COSMOS

- XA-4400II
- XA-4300IIKHS
- XA-4300IIKCS
- XA-4200IIKS
- XA-4200IIKH
- XA-4200IIKC
- XA-4300IIHS
- XA-4300IICS

Multi-gas Detector

Instruction Manual

This instruction manual explains the use of eight models listed in the left.

- Keep this instruction manual available for quick reference when needed.
- Read this instruction manual and understand the information before using the product.

Model	Target Gas
XA-4400II	Combustible gas, H_2S, CO, O_2
XA-4300IIKHS	Combustible gas, H_2S, O_2
XA-4300IIKCS	Combustible gas, CO, O_2
XA-4200IIKS	Combustible gas, O_2
XA-4200IIKH	Combustible gas, H_2S
XA-4200IIKC	Combustible gas, CO
XA-4300IIHS	O_2, H_2S
XA-4300IICS	O_2, CO

NEW COSMOS ELECTRIC CO.,LTD.

Document No.: XA-4400IIT

Table of Contents

Included in this Package

The following items are enclosed in the package. Carefully check all items listed below before use. Contact your New Cosmos representative if any items are broken or missing.

Multi-gas Detector	1
BP-4000IIAL Battery Unit (attached to the Multi-gas Detector)	1
Battery Cover (See "*Battery Replacement*" on page 28)	1
C-25 Safety Pin Band (with 4 screws) (See "*How to Attach the Safety Pin Band*" on page 8)	1
FE-128 Filter Element (for replacement) (See "*Replacement of Filter Element*" on page 29)	8
FE-129 Filter for Combustible Gas Sensor (See "*Replacement of Filter for Each Sensor*" on page 31)	1
FE-130 Filter for Carbon Monoxide Sensor (See "*Replacement of Filter for Each Sensor*" on page 31)	1
Panasonic Alkaline Battery (LR03/AAA)	1
Inspection Report	1
Instruction Manual	1

Options (sold separately)

Name (Model)	Part Number	Remarks
C-23 Soft Case	59540000	To protect from dirt and scratches. Use with a Safety Pin Band.
XA-4000IIL Datalogger Kit	59519309	Software to collect logged data to PC

1. Introduction

Thank you for purchasing the Multi-gas Detector XA-4000II series. Be sure to read this instruction manual and use the product properly to prevent gas accidents and for inspection and maintenance.

This Multi-gas Detector measures up to 2 to 4 gases of oxygen (O2), combustible gas (COMB), hydrogen sulfide (H2S) and carbon monoxide (CO), and it displays all gas concentration values at the same time. This Multi-gas Detector gives a notification with an alarm to help to prevent gas accidents, such as lack of oxygen, gas explosion or gas poisoning, when the gas concentration exceeds the alarm set value.

Read and understand thoroughly this manual regardless of your experience with using gas detector. Do not use this Multi-gas Detector for improper purposes. Do not use the Multi-gas Detector in undocumented way in this manual.

⚠ WARNING Waterproof

Be sure to keep the gas sampling port dry.
This Multi-gas Detector employs a water proof structure which meets our tests* complying with JIS C 0902-2003 Ingress Protection code IPX7 at brand-new condition to prevent malfunctions due to water from unavoidable circumstances in use. However, if the filter element is wet, the gas cannot be detected properly. Since the age-related deterioration of packing or label, or adhesion of foreign materials degrade the performance of water proof structure, exposure to water should be avoided as much as possible.

* Immerse the new Multi-gas Detector gently from the bottom into the depth of 1m from the surface of standing tap water at room temperature and verify that there is no damage from ingress of water after 30 minutes.

Intrinsically Safe Requirements (Japan)

Confirm the following Intrinsically Safe Requirements.

⚠ WARNING

Intrinsically Safe Structure: Ex ia IICT3X (Japan)
Standard: Recommended Practices for Explosion-Protected Electrical Installations in General Industries
Part 1: General Requirements, Chapter 6: Intrinsically Safe
Rating: Refer to "*Intrinsically Safe Specification*" on page 38
Ambient temperature: -20 to 50 degrees C
Use conditions:

- Replace a battery and battery unit in a safe place.
- For comprehensive measures to prevent accidents due to electrostatic charges, the user should desirably wear anti-static working clothes and conductive footwear (antistatic working shoes), and the floor should desirably be a conductive work floor (leak current: 10M ohm or less).
- In the measurement of oxygen concentration, make sure to use mix-gas of oxygen and combustible gas, or vapor and toxic gas only.
- The Battery Unit to connect with XA-4400II (Certificate No. TC21068) must be BP-4000IIAL (Battery Unit, Certificate No. TC21069).
- Use a Panasonic LR03 battery.

Explanation of Symbols

The following symbols are used for safety purposes:

⚠ **DANGER**	Indicates a hazardous situation that may result in serious injury or death, if not avoided.
⚠ **WARNING**	Indicates a potentially hazardous situation that may result in serious injury or death, if not avoided.
⚠ **CAUTION**	Indicates a potentially hazardous situation that may result in minor injury or physical damage, if not avoided.
NOTE	Indicates an operational advice.

Safe Operation

Be sure to observe the following to use the product safely and properly.

⚠ DANGER When the gas alarm is sounded, take all necessary precautions immediately to avoid explosion.

⚠ WARNING

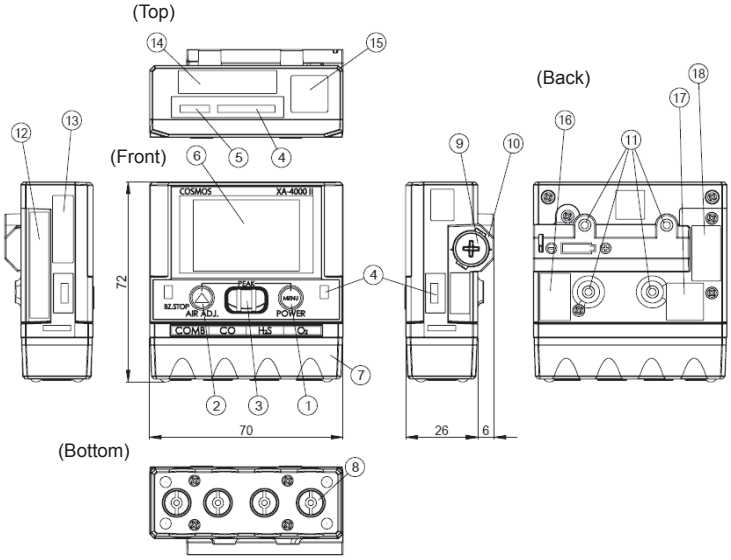
- Be sure to turn ON the Multi-gas Detector in normal condition (clean air). Since the AIR adjustment starts automatically, the erroneous gas concentration will be displayed in gas atmosphere.
- This Multi-gas Detector is a safety product. Perform daily check before use (see "*Daily Check*" on page 33).
- Do not close the sampling port or exhaust port. The gas cannot be detected properly.
- Do not block the buzzer port or the alarm will be hard to hear.
- Use clean filter elements. If the filter element is dirty or wet, the gas cannot be detected properly.
- The sensor unit is guaranteed for two years from the date of purchase. It is highly recommended to replace a sensor after two years for proper gas detection.
- Be sure to use the specified battery. The product will not meet the intrinsically safe requirements without the specified battery (see "*Battery Replacement*" on page 28).

⚠ CAUTION

- Remove the battery for long term storage to avoid any possible damage to the Multi-gas Detector due to the battery leakage.
- XA-4400II is an intrinsically safe Multi-gas Detector. Do not attempt to disassemble, remodel, modify of structure or circuit, etc., as it may affect the performance.
- Keep the Multi-gas Detector away from heat and moisture as it may affect the performance.
- Do not use in the condition out of the operating temperature, humidity or pressure range and avoid sudden change of temperature or humidity, as it may affect the performance.
- Avoid rapid changes in pressure, as it may affect the sensor performance or it may cause damage to the product.
- Do not drop or hit the Multi-gas detector to avoid mechanical impact and strong vibration, as it may affect the performance.
- If the Multi-gas Detector is dropped or hit and the reading fluctuates, allow enough time to stabilize the reading before use.
- In case of condensation, dry the Multi-gas Detector completely and check the performance before use.
- Use the Multi-gas Detector in suitable environment to avoid detection of other interference gas or solvent vapor.
- Do not use the Multi-gas Detector in an atmosphere containing silicone gas or silicone products, as it may affect the performance.
- Detecting high concentration of sulfur dioxide or chlorine may decrease sensor life or increase errors.
- Detecting hydrogen sulfide for a long period of time may decrease sensor life or the sensor sensitivity.
- Make the pressure correction when detecting gas at places where the atmospheric pressure is different from the standard, such as high altitude places, due to the pressure dependence of oxygen sensor.
- The gas sensor contains toxic substances. When disposing of the sensor, return to New Cosmos Electric or treat it as industrial waste.
- Low temperature may shorten the battery life due to the battery property.
- Keep wireless devices away from the Multi-gas Detector while in use, as it may cause fluctuation in the reading or may cause alarm errors due to radio waves.
- The vibration alarm may be difficult to notice depending on the wearing position.

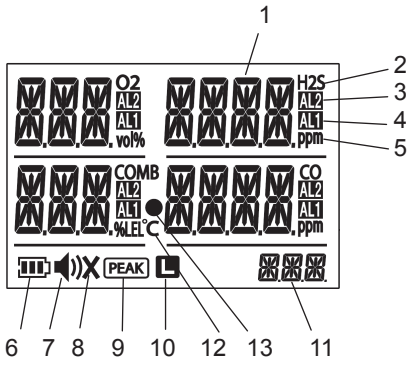
2. Product Layout and Functions

Multi-gas Detector



No.	Name	Functions
1	MENU POWER Button	Turn ON/OFF the power and for each setting
2	▲ AIR ADJ. Button	Automatic air adjustment, buzzer stop, each setting
3	Buzzer Hole	Sounds buzzer
4	Alarm Lamp	Flashing red light with alarm
5	Infrared Port	Use for datalogger
6	LCD	Display gas concentration and each setting (See "*LCD Indication*" on page 7)
7	Sensor Cover	Fix the sensor and filter element
8	Gas Detection Port (with filter element)	Gas inlet to the sensor (prevent the entrance of dust or water from the inlet)
9	Battery Cover	For replacing a battery
10	Battery Unit	The battery and associated circuit
11	Fixing Screws	To attach the safety pin band
12	Serial No. of BP-4000II	Model, serial number, manufactured date
13	Intrinsically Safe of XA-4400II	Intrinsically safe structure, temperature, specification No.
14	Serial No. of XA-4400II	Model, serial number, manufactured date
15	Certificate Label of XA-4400II	
16	Intrinsically Safe of BP-4000II	Intrinsically safe structure, temperature, specification No.
17	Certificate Label of BP-4000II	
18	Warning Label	

LCD Indication



No.	Functions	Ref.
1	Displays concentration and setting	-
2	Gas type	Page 11
3	2nd alarm	Page 12
4	1st alarm	
5	Displays the unit of concentration	-
6	Battery level indication	Page 28
7	Alarm level indication	Page 21
8	Buzzer silent mode indication	Page 20
9	Peak hold value	Page 14
10	Long-life mode indication	Page 23
11	Displays each setting	-
12	Temperature scale	Page 15
13	Operating combustible gas sensor indication	-

3. Operating Procedure

3 - 1. Before Using

3-1-1. Installation of Battery

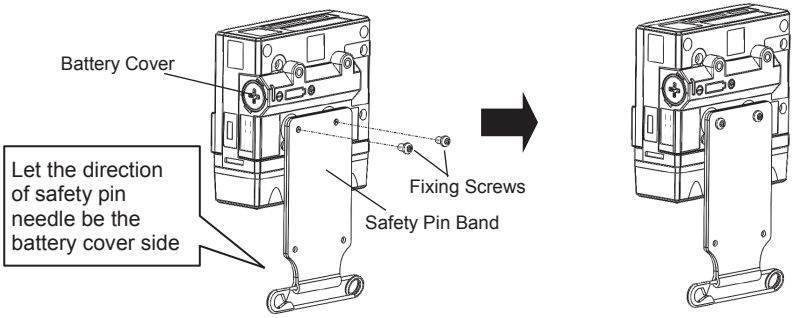
Install the supplied Panasonic alkaline battery (LR03/AAA). (See "*Battery Replacement*" on page 28)
The battery cover is not fixed to the Multi-gas Detector but included in the packing box from the shipment.

3-1-2. How to Attach the Safety Pin Band

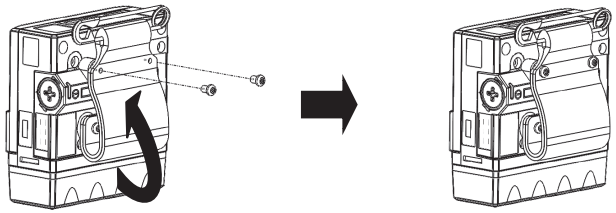
⚠ CAUTION
- Use only the supplied screws (M2.6 x 4, truss head).
- Use a screwdriver with point size 1 (see on page 32 for the shapes).
- Careful not to prick your finger with the safety pin.

NOTE Please note that the safety pin may leave a tiny hole in clothes.

1) Screw the Safety Pin Band to the bottom of battery compartment with supplied two fixing screws. (Pay attention to the direction of safety pin)



2) Bend the Safety Pin Band upward and screw to the top of battery compartment with supplied two fixing screws.



⚠ WARNING Be careful not to block or cover the detection port, as it cannot detect properly.

3 - 2. Operating Procedure

WARNING Always perform Maintenance Check (page 33) before use.

STEPS **1.** Turn ON ▶ Warm-up ▶ Displays <Gas Concentration Display> ▶ **2.** Detection ▶ **3.** Turn OFF

* In this instruction manual describes for the target gases of oxygen, combustible gas (methane), hydrogen sulfide, and carbon monoxide.

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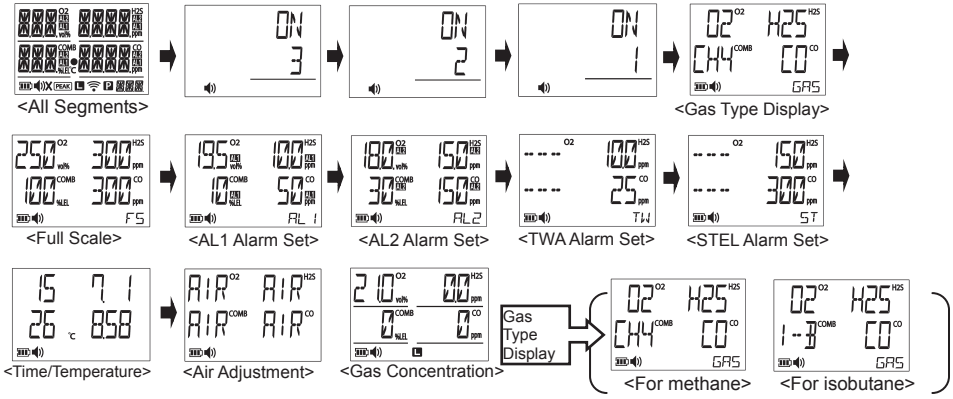
1. Turn ON the Power -> Warm-up -> Displays <Gas Concentration Display>

WARNING Make sure to turn ON the power in the clean air. Since the air adjustment starts automatically, the erroneous gas concentration will be displayed in gas atmosphere.

Press and hold the [MENU POWER] button to switch into <Gas Type Display>.
After a beep, all segments are displayed on the LCD, “ON” appears, and the countdown starts: 3, 2, 1. Release the button after a bleep.
Then <Gas Type Display>, <Full Scale>, <AL1 Alarm Set Value>, <AL2 Alarm Set Value>, <TWA Alarm Set Value>, <STEL Alarm Set Value> and <Time/Temperature> will be displayed automatically. After <Air Adjustment> and the warm-up operation is completed, it switches into <Gas Concentration Display> after three beep sounds.

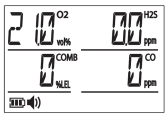


NOTE
- The warm-up operation will take about a maximum of 2 minutes.
- Only the power OFF button is available while the warm-up operation.
- In case of an error occurs, see “*Error Messages*” on page 27.

2. Detection

When <Gas Concentration Display> is displayed, the Multi-gas Detector is ready for use.

--> See "*LCD Indication*" on page 7
--> See "*Gas Concentration Display*" on page 11
--> See "*Gas Alarm Activation*" on page 12



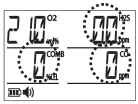
<Gas Concentration Display>

⚠ WARNING

- Do not block the detection port as it cannot detect gases.
- Keep the filter element dry and clean. If the filter element becomes dirty or wet, it may affect the detection performance.
- Keep the gas detection port dry from rain or water when wearing the Multi-gas Detector.
- When the reading exceeds full scale, move the Multi-gas Detector to the clean air immediately, as it may become slow to return to the base or it may affect the detection performance.
- Careful not to block the buzzer port as the alarm volume may be too small to notice.

⚠ CAUTION

- A significant change in temperature or humidity at work environment may affect the concentration values of 21.0vol%, 0%LEL and 0ppm. In this case, press and hold the [AIR ADJ.] button to start "*AIR Adjustment (Zero Adjustment)*" (page 14) in the clean air.
- Blinking "0" or "0.0" of gas concentration indicates negative value. In this case, high concentration gas may have been detected, or AIR Adjustment may have been performed in gas atmosphere.



Blinking

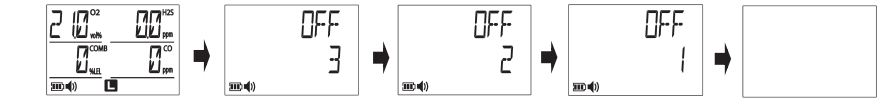
Perform "*AIR Adjustment (Zero Adjustment)*" (page 14) in the clean air. If [E-S] is displayed (page 27), turn OFF and ON the power in the clean air.

- The vibration alarm may be difficult to notice depending on the wearing position.

NOTE For button operation, a "press" is less than one second, and "press and hold" is about three seconds.

3. Turn OFF the Power

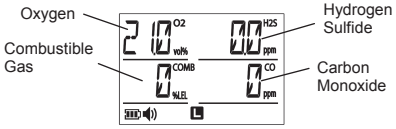
Press the [MENU POWER] button to turn OFF the screen.
--> After a beep, “OFF” appears, the countdown starts 3, 2, 1, and then the LCD and the power will be turned OFF with three beep sounds.



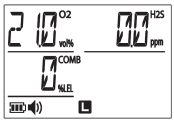
<Gas Concentration Display> <OFF>

Gas Concentration Display

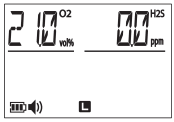
Up to four types of gas concentration will be displayed on the LCD at the same time. For 2-gas or 3-gas type model, only the target gas names and concentrations will be displayed. (The following diagrams describe for 4-gas type models.)



4-gas Type



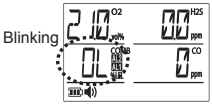
3-gas Type



2-gas Type

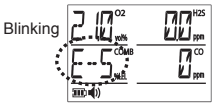
- When the gas concentration exceeds the service range (see "*Specifications*" on page 37), "OL" will be blinking on the concentration display.

NOTE — See the chart on page 12 for the details on concentration indicating “OL”.



Exceeding the range of combustible gas sensor

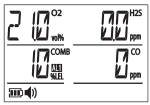
- If the detection failure is caused by sensor error, the error message “E-S” will appear on the corresponding sensor display. (See “*Error Messages*” on page 27)



Sensor error of combustible gas

Gas Alarm Activation

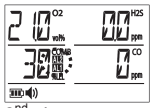
When the gas concentration exceeds the alarm level, corresponding gas concentration will blink, buzzer will sound intermittently, alarm lamp will blink, AL1 and AL2 will appear on the LCD, backlight will be on, and intermittent vibration will activate.
When the gas concentration falls below the alarm level, the gas alarm will deactivate automatically (automatic reset).



1st alarm:
Combustible gas

NOTE

Tap [AIR ADJ.] button to stop buzzer sound during alarm. However if a new alarm arises, buzzer will sound intermittently.



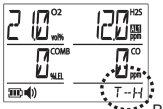
2nd alarm:
Combustible gas

Alarm Output		1st Alarm	2nd Alarm	OL Alarm	TWA Alarm	STEL Alarm
Gas Type	Combustible Gas	10%LEL	30%LEL	111%LEL	—	—
	Oxygen	19.5vol%	18.0vol%	50.1vol%	—	—
	Hydrogen Sulfide	10.0ppm	15.0ppm	150.1ppm	10.0ppm	15.0ppm
	Carbon Monoxide	50ppm	150ppm	2001ppm	25ppm	300ppm
Buzzer Sound		Slow intermittent sound	Fast intermittent sound	Same as 2nd alarm	Same as 1st alarm	Same as 1st alarm
Alarm Lamp (3-point)		3 lamps blink sequentially in 5sec period	3 lamps blink sequentially in 0.8sec period	Same as 2nd alarm	Same as 1st alarm	Same as 1st alarm
LCD		AL1 appears on corresponding gas part	AL1 AL2 appear on corresponding gas part	OL appears on corresponding gas part	[TOO] blinks in the lower right corner (see the next page)	[SOO] blinks in the lower right corner (see the next page)
Vibration		Intermittent vibration in 2.5sec period	Intermittent vibration in 2.5sec period	Same as 2nd alarm	Same as 1st alarm	Same as 1st alarm

- **TWA Alarm**

Hydrogen sulfide (H2S) and carbon monoxide (CO) concentrations will be integrated every minute while the power is ON. The alarm will be activated when the integrated value exceeds the alarm set value (see "*Specifications*" on page 37), and the indication will be blinking in the bottom right corner of the LCD as below.

Blinking
(for CO)



Blinking
(for H2S)

Blinking
(for CO and H2S)

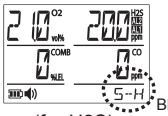
NOTE TWA alarm will not be reset until the power is turned OFF.

[(Integrated) Value]
Hydrogen Sulfide: 10 ppm x 8 hours x 60 times (60 times/hour) = 4,800 ppm
Carbon Monoxide: 25 ppm x 8 hours x 60 times (60 times/hour) = 12,000ppm

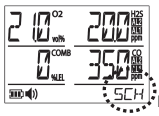
- **STEL Alarm**

When a 15-minute TWA exposure for hydrogen sulfide (H2S) and carbon monoxide (CO) exceeds the alarm set value, the alarm will be activated and the indication will be blinking in the bottom right corner of the LCD as below.

(for CO)
Blinking



(for H2S)
Blinking



(for CO and H2S)
Blinking

NOTE STEL alarm will not be reset until it falls below the average or the power is turned OFF.

DANGER When the gas alarm is sounded, take all necessary precautions immediately to avoid explosion.

3 - 3. Functions in Normal Operation

The detailed function descriptions in the normal operation are as below.
"Normal Operation" is the enable condition after the power in ON and the display is <Gas Concentration Display>.

NOTE In "Functions in Normal Operation", the Multi-Gas Detector detects even if the gas concentration is not displayed, and the gas alarm will be activated when it exceeds the alarm set value.

3-3-1. AIR Adjustment (ZERO Adjustment)

WARNING Make sure to perform AIR Adjustment (ZERO Adjustment) in the clean air. The erroneous gas concentration will be displayed in gas atmosphere.

In normal operation, press and hold the [AIR ADJ.] button for 3 seconds.
--> A beep will sound three times and [ADJ] will be displayed on the detectable gas concentration display for 3 seconds. When the AIR Adjustment (ZERO adjustment) is completed, [21.0vol%], [0%LEL] and [0ppm] will be displayed.

(Oxygen is 21.2%) (AIR Adjustment) (Completed)

NOTE For the gas, which the AIR Adjustment cannot be performed, the concentration will be displayed instead of [ADJ].

3-3-2. Peak Hold Function

1) In normal operation, press both [POWER] and [AIR ADJ.] buttons at the same time.
   --> A beep will sound once, PEAK will be displayed in the bottom of the LCD, and it starts updating the current peak value (maximum value; minimum value for oxygen).
2) To cancel the Peak Hold Function, press both [POWER] and [AIR ADJ.] buttons at the same time again.
   --> A beep will sound once, PEAK will be off, the peak value will be reset, and it will revert to the normal <Gas Concentration Display> (instantaneous value).

NOTE
- The peak hold function will be canceled if the power is turned OFF.
- When the peak hold function is on, it will keep updating the current peak value even if the concentration is decreased.

3-3-3. Backlight

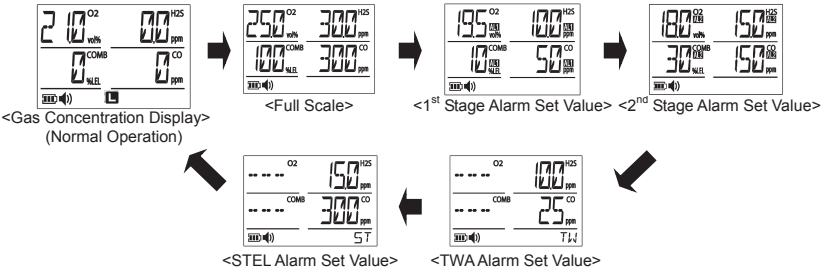
LCD backlight will be on automatically when the gas alarm is activated, and it will be off when the gas alarm is released. Pressing the [MENU POWER] or [AIR ADJ.] button will turn the backlight on, and the light will be off automatically 5 seconds after the operation.

3-3-4. Buzzer Stop

Press the [AIR ADJ.] button to stop the buzzer sound while a gas alarm is activated, an error is occurred, or when a battery is dead.

3-3-5. Alarm Set Value Indication

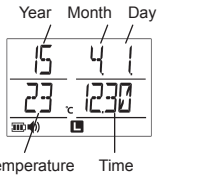
In normal operation, press the [AIR ADJ.] button.
--> Full scale, 1st alarm set value, 2nd alarm set value, TWA alarm set value, and STEL alarm set value of each gas will be displayed on the LCD for 2 second, and then will revert to <Gas Concentration Display> automatically.



NOTE Please contact New Cosmos Electric for changing the alarm set value.

3-3-6. Time/Temperature Display

In normal operation, press and hold both [MENU POWER] and [AIR ADJ.] buttons at the same time for 3 seconds.
--> Date, time and temperature will be displayed on the LCD for 5 seconds, and then will revert to <Gas Concentration Display> automatically.



<Time/Temperature Display>

NOTE
- Year is the last two digits of the year on the LCD.
- Since a temperature sensor is built inside the Multi-gas Detector, use the indicated temperature as a guide.

3 - 4. User Mode

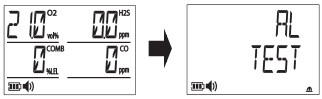
In the User Mode, change the setting of “alarm test”, “various setting (of buzzer ON/OFF, buzzer volume, clock adjustment, and long-life mode)” and “datalogger”.

WARNING
- It is unable to detect gas in the user mode.
- The setting in the user mode will be kept, even if the power is turned OFF or the battery is removed.

NOTE
If it is not operated for 1 minute in the user mode, it will revert to the <Gas Concentration Display> automatically.

3-4-1. Switch to the User Mode

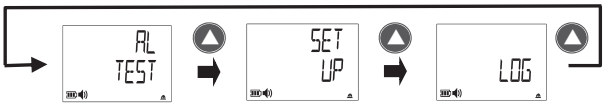
In normal operation, press the [MENU POWER] button for 1 second and release.
--> A beep will sound once, and it will switch into the user mode displaying “AL TEST” (alarm test).



<Gas Concentration Display>

3-4-2. Changing Modes

Press the [AIR ADJ.] button to <<Select>>.
--> Each time pressing the button, [AL TEST] (alarm test), [SET UP] (each setting), and [LOG] (logging) will be displayed sequentially.



<Alarm Test> <Each Setting> <Logging>

・Buzzer ON/OFF
・Buzzer Volume
・Clock Adjustment
・Long-life Mode

Select the mode to change and press both [MENU POWER] and [AIR ADJ.] buttons at the same time.
--> The mode switches with a beep sound.
(See the next page for the functions and setting of each mode)

Mode	Functions and Setting		Reference
Alarm Test [AL TEST]	Operation test of alarm lamps on 1st sand 2nd alarms, buzzer, and vibration. Also, the buzzer volume can be changed on gas alarm.		Page 18
Each Setting [SET UP]	Buzzer ON/OFF	Buzzer ON/OFF during the alarm and button operation	Page 20
	Buzzer Volume	Buzzer volume setting during the alarm and button operation	Page 21
	Clock Adjustment	Setting of time and date	Page 22
	Long-life Mode*	Battery life mode by switching the detection cycle of combustible gas sensor.	Page 23
Logging [LOG]	Log detection data (time, gas concentration and temperature) at a preset cycle. The following operation can be performed in this mode: • Start and stop logging • Delete logging data • Set logging cycle • Read the logging data		Page 24 to 26

* Long-life mode is configured “ON” from the shipping. When the long-life mode is switched to “OFF”, the detection cycle of combustible gas sensor will be short, response time will be fast, and battery life will be half of the long-life mode.

* XA-4000IIL Datalogger Kit is necessary to read logging data. Read the instruction manual of XA-4000IIL Datalogger Kit on how to read the logging data.

3-4-3. Quit the User Mode

In the user mode, whenever pressing the [MENU POWER] button will go back to the previous section.

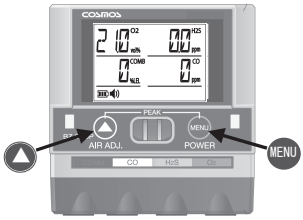
To quit user mode, keep pressing the [MENU POWER] button until it returns to the <Gas Concentration Display>.

<Gas Concentration Display>

(Returns to Gas Concentration Display from Alarm Test AL1)

3-4-4. Operating Procedure in Each Mode

Functions of each button are listed below.



- Select: Press the [AIR ADJ.] button for 1 second.
  (The item will switch sequentially each time pressing the button)
- Choose: Press both [AIR ADJ.] and [POWER] buttons at the same time.
- Return: Press the [POWER] button.
  (Each time pressing the button, it will go back to the previous section.)
- Reverse the Selection List: Press and hold both [AIR ADJ.] and [POWER] buttons at the same time for 3 seconds.

NOTE

How to reverse the display order of selection list

Press and hold both [AIR ADJ.] and [POWER] buttons at the same time to reverse the display order of selection list. After a beep sound, an arrow sign in the bottom right corner of the LCD will flip vertical.
The same operation can reverse the display order again.
The display order will return to the default (up arrow) when the power is turned OFF.

(Flipped down arrow)

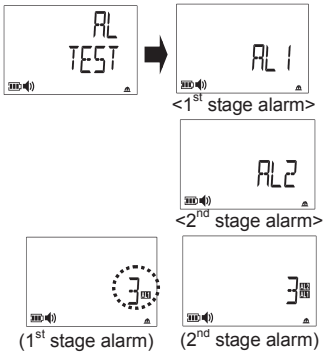
(A) Alarm Test

Shift to the user mode (page 16), and follow the following steps.

1) When [AL TEST] is displayed, press both [AIR ADJ.] and [POWER] buttons at the same time.
   --> [AL1] (1st alarm) will be indicated (selected).

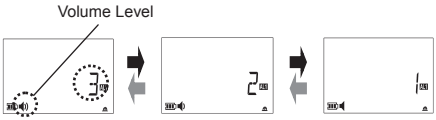
2) To select [AL2] (2nd alarm), press the [AIR ADJ.] button.
   --> [AL2] (2nd alarm) will be displayed (selected).

3) Press both [AIR ADJ.] and [POWER] buttons at the same time.
   --> Selected alarm test will be performed and current alarm volume level will be indicated.



<1st stage alarm>
<2nd stage alarm>
(1st stage alarm)
(2nd stage alarm)

4) Press the [AIR ADJ.] button to change the alarm volume.
--> The volume level will change in three steps.



WARNING

- The factory default of alarm volume level 3 will be changed to a new setting.
- The change of alarm volume level should be performed by the safety manager. If the volume level is changed, make sure to check by alarm test.

5) Press the [POWER] button to change the alarm volume level.

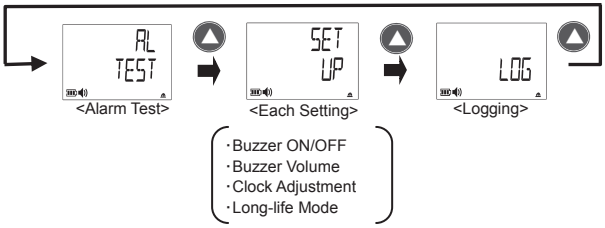
6) To stop the alarm sound, press the [AIR ADJ.] button.
--> Returns to the select list

(Returns to AL1 for 1st stage alarm)

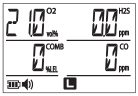
7) To continue the alarm test, repeat the process from 2) to 5).

8) Press the [AIR ADJ.] button.
--> Returns to [AL TEST] display

9) Select the mode to change by pressing the [AIR ADJ.] button.
--> Each time pressing the button, [AL TEST] (alarm test), [SET UP] (each setting), and [LOG] (logging) will be displayed sequentially.



10) To quit user mode, keep pressing the [POWER] button until it returns to the <Gas Concentration Display>.



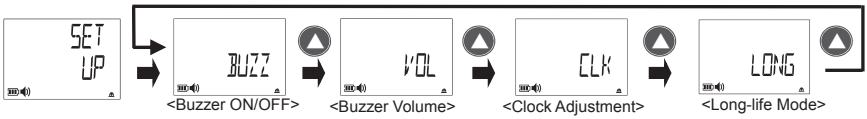
<Gas Concentration Display>

(B) Each Setting

Shift to the user mode (page 16), and follow the following steps.

1) When [SET UP] is displayed, press both [AIR ADJ.] and [POWER] buttons at the same time.

2) Each time pressing the [AIR ADJ.] button, [BUZZ] (buzzer ON/OFF), [VOL] (buzzer volume), [CLK] (clock adjustment), and [LONG] (long-life mode) will be displayed sequentially.



<Buzzer ON/OFF> <Buzzer Volume> <Clock Adjustment> <Long-life Mode>

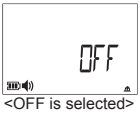
3) See the followings for each setting.

(B-1) Buzzer ON/OFF

1) When [BUZZ] is displayed, press both [AIR ADJ.] and [POWER] buttons at the same time.
--> The current status (ON or OFF) will be indicated.

(Buzzer is ON)

2) Press the [AIR ADJ.] button.
--> The current status will be changed.



<OFF is selected>

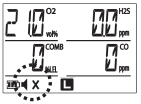
3) To save the setting, press both [AIR ADJ.] and [POWER] buttons at the same time.
--> "SAVE OK?" will be displayed.

4) Press both [AIR ADJ.] and [POWER] buttons at the same time for OK.
--> A beep will sound twice when the buzzer is ON, a buzzer OFF indication will blink when the buzzer is OFF, and it returns to [BUZZ] screen.

(Buzzer is OFF)

5) To continue the other setting, press the [AIR ADJ.] button and select next setting. (See "*(B) Each Setting*" on page 20)

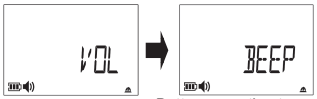
6) To quit user mode, keep pressing the [POWER] button until it returns to the <Gas Concentration Display>.
--> When the buzzer is OFF, mute icon is displayed on <Gas Concentration Display>.


(Mute icon when buzzer is OFF)

WARNING Buzzer ON/OFF setting will remain effective even after the power is turned OFF.

(B-2) Buzzer Volume

1) When [VOL] is displayed, press the [AIR ADJ.] and [POWER] buttons at the same time.
--> [BEEP] (button operation tone) will be indicated.

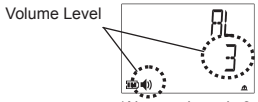


<Button operation tone>

2) To select [AL] (alarm volume), press the [AIR ADJ.] button.
--> [AL] (alarm volume) will be indicated.

<Button operation tone> <Alarm volume>

3) Confirm the selected setting and press both [AIR ADJ.] and [POWER] buttons at the same time.
--> The current volume level is displayed. (3, 2 or 1)



(Alarm volume is 3>

4) Press the [AIR ADJ.] button to select volume level.
--> Each time pressing the button, a beep will sound twice and the level changes.

(Alarm volume level 2)

(Alarm volume level 1)

NOTE
- Alarm volume indication will be changed according to the [AL] (alarm volume) setting.
  3: Loud 2: Medium 1: Small
- The factory default of alarm volume is 3 and buzzer (button operation tone) is 1.

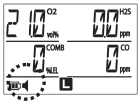
5) To save the setting, press both [AIR ADJ.] and [POWER] buttons at the same time.
--> "SAVE OK?" will be displayed.

6) Press both [AIR ADJ.] and [POWER] buttons at the same time for OK.
--> A beep sounds twice <u>when the buzzer is ON</u>, and returns to [VOL] screen.

(Alarm volume level 1)

7) To continue the each setting, press the [AIR ADJ.] button and select next setting. (See "*(B) Each Setting*" on page 20)

8) To quit user mode, keep pressing the [POWER] button until it returns to the <Gas Concentration Display>.
--> The alarm volume level on <Gas Concentration Display> will indicate the new setting when the alarm volume is changed.



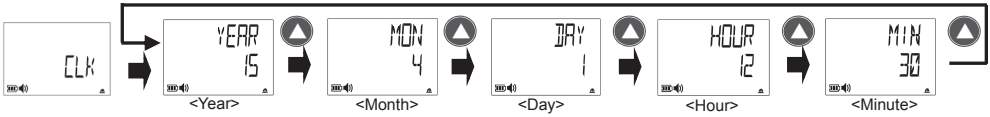
(Alarm volume level 1)

WARNING
- Buzzer volume setting will remain effective even after the power is turned OFF.
- Beep will not sound when the buzzer setting is OFF.

(B-3) Clock Adjustment

1) When [CLK] is displayed, press the [AIR ADJ.] and [POWER] buttons at the same time.
   --> [YEAR] (year) will be indicated.

2) To select [MON] (month), [DAY] (day), [HOUR] (hour) or [MIN] (minute), press the [AIR ADJ.] button.
   --> Each time pressing the button, the current setting value of each item will be displayed.



<Year> <Month> <Day> <Hour> <Minute>

3) Press both [AIR ADJ.] and [POWER] buttons to select at the same time.
   --> Selected item and setting value will be displayed. (Setting value will be blinking)

(To change day 1)

4) Press the [AIR ADJ.] button to increase the value incrementally, or press and hold the button to quickly increase the value.

5) To save the setting, press both [AIR ADJ.] and [POWER] buttons at the same time.

6) Press the [AIR ADJ.] and [POWER] buttons at the same time for OK.
   --> Returns to the previous menu after two beep sounds

(Day is changed to 5)

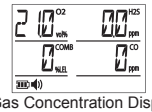
7) To continue the other setting, repeat the process from 2) to 6).

> **WARNING**
> - Do not set a date which does not exist on the calendar.
> - Do not perform clock adjustment while data logging. The error may occur in the logging data.

8) Press the [AIR ADJ.] button to finish clock adjustment.
   --> It will return to [CLK] display.

9) To continue the each setting, press the [AIR ADJ.] button and select next setting.

10) To quit user mode, keep pressing the [POWER] button until it returns to the <Gas Concentration Display>.



<Gas Concentration Display>

(B-4) Long Life Mode

Long Life Mode is applied only to the models with combustible gas sensor, and factory default is set to ON. When the long life mode is turned to OFF, the detection cycle of combustible gas sensor will be short and response time will be fast, but the battery life will be about half of the long life mode ON.

Long Life Mode	Continuous Use Time
ON	About 40 hours
OFF	About 20 hours

* The battery life may vary depending on environment, use condition, and many other factors. Low temperature may shorten the battery life due to the battery property.

NOTE The long life mode setting will remain efective even after the power is turned OFF or a battery is removed.

1) When [LONG] is displayed, press both [AIR ADJ.] and [POWER] buttons at the same time.
   --> The current status ("ON" or "OFF") will be indicated. When the setting is ON, [L] will appear in the center bottom of the LCD.

<Long life mode is ON>

NOTE For the models without combustible gas sensor, a beep will sound and it will remain displaying [LONG].

2) Press the [AIR ADJ.] button.
   --> The current status will be changed.
   When OFF is selected, [L] will go off.
   When ON is selected, [L] will appear in the center bottom of the LCD.

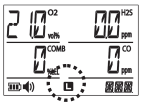
(OFF is selected)

3) To save the setting, press both [AIR ADJ.] and [POWER] buttons at the same time.
   --> "SAVE OK?" will be displayed.

4) Press both [AIR ADJ.] and [POWER] buttons at the same time for OK.
   --> Returns to [LONG] screen after two beep sounds.

5) To continue each setting, press the [AIR ADJ.] button and select next setting. (See "*(B) Each Setting*" on page 20)

6) To quit user mode, keep pressing the [POWER] button until it returns to the <Gas Concentration Display>.
   --> When the long life mode is ON, long life mode icon [L] will appear on <Gas Concentration Display>.



(Long life mode is ON)

(C) Logging

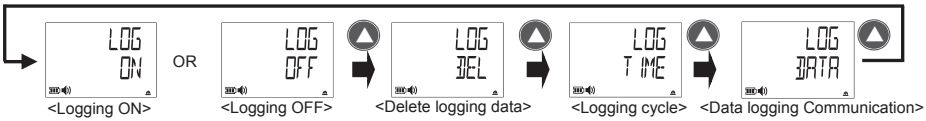
In user mode, take the following process.

NOTE

- Make sure to perform clock adjustment before starting data logging.
- To read the logging data, PC and XA-4000IIL Datalogger Kit (sold separately) are necessary. Read the instruction manual of Datalogger Kit for how to read the logging data.

1) When [LOG] is displayed, press both [AIR ADJ.] and [POWER] buttons at the same time.
   --> The current status ("LOG OFF (logging is OFF)" or "LOG IN" (logging is ON) will be indicated.

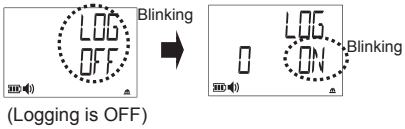
2) To select [LOG DEL] (delete the logging data) or [LOG TIME] (logging cycle), press the [AIR ADJ.] button.



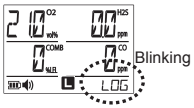
3) See the followings for each setting.

(C-1) Start Logging

1) When [LOG OFF] is displayed, press the [AIR ADJ.] and [POWER] buttons at the same time.
   --> [LOG ON] will be indicated. The number in the bottom left shows the current capacity for data logging from 0 to 100%.



2) To set ON (start), press both [AIR ADJ.] and [POWER] buttons at the same time.
   --> Returns to <Gas Concentration Display> after two beep sounds, and "LOG" (logging is ON) will blink in the bottom right of the LCD.

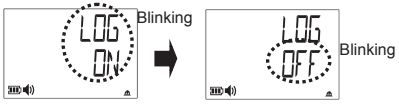


NOTE

If the power is turned OFF while data logging is in progress, the data will be saved automatically and the logging will stop.

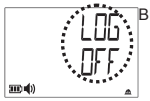
(C-2) Stop Logging

1) When [LOG ON] is displayed, press both [AIR ADJ.] and [MENU POWER] buttons at the same time.
--> “LOG OFF” will be indicated.



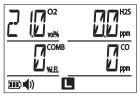
(Logging is ON)

2) To set OFF (stop), press both [AIR ADJ.] and [MENU POWER] buttons at the same time.
--> “LOG OFF” will be indicated.



3) To continue the logging mode, press the [AIR ADJ.] button and select next setting.

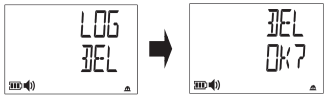
4) To quit user mode, keep pressing the [MENU POWER] button until it returns to the <Gas Concentration Display>.


<Gas Concentration Display>
(Data logging is OFF)

(C-3) Delete Logging Data

NOTE All the data will be erased after the logging data is deleted.

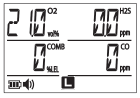
1) When [LOG DEL] is displayed, press both [AIR ADJ.] and [MENU POWER] buttons at the same time.
--> “DEL OK?” will be displayed.



2) Press both [AIR ADJ.] and [MENU POWER] buttons at the same time for OK.
--> Delete is executed with two beep sounds, and returns to [LOG DEL] screen.

3) To continue logging mode, press the [AIR ADJ.] button and select next setting.

4) To quit user mode, keep pressing the [MENU POWER] button until it returns to the <Gas Concentration Display>.

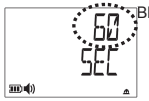

<Gas Concentration Display>

(C-4) Logging Cycle

1) When [LOG TIME] is displayed, press both [AIR ADJ.] and [MENU POWER] buttons at the same time.
   --> The current logging cycle "_ _ SEC (seconds)" will be indicated.

Blinking
(Current logging cycle is 10)

Press the [AIR ADJ.] button to select the cycle.
--> The value (second) will change by pressing the button.



Blinking
(Logging cycle is set to 60 seconds)

Configurable Logging Cycle (seconds)
0.5
1, 2, 3, 4, 5, 6, 7, 8, 9, 10
20, 30, 40, 50, 60(1min)
120, 180, 240, 300, 360, 420, 480, 540, 600(10min.)
1200, 1800, 2400, 3000, 3600(60min.)

NOTE

How to reverse the display order of selection list

Press and hold both [AIR ADJ.] and [MENU POWER] buttons at the same time to reverse the display order of selection list. After a beep sound, an arrow sign in the bottom right corner of the LCD will flip vertical.
The same operation can reverse the display order again.
The display order will return to the default (up arrow) when the power is turned OFF.

(Flipped down arrow)

NOTE

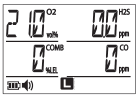
- The factory default of logging cycle is 10 sec.
- The logging period is about 40 hours when the logging cycle is 10 sec.

2) To save the setting, press both [AIR ADJ.] and [MENU POWER] buttons at the same time.
   --> "SAVE OK?" will be displayed.

3) Press both [AIR ADJ.] and [MENU POWER] buttons at the same time for OK.
   --> Returns to [LOG TIME] screen after two beep sounds

4) To continue each setting, press the [AIR ADJ.] button and select next setting.

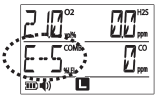
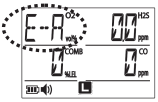
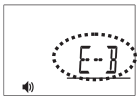
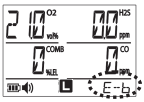
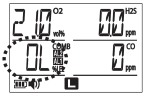
5) To quit the user mode, keep pressing the [MENU POWER] button until it returns to the <Gas Concentration Display>.



<Gas Concentration Display>

4. Error Messages

If an abnormality occurs in the Multi-gas Detector, the error message will be displayed on the LCD, buzzer will sound intermittently, alarm lamp will flash, and vibrator will start vibrating intermittently. However the buzzer for sensor error will sound if all of the mounted sensors are in error.
The buzzer sound will stop by pressing the [AIR ADJ.] button, and the flashing lamp and vibration will stop when the power is turned OFF.
Major error messages are listed below. Take appropriate measures in accordance with the message displayed. When a button or display does not function correctly without displaying error message, reset battery and turn ON the power again. If it still does not function properly, contact your New Cosmos representative for repair.

Error Messages	Error Condition	Cause	Action
 (Error in combustible gas sensor)	Sensor Error “E-S” will blink on the corresponding gas display.	Sensor Malfunction If it occurs when the power is turned ON, there is a possibility of presence of gas.	If it occurs when the power is turned ON, turn OFF the power and ON again in the clean air. If it still has a trouble, ask for repair.
	Adjustment Error in Oxygen Sensor “E-A” will blink on the oxygen display.	Oxygen Sensor Malfunction	Ask for repair.
	Battery is Dead “E-B” will appear.	Battery Voltage Reduction	This is not a malfunction. Replace a battery (page 28).
	Internal Battery is Dead “E-b” will appear.	Battery Voltage Reduction	Ask for repair.
	Detector Error “E-T” will appear.	Detector Malfunction	Ask for repair.
	Over Range “OL” will blink on the corresponding gas display.	Exceeding the Concentration Range	This is not a malfunction. The gas concentration will be displayed as the gas concentration decreases.

5. Replacement of Consumables

Battery Replacement

WARNING

- Replace a battery only in non-hazardous locations.
- Make sure to use a Panasonic alkaline battery (LR03/AAA). We cannot guarantee the intrinsically safe performance if an unspecified battery is used. (Applicable battery model is listed on a label of battery unit.)
- Make sure to remove dust from O-ring of battery cover and sealing between the Multi-gas Detector and battery cover, as dust may be a cause of water ingress into the Multi-gas Detector.
- Always remove water and dust before opening the battery cover. Entry of water or dust inside the Multi-gas Detector may cause trouble.
- If an O-ring of battery cover is damaged, be sure to replace with a new one, as it may lead to water ingress into the Multi-gas Detector.

NOTE

- Make sure to use a new battery.
- Low temperature may shorten the battery life due to the battery property. If the remaining battery level is low, it is recommended to replace a battery before it dies.

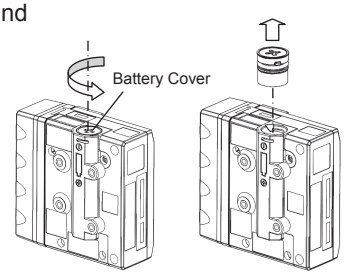
The following shows the remaining battery level indicator. When a battery is running out, it is unable to detect gas, as “E-B” appears with intermittent buzzer sound. (LCD will be off when the battery is dead)

1) Press and hold the [MENU POWER] button to turn OFF the power.

2) Loosen the battery cover by turning it counterclockwise with a cross slot screwdriver with point size 2, and remove the battery cover.

NOTE

- Make sure to use a screwdriver with point size 2 (see on page 32 for the shapes). If the screwdriver is too small, the battery cover can be damaged.
- Turn the screwdriver slowly. The battery cover will be damaged if it is turned by force.

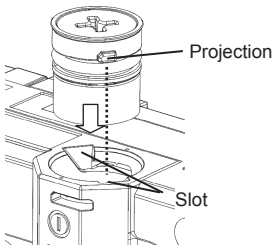


3) Pull the battery cover upward with fingers.

4) Remove an old battery and insert a new battery with the correct polarity as instructed.

5) Fit the projection of battery cover into the slot.

6) Push downward and turn the battery cover clockwise until it stops with a cross slot screwdriver.



NOTE If the remaining battery level still stays low after replacing a battery, remove a battery and insert it again.

Replacement of Filter Element

If the filter element is dirty or wet, replace with a new filter.

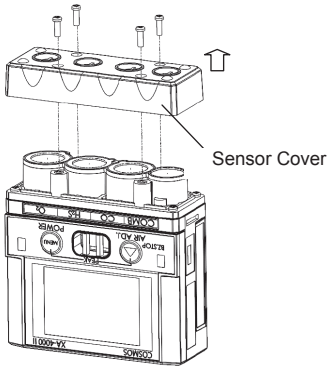
WARNING

- Place the filter element and sensor cover correctly, as it may affect the detection performance or waterproof performance.
- Firmly tighten the screw, as it may lead to water ingress into the Multi-gas Detector.
- Ask for repair if the water reaches inside, as it may affect the detection performance.
- Do not switch the sensor locations, as it may cause a failure or an error, and it may affect the detection performance.

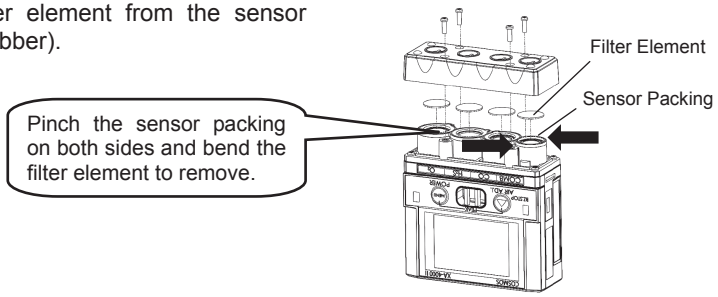
NOTE Do not push or poke the filter. A broken filter may affect the waterproof performance.

1) Remove four screws and take off the sensor cover.

CAUTION Make sure to use a screwdriver with point size 1 (see on page 32 for the shapes).



2) Remove the filter element from the sensor packing (black rubber).

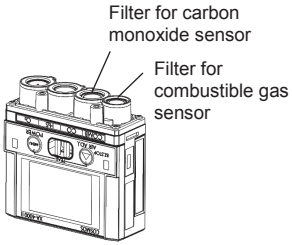


3) Place a new filter element on the sensor packing.

> ⚠ **CAUTION** Make sure the filter element is fitted properly inside the sensor packing, as it may affect the waterproof performance.

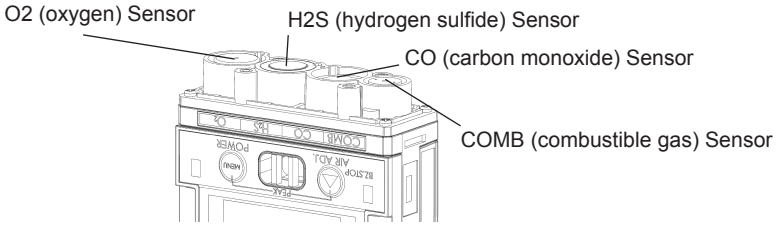
NOTE

- A filter is placed under the filter element for combustible gas sensor and carbon monoxide sensor, to remove interference gas. Before fitting the filter element, make sure the filter under each sensor is fitted properly inside the sensor packing.
- Replace a filter for each sensor as needed (page 31).



4) Close the sensor cover with four screws.
(Recommended tightening torque: 19cN.m)

> ⚠ **WARNING** If a sensor comes off from the Multi-gas Detector, place the sensor in correct location according to the indicated gas name on the front panel.



NOTE When the screws are unevenly tightened, it may affect the waterproof performance. Tighten four screws evenly and alternately.

Replacement of Filter for Each Sensor

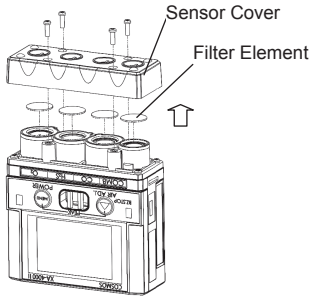
Replace a filter for combustible gas sensor and carbon monoxide sensor every 6 months regardless of the frequency of use.

WARNING

- Place the filter for each sensor, filter element and sensor cover correctly, as it may affect the detection performance or waterproof performance.
- Do not push or poke the filter for each sensor. A broken filter may affect the detection performance.
- Firmly tighten the screw, as it may lead to water ingress into the Multi-gas Detector.
- Ask for repair if the water reaches inside, as it may affect the detection performance.

1) Remove four screws and take off the sensor cover and filter element.

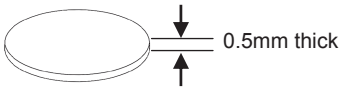
CAUTION Make sure to use a screwdriver with point size 1 (page 32 for the shapes).



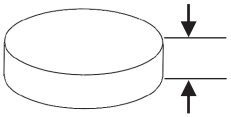
2) Remove the filter for combustible gas sensor and carbon monoxide gas sensor.

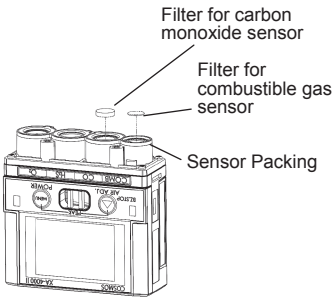
NOTE

- Filter for Combustible Gas Sensor



- Filter for Carbon Monoxide Sensor





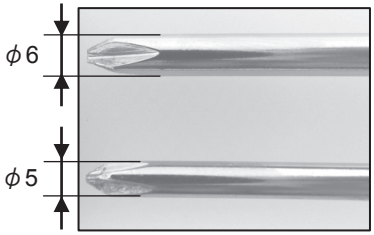
3) Place a new filter for combustible gas sensor/ carbon monoxide gas sensor on the sensor packing.

> ⚠ **CAUTION** Make sure the filter for each sensor is fitted properly inside the sensor packing, as it may affect the waterproof performance.

4) Close the sensor cover with four screws.
(Recommended tightening torque: 19cN.m)

> NOTE When the screws are unevenly tightened, it may affect the waterproof performance. Tighten four screws evenly and alternately.

> NOTE Size of Screwdriver



Size No. 2

Size No. 1

6. Maintenance Check

This Multi-gas Detector is precision equipment. The following maintenance is required to maintain performance and safety. In the event of a violation of "*Safe Operation*" instructions on page 4 such as impact shock from dropping or exposure to water, and improper use as described in "*Specifications*" on page 37 such as detecting gas concentration exceeding the detection range or use in temperature and humidity exceeding the use range, request a paid inspection with a briefing.

Daily Check

Check Item	Description
LCD	Check if LCD is not damaged. (see "*Turn ON the Power*" on page 9)
Alarm Function	Check the buzzer sound, flashing alarm lamp, and vibration alarm function. (see "*Alarm Test*" on page 18)
Filter Element	If the filter element is dirty or wet, replace with a new filter. (see "*Replacement of Filter Element*" on page 29)
Battery Level	Check the remaining battery level in the bottom left of the LCD. When the battery level is low, replace with a new battery. (see "*Battery Replacement*" on page 28) [Battery Level] HIGH . . . . . LOW Replace   (Battery is dead) NOTE Since the low temperature may shorten the battery life, keep an extra battery or replace a battery before it dies.

Periodic Inspection

- Contact your New Cosmos representative for inspection more than once every six months.
- Contact your New Cosmos representative for a periodic inspection, including a sensor calibration and filter replacement more than once a year.

> ⚠ **WARNING** Recommended sensor replacement interval is every 2 year to maintain accuracy. Replace a sensor every 2 years, as it may affect the detection performance after 2 years. However, replacement interval may vary depending on the conditions of use and environment. Particularly in case of dropping, exposure to water, use at high temperature/humidity or exposure to high concentration gas or toxic gas, contact your New Cosmos representative for a maintenance check.

Maintenance

- When the Multi-gas Detector is dirty, wipe with a dry soft cloth or tightly squeezed wet cloth. Do not use cleaning agents or alcohol to clean.

Replacement Parts

Name	Part Code	Reference
FE-128 Filter Element	59160104	Replace at least once a year or when the filter element is dirty or wet (see "*Replacement of Filter Element*" on page 29)
Battery Cover (with O-ring)	59460000	Replace when the battery cover is deformed (see "*Battery Replacement*" on page 28)
FE-129 Filter for Combustible Gas Sensor	59160105	Replace every six months (see "*Replacement of Filter for Each Sensor*" on page 31)
FE-130 Filter for Carbon Monoxide Sensor	59160106	
Sensor Packing	20596510	Replace when the sensor packing is damaged or deformed

7. Troubleshooting

Before requesting service, please check the following.

* If the Multi-gas Detector fails to operate, remove and insert a battery, and turn ON the power again.

Trouble	Cause	Resolution	Reference
The power will not turn ON by pressing the [MENU POWER] button	Battery polarity is reversed	Insert a battery with the correct polarity	"*Battery Replacement*" on page 28
	Battery is dead	Replace a battery	
Buzzer will not sound	Buzzer is OFF	Set the buzzer ON	"*Buzzer ON/OFF*" on page 20
Error message will appear	See "*Error Messages*" on page 27		
Gas concentration is blinking at "0" or "0.0"	Gas concentration indicates negative value, when the high concentration gas may have been detected, or AIR Adjustment may have been performed in gas atmosphere.	Perform AIR Adjustment (zero adjustment) in the clean air (normal air)	"*AIR Adjustment*" on page 14

8. Warranty

New Cosmos Electric Company Limited (New Cosmos) offers the following as the sole and exclusive limited warranty available to Customer.
This warranty is in lieu of, and customer waives, all other warranties of any kind or nature, expressed or implied, including without limitation, any warranty for merchantability or fitness for a particular purpose. The remedies set forth herein are exclusive.

New Cosmos warrants to the original purchaser and no other person or entity (customer) that gas detection product supplied by New Cosmos shall be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. This warranty does not include consumables, such as fuses, filters, etc. Certain other accessories not specifically listed here may have different warranty periods.

After examination of allegedly defective product return to New Cosmos, with freight prepaid, should the product fail to conform to this warranty, customer's only remedy and New Cosmos's only obligation shall be, at New Cosmos's sole option, replacement or repair of such non-conforming product or refund of the original purchase price of the non-conforming product. In no event will New Cosmos be liable for any other special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of non-operation of the product.

This warranty is valid only if the product is maintained and used in accordance with New Cosmos's instructions and /or recommendations. New Cosmos shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from physical abuse or misuse of the product.

9. Specifications

Multi-gas Detector

Model	XA-4400II			
Target Gas	Combustible Gas (Methane or Isobutane)	Oxygen	Hydrogen Sulfide	Carbon Monoxide
Detection Principle	Catalytic Combustion (intermittent)	Galvanic Cell	Electrochemical Cell	Electrochemical Cell
Sampling Method	Diffusion			
Detection Range (Service Range*1)	0 - 100%LEL (101-110%LEL)	0 - 25.0vol% (25.1-50.0vol%)	0-30.0ppm (30.1-50.0ppm)	0-300ppm (301-2000ppm)
Indication Accuracy*2 (excluding service range)	Within +/-10%LEL	Within +/-0.5vol%	Within +/-1.5ppm	Less than 150ppm: Within +/-15ppm 151-300ppm: Within +/-30ppm
Display Solution	1%LEL	0.1vol%	0-35ppm: 0.1ppm 35-150ppm: 0.5ppm	0-350ppm: 1ppm 350-2000ppm: 5ppm
Alarm Set Value	1st alarm: 10%LEL 2nd alarm: 30%LEL	1st alarm: 19.5vol% (Upper Limit) 2nd alarm: 18.0vol% (Lower Limit)	1st alarm: 10.0ppm 2nd alarm: 15.0ppm TWA: 10.0ppm STEL: 15.0ppm	1st alarm: 50ppm 2nd alarm: 150ppm TWA: 25ppm STEL: 300ppm*3
Response Time*4	Within 30 sec.	Within 20 sec.	Within 30 sec.	Within 30 sec.
Gas Alarm	Buzzer sound, Flashing RED lamp, Vibration, LCD (automatic recovery)			
Power Source	BP-4000II AL Battery Unit 1 x Panasonic alkaline battery (LR03/AAA)			
Continuous Use Time *5	Approx. 40 hours when the long-life mode is ON / Approx. 20 hours when the long-life mode is OFF / Approx. 600 hours without combustible gas sensor			
Operating Temperature Range	-20 to 50 degrees C, 30 to 85%RH (non condensing)			
Operating Pressure Range	Atmospheric pressure (800 to 1100hPa)			
Intrinsically Safe	Ex ia IICT3X（JAPAN）			
Ingress Protection	Equivalent to IP67 *6			
Functions	Self-diagnosis (sensor trouble), Automatic air adjustment, Remaining battery level, Peak-hold, LCD backlight, Buzzer stop for gas alarm, Time & Temperature indication, Alarm test, Buzzer volume, Silent mode, Long-life mode, Data logging			
Dimensions	70 (W) x 73 (H) x 26 (D) mm (excluding protrusions)			
Mass	Approx. 130g (excluding battery)			

*1: Reference indication beyond the detection range.
*2: Under an identical measurement condition.
*3: STEL alarm set value of carbon monoxide is not defined by ACGIH, but the manufacturer's standard value.
*4: Time for 90% response (at 20 +/- 2 degrees C in ambient temperature).
*5: At 25 degrees C, without alarm, backlight OFF, data logging OFF. It varies according to the circumstances, condition of use, storage period, etc.
*6: Dust-proof and water-proof structure which satisfies the test of New Cosmos Electric complying with JIS C 0920-2003 Ingress Protection code IP67 in the condition of brand-new Multi-gas Detector. However, this Ingress Protection code IP67 does not guarantee any gas detection.
IP67 means a structure (IP6X) with which a Multi-gas Detector for testing ins conducted in a dust test on depressurized condition at a maximum 2kPa to verify that there is no accumulation of dust inside, and a structure (IPX7) with which a Multi-gas Detector for testing is slowly immersed in a stationary water bath filled with tap water at normal temperature with its bottom end at 1m from the water surface for 30 minutes to verify that there is no water entry and damage from such exposure.
Specifications may be subject to change without notice.

Intrinsically Safe

Multi-gas Detector

Model		XA-4400II
Intrinsically Safe		Ex ia IICT3X（JAPAN）
Ingress Protection Code		IP20 (with BP-4000IIAL)
Rating	Electrical Parameter	Catalytic sensor circuit： Maximum input voltages 1.65V Maximum input currents 0.9251A Maximum input powers 0.2406W CPU A circuit： Maximum input voltages 1.65V Maximum input currents 0.9216A Maximum input powers 0.2399W CPU B circuit： Maximum input voltages 5.73V Maximum input currents 0.0087A Maximum input powers 0.0124W Maximum output voltages 5.73V Maximum output currents 0.9398A Maximum output powers 0.2626W Buzzer circuit： Maximum input voltages 1.65V Maximum input currents 0.9213A Maximum input powers 0.2399W Motor circuit： Maximum input voltages 1.65V Maximum input currents 0.3856A Maximum input powers 0.1164W
	Ambient Temperature	-20 to 50 degrees C

Battery Unit

Model		BP-4000IIAL
Intrinsically Safe		Ex ia IICT3（JAPAN）
Ingress Protection Code		IP20 (with XA-4400II)
Rating	Electrical Parameter	Power source DC1.5V（One size AAA dry battery (LR03) made by PANASONIC 1.5VDC） Catalytic sensor circuit： Maximum output voltages 1.65V Maximum output currents 0.4492A Maximum output powers 0.2406W CPU A circuit： Maximum output voltages 1.65V Maximum output currents 0.4475A Maximum output powers 0.2399W CPU B circuit： Maximum input voltages 5.73V Maximum input currents 0.9398A Maximum input powers 0.2626W Buzzer circuit： Maximum output voltages 1.65V Maximum output currents 0.4473A Maximum output powers 0.2399W Motor circuit： Maximum output voltages 1.65V Maximum output currents 0.1872A Maximum output powers 0.1164W
	Ambient Temperature	-20 to 50 degrees C

10. Disposal

- When disposing of the Multi-gas Detector, treat it as industrial waste in accordance with law and regulation.

11. Glossary

O2	: Oxygen
H2S	: Hydrogen sulfide
COMB	: Combustible gas
CO	: Carbon monoxide
Air Adjustment	: Adjustment of zero (21.0) point in the clean normal air. Clean air: Pure air without other gas Normal air: Standard air composed of 20.9-21.0vol% oxygen in dry conditions
Span Adjustment	: Adjustment of indication value with span gas.
Explosion-Proof	: Equipment designed in accordance with existing codes and standards such that it will operate in a specified hazardous environment without causing an explosion.
Intrinsically Safe Structure	: A protection technique for safe operation of electrical equipment in hazardous areas by limiting the energy available for ignition.
Non-Hazardous Area	: A location in which fire or explosion hazards are not expected to exist specifically due to the presence of flammable gases or vapors, flammable liquids, combustible dusts, or ignitable fibers.
%LEL	: Concentrations of combustible gas given in terms of percent of the lower explosion limit.
vol%	: Gas concentrations given in terms of percent of cubic volume.
ppm	: Gas concentrations given in terms of millionth part of cubic volume.
Lower Explosive Limit (LEL)	: The lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source.
TLV-TWA	: Threshold Limit Value – Time Weighted Average Average exposure on the basis of a 8h/day, 40h/week work schedule without adverse effect.
TLV-STEL	: Threshold Limit Value – Short Term Exposure Limit The acceptable average exposure over a short period of time, usually 15 minutes as long as the time-weighted average is not exceeded.

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