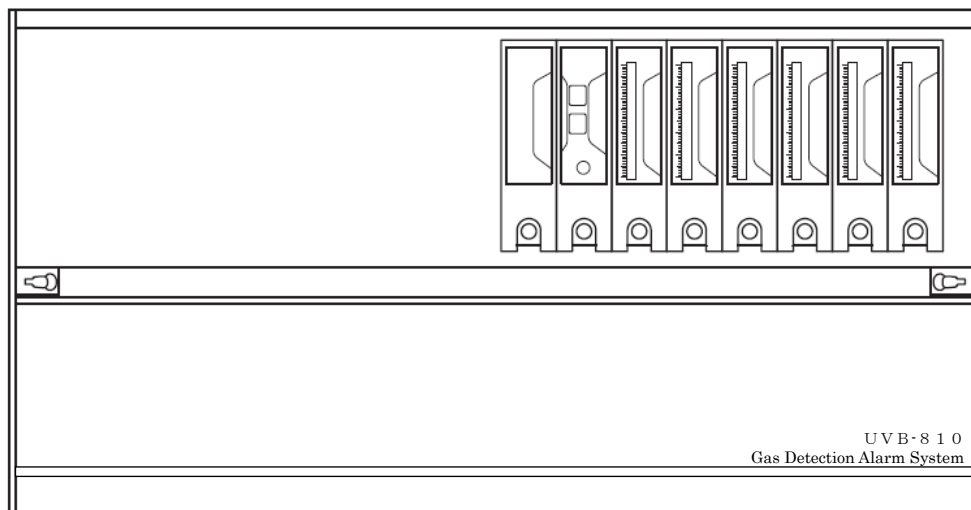


Multi-Point Gas Alarm System with Built-in Backup Batteries UVB-810

Instruction Manual



- Keep this manual for easy reference.
- Carefully read this manual prior to use.
- This manual covers the standard model. If your unit has end-user-specific options, this manual will be superseded by your delivery specifications.

NEW COSMOS ELECTRIC CO., LTD.

Instruction Manual No.
GAE-137-01
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1. Introduction




Thank you for purchasing the New Cosmos UVB-810 multi-point gas alarm system. Prior to use, please read this instruction manual to ensure correct and safe operation and to prevent accidents.

This system is a combination of several indicator units and one alarm unit. Each indicator unit is used in connection with a gas detector which is installed on-site, where gas detection is necessary. The system indicates the gas concentrations of combustible gases such as hydrogen, butane, LPG, gasoline, toxic gases and/or oxygen. It issues audio and visual alarms in the form of flashing lights and loud beeping sounds if gas concentrations reach preset levels. The system covers three or six gas detection points.

This system has two built-in backup batteries. In the event of a power outage, these batteries will provide emergency power to the system for uninterrupted gas-monitoring during the power outage. While external power is provided, the batteries are being charged.

Symbols Used in this Instruction Manual

This manual uses Danger, Warning, Caution and Note symbols to draw attention to procedures, materials, methods, and processes, which require particular attention.

 DANGER	Indicates an imminently hazardous situation that can result in death or serious injury.
 WARNING	Indicates a potentially hazardous situation that may result in death or serious injury.
 CAUTION	Indicates a hazardous situation that may result in minor injury or property damage.
NOTE	Provides advice/information on product handling.

2. Safety Precautions

Carefully read this manual prior to use.

To ensure safe operation, follow the precautions given below.

Wiring and installation should only be performed by a qualified electrician with appropriate knowledge of wiring/installation procedures.

WARNING

- Ground the product to prevent electric shocks.
- If there is a gas alarm, take the necessary measures specified by your company.
- This product is not explosion-proof and should not be installed in a hazardous area.

CAUTION

- Do not disassemble, modify, or alter the structure of the product or its electrical circuits. Doing so may compromise the performance of the product.
- This product is not drip-proof and should be kept away from water.
- Only use this product in accordance with the applicable laws and regulations.

3. Package Contents

The following items are included in a standard package. If any items are missing or damaged, please contact New Cosmos or its authorized representative for replacement.

Standard contents

Item	Quantity
UVB-810 gas alarm system <ul style="list-style-type: none"> • Includes indicator units, an alarm unit, and a backup power unit • Any unused indicator unit opening(s) will have filler panel(s) to seal/close them. 	1
Wall-mounting brackets	1 set
Fuse (for UVB-810) Dia. 5.2 - 7A 250 VAC	2
Fuse (for alarm unit) Dia. 5.2 - 0.5A 125 VAC	1
Fuse (for indicator unit) Dia. 5.2 - 1A 125 VAC	1 per indicator unit
Fuse (for backup power unit) Dia. 5.2 - 1A 125 VAC	1
M5x8 mounting screw, for mounting UVB-810	4
Instruction manual	1
Inspection certificate	1

Optional items (sold separately)

Zener barrier	Number of detection points
Panel-mounting brackets with tension screws	1 set

4. System Configuration

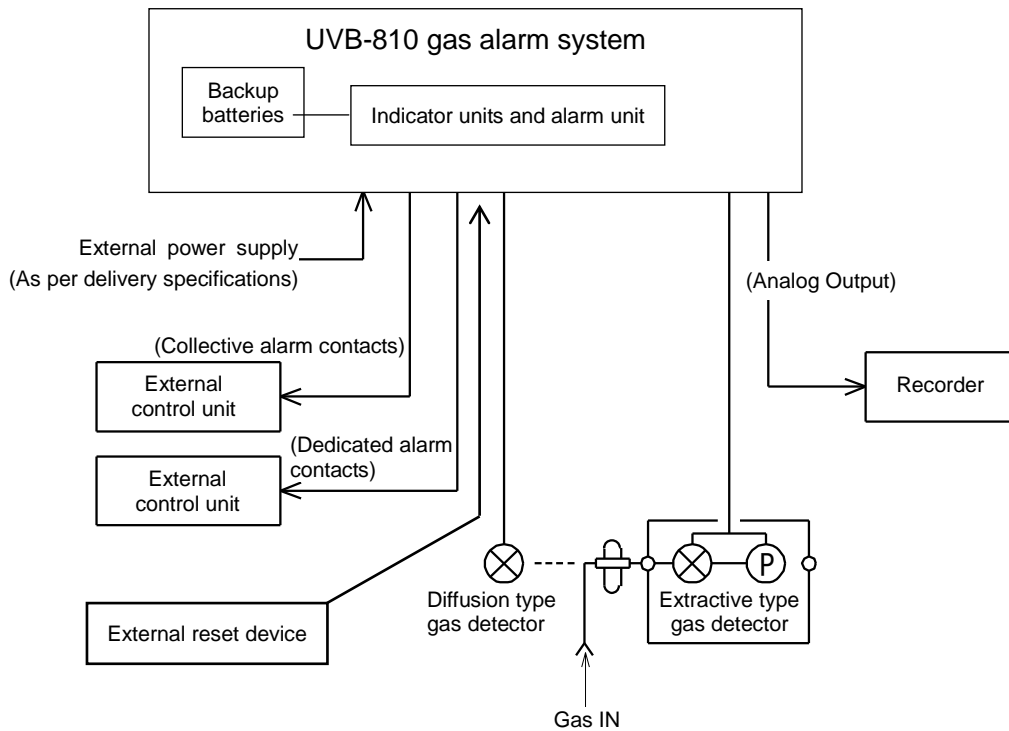


Figure 1. Typical System Configuration

* Refer to Section 6. "Installation and Wiring" for more information.

* External control units may include: signal towers, signal lights, alarm horns, shutdown valve etc.

Collective and Dedicated Alarm Contacts

The UVB-810 gas alarm system consists of one alarm unit and multiple indicator units. Each indicator unit is connected to an onsite installed gas detector. The system has one **collective terminal block** and multiple **dedicated terminal blocks**. One **dedicated terminal block** is provided for each indicator unit. **Collective and dedicated terminal blocks** have several alarm contacts. These alarm contacts can be used to control external devices to suit the end-user's devices. E.g., interlock, horn, signal light.

(1) Collective alarm contact

These relay contacts are located on the collective terminal block and activate if at least one indicator unit generates a fault alarm or gas alarm.

(2) Dedicated alarm contact

These relay contacts are located on each dedicated terminal block and activate if the corresponding indicator unit generates a gas alarm.

5. Unit Dimensions and Components

5.1. Gas Alarm System

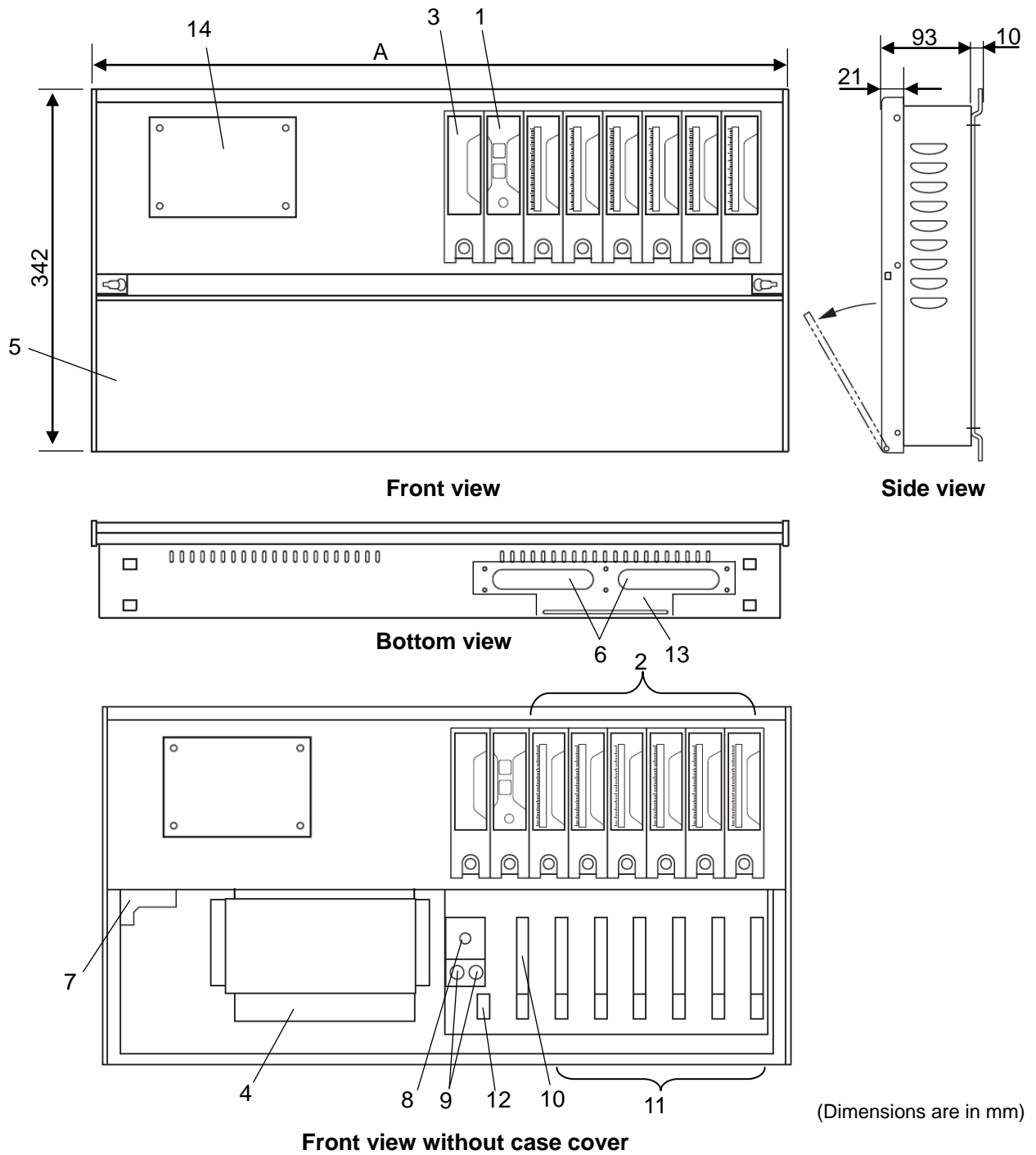


Figure 2. Gas Alarm System

Table. 1

Case type	Width A (mm)
3-point	414
6-point	642

Item	Component	Function/Description
1	Alarm unit	Activates an alarm in the form of lights and sounds
2	Indicator unit(s)	Indicate(s) gas concentrations
3	Backup power unit	Shows the backup battery status and battery voltage
4	Backup battery (x 2 pcs)	Provide(s) emergency power in the event of a power outage
5	Case cover	Protective cover for the energized area to prevent accidental contact Can be opened by releasing its two draw latches
6	Cable opening (2 places for 3-point type, 4 places for 6-point type)	Can accommodate a cable of maximum diameter 20mm Located on the bottom and the lower rear
7	Power converter	Converts from 100–240 VAC to 24 VDC Included when 24 VDC power is unavailable
8	Power switch	Toggle switch to turn the gas alarm system on or off
9	Fuse holder (2 places)	Houses a fuse for the gas alarm system
10	Collective terminal block	Houses the collective alarm contacts. Connect external leads to the contacts as needed. When one or more indicator units signal a fault alarm/gas alarm, the relevant collective alarm contact will be activated
11	Dedicated terminal block(s)	Houses the dedicated alarm contacts, analog output and gas detector terminals. Connect external leads to the contacts/terminals as needed. One dedicated terminal block is provided per indicator unit. When a corresponding indicator unit signals a gas alarm, the relevant alarm contact will be activated
12	Power terminal block	Houses terminals for connecting external 100–240 VAC power cable Marked as “AC100~240V INPUT”
13	Knockout plate	Make a cutout in the knockout plate as needed to accommodate cables
14	Metal plate	Provides the backup battery check procedure Needs to be temporarily removed during wall-mounting work

5.2. Indicator Unit (V3 series)

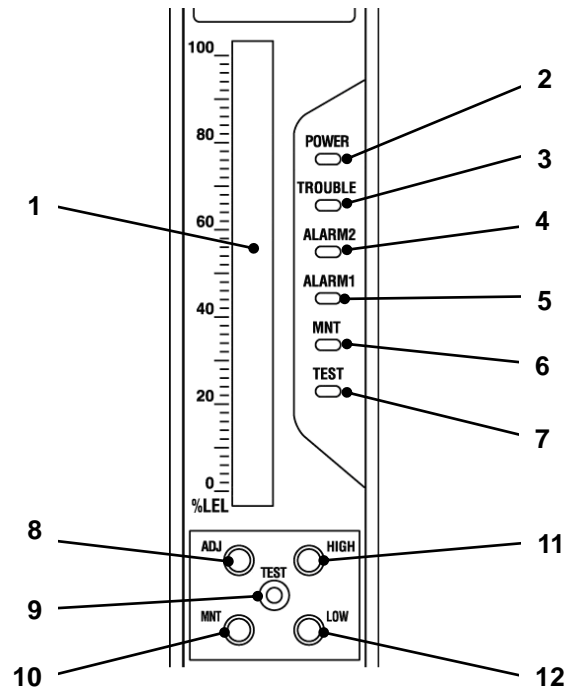
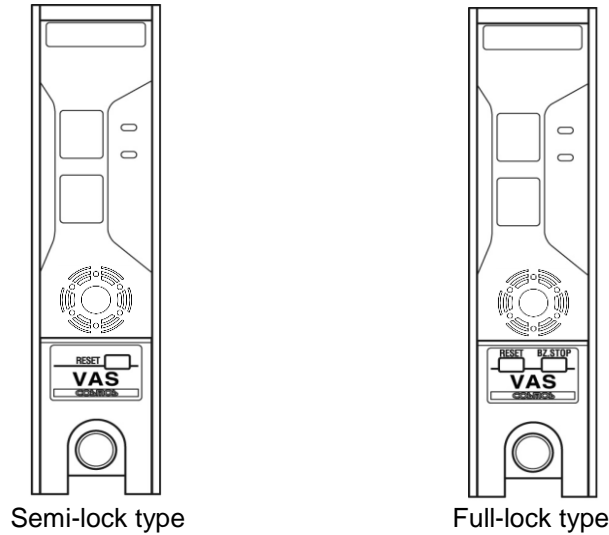


Figure 3. Indicator Unit

Item	Component	Function/Description
1	Gas concentration bar graph display	Displays the gas concentration and alarm set values
2	POWER LED (green)	Lights up when the indicator unit is on
3	TROUBLE LED (amber)	Flashes when a device failure is detected in a connected gas detector or in the indicator unit itself
4	ALARM2 LED (red)	Flashes when the gas concentration exceeds the 2 nd stage alarm set value
5	ALARM1 LED (red)	Flashes when the gas concentration exceeds the 1 st stage alarm set value
6	MNT LED (red)	Lights up or flashes while in the maintenance mode
7	TEST LED (red)	Lights up while in the test mode
8	ADJ button	Used to perform a one-touch zero adjustment (21vol% adjustment for oxygen)
9	TEST button (recessed)	Used to test the alarm function Use a rounded pin to press this button
10	MNT button	Switches between MNT1, MNT2 and normal operation modes
11	HIGH button	Used to adjust the testing level during the test mode
12	LOW button	

5.3. Alarm Unit (VAS)

Exposed button type



Covered button type

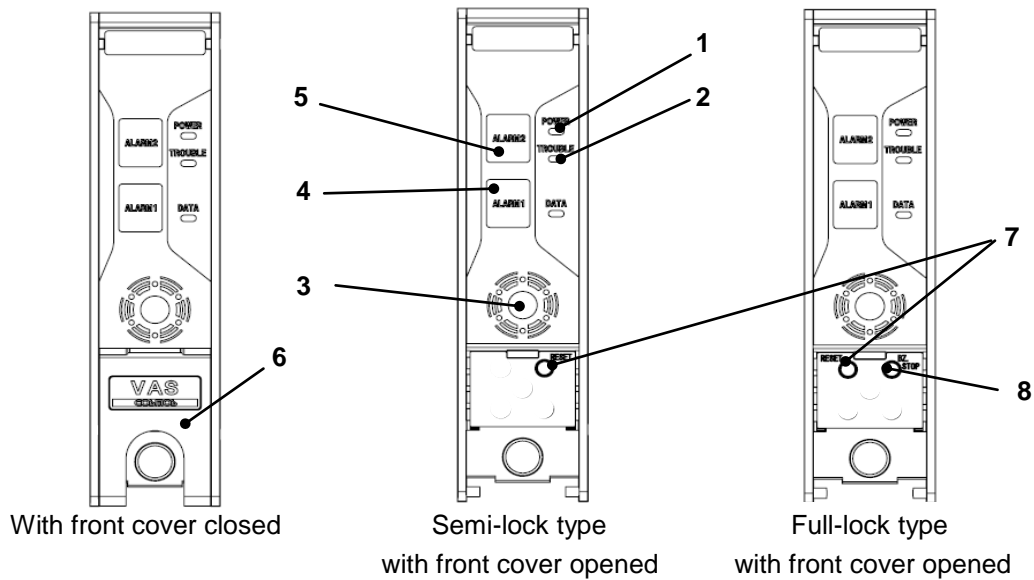


Figure 4. Alarm Unit

Item	Component	Function/Description
1	POWER LED (green)	Lights up when the alarm unit is on
2	TROUBLE LED (amber)	Lights up when a device failure in one or more indicator units or in the alarm unit itself, is detected
3	Audio opening	Produces beeping sounds when a gas alarm is activated Produces a steady tone when a device failure is detected
4	ALARM2 LED (red)	Lights up when one or more indicator units generates a 2nd stage gas alarm
5	ALARM1 LED (red)	Lights up when one or more indicator units generates a 1st stage gas alarm
6	Front cover (Covered button type only)	Open to access the RESET and BZ.STOP buttons
7	RESET button	For the semi-lock type, press to mute an active alarm. The alarm will be automatically cancelled when the gas concentration falls below the alarm set value. For the full-lock type, press the button once the gas concentration falls below the alarm set value to cancel the alarm
8	BZ.STOP button (Full-lock type only)	Press to mute an audio alarm

5.4. Backup Power Unit (VBH3)

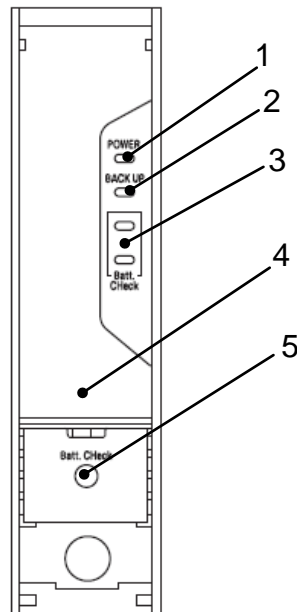


Figure 5. Backup Power Unit

Item	Component	Function/Description
1	POWER LED (green)	Lights up when the backup power unit is on, indicating that the batteries are being charged
2	BACKUP LED (red)	Flashes when the backup battery is being consumed
3	Batt. Check LED (2 places)	Indicates the backup battery status and battery life: Upper LED (green): Lights up when the batteries are normal. Lower LED (red): Lights up when the batteries are empty (charge is needed) or the battery life expires.
4	Battery voltage indication	Indicates battery voltage while the Batt. Check button is being pressed
5	Batt. Check button	Press to check if the backup batteries function normally (page 20)

6. Installation and Wiring

6.1. Installation

WARNING

- This product is not explosion-proof and should not be installed in a hazardous area.

CAUTION

- Install this product in a highly visible position in the event of an alarm, where it can be constantly monitored.
- Do not install in places subject to vibration, electrical noise, corrosive gas, high temperature and/or high humidity.
- Avoid installing in places near equipment which can generate high frequencies.

There are two installation methods: wall-mounting and panel-mounting.

6.1.1. Wall-mounting

This product can be installed either directly onto a wall or by using the wall-mounting brackets.

● Wall installation with brackets

- (1) Attach the two brackets to the rear of the gas alarm system case by tightening the four M5x8 screws.
- (2) Your case type will determine the needed “A” width (Table 2). Make four holes in the wall to accommodate the M5 screws.
- (3) Mount the case to the wall using four M5 screws.

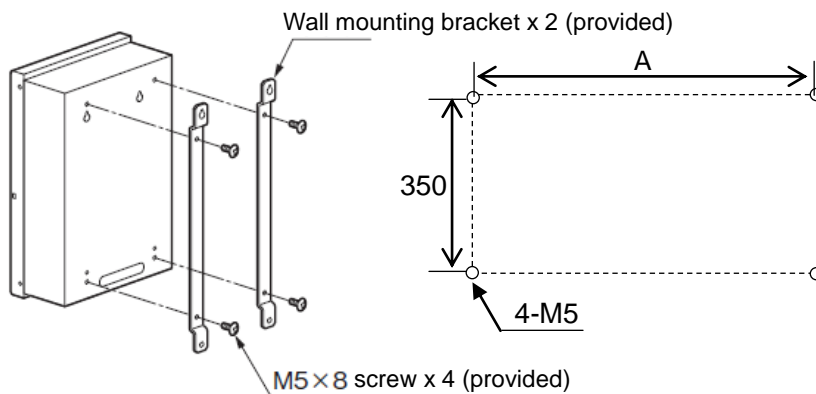


Figure 6. Attach Brackets

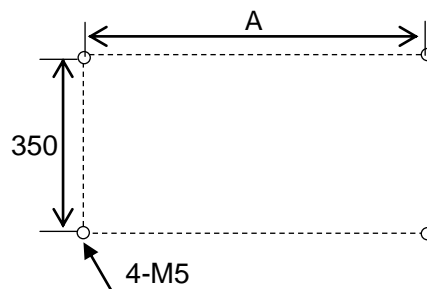


Figure 7. Mounting Layout

Table 2

Case type	Width A (mm)
3-point	330
6-point	558

● Direct wall Installation

- (1) Refer to Figure 8 and Table 3, and cut four mounting holes in the wall. This gas alarm system has cable openings on its rear and its bottom. When using the bottom cable opening(s), it is not necessary to cut a hole in the wall for cable entry. On the other hand, a wall cut must be made when using the rear cable opening(s).
- (2) Install a wall anchor into each of the four wall-mounting holes, and screw two bolts into the two top wall anchors.
- (3) Remove the metal plate by removing the four screws. Pull out to remove the indicator unit which covers the case's upper mounting holes. Hang the case on the two top bolts (Step 2) by sliding these bolts through the case's upper mounting holes. Screw two bottom bolts into the two lower anchors.

- (4) Firmly tighten all four bolts, and install the removed alarm and indicator units into the case. Install the removed connectors, too.

Table 3

Case type	Length in mm				
	A	B	C	D	E
3-point	292	280	292	235	100
6-point	482	280	482	387	100

⚠ CAUTION
Always remove connectors using plug or connector ends, and not the cable. Broken wires or poor contacts may result.

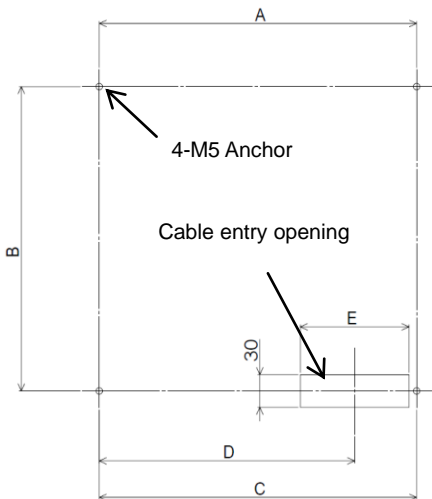


Figure 8. Mounting Layout

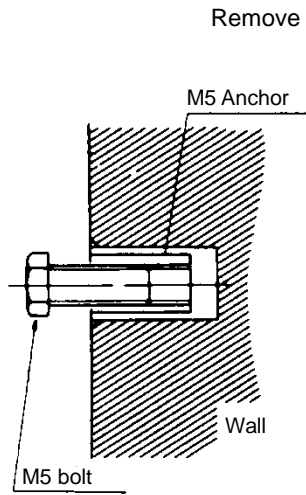


Figure 9. Attach Anchor

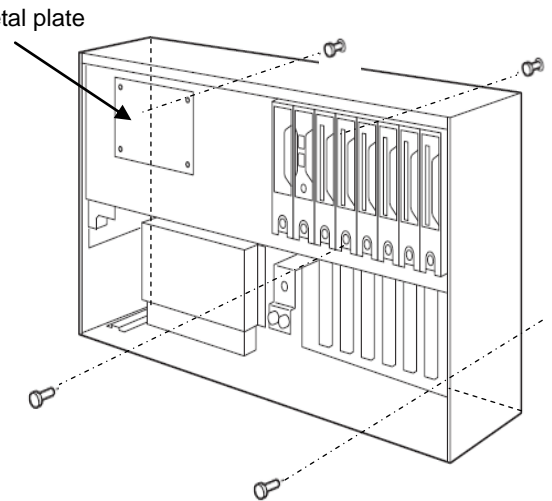


Figure 10. Installation

6.1.2. Panel-mounting

This gas alarm system can also be installed on a panel (1.6–5 mm thick).

- Refer to Figure 11 and Table 4 and cut a square cutout in the panel.
- Insert the gas alarm system case through the square cutout. Attach the two top and two bottom optional panel-mounting brackets with tension screws. Evenly tighten the tension screws in an “X” pattern to secure the case to the panel.

Table 4

Case type	Length in mm	
	A	B
3-point	408	332
6-point	636	332

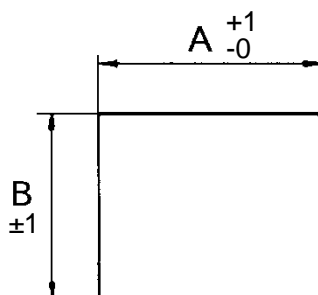


Figure 11. Panel Cutout Size

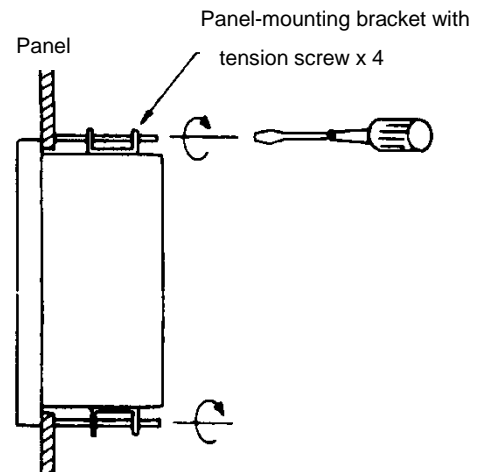


Figure 12. Installation

6.2. Wiring

WARNING

- Prior to wiring, turn off the product to prevent electric shocks.
- Ground the product to prevent electric shocks.

6.2.1. Wiring and Connection of Gas Detector

CAUTION

- Ensure that the cables are correctly connected between each indicator unit/gas detector pair.
- Keep connection cables away from the power cable.
- When installing a gas detector in a hazardous location, use explosion-proof wiring. Refer to the explosion-proof wiring instructions in the gas detector's instruction manual.

Wire each gas detector to its corresponding dedicated terminal block. Make sure that the tag number and plate number of the indicator unit match the loop number and sticker number of the gas detector.

*Refer to the gas detector's instruction manual for its specific installation and wiring procedure.

NOTE

Ensure that the resistance of the connecting wire (per conductor) is 10 Ω or less.

E.g.

≤ 400m – 0.75 mm² wire

≤ 600m – 1.25 mm² wire

≤ 1km – 2.00 mm² wire

*Only an estimate and no guarantee.

*When using a zener barrier to connect to an intrinsically safe gas detector, choose the wire and its length according to the intrinsically safe parameters as specified by the zener barrier.

There are multiple types of V3 series indicator units. They are divided according to the gas detector types they are used with. These types are divided into the following four groups, with wiring varying from group to group.

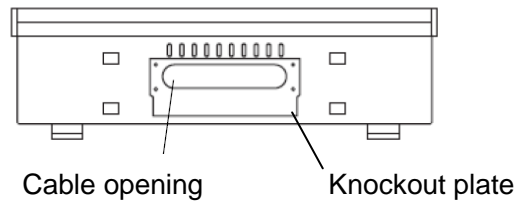
Table 5. V3 Groups

Group 1	Group 2	Group 3	Group 4
V3 Type Hv V3 Type Cv V3 Type Tv	V3 Type O V3 Type D	V3 Type M	V3 Type Hi V3 Type Ci V3 Type Ti

For type selection, please contact New Cosmos or its authorized representative.

Make a cutout in the knockout plate (bottom) as needed to accommodate cables.
 When using a zener barrier to connect to an intrinsically safe gas detector, Ingress Protection rating "IP2X" is required. Refer to Figure 14 for typical configuration using a zener barrier.

*To comply with IP2X, it is necessary to take measures to prevent fingers from being able to enter through the cable opening(s) and touching the electrically charged parts inside. If there is a gap between the cables and the cable opening, close the gap by using putty, etc.



(1) Typical Gas Detector Connections for Group 1 (V3 Type: Hv/Cv/Tv)

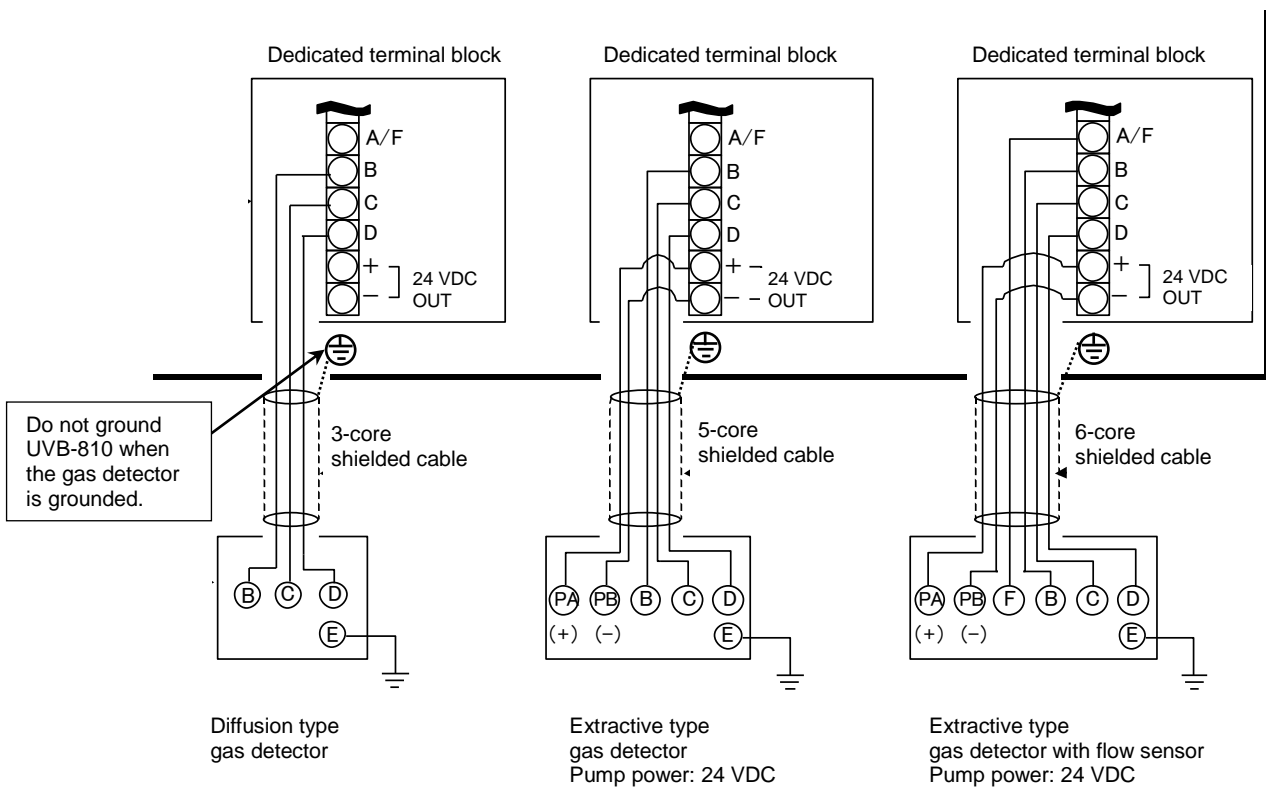


Figure 13. Typical Gas Detector Connections for Group 1

(2) Typical Gas Detector Connections for Group 2 (V3 Type: O/D)

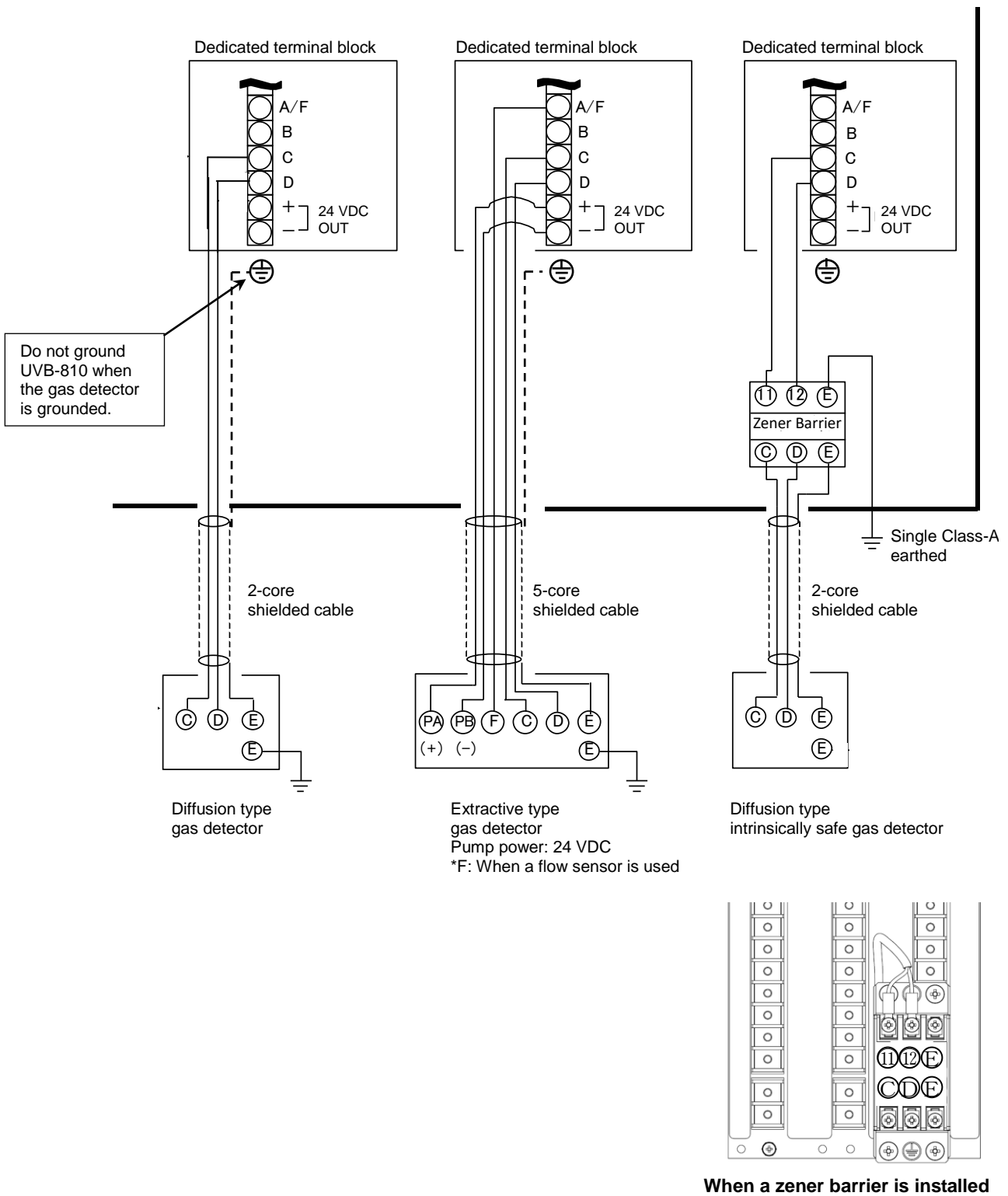


Figure 14. Typical Gas Detector Connections for Group 2

(3) Typical Gas Detector Connections for Group 3 (V3 type: M)

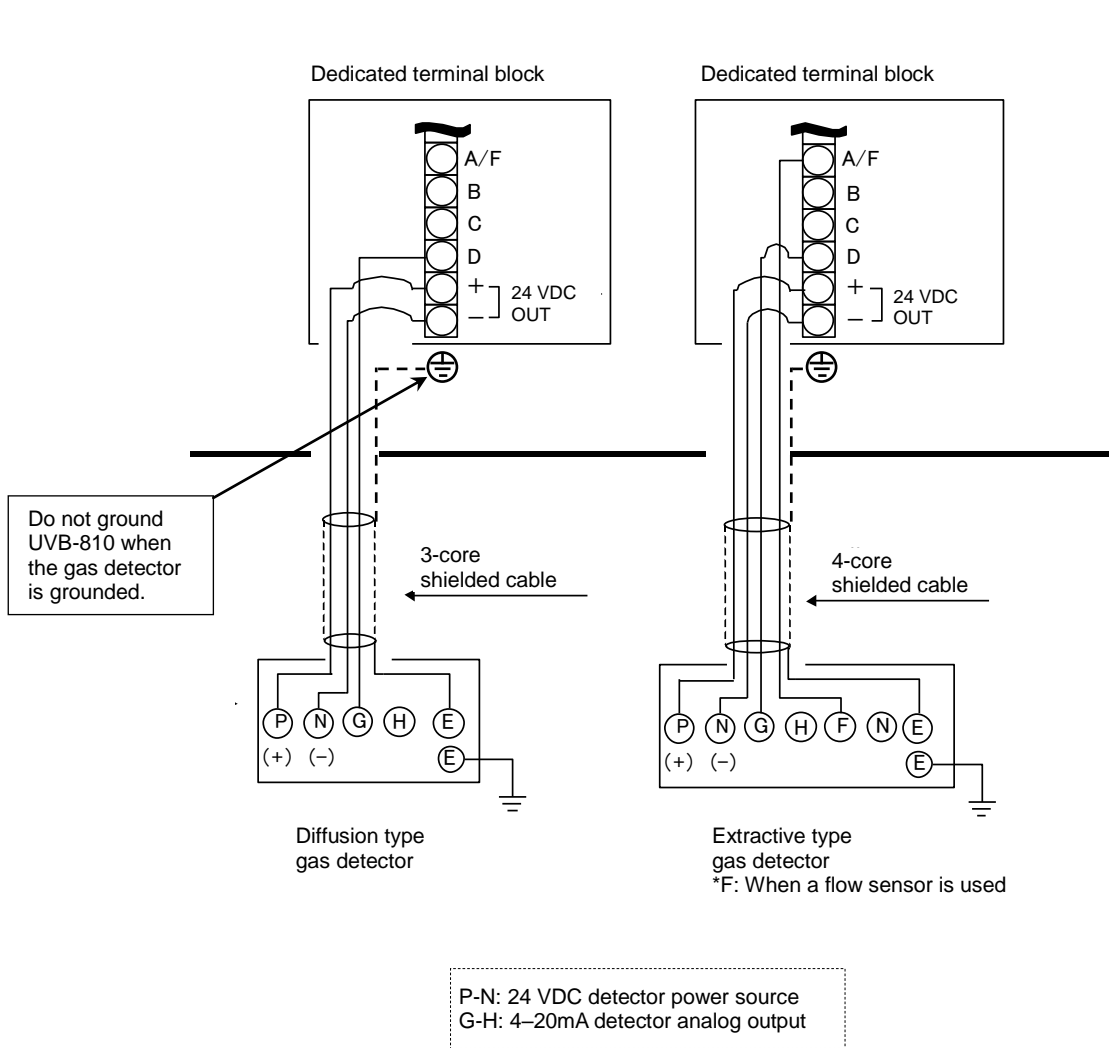


Figure 15. Typical Gas Detector Connections for Group 3

(4) Typical Gas Detector Connections for Group 4 (V3 Type: Hi/Ci/Ti)

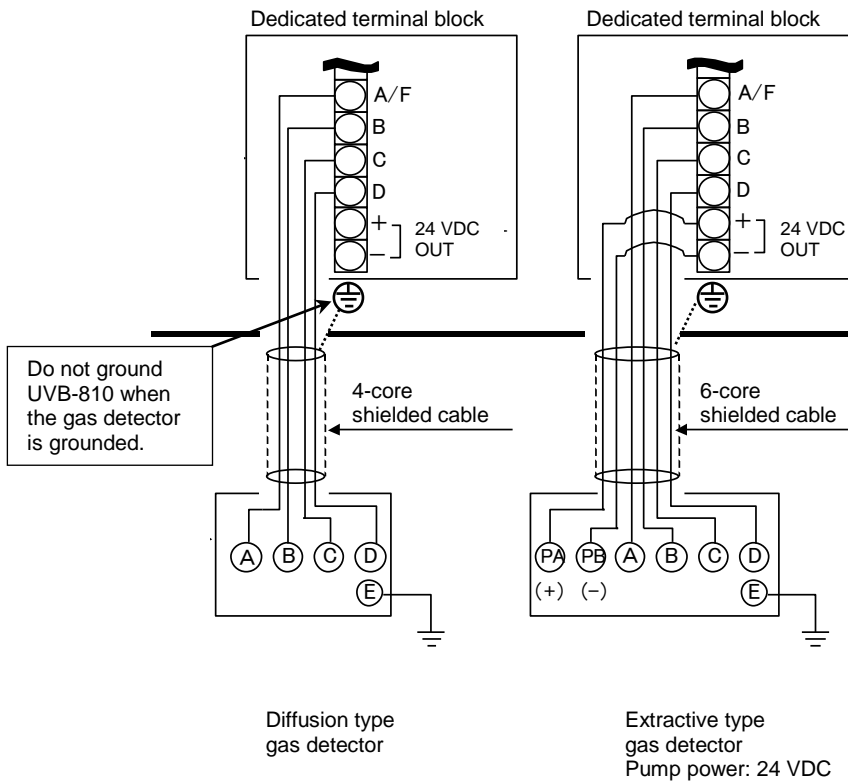


Figure 16. Typical Gas Detector Connections for Group 4

6.2.2. Connecting Power Cable

Use a dedicated breaker for the power cable going to this gas alarm system.
Connect the power cable to the collective terminal block.

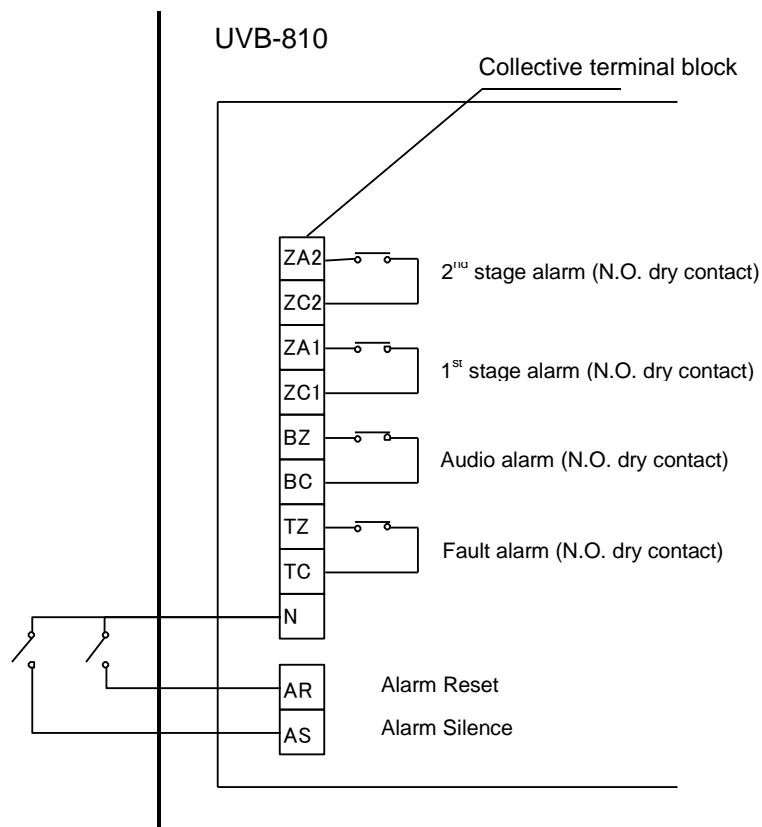
6.2.3. Alarm Contact Connection

⚠ CAUTION

- Connect external equipment with a max load of either 100 VAC, 1 A or 24 VDC, 1 A to the collective terminal block. Connect external equipment with a max load of either 250 VAC, 2 A or 24 VDC 2A (resistive load) to the dedicated terminal block.
- New Cosmos is not responsible for any costs or damages resulting from controlling external equipment (e.g., interlock) by using this product's output signals (e.g., analog output, alarm contact output).

(1) Collective alarm contact connection

To use the collective alarm contacts, connect wires from external devices to the collective terminal block. Each contact is electrically isolated. The Alarm Reset (AR) and the Alarm Silence (AS) terminals are not relay contacts. Adding a switch between N and AR/AS terminals enables alarm resetting/silencing from an external device.



Note: When using N.C. contacts for 1st and 2nd alarms, ZA1 and ZA2 become ZB1 ZB2 respectively.

*N.O.: Normally open. N.C.: Normally closed.

Figure 17. Wiring Diagram of Collective Terminal Block

(2) Dedicated alarm contact connection

To use the dedicated alarm contacts, connect wires from external devices to the dedicated terminal block.

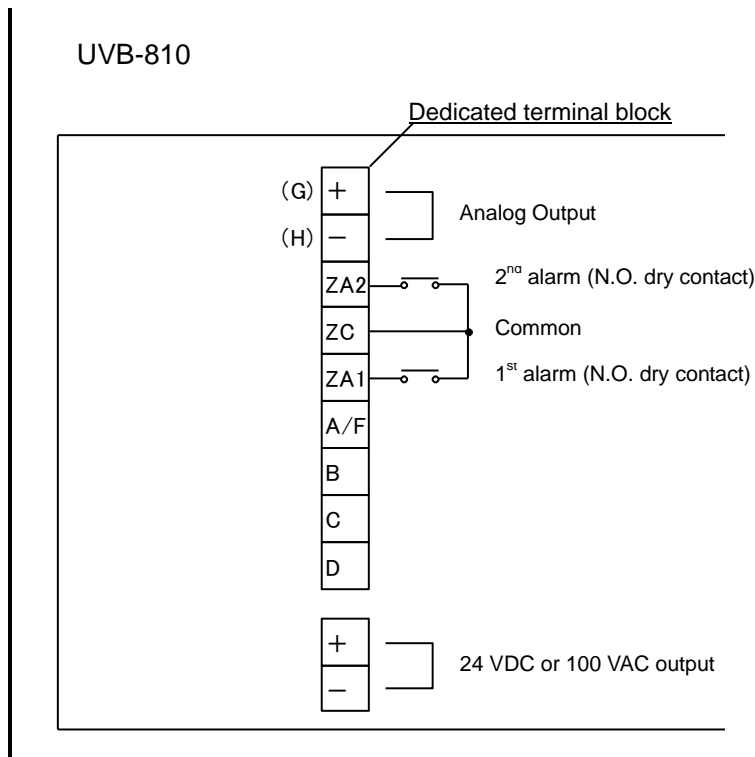


Figure 18. Wiring Diagram of Dedicated Terminal Block

6.2.4. Analog Output Terminal Connection

To continuously monitor and record gas concentrations sent from an onsite installed gas detector, connect an external recorder to the Analog Out terminals on the dedicated terminal block. Refer to Figure 18 above.

The standard analog output is 4–20mA. Use a recorder with resistive load of 300 Ω or less when using the standard analog output. 1–5 V analog output is also available if specified at time of order. When using 1–5 V analog output, use a recorder with resistive load of 100k Ω or more.

7. Operation

7.1. Operation procedure

IMPORTANT

Initial start-up procedure can be extremely dangerous because it uses actual gas (e.g., combustible gas, toxic gas). It is highly recommended that New Cosmos or an authorized representative should be contacted to perform the initial start-up. The accuracy of the checks and adjustments made during this start-up (e.g., zero/span adjustments, operation checks using actual gas) are crucial to ensure the reliability of the gas alarm system. Initial start-up operation should only be performed by authorized personnel.

CAUTION

- Before turning on the gas alarm system, check that all the components are connected correctly by referring to 6.2. "Wiring." Also check your delivery specifications, if your unit has end-user-specific options.
- The gas alarm system will start to run on its built-in backup batteries if the power switch is set to the on position, even while there is no power supply.

After making sure that the power source voltage and the wiring are correct, take the following steps to operate the gas alarm system.

(1) Powering-on

Set the power switch to the on position. The green POWER LEDs on all the indicator units will start flashing and the warm-up cycle will begin; the green POWER LEDs on the alarm unit and the backup power unit will only light up and not flash during the warm-up cycle. At the time of powering on, the battery recharge will start.

(2) Warm-up

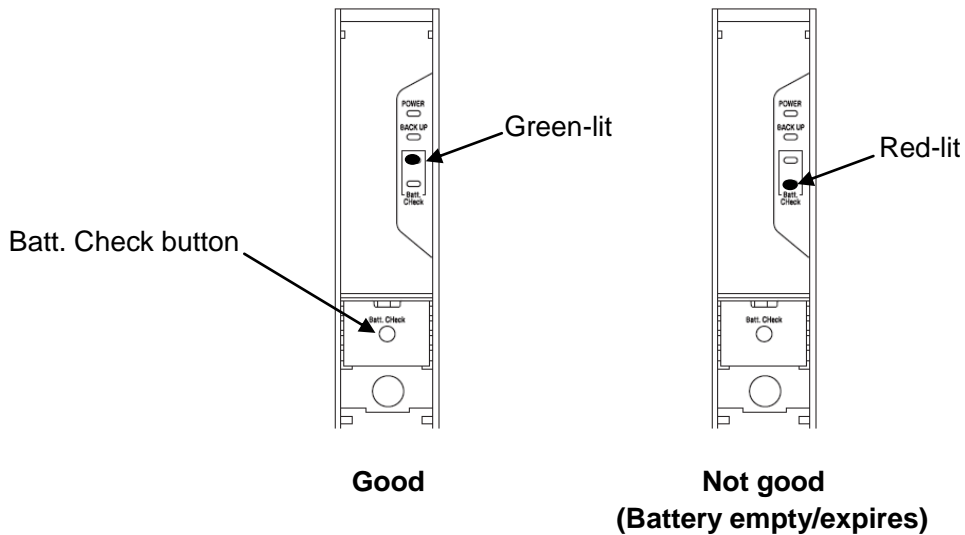
Once the warm-up cycle is completed, the green flashing POWER LEDs will become steady, and normal operation will begin. The time needed for the warm-up cycle varies depending on the type of sensor. Refer to the gas detectors' instruction manual for more information.

Refer to the instruction manuals of V3 indicator unit and VAS alarm unit for their operation procedures.

(3) Battery check

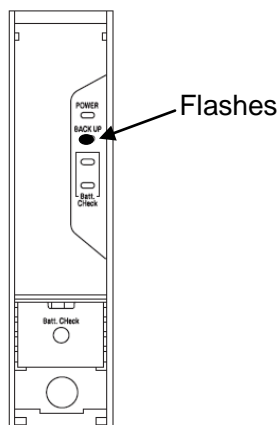
It is possible to check if the backup batteries function normally by pressing the Batt. Check button for 5 seconds. When the batteries are good, the green Batt.Check LED will turn on.

The battery level may not be at required level before the initial power-up. About 24 hours is needed to fully charge the batteries. If the battery check result is not good, perform the battery check again 24 hours later.



7.2. Operation during power outage

(1) In the event of a power outage, the BACK UP LED on the backup power unit will start flashing, the POWER LED will turn off, and then the unit will start providing emergency power to the system for uninterrupted gas monitoring. The backup duration lasts for 30 minutes.



(2) When the battery voltage decreases and reaches the discharge-cutoff voltage, the unit will automatically stop battery discharge and then the entire system will stop operation.

(3) When the power is restored, the BACK UP LED will turn off and the POWER LED will turn on, and then the battery recharge will start. About 24 hours is needed to fully charge the batteries.

8. Maintenance

8.1. Routine check and annual/semi-annual inspection

Perform routine checks and periodic inspections as given in the table below.

Item	Frequency	Procedure
Routine check (performed by user)	Daily	<ul style="list-style-type: none"> POWER LEDs Check that all the green POWER LEDs (on indicator/alarm/backup power units) are on and steady and that the system operates.
		<ul style="list-style-type: none"> Bar graph displays Check that the indication/reading of the bar graph displays are as expected for normal startup. Abnormal: E.g., repeated bar graph fluctuations, abnormally high/low concentration than recently observed, or indicating a high ppm even in clean air.
	Monthly	<ul style="list-style-type: none"> Check backup batteries (page 20) Press and hold the Batt. Check button on the backup power unit to confirm that the backup batteries function normally.
		<ul style="list-style-type: none"> Check alarm using TEST button Press the TEST button on each indicator unit to confirm that the alarm is functional.
Annual/semi-annual inspection (performed by New Cosmos or its authorized representative)	6 months/Yearly	Contact your New Cosmos or its authorized representative.

Important Notice for Scheduled Inspection

In order to ensure the reliability of the gas alarm system, it is vital to perform periodic maintenance and inspections. It is highly recommended that a maintenance contract with a local New Cosmos representative be made for the performance of scheduled inspections. Installation, inspection, maintenance, calibration, and proof testing shall only be performed by trained personnel.

CAUTION

- Performing an alarm operation check using the test button activates the analog output, alarm contact output, and output to the alarm unit. If the alarm contact output is used to interlock external devices, etc., enter the maintenance mode and release the interlocks of the external devices beforehand, as needed, to prevent possible activation of the interlocks during the operation check.
Notify those concerned before starting an alarm operation check.
- Perform maintenance inspections in accordance with the applicable laws and regulations of the country where the product is used. For example, if used in Japan, circuitry tests (using the TEST button) related to alarm functions must be performed at least once a month, and detection and alarm tests must be performed at least once a year as specified by the Japanese liquefied petroleum gas safety act and high pressure gas safety act.

8.2. Backup Battery Replacement

This product uses two backup batteries.

DANGER

Do not install the product or the batteries in a confined space or near a fire. Doing so may result in hydrogen gas being generated from the batteries, which could cause a fire or an explosion.

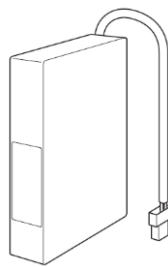
CAUTION

- Do not expose/soak the product or batteries to/in water. Doing so may cause an electrical leak, which could result in an electric shock or fire.
- Ensure correct polarity when installing batteries. Incorrect polarities may cause a current surge, which could result in a fire or device failure.
- Do not disassemble, modify, or deform the batteries. Doing so may cause a battery leak, fire, or explosion.
- The battery electrolyte contains sulfuric acid. Contact with skin or eyes can result in burns or blindness. If the battery leaks and its electrolyte comes into contact with skin or clothes, immediately wash the contact area with clean water. If the electrolyte gets into the eyes, flush immediately with clean water. Consult a doctor immediately.
- The battery life is two years. After two years, replace the batteries even if they pass the battery check. Using expired batteries may cause an internal short-circuit or battery case damage, which could result in a secondary disaster such as a battery leak, fire, or explosion.
- Replace the two batteries at the same time.
- When disconnecting/connecting the battery connectors, be careful not to short-circuit them.
- If the batteries are left non-energized for an extended period of time, the battery level may not be restored. Even if the product is not used for an extended period of time, the batteries must be installed in it and kept energized to avoid an extended period of time of non-energization.

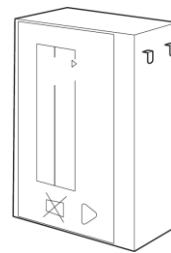
(1) Preparation for battery replacement

There are two types of batteries: 3-point type and 6-point type.

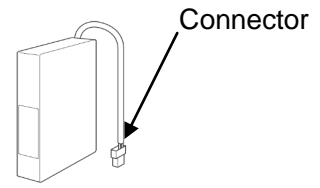
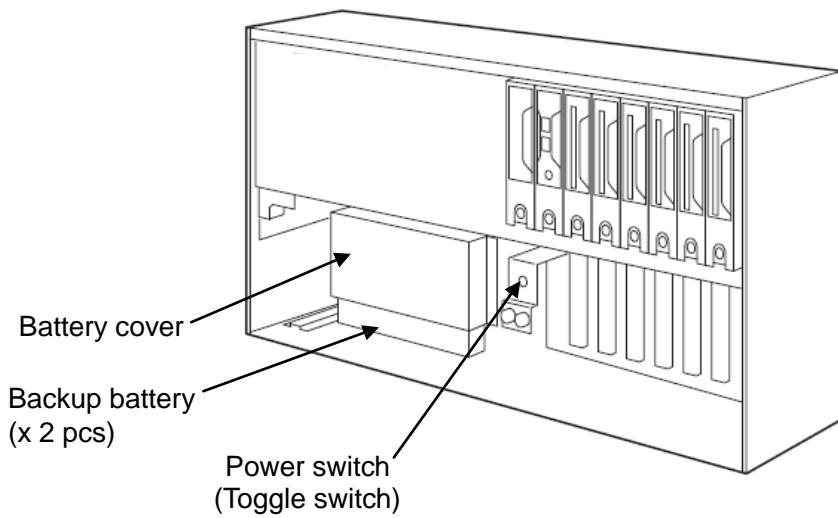
The connector shape and installation method differ with the battery type.



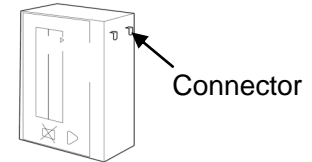
3-point type battery



6-point type battery



3-point type battery



6-point type battery

Backup battery replacement

(2) Powering-off

Release the two draw latches to open the case cover. Set the power switch to the off position to turn the gas alarm system off.

(3) Battery removal

Remove the battery cover by removing the screws that attach it to the case. Disconnect the connector from each battery. Pull out to remove the two batteries.

(4) Battery installation

Installation is the reverse of removal.

(a) Install two new batteries in place.

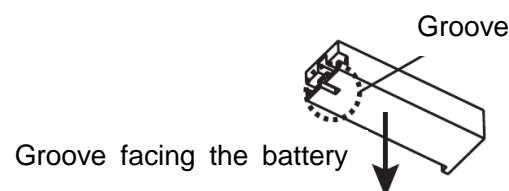
(b) Reconnect the connector (of the system) to the connector of each battery.

The connector of the system which has a blue wire should be connected to the connector of the battery on the right, while the connector of the system which has a black wire should be connected to the battery on the left.

(c) Ensure that the connectors are firmly engaged.

*3-point type battery: The battery cover has a cable holder on its right side. Secure the two connector cables to the cable holder.

*6-point type battery: The connector of the system should be connected with its groove facing the battery surface.



9. Troubleshooting

Before making a repair request, please refer to the table below. If the gas alarm system does not return to normal operation after performing the corresponding steps in the table, or if your issue is not found in the table, consult New Cosmos or its authorized representative.

Issue	Probable cause	Solution	Reference section
POWER LEDs (on indicator units, alarm unit, and backup power unit) do not turn on	Power switch is in the off position	Set the power switch to on.	6.2. Wiring
	Incorrect or loose wiring	Check the wiring and tighten loose terminals.	
Indicator unit's TROUBLE LED is flashing, alarm unit's TROUBLE LED is on and steady and alarm unit is producing a steady tone	Blown fuse	Replace blown fuse with a new one.	Instruction Manual of V3 indicator unit
	Broken wires or incorrect wiring between indicator unit and gas detector	Check and rewire.	
	Broken sensor wire	Replace the sensor with a new one.	
	Flow rate of extractive type gas detector is too low	Check inlet and piping from gas detector for clogging.	
	Power supply voltage is 18 V or less (for 24 VDC input)	Adjust power supply voltage to 24 V \pm 10%.	

10. Specifications

Model	UVB-810
Number of detection points	3 or 6 points
Detection principle	As per delivery specifications
Target gas	
Indication range	
Alarm set value	
Alarm accuracy	As per gas detector specifications <ul style="list-style-type: none"> • Combustible gas : $\pm 25\%$ of alarm set value under identical conditions • Toxic gas: $\pm 30\%$ of alarm set value under identical conditions
Alarm delay	As per gas detector specifications <ul style="list-style-type: none"> • Combustible gas: Less than 30 seconds with a gas concentration that is 1.6 times higher than the alarm set concentration • Toxic gas: Less than 60 seconds with a gas concentration that is 1.6 times higher than the alarm set concentration <p>Note: Delay time caused by piping length is not included.</p>
Alarms	Indicator unit: <ul style="list-style-type: none"> • Red ALARM1/2 LED: flashing when a 1st/2nd stage gas alarm occurs, and steadily lit after reset (auto-resetting or manual-resetting type available). • Amber TROUBLE LED: flashing when a device failure in a connected gas detector or in the indicator unit itself, is detected. Alarm unit: <ul style="list-style-type: none"> • Red ALARM1/2 LED: lit when one or more indicator units activates a 1st/2nd stage gas alarm. • Amber TROUBLE LED: lit when a device failure in one or more indicator units, or in the alarm unit itself, is detected. • Alarm sound: beeping when one or more indicator units activates a 1st/2nd stage gas alarm, and generates a steady tone when a device failure in one or more indicator units, or in the alarm unit itself, is detected.
External outputs	Collective terminal block: <ul style="list-style-type: none"> • 2nd alarm N.O. dry contact* 100 VAC, 1A. 24 VDC, 1 A (resistive load) • 1st alarm N.O. dry contact* 100 VAC, 1A. 24 VDC, 1 A (resistive load) • Audio alarm N.O. dry contact 100 VAC, 1A. 24 VDC, 1 A (resistive load) • Fault alarm N.O. dry contact 100 VAC, 1A. 24 VDC, 1 A (resistive load) *2 nd /1 st alarm contacts can be changed from N.O. to N.C. (specified at time of order) Dedicated terminal block: <ul style="list-style-type: none"> • 2nd alarm N.O. dry contact 250 VAC, 2A. 24 VDC, 2 A (resistive load) • 1st alarm N.O. dry contact 250 VAC, 2A. 24 VDC, 2 A (resistive load) Analog output for gas concentration: <ul style="list-style-type: none"> • 4–20mA. Can be changed to 1–5 V (specified at time of order)
External inputs	Alarm Reset (AR) and Alarm Silence (AS) terminals (They are not relay contacts)
Power source	100–240 VAC $\pm 10\%$ 50/60Hz
Power consumption	Power consumption (VA) = (V3 x number of indicator units + VAS + 18) x 1.25 (for switching loss) *Power consumption of gas detectors is included in consumption power of V3 indicator units
Backup batteries	12 V valve-regulated lead-acid battery x 2 pcs Backup time: More than 30 minutes Time needed to fully charge: More than 24 hours
Operating conditions	Operating temperature: 0°C to +40°C Operating humidity: 10% to 90%RH No sudden temperature or humidity changes. No condensation.
Mass	3-point type: Approx. 8 kg 6-point type: Approx. 16 kg Combined indicator units and alarm unit
Installation method	Wall-mounting or panel-mounting (as per delivery specifications)

The above specifications are subject to change without notice for product improvement.

N.O.: Normally open

N.C.: Normally closed

11. Warranty

The warranty period is one (1) year from the date of purchase.

You are entitled to the limited warranty, if the product malfunctions due to a manufacturing defect during normal use in accordance with the instruction manual, specifications and labels.

1. Warranty Scope

If the product fails or is found to be damaged due to a manufacturing defect during the warranty period, and used in accordance with the instruction manual and specifications, we will provide a free replacement and repair service. This warranty covers New Cosmos product/parts only and not third party product/parts.

2. Warranty Exclusions

The following repairs will be at the cost of the customer even during the warranty period.

- (1) Failures and damages incurred by incorrect use, deliberate acts or negligence of the user.
- (2) Failures and damages caused by disaster, earthquake, storm and flood, lightning, extreme climate, abnormal power supply voltage, excessive electromagnetic interferences, or other acts of God.
- (3) Failures and damages resulting from repair and/or modification by non-New Cosmos certified technicians.
- (4) Consumables and failures and damages resulting from improper consumable replacement.
- (5) Other failures and damages not attributable to the manufacturer.

12. Service Life Expectancy

The design life expectancy of this product is ten (10) years, which is only an estimation, under normal environmental conditions. The design life expectancy also assumes that calibrations are performed properly and periodically, but does not imply that the product will operate correctly until the design life expectancy expires. Thus, no warranty will be given after the one year warranty period is over. Please also note that even if the product is calibrated, it may fail to operate correctly before the next calibration.

13. Battery Life

The battery life is two years. After two years, replace the batteries even if they pass the battery check (battery voltage test).

Battery disposal

Used batteries must be disposed of in accordance with the applicable laws and regulations.

14. Glossary

Term	Definition
Indicator unit (V3)	Device which receives signals from a gas detector, indicates a gas concentration, and produces a visual alarm if the target gas concentration reaches the preset alarm value, in the case of oxygen, a concentration above or below a preset limit.
Alarm unit (VAS)	Device which is used in connection with combinations of an indicator unit and a gas detector to produce audio-visual alarms if a gas concentration higher than the preset limit is detected or, in the case of oxygen, a concentration above or below a preset limit is detected.
Gas detector	Device used to detect the presence of a target gas and to give its concentration in the form of an electrical signal.
Target gas	Specific gas to be detected, concentration displayed, and used to trigger alarms.
Detection range	A range of target gas concentrations that can be displayed and trigger alarms.
Alarm accuracy	Variance between the alarm set value and the detected gas concentration that activates the alarms. It may also be expressed as a % with respect to the alarm set value.
Alarm delay	The length of time a gas detector takes to activate an alarm after it is exposed to a target gas concentration higher than the alarm set value or to some other specified conditions.
Operating temperature and humidity ranges	Ambient temperature and humidity ranges in which the gas detection and alarm system can operate normally.
Diffusion type	Sampling method using convective diffusion while placing a gas detector at a detection point.
Explosion-proof enclosure	Method of protection in which an explosion in a hazardous area is prevented by containing any combustion within the device, and thereby, preventing it from spreading into the atmosphere surrounding the enclosure.
Calibration gas (test gas)	Gas specifically prepared to calibrate the gas detection and alarm system/equipment.
Alarm set value	Selected gas concentration level where an alarm is activated
Maintenance and inspection	Activities performed to ensure that equipment operates normally and correctly.
Hazardous area (Explosive)	An area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of electrical apparatus.
Non-hazardous area (Explosive area)	An area in which an explosive atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of electrical apparatus.
Auto-resetting	After an alarm has been triggered, and a target gas concentration falls below the gas alarm set value minus 2% of the full-scale value (GASV-2% FSV), the ALARM LEDs and relevant gas alarm contacts will automatically return to their normal positions.
Manual-resetting	Even if a target gas concentration falls below the gas alarm set value after an alarm has been triggered, the ALARM LEDs and relevant gas alarm contacts will not automatically return to their normal positions. Manual-resetting is only possible when the gas concentration is below the gas alarm set value.
Full-lock type	Alarm unit type. After an alarm is activated and muted, the alarm status (ALARM LED and output are active) will be maintained even if the gas concentration falls below the alarm set value. To clear the alarm, press the RESET button.
Semi-lock type	Alarm unit type. After an alarm is activated and muted, the alarm status will be automatically cleared when the gas concentration falls below the alarm set value.

Revision History

Document No.	Date	Revision
GAE-137-00	Oct 2018	Initial issue
GAE-137-01	Sep 2020	01

Additional copies of this instruction manual may be purchased.
Contact New Cosmos or its authorized representative for ordering.

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