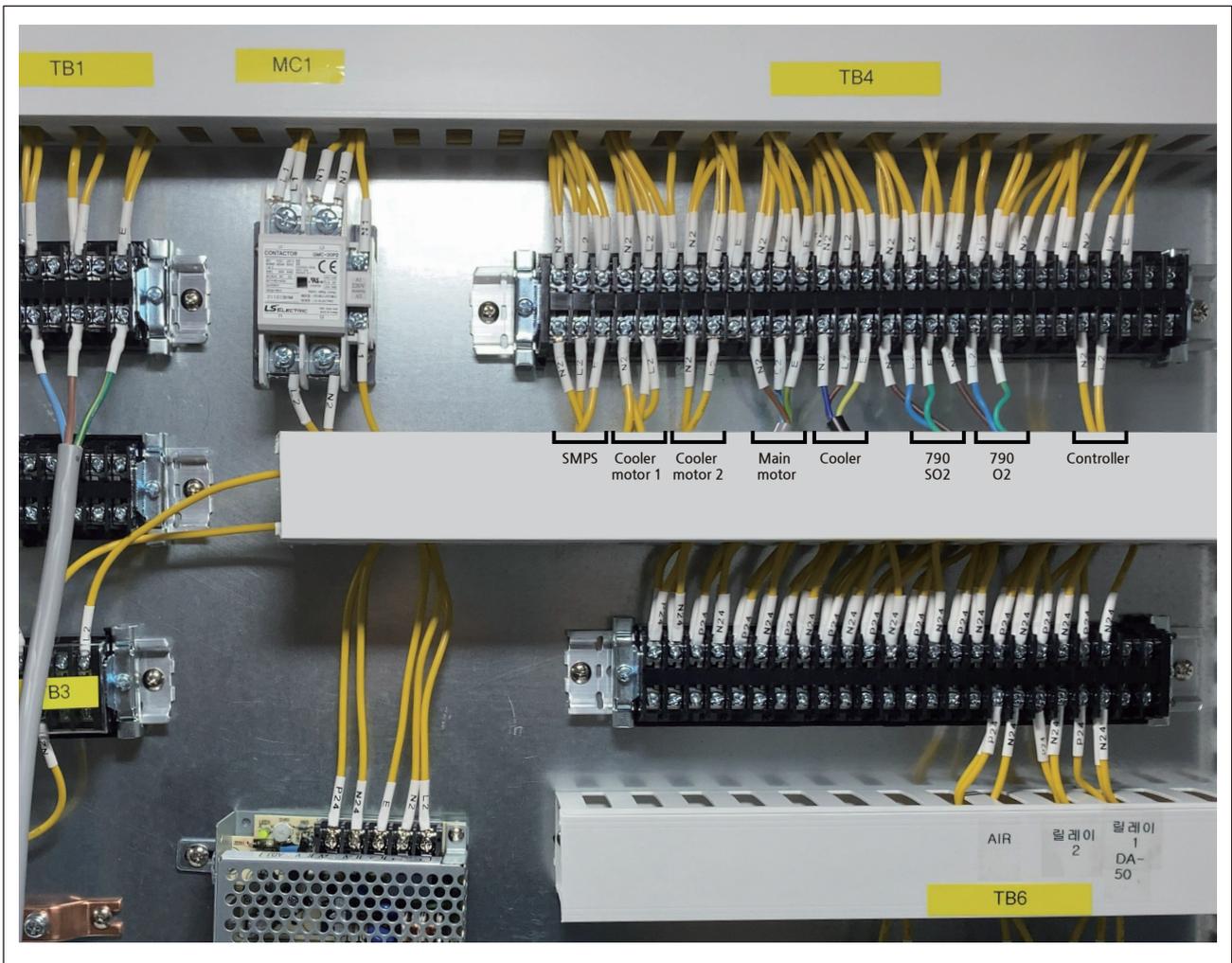
- ▷ AUTO - Motor control is always in operation. When the value rises, an alarm occurs and the operation is performed, and when it returns to the normal value, it is automatically released.
- ▷ MANUAL - Press the motor button to operate. When the value rises and an alarm occurs and then returns to normal, the user must RESET from the main screen.

9. PANEL INTERIOR PLACEMENT DIAGRAMS

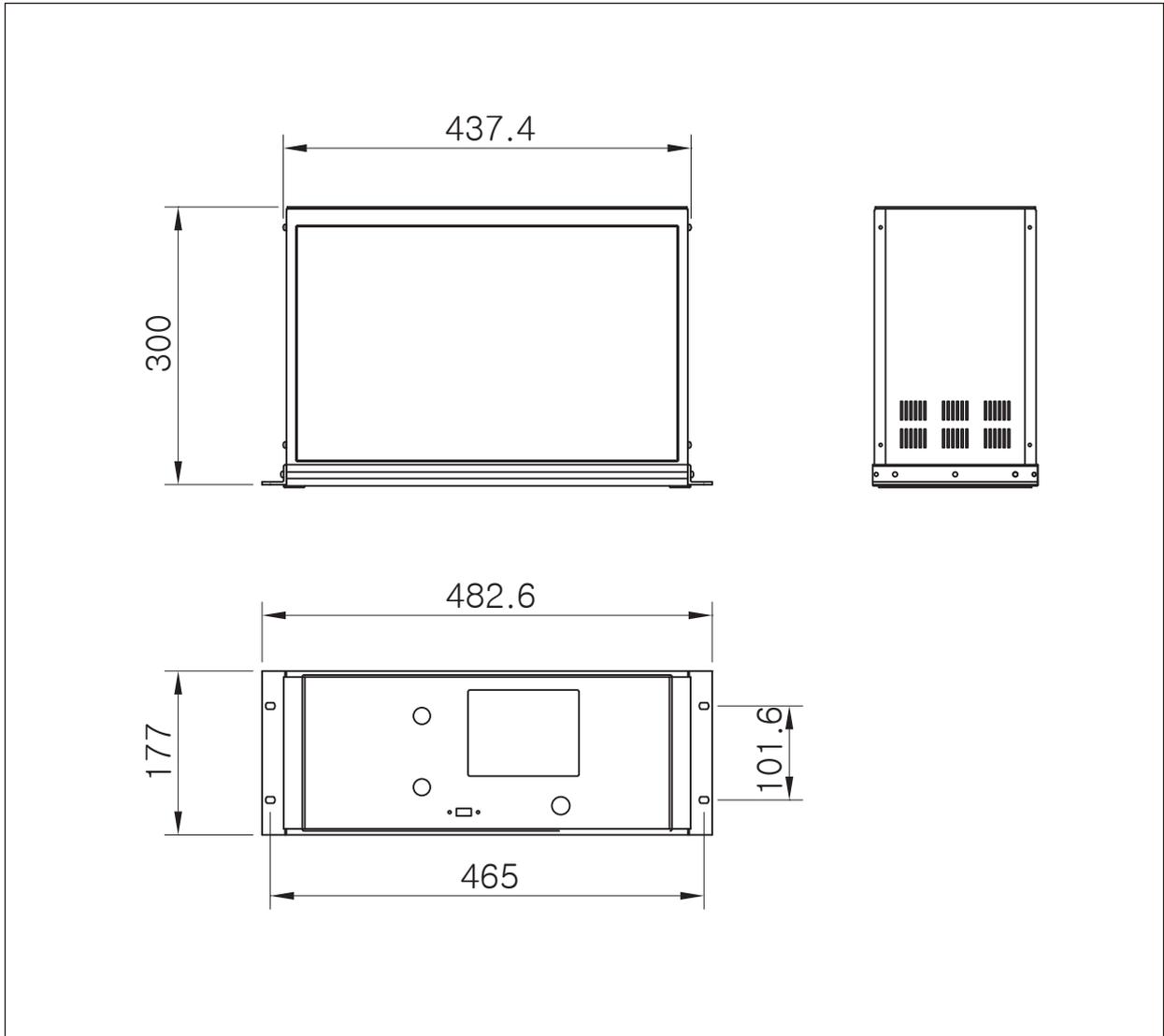


- 1) Main power breaker
- 2) TB1 - AC220V POWER INPUT terminal
- 3) TB2 - Front HMI device AC220V power line terminal
- 4) TB3 - CO / O2 / H2 / CO2 current 4-20mA output terminal (refer to terminal circuit diagram)
- 5) TB4 - Solenoid valve power terminal
- 6) TB5 - Calibration signal contact switch terminal
- 7) Power Supply IN-AC220V OUT-DC24V
- 8) TB6 - CO / O2 alarm relay terminal
- 9) TB7 - H2 / CO2 alarm relay terminal

* PANEL internal layout enlarged

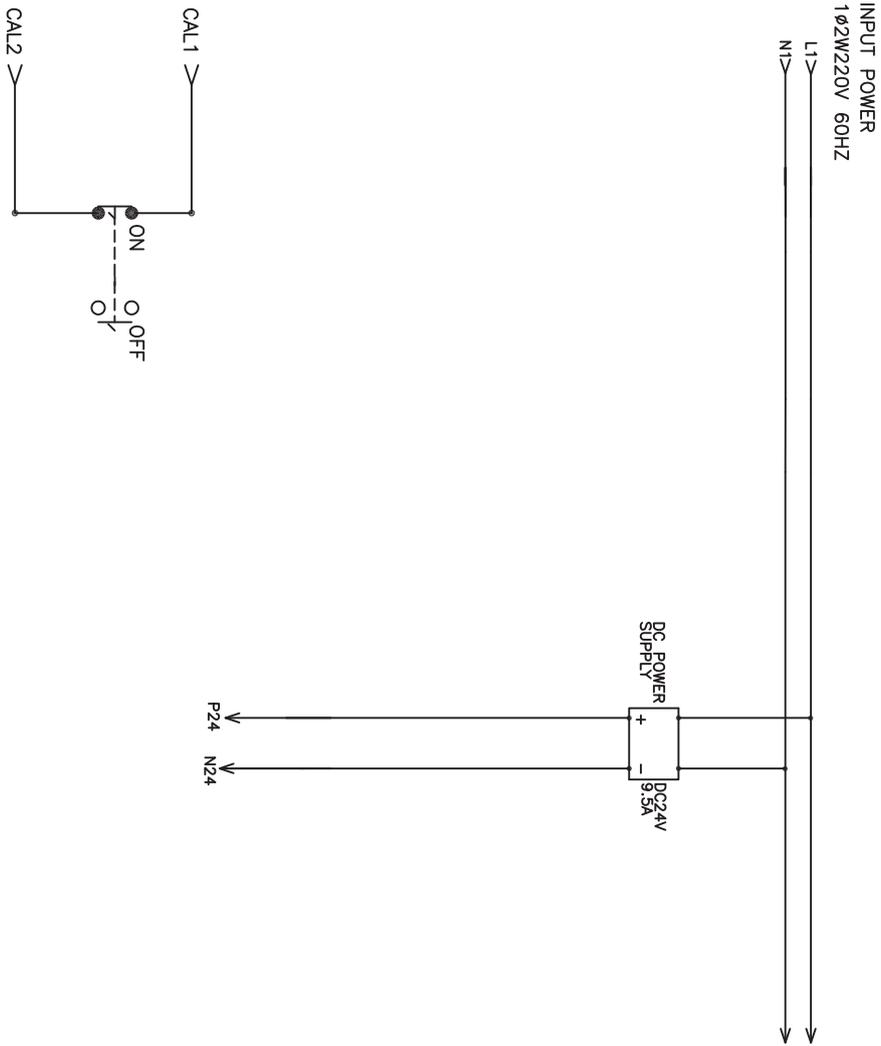
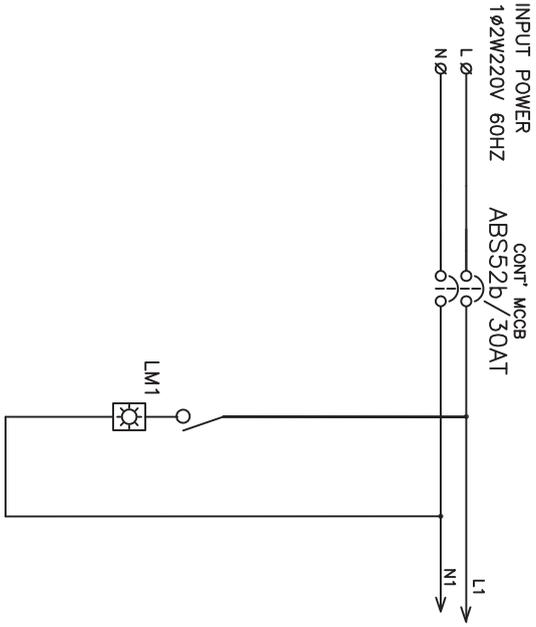


External dimensions



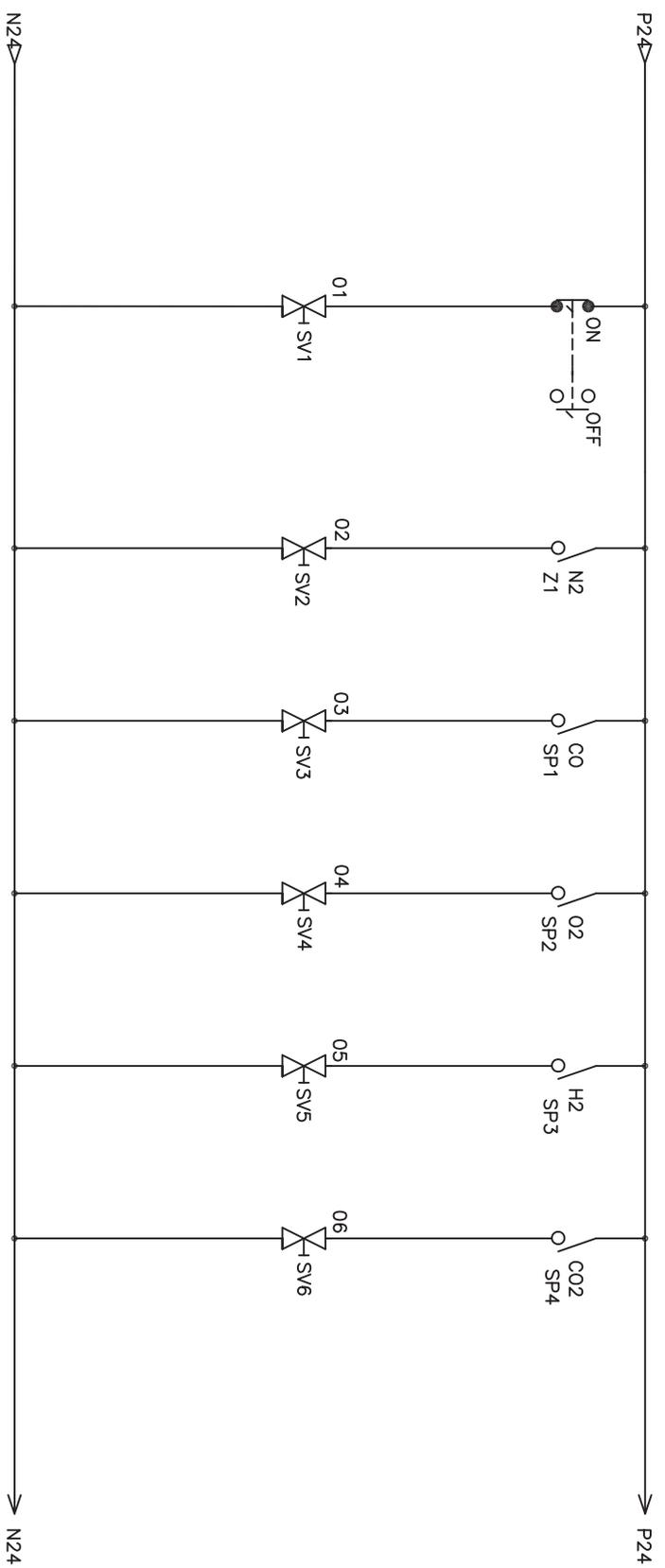
Reference photo





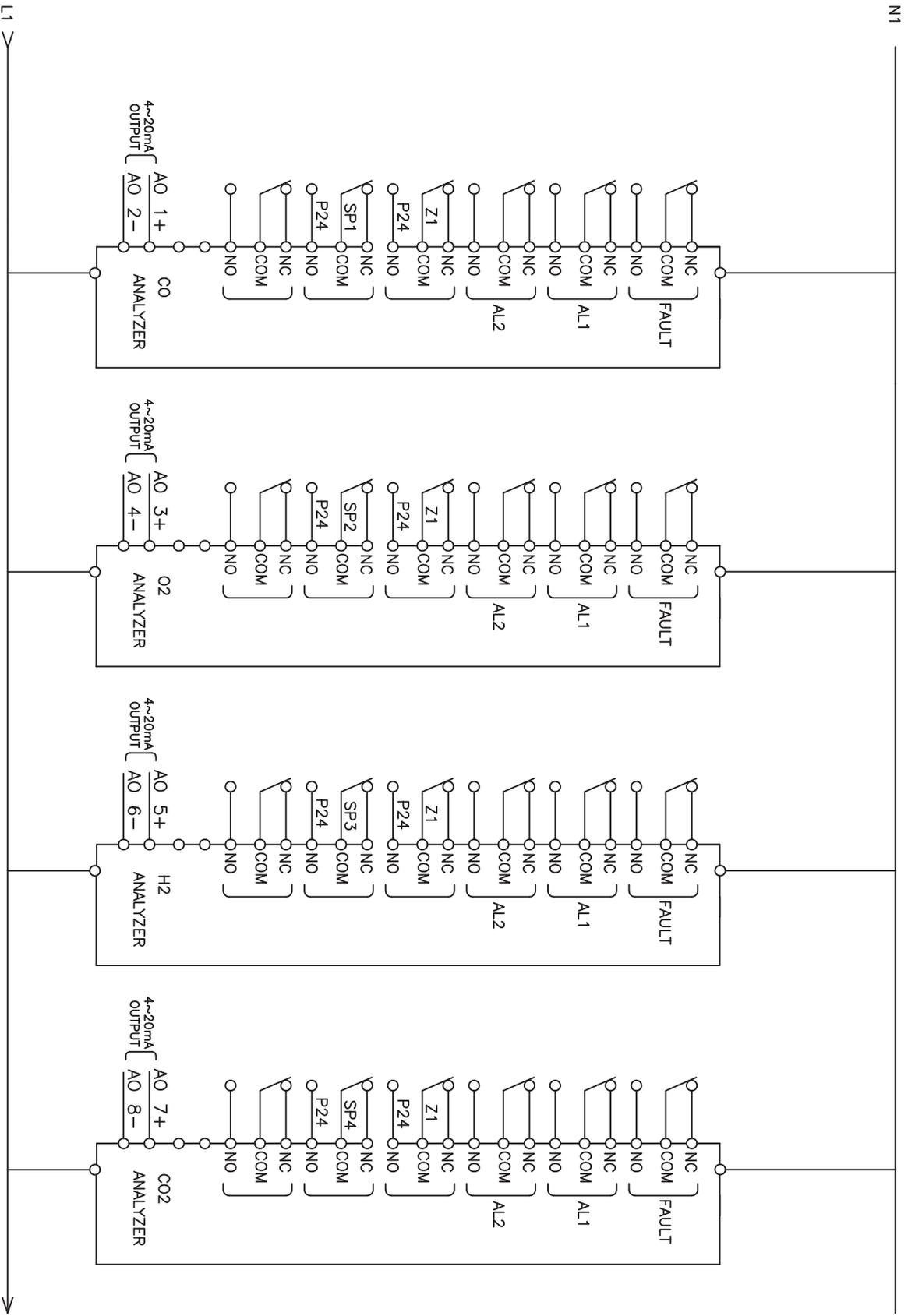
NO	DRAWING NO.	DESCRIPTION	MATERIAL QTY	REMARKS
Draw	Check	Approve	Material	-
General Tolerance				
J	K	L	M	N
4 - 18	01	01	01	02
18 - 83	01	02	03	04
83 - 110	01	03	05	06
110 - 250	02	04	06	07
250 - 1000	03	05	08	09
	10	11	12	
Model Name		SEQUENCE DIAGRAM1	Drawing Number	
Scale		1/1	DNA-001	
Date		2021.09.18		





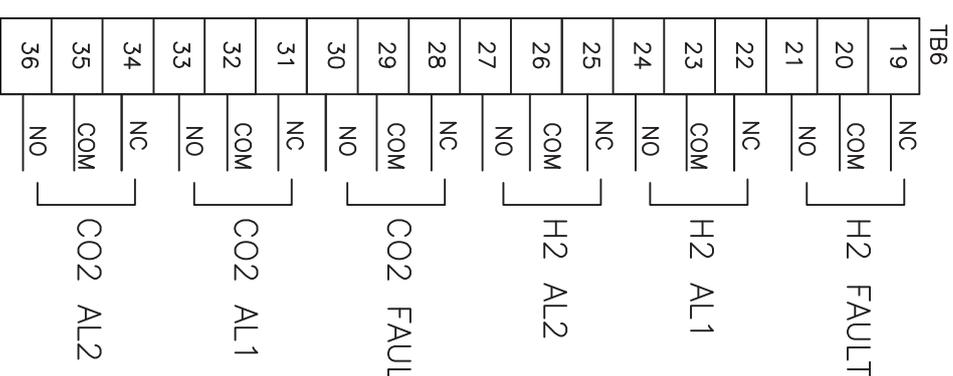
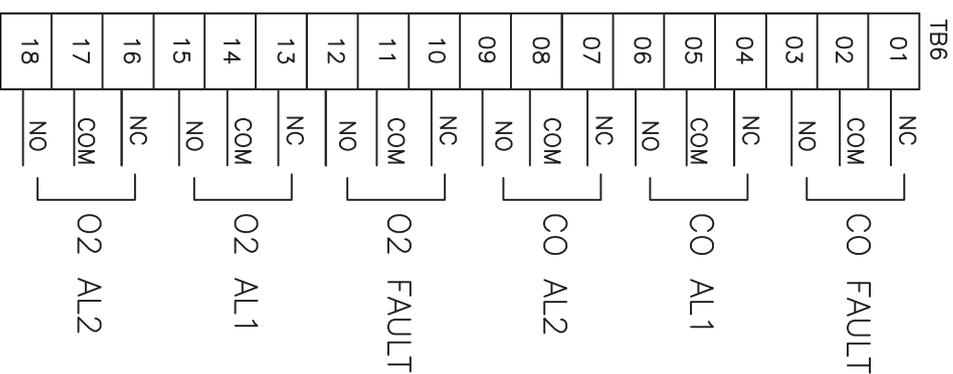
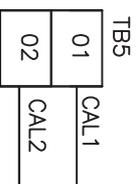
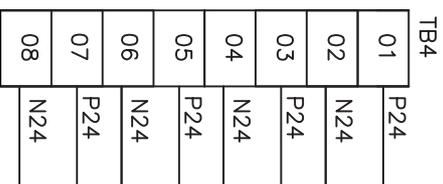
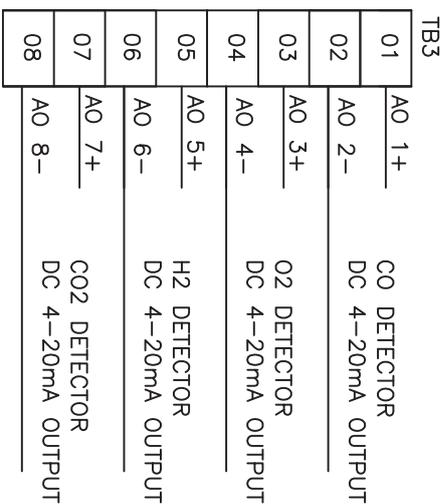
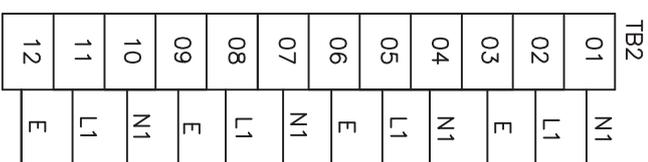
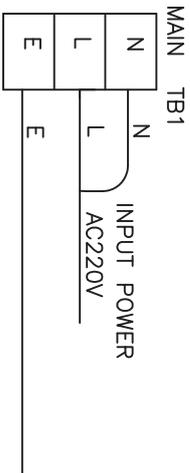
NO	DRAWING NO.	DESCRIPTION	MATERIAL QTY	REMARKS
Draw	Check	Approve	Material	-
SEQUENCE DIAGRAM1				
General Tolerance			Model Name	
-	4	J	K	L
-	16	01	01	01
-	03	01	01	01
-	110	01	01	01
-	250	02	02	02
-	1000	03	03	03
Scale	1/1	Date		
unit	m/m	2021.09.18		
Drawing Name			Drawing Number	
SEQUENCE DIAGRAM1			DNA-002	





NO	DRAWING NO.	DESCRIPTION	MATERIAL QTY	REMARKS
Draw	Check	Approve	Material	-
General Tolerance				
J	K	L	M	N
4 - 16	0.1	0.15	0.2	0.3
16 - 63	0.15	0.2	0.3	0.4
63 - 110	0.2	0.3	0.4	0.5
110 - 250	0.3	0.4	0.5	0.6
250 - 1000	0.4	0.5	0.6	0.8
1000 -	0.5	0.6	0.8	1.0
SEQUENCE DIAGRAM1				
Model Name			Drawing Number	
-			DNA-003	
Scale				
m/m			1/1	
Date				
2021.09.18				





NO	DRAWING NO.	DESCRIPTION	MATERIAL QTY	REMARKS
Draw	Check	Approve	Material	-
General Tolerance		Model Name	Drawing Name	
J K L M N		TERMINAL BLOCK DIAGRAM	TERMINAL BLOCK DIAGRAM	
4 - 18		unit	Scale	
18 - 83		m/m	1/1	
83 - 110		Date	2021.09.18	
110 - 250				
250 - 1000				

