



## Portable Multi Gas Detector

**MODEL:**

# **GX-9000 SERIES**

Detects up to **6** different gas types simultaneously.

A single unit suitable for all kinds of marine/onshore/underground work situations.  
Innovative new gas detector

- Detects up to six different gas types simultaneously (HC/CH<sub>4</sub>/H<sub>2</sub>, O<sub>2</sub>, CO, H<sub>2</sub>S, CO<sub>2</sub>, NH<sub>3</sub>, VOCs, etc.)
- Features a wide range of handy functions, including multilingual display and a combustible gas conversion function.
- Bluetooth® equipped! Easy data management via smartphone (option)

- Up to three-year sensor warranty
- Passes 1.5 m drop testing
- Protection rating equivalent to IP66/68

CE marking compliant  
MED application scheduled



**RIKEN KEIKI Co.,Ltd.**

# Portable Multi Gas Detector

MODEL:

# GX-9000 SERIES



General-purpose type for measuring up to six different gas types

**Model: GX-9000**



High concentration H<sub>2</sub>S type for measuring up to four different gas types

**Model: GX-9000H**

Allows switching between high concentration H<sub>2</sub>S and other sensors to avoid poisoning of other sensors by high concentration H<sub>2</sub>S.

LEDs on left and right light up to indicate selected mode at a glance. (High concentration H<sub>2</sub>S measurement mode shown selected in example below)

Low concentration H<sub>2</sub>S/other gas measurement mode and high concentration H<sub>2</sub>S measurement mode  
Easily selected using buttons



Next-generation high-performance sensor

## Features “R Sensors” and “F Sensors”

Next-generation high-performance sensor offering smaller size and significantly better performance and durability than previous sensors



Simultaneous target gases

**6**

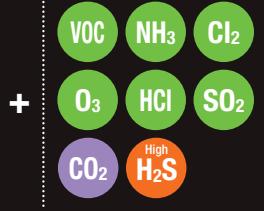
Max types

## Greater number of gases with a single unit

Allows simultaneous detection of multiple gases using a single-unit instead of requiring multiple gas detectors and detector tubes.



In addition to 4 main gas types



Ability to measure up to 2 gas types simultaneously

Sensor combinations

**1000**

or more

## Optimum solutions to suit customers' needs

Single unit measures up to six different gas types and detects CO<sub>2</sub> and a broad range of toxic gases, including VOC and NH<sub>3</sub>. Ideal gas detector for customer needs.

Sensor warranty  
Max

**3**  
years

## Longer warranty for peace of mind

Utilizes R/F Sensor for outstanding long-term stability. Up to three-year sensor warranty\*. Allows use with peace of mind.

\* NH<sub>3</sub> sensor: two years; O<sub>3</sub>/VOC sensor: one year

## [ Handy features for ease of use ]

### Choice of 16 different language displays

English	French	Mandarin	Russian
Cantonese	German	(Simplified Chinese)	Slovak
(Traditional Chinese)	Italian	Chinese)	Spanish
Czech	Japanese	Polish	Turkish

### USB Type-C charging and data transfer

Uses USB Type-C cable for both charging and PC interface. Recorded measurement data can be uploaded to PC software (sold separately), reducing the time required.



### Combustible gas conversion function (when new ceramic type sensor is installed)

Models that include combustible gas among their detection target gases can be used to directly read off up to 27 different types of combustible gas.

\*Available only with i-C<sub>4</sub>H<sub>10</sub> and CH<sub>4</sub> models when using new ceramic type sensor, provided no thermal conductivity sensor is installed.

Gas name	Display name	Conversion from i-C <sub>4</sub> H <sub>10</sub> models	Conversion from CH <sub>4</sub> models
Methane	CH <sub>4</sub>	×	—
Isobutane	i-C <sub>4</sub> H <sub>10</sub>	—	○
Hydrogen	H <sub>2</sub>	○	○
Methanol	CH <sub>3</sub> OH	○	○
Acetylene	C <sub>2</sub> H <sub>2</sub>	○	○
Ethylene	C <sub>2</sub> H <sub>4</sub>	○	○
Ethane	C <sub>2</sub> H <sub>6</sub>	×	○
Ethanol	C <sub>2</sub> H <sub>5</sub> OH	○	○
Propylene	C <sub>3</sub> H <sub>6</sub>	○	○

Gas name	Display name	Conversion from i-C <sub>4</sub> H <sub>10</sub> models	Conversion from CH <sub>4</sub> models
Acetone	C <sub>3</sub> H <sub>6</sub> O	○	○
Propane	C <sub>3</sub> H <sub>8</sub>	×	○
Butadiene	C <sub>4</sub> H <sub>6</sub>	○	○
Cyclopentane	C <sub>5</sub> H <sub>10</sub>	○	○
Benzene	C <sub>6</sub> H <sub>6</sub>	○	○
n-hexane	n-C <sub>6</sub> H <sub>14</sub>	○	○
Toluene	C <sub>7</sub> H <sub>8</sub>	○	○
Heptane	n-C <sub>7</sub> H <sub>16</sub>	○	○
Xylene	C <sub>8</sub> H <sub>10</sub>	○	○

Gas name	Display name	Conversion from i-C <sub>4</sub> H <sub>10</sub> models	Conversion from CH <sub>4</sub> models
n-nonane	n-C <sub>9</sub> H <sub>20</sub>	○	○
Ethyl acetate	EtAc	○	○
IPA	IPA	○	○
MEK	MEK	○	○
Methyl methacrylate	MMA	○	○
Dimethyl ether	DME	○	○
Methyl isobutyl ketone	MBK	○	○
Tetrahydrofuran	THF	○	○
n-pentane	n-C <sub>5</sub> H <sub>12</sub>	○	○

### Alarm setpoint setting function

Use the setup program to change/edit settings. Supports management and operation in accordance with the customer's own criteria.

### Confirmation beep function

Indicates that the gas detector is functioning normally. The buzzer sounds at preset intervals while measurement is underway.

### Calibration notification function

Indicates the number of days until recommended regular maintenance when the power is turned on. Reminds the user to perform maintenance to ensure safe use.

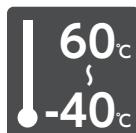
## [ Outstanding durability for greater peace of mind ]



**1.5 m**  
Drop testing passed



**IP66/68**  
Protection level  
IP66/68 equivalent



**Operating temperature range**  
**-40 – +60 °C**  
(temporary use environment)

## [ Suitable for use even with large tanks! Features high-power pump ]

Includes a high-power pump allowing use even for large tanks. Capable of aspirating and assessing gases from up to 45 m away using the optional sampling tube.



## [ Bluetooth® equipped! Easy data management via smartphone ]

Can communicate with smartphones and tablets via Bluetooth. The dedicated RK Link app can be used to store and email measurement results and easily manage data. A function also allows automated email generation to registered addresses when an alarm occurs to share details of emergencies remotely and in real time.

\*Specify whether you require Bluetooth capability at the time of purchase.

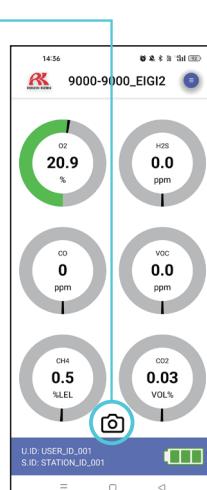
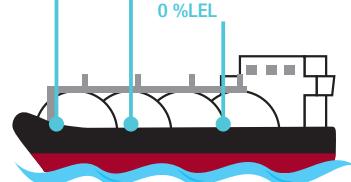
### Snap log button

Use the snap log button to save time/date/user/location/readings.

### Date/User A/

Location A/Concentration: 50 %LEL

Date/User A/  
Location B/Concentration: 25 %LEL  
Date/User B/  
Location C/Concentration:  
0 %LEL



Bluetooth and are registered trademarks of Bluetooth SIG, Inc. and used by Riken Keiki under license.

The 'RK Link' app can be downloaded from Google Play or Apple Store free of charge!

GET IT ON  
 Google Play

Download on the  
 App Store

iOS version shown here

## [ Accessories ]

### Tubes/belts

#### Gas sampling rod

Part No.: 0904 0275 00



#### Gas sampling tube

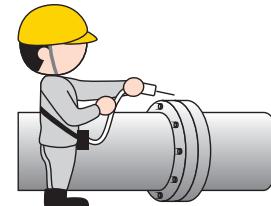
(Gas sampling tube length:  
approx. 75 cm)

Part No.: 0914 0135 30



#### Shoulder strap

Part No.: 4777 4592 10



For measurements in  
specific locations within reach

### Batteries and other accessories

#### AC adapter

Part No.: 2594 1342 30

\*Included with rechargeable  
battery models (converter plug  
(Type C) bundled with ATEX/  
IECEx models)



#### AA alkaline battery ×6

Part No. (x1): 2753 3007 80

\*Included with dry battery models



#### Fresh air adjustment filters



#### Filter cylinder retaining belt for shoulder strap

Allows fresh air adjustment filter to be attached to  
shoulder strap.

Part No.: 4777 4572 20



\*The particular type and whether or not the fresh air adjustment filter and filter cylinder retaining belt are included vary depending on the individual model.

## [ Optional accessories ]

### Tubes

#### Sampling tube with float

Gas can be separated from water and detected  
by a waterproof filter inside the float. Ideal for  
locations where water is present at the  
detection point

Tube length: **8 m**  
Part No.: 4384 0430 60

Tube length: **30 m**  
Part No.: 4775 9678 80

Tube length: **45 m**  
Part No.: 4777 9567 60



For measurements  
inside tanks

#### Sampling tube with weight

The tube end is weighted to make it  
easier to lower. Ideal for use in narrow  
pipes and other confined locations.

\*Requires use with absorbent cotton filter and  
connecting tube (except for models with ESF/PIF  
sensor installed).

Tube length: **30 m**  
Part No.: 4775 9679 50

Tube length: **45 m**  
Part No.: 4777 9465 80



Measuring gas concentrations  
inside cargo tanks



For measurements  
inside tanks

### Batteries

#### Dry battery unit/AA alkaline batteries

Inserting batteries allows instant use in emergencies.

Dry battery unit  
Part No.: 4777 0270 80

AA alkaline batteries  
Part No.: 2753 3007 80



#### Lithium ion battery unit/AC adapter

The battery unit can be recharged and used repeatedly.  
The AC adapter uses a USB Type-C connection.

Lithium ion battery unit  
Part No.: 4777 0260 90

AC adapter  
Part No.: 2594 1342 30



### Filter

#### Water trap

Connects between the sampling  
tube and gas detector to keep water  
out.

Part No.: 0904 0186 20



#### Absorbent cotton filter/Connecting tube

Tube connected to waterproof filter and gas  
detector

\*Do not use if an ESF/PIF sensor is installed.

Absorbent cotton filter  
Part No.: 4383 0850 00

Connecting tube  
Part No.: 4775 9617 60

Absorbent cotton  
(replacement)  
Part No.: 1879 0011 10



#### Diluter

Dilutes gas aspirated with air at a 1:1 ratio to  
allow use of new ceramic sensors with inert  
gases, gases ceramic sensors typically cannot  
detect.

\*Due to explosion hazards, avoid use with highly concentrated  
combustible gases.

Part No.: 4775 9934 30



**Case/holder****Leather case**

Protects the product against dirt. Used to attach shoulder strap, waist belt, and absorbent cotton filter

Part No.: 4777 4593 80

**Filter cylinder retaining belt**

Attaches to the gas detector; allows absorbent cotton filter to be attached to the gas detector. Allows the filter to be secured to the gas detector to keep it out of the way during measurements.

Part No.: 4777 9444 20

**Waist belt and waist belt attachment**

Allow a gas detector to be worn close to the body.  
\*We recommend using in conjunction with the shoulder strap to prevent the gas detector dropping.

Waist belt  
Part No.: 4775 5653 40

Waist belt attachment  
Part No.: 4775 9853 10

**Marine spare parts box**

Large case capable of housing the gas detector together with accessories, sampling tubes, and maintenance parts

Dimensions: Approx. 500 mm (W) × 305 mm (H) × 275 mm (D)\*

Part No.: 4775 9885 20 (not RoHS II compliant)

\*Excluding projections

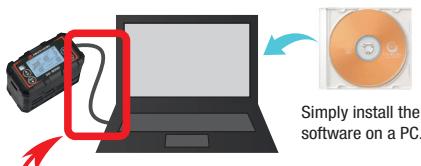


Ideal for storing the gas detector together with sampling tubes and maintenance parts.

**Management software and cable****USB cable (1 m)**

Connects the gas detector to a PC. Used when using the software.

Part No.: 2440 2628 50

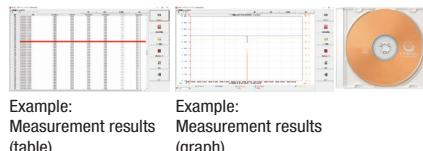


Simply install the software on a PC.

**Data logger management program**

Software used to view and manage measurement results and logs of events like alarms and calibrations

Part No.: (Japanese explosion-proof models) 9811 0980 90  
(ATEX/IECEx models) 9811 0990 80

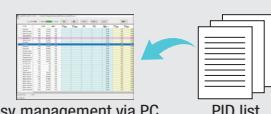


Example:  
Measurement results  
(table)

Example:  
Measurement results  
(graph)

**Setup Program**

Use the Setup Program for the GX-9000 Series to configure settings and edit a list of more than 600 different VOC sensor gases. This can be downloaded free of charge from the Riken Keiki website.



Easy management via PC

PID list

**Maintenance parts and other items****Calibration gas**

Used for bump test and gas adjustment

\*Please contact Riken Keiki for more information.

**Gas sampling bag**

Used to draw the calibration gas into the gas detector. Available in a choice of three colors for easy differentiation when used with different gases

Part No.: 1L (green) 0904 0103 80  
1L (orange) 0904 0104 50  
2L (black) 0904 0288 10

**Demand flow valve and connecting tube (10 cm)**

Connect to a dedicated gas cylinder to supply the required amount of gas to the gas detector.

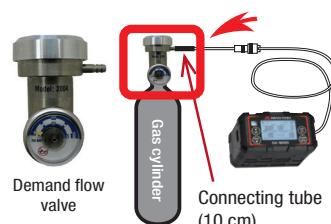
\*Please contact Riken Keiki for details of the compatible gas cylinders.

**Demand flow valve**

Part No.: 1641 0190 20

**Connecting tube (10 cm)**

Part No.: 4775 5958 10



Demand flow valve

Gas cylinder

Connecting tube (10 cm)

**Adapter plug**

The Type A AC adapter can be converted to Type C, O, or BF.

Part No.: (Type C) 2594 1435 00  
(Type O) 2594 1434 20  
(Type BF) 2594 1436 70

**Protective film**

(for LCD, set of 5)

Part No.: 4777 9025 70

**Filters (replacement)**

Please contact Riken Keiki for more information.

## [ Sensors ]

### Sensor selection

The GX-9000 accepts up to six sensors. The GX-9000H accepts up to five. Each of the three R sensors (R1 - R3) can be selected or unselected. One sensor (or no sensors) can be selected from each box in the table below for F sensors (F1 - 3).



R sensor slots (same for GX-9000/GX-9000H)		
R1 (slot 1)	R2 (slot 2)	R3 (slot 3)
● Oxygen	● Hydrogen sulfide [low concentration]	● Carbon monoxide
F sensor slots (upper: GX-9000 lower: GX-9000H)		
F1 (slot 4)	F2 (slot 5)	F3 (slot 6)
● Toxic gas (electrochemical type) ● VOC (PID) ● Carbon dioxide ● Hydrogen sulfide [high concentration]	● Combustible gas (thermal conductivity type) ● Combustible gas (non-dispersive infrared type)	● Combustible gas (new ceramic type) ● Carbon dioxide ● Combustible gas (non-dispersive infrared type)
—	—	—

### Combustible gas sensor selection

Three different types of combustible gas sensors can be installed: a new ceramic type, thermal conductivity type, and/or non-dispersive infrared type. Referring to the features below, select the sensors to suit the intended purpose.

Detection principle	New ceramic type	Thermal conductivity type	Non-dispersive infrared type
Detection range	%LEL	vol%	%LEL/vol%
Features	• Detects H <sub>2</sub> • Uses combustible gas conversion function	• Detects H <sub>2</sub>	• Detects even in inert gas • Can be used even in environments where Si is present

### Sensor selection examples

\* Four main gas types = Combustible gas/O<sub>2</sub>/H<sub>2</sub>S [low concentration]/CO

#### Example 1: Four main gas types + 1

CH <sub>4</sub> /O <sub>2</sub> /H <sub>2</sub> S/CO + VOC (10.6 eV/ppm)	Four main gas types	+1
Combustible gas sensor: New ceramic type + thermal conductivity type		

**GX-9000**

Product code  
First 8 characters: C1P2T1N1

O <sub>2</sub>	Low H <sub>2</sub> S	CO
VOC	Thermal conductivity type CH <sub>4</sub>	New ceramic type CH <sub>4</sub>

#### Example 2: Four main gas types + 2

HC/O <sub>2</sub> /H <sub>2</sub> S/CO + NH <sub>3</sub> /CO <sub>2</sub>	Four main gas types	+2
Combustible gas sensor: Non-dispersive infrared type		

**GX-9000**

Product code  
First 8 characters: C1E1R2R5

O <sub>2</sub>	Low H <sub>2</sub> S	CO
NH <sub>3</sub>	Infrared type HC	CO <sub>2</sub>

#### Example 3: Main gas type + 2

O <sub>2</sub> + VOC (10.6 eV/ppb)/CO <sub>2</sub>	Main Gas	+2
Combustible gas sensor: N/A		

**GX-9000**

Product code  
First 8 characters: C4P100R5

O <sub>2</sub>	—	—
VOC	—	CO <sub>2</sub>

#### Example 4: Four main gas types + 1

HC/O <sub>2</sub> /H <sub>2</sub> S/CO + H <sub>2</sub> S [high concentration]	Four main gas types	+1
Combustible gas sensor: Non-dispersive infrared type		

**GX-9000H**

Product code  
First 8 characters: D1E800R2

O <sub>2</sub>	Low H <sub>2</sub> S	CO
High H <sub>2</sub> S	—	Infrared type HC

Max. 10,000 ppm

All of these are examples. Examples 1 and 2 show sensors installed to full capacity. Note that fewer sensors can be installed. Different combinations of sensors can be installed. Refer to the 'Product code table' below to select sensors.

## [ Product code table ]

Select a GX-9000 Series product based on the sensors needed, power supply type, Bluetooth functionality, and explosion-proof specifications. Refer to the product table below to select the desired specifications.



#### ②: R sensor combination

Symbol	R1	R2	R3
Symbol	Sensor model		
0	N/A		
1	ESR-X13P (O <sub>2</sub> )	ESR-A13i (H <sub>2</sub> S)	ESR-A13P (CO)
2	ESR-X13P (O <sub>2</sub> )	ESR-A13i (H <sub>2</sub> S)	N/A
3	ESR-X13P (O <sub>2</sub> )	N/A	ESR-A13P (CO)
4	ESR-X13P (O <sub>2</sub> )	N/A	
5	N/A	ESR-A13i (H <sub>2</sub> S)	ESR-A13P (CO)
6	N/A	ESR-A13i (H <sub>2</sub> S)	N/A
7	N/A	N/A	ESR-A13P (CO)

#### ⑨: Battery type

Symbol	Details
L	Lithium ion battery unit BUL-9000
D	Dry battery unit BUD-9000

#### ⑩: Bluetooth functionality

Symbol	Details
0	Not Bluetooth compatible
1	Bluetooth compatible

#### ⑪⑫: Explosion-proof specifications

Symbol	Details
00	Japan Ex
50	ATEX/IECEx

#### ③④: F sensor (F1) combination

Symbol	F1
00	N/A
P1	PIF-001 (VOC) 10.6 eV, units: ppb
P2	PIF-002 (VOC) 10.6 eV, units: ppm
P3	PIF-003 (VOC) 10.0 eV, units: ppm
E1	ESF-B242 (NH <sub>3</sub> )
E2	ESF-C92 (Cl <sub>2</sub> ) <sup>1</sup>
E3	ESF-B249 (O <sub>3</sub> ) <sup>1</sup>
E4	ESF-A24E2 (HC)
E5	ESF-A24D4 (SO <sub>2</sub> )
R5	IRF-4443 (CO <sub>2</sub> ) <sup>2</sup>

\*1 ②: ESR-A13i (H<sub>2</sub>S) cannot be selected in R sensor combination.

\*2 ⑤ - ⑧: Can be selected for F sensor (F2/F3) combination, only when NCF-6322P is installed for F3.

#### ⑤ - ⑧: F sensor (F2, F3) combination

Symbol	F2	F3
Symbol	Sensor model	Sensor model
00 00	N/A	
00 N1	N/A	NCF-6322P (CH <sub>4</sub> )
T1 N1	TEF-7520P (CH <sub>4</sub> )	NCF-6322P (CH <sub>4</sub> )
00 N2	N/A	NCF-6322P (i-C <sub>4</sub> H <sub>10</sub> )
T2 N2	TEF-7520P (i-C <sub>4</sub> H <sub>10</sub> )	NCF-6322P (i-C <sub>4</sub> H <sub>10</sub> )
00 N4	N/A	NCF-6322P (H <sub>2</sub> ) <sup>3</sup>
T4 N4	TEF-7520P (H <sub>2</sub> ) <sup>3</sup>	NCF-6322P (H <sub>2</sub> ) <sup>3</sup>
00 N5	N/A	NCF-6322P (C <sub>2</sub> H <sub>2</sub> ) <sup>3,4</sup>
R1 00	IRF-4341 (CH <sub>4</sub> )	N/A
R1 R5	IRF-4341 (CH <sub>4</sub> )	IRF-4443 (CO <sub>2</sub> )
R2 00	IRF-4345 (i-C <sub>4</sub> H <sub>10</sub> )	N/A
R2 R5	IRF-4345 (i-C <sub>4</sub> H <sub>10</sub> )	IRF-4443 (CO <sub>2</sub> )
00 R5	N/A	IRF-4443 (CO <sub>2</sub> )

\*3 ②: ESR-A13P (CO) cannot be selected for R sensor combination.

\*4 ③④: E5 cannot be selected for F sensor combination.

#### GX-9000H

Symbol	F2	F3
Symbol	Sensor model	Sensor model
00 00	N/A	
00 R1	N/A	IRF-4341 (CH <sub>4</sub> )
00 R2	N/A	IRF-4345 (i-C <sub>4</sub> H <sub>10</sub> )

Reference: Same combination of first eight character product codes as previous GX-8000/RX-8500 models

GX-8000 TYPE A (HC): C100T2N2 / GX-8000 TYPE B (CH<sub>4</sub>): C1000N1 / RX-8500: C300R1R5

# [ Sensor specifications ]

## R Sensor

Detection target gas		Oxygen (O <sub>2</sub> )		Hydrogen sulfide (H <sub>2</sub> S) [low concentration])		Carbon monoxide (CO)		
Sensor model	ESR-X13P		ESR-A13i		ESR-A13P			
Detection principle	Electrochemical type							
Explosion-proof specifications	Japan Ex	ATEX/IECEx	Japan Ex	ATEX/IECEx	Japan Ex and ATEX/IECEx			
Display range	0 - 40.0 %		0 - 200.0 ppm		0 - 2,000 ppm			
Detection range	0 - 25.0 %		0 - 30.0 ppm	0 - 100.0 ppm	0 - 500 ppm			
Resolution	0.1 %		0.1 ppm		1 ppm			
Alarm setpoints	First alarm Second alarm	18.0 % 25.0 %	19.5 % 23.5 %	1.0 ppm 10.0 ppm	5.0 ppm 30.0 ppm	25 ppm 50 ppm		
TWA	—			1.0 ppm		25 ppm		
STEL	—			5.0 ppm		200 ppm		
Operating temperature range	Continuous use environment Temporary use environment (approx. 15 minutes)	-20 °C - +50 °C -40 °C - +60 °C						
Operating humidity range	Continuous use environment Temporary use environment (approx. 15 minutes)	10 %RH - 90 %RH 0 - 95 %RH						

## F sensor

Detection target gas		Isobutane (i-C <sub>4</sub> H <sub>10</sub> )	Methane (CH <sub>4</sub> )	Hydrogen (H <sub>2</sub> )	Acetylene (C <sub>2</sub> H <sub>2</sub> )	Detection target gas		Isobutane (i-C <sub>4</sub> H <sub>10</sub> )	Methane (CH <sub>4</sub> )	Hydrogen (H <sub>2</sub> )	
Sensor model	NCF-6322P						TEF-7520P				
Detection principle	New ceramic type						Thermal conductivity type				
Display range/Detection range	0 - 100 %LEL						0 - 100.0 vol%				
Resolution	1 %LEL						0.1 vol%				
Alarm setpoints	First alarm Second alarm	10 %LEL 50 %LEL				25.0 vol%		50.0 vol%			
Operating temperature range	Continuous use environment Temporary use environment (approx. 15 minutes)	-20 °C - +50 °C -40 °C - +60 °C				-20 °C - +50 °C -40 °C - +60 °C					
Operating humidity range	Continuous use environment Temporary use environment (approx. 15 minutes)	10 %RH - 90 %RH 0 - 95 %RH				10 %RH - 90 %RH 0 - 95 %RH					
Detection target gas		Isobutane (i-C <sub>4</sub> H <sub>10</sub> )	Methane (CH <sub>4</sub> )	Non-dispersive infrared type		Detection target gas		Carbon dioxide (CO <sub>2</sub> )			
Sensor model	IRF-4345		IRF-4341				IRF-4443				
Detection principle	Non-dispersive infrared type						Non-dispersive infrared type				
Display range/Detection range	0 - 100 %LEL/100 %LEL - 100.0 vol%						0 - 20.00 vol%				
Resolution	0.5 %LEL/0.1 vol%						0.01 vol% (0 - 5 vol%)/0.1 vol% (5 - 20 vol%)				
Alarm setpoints	First alarm Second alarm	10.0 %LEL 50.0 %LEL				5.00 vol% 10.00 vol%					
Operating temperature range	Continuous use environment Temporary use environment (approx. 15 minutes)	-20 °C - +50 °C -40 °C - +60 °C				-20 °C - +50 °C -40 °C - +60 °C					
Operating humidity range	Continuous use environment Temporary use environment (approx. 15 minutes)	10 %RH - 90 %RH 0 - 95 %RH				10 %RH - 90 %RH 0 - 95 %RH					

Detection target gas		Hydrogen sulfide (H <sub>2</sub> S) [high concentration]	Ammonia (NH <sub>3</sub> )	Chlorine (Cl <sub>2</sub> )	Ozone (O <sub>3</sub> )	Hydrogen chloride (HCl)	Sulfur dioxide (SO <sub>2</sub> )	
Sensor model	ESF-A24R2	ESF-B242	ESF-C92	ESF-B249	ESF-A24E2	ESF-A24D4		
Detection principle	Electrochemical type							
Explosion-proof specifications			Japan Ex and ATEX/IECEx					
Display range/Detection range	0 - 1,000 ppm	0 - 75.0 ppm	0 - 1.50 ppm	0 - 0.600 ppm	0 - 6.00 ppm	0.0 - 100.0 ppm		
Resolution	1 ppm	0.5 ppm	0.01 ppm	0.005 ppm	0.05 ppm	0.1 ppm		
Alarm setpoints	First alarm Second alarm	— —	25.0 ppm 50.0 ppm	0.50 ppm 1.00 ppm	0.100 ppm 0.200 ppm	2.00 ppm 4.00 ppm	2.0 ppm 5.0 ppm	
TWA	—	—	25.0 ppm	0.50 ppm	0.100 ppm	—	2.0 ppm	
STEL	—	—	35.0 ppm	1.00 ppm	—	—	5.0 ppm	
Operating temperature range	Continuous use environment Temporary use environment (approx. 15 minutes)	-20 °C - +50 °C -40 °C - +60 °C	0 °C - 50 °C -40 °C - +60 °C	10 °C - 40 °C 10 °C - 40 °C	0 °C - 40 °C 0 °C - 40 °C	-20 °C - +50 °C -40 °C - +60 °C		
Operating humidity range	Continuous use environment Temporary use environment (approx. 15 minutes)	20 %RH - 90 %RH 30 %RH - 80 %RH	30 %RH - 80 %RH	30 %RH - 80 %RH	20 %RH - 90 %RH	20 %RH - 90 %RH		
		0 - 95 %RH						

Detection target gas		Volatile organic compounds (VOCs)					
Sensor model	PIF-001		PIF-002		PIF-003		
Detection principle	Photoionization detector (PID)						
Ionization energy	10.6 eV		10.6 eV		10.0 eV		
Display range/Detection range	0 - 40,000 ppb		0 - 4,000 ppm		0 - 100.0 ppm		
Resolution	1 ppb (0 - 4,000 ppb)/ 10 ppb (4,000 - 40,000 ppb)		0.1 ppm (0 - 400.0 ppm)/ 1 ppm (400.0 - 4,000 ppm)		0.01 ppm (0 - 10.00 ppm)/ 0.1 ppm (10.00 - 100.0 ppm)		
Alarm setpoints	First alarm Second alarm	5,000 ppb 10,000 ppb	400.0 ppm 1,000 ppm		5.00 ppm 10.0 ppm		
Operating temperature range	Continuous use environment Temporary use environment (approx. 15 minutes)	-20 °C - +50 °C -40 °C - +60 °C					
Operating humidity range	Continuous use environment Temporary use environment (approx. 15 minutes)	10 %RH - 90 %RH 0 - 95 %RH					

\* The alarm setpoint values above are the default settings. Settings can be changed by the user using the setup program.

# [ Product Specifications ]

Model	<b>GX-9000</b>	<b>GX-9000H</b>	
Concentration display	LCD digital (full dot)		
Detection target gas	<b>Combustible gas</b> (i-C <sub>4</sub> H <sub>10</sub> /CH <sub>4</sub> /H <sub>2</sub> /C <sub>2</sub> H <sub>2</sub> ), <b>oxygen</b> (O <sub>2</sub> ), <b>toxic gas</b> (H <sub>2</sub> S [low concentration]/CO/NH <sub>3</sub> /Cl <sub>2</sub> /O <sub>3</sub> /HCl/SO <sub>2</sub> /VOCs), <b>carbon dioxide</b> (CO <sub>2</sub> )	<b>Combustible gas</b> (i-C <sub>4</sub> H <sub>10</sub> /CH <sub>4</sub> ), <b>oxygen</b> (O <sub>2</sub> ), <b>Hydrogen sulfide</b> (H <sub>2</sub> S [low concentration] [high concentration]), <b>carbon monoxide</b> (CO)	
Detection method	Pump suction type		
Suction flow rate	Minimum 0.75 L/min (open flow rate)		
Display items	Clock, battery level, operating status		
Display languages	English, Cantonese (Traditional Chinese), Czech, French, German, Italian, Japanese, Korean, Mandarin (Simplified Chinese), Polish, Portuguese, Russian, Slovak, Spanish, Turkish, Vietnamese		
Buzzer volume	Approx. 95 dB (mean value at 30 cm from sound source)		
Gas alarm indication	Lamp flashing, continuous modulating buzzer sounding, gas concentration readout blinking		
Gas alarm pattern	Self-latching, auto reset		
Fault alarm/self-diagnosis	Flow abnormality, system abnormality, sensor abnormality, low battery voltage, calibration failure, clock abnormality		
Fault alarm icon	Lamp flashing, intermittent buzzer sounding, detail display		
Fault alarm pattern	Self-latching		
Communication specifications	USB 2.0 Type-C (for data logger/setting), Bluetooth 4.2 (Bluetooth Low Energy)		
Power source	Dedicated lithium ion battery unit (BUL-9000) or dedicated dry battery unit (AA alkaline batteries × 6) (BUD-9000)		
Continuous operating time <sup>1</sup>	Lithium ion battery unit: Approx. 25 hours Dry battery unit: Approx. 12 hours (at 25 °C, no alarm, no lighting)	Lithium ion battery unit: Approx. 35 hours Dry battery unit: Approx. 15 hours (at 25 °C, no alarm, no lighting)	
Operating temperature range <sup>2</sup>	Approx. 15-minute temporary use environment: -40 °C - +60 °C (no sudden changes) Continuous use environment: -20 °C - +50 °C (no sudden changes)	Approx. 15-minute temporary use environment: -40 °C - +60 °C (no sudden changes) Continuous use environment: -20 °C - +50 °C (no sudden changes)	
Operating humidity range <sup>2</sup>	Approx. 15-minute temporary use environment: 0 %RH - 95 %RH (no condensation) Continuous use environment: 10 %RH - 90 %RH (no condensation)	Approx. 15-minute temporary use environment: 0 %RH - 95 %RH (no condensation) Continuous use environment: 10 %RH - 90 %RH (no condensation)	
Operating pressure range	80 kPa - 120 kPa (80 kPa - 110 kPa for explosion-proof range)		
Construction	Dustproof, waterproof construction equivalent to IP66/68 <sup>3</sup> , drop resistant to 1.5 m		
Explosion-proof construction	Intrinsically safe explosion-proof construction, flame-proof enclosures (with new ceramic type sensor) Intrinsically safe explosion-proof construction (without new ceramic type sensor)		
Explosion-proof class	IECEx Ex da ia IIC T4 Ga (with new ceramic type sensor) Ex ia IIC T4 Ga (without new ceramic type sensor)	ATEX II1G Ex da ia IIC T4 Ga (with new ceramic type sensor) II1G Ex ia IIC T4 Ga (without new ceramic type sensor)	Japan EX Ex da ia IIC T4 Ga (with new ceramic type sensor) Ex ia IIC T4 Ga (without new ceramic type sensor)
Certifications	CE marking, JIS T 8201:2010 (Oxygen deficiency indicator), JIS T 8205:2018 (Hydrogen sulfide indicator/alarm)		
External dimensions	Approx. 158 mm (W) × 85 mm (H) × 132 mm (D) (excluding projections)		
Weight <sup>4</sup>	Approx. 1.1 kg	Approx. 1.2 kg	

\*1 Continuous operating time: Varies depending on the sensor installed.

\*2 Operating ambient temperature/humidity range: May vary depending on the sensor installed. Refer to 'Sensor Specifications' on P. 6.

\*3 IPx8: No water penetration when submerged at depth of 2 m for 1 hour.

\*4 Including battery and battery unit.

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