



MODEL:  
GX-9000



MODEL:  
GX-9000H

**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

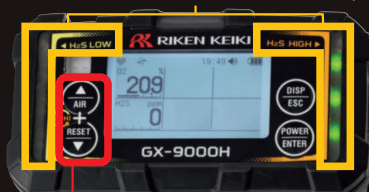
**Model: GX-9000H**

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

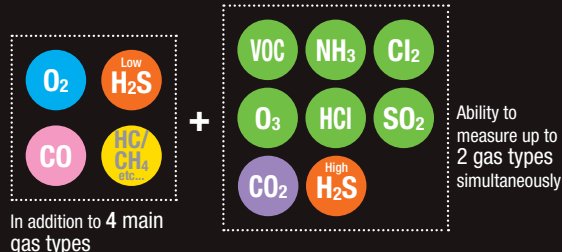


Simultaneous  
target gases

Max **6** 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>2</sub>/VOC sensor: one year

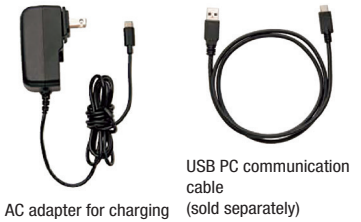
## [ Handy features for ease of use ]

### Choice of 16 different language displays

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

### 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	MIBK	○	○
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.

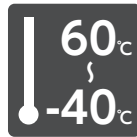
## [ Outstanding durability for greater peace of mind ]



**1.5 m**  
Drop testing passed



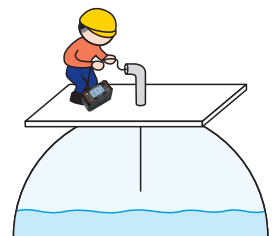
Protection level  
**IP66/68**  
equivalent



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.

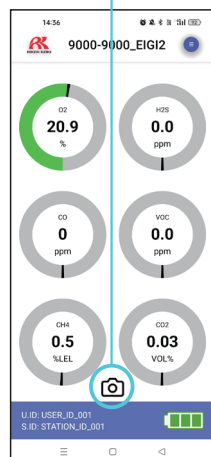
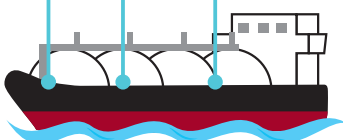
\*Specify whether you require Bluetooth capability at the time of purchase.

### 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

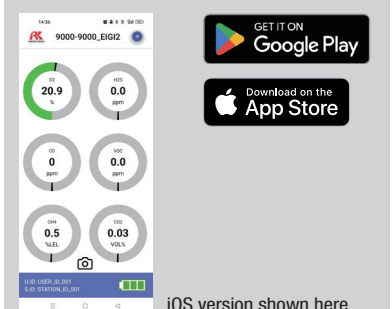


Save

Detail Snapshot	
Device Name	9000Series
CapturedAt	2023-04-03 14:36:15
Position	[35.725786, 139.7007124]
Serial number	9000_EIGI2
User ID	USER_ID_001
Station ID	STATION_ID_001
Component (O2)	20.9 %/Normal
Component (H2S)	0.0 ppm/Normal
Component (CO)	0 ppm/Normal
Component (VOC)	0.0 ppm/Normal
Component (CH4)	0.5 %LEL/Normal
Component (CO2)	0.03 VOL%/Normal

Bluetooth and Bluetooth 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!



iOS version shown here

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## [ Accessories ]

### Tubes/belts

#### Gas sampling rod

Part No.: 0904 0275 00

#### Gas sampling tube

(Gas sampling tube length: approx. 75 cm)

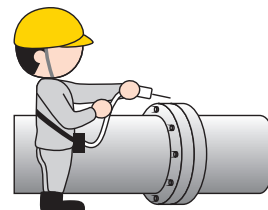
Part No.: 0914 0135 30

#### Shoulder strap

Part No.: 4777 4592 10



Appearance with accessories attached



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. (×1): 2753 3007 80

\*Included with dry battery models



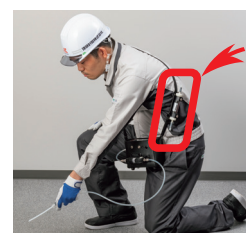
#### Fresh air adjustment filters



#### 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



Ensures safety before gas elimination and tank cleaning work

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.

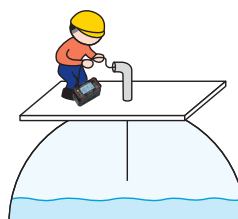
\*Requires use with absorbent cotton filter and connecting tube (except for models with ESF/PIF sensor installed).

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



### 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



### 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



### Sampling rod holder

Attaches to the shoulder strap; allows the gas sampling rod tip to be stowed.

Part No.: 4775 5651 00



## 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



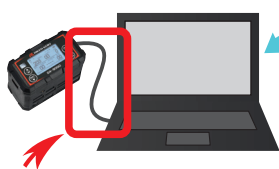
Ideal for storing the gas detector together with sampling tubes and maintenance parts.

## 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.

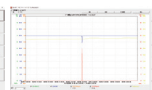
### Data logger management program

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)

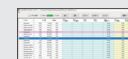


Example:  
Measurement results (graph)



### 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.

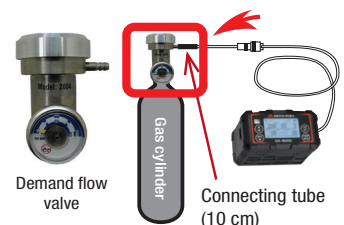
\*Please contact Riken Keiki for details of the compatible gas cylinders.

Demand flow valve

Part No.: 1641 0190 20

Connecting tube (10 cm)

Part No.: 4775 5958 10



### 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)
<input type="radio"/> Oxygen	<input checked="" type="radio"/> Hydrogen sulfide [low concentration]	<input type="radio"/> Carbon monoxide
F sensor slots (upper: GX-9000 lower: GX-9000H)		
F1 (slot 4)	F2 (slot 5)	F3 (slot 6)
<input checked="" type="radio"/> Toxic gas (electrochemical type) <input checked="" type="radio"/> VOC (PID) <input type="radio"/> Carbon dioxide <input checked="" type="radio"/> Hydrogen sulfide [high concentration]	<input checked="" type="radio"/> Combustible gas (thermal conductivity type) <input checked="" type="radio"/> Combustible gas (non-dispersive infrared type)	<input checked="" type="radio"/> Combustible gas (new ceramic type) <input type="radio"/> Carbon dioxide <input checked="" type="radio"/> Combustible gas (non-dispersive infrared type)

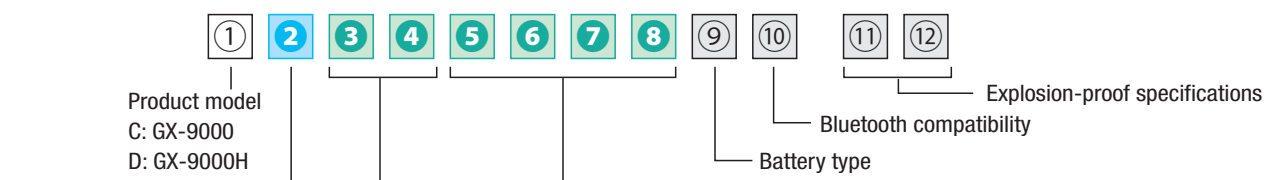
## Combustible gas sensor selection

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	<ul style="list-style-type: none"> <li>• Detects H<sub>2</sub><sup>*</sup></li> <li>• Uses combustible gas conversion function</li> </ul>	<ul style="list-style-type: none"> <li>• Detects H<sub>2</sub><sup>*</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Detects even in inert gas</li> <li>• Can be used even in environments where Si is present</li> </ul>

# [ 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
	Sensor model	Sensor model	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
	Sensor model
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 (HCl)
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.

### GX-9000H

Symbol	F1
	Sensor model
E8	ESF-A24R2 (high concentration H <sub>2</sub> S)

## 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	<b>GX-9000</b>
Combustible gas sensor: New ceramic type + thermal conductivity type		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	<b>GX-9000</b>
Combustible gas sensor: Non-dispersive infrared type		Product code First 8 characters: C1E1R2R5

O <sub>2</sub>	Low H <sub>2</sub> S	CO
NH <sub>3</sub>	Thermal conductivity 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	<b>GX-9000</b>
Combustible gas sensor: N/A		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	<b>GX-9000H</b>
Combustible gas sensor: Non-dispersive infrared type		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.

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

Symbol	F2	F3
	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
	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>): C10000N1 / 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	
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	18.0 %		19.5 %		1.0 ppm		5.0 ppm	
	Second alarm	25.0 %		23.5 %		10.0 ppm		30.0 ppm	
	TWA	—		—		1.0 ppm		25 ppm	
	STEL	—		—		5.0 ppm		200 ppm	
Operating temperature range	Continuous use environment	-20 °C - +50 °C							
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C							
Operating humidity range	Continuous use environment	10 %RH - 90 %RH							
	Temporary use environment (approx. 15 minutes)	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> )
Sensor model	NCF-6322P			
Detection principle	New ceramic type			
Display range/Detection range	0 - 100 %LEL			
Resolution	1 %LEL			
Alarm setpoints	First alarm	10 %LEL		
	Second alarm	50 %LEL		
Operating temperature range	Continuous use environment	-20 °C - +50 °C		
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C		
Operating humidity range	Continuous use environment	10 %RH - 90 %RH		
	Temporary use environment (approx. 15 minutes)	0 - 95 %RH		

Detection target gas	Isobutane (i-C <sub>4</sub> H <sub>10</sub> )		Methane (CH <sub>4</sub> )
Sensor model	IRF-4345		IRF-4341
Detection principle	Non-dispersive infrared type		
Display range/Detection range	0 - 100 %LEL/100 %LEL - 100.0 vol%		
Resolution	0.5 %LEL/0.1 vol%		
Alarm setpoints	First alarm	10.0 %LEL	
	Second alarm	50.0 %LEL	
Operating temperature range	Continuous use environment	-20 °C - +50 °C	
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C	
Operating humidity range	Continuous use environment	10 %RH - 90 %RH	
	Temporary use environment (approx. 15 minutes)	0 - 95 %RH	

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	TEF-7520P		
Detection principle	Thermal conductivity type		
Display range/Detection range	0 - 100.0 vol%		
Resolution	0.1 vol%		
Alarm setpoints	First alarm	25.0 vol%	
	Second alarm	50.0 vol%	
Operating temperature range	Continuous use environment	-20 °C - +50 °C	
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C	
Operating humidity range	Continuous use environment	10 %RH - 90 %RH	
	Temporary use environment (approx. 15 minutes)	0 - 95 %RH	

Detection target gas	Carbon dioxide (CO <sub>2</sub> )	
Sensor model	IRF-4443	
Detection principle	Non-dispersive infrared type	
Display range/Detection range	0 - 20.00 vol%	
Resolution	0.01 vol% (0 - 5 vol%)/0.1 vol% (5 - 20 vol%)	
Alarm setpoints	First alarm	5.00 vol%
	Second alarm	10.00 vol%
Operating temperature range	Continuous use environment	-20 °C - +50 °C
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C
Operating humidity range	Continuous use environment	10 %RH - 90 %RH
	Temporary use environment (approx. 15 minutes)	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	—	25.0 ppm	0.50 ppm	0.100 ppm	2.00 ppm
	Second alarm	—	50.0 ppm	1.00 ppm	0.200 ppm	4.00 ppm
	TWA	—	25.0 ppm	0.50 ppm	0.100 ppm	—
	STEL	—	35.0 ppm	1.00 ppm	—	5.0 ppm
Operating temperature range	Continuous use environment	-20 °C - +50 °C	-20 °C - +50 °C	0 °C - 50 °C	10 °C - 40 °C	0 °C - 40 °C
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C	-40 °C - +60 °C	-40 °C - +60 °C	10 °C - 40 °C	0 °C - 40 °C
Operating humidity range	Continuous use environment	20 %RH - 90 %RH	30 %RH - 80 %RH	30 %RH - 80 %RH	30 %RH - 80 %RH	20 %RH - 90 %RH
	Temporary use environment (approx. 15 minutes)	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	5,000 ppb	400.0 ppm	5.00 ppm
	Second alarm	10,000 ppb	1,000 ppm	10.0 ppm
Operating temperature range	Continuous use environment	-20 °C - +50 °C		
	Temporary use environment (approx. 15 minutes)	-40 °C - +60 °C		
Operating humidity range	Continuous use environment	10 %RH - 90 %RH		
	Temporary use environment (approx. 15 minutes)	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

<sup>\*1</sup> Continuous operating time: Varies depending on the sensor installed.

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

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

<sup>\*4</sup> Including battery and battery unit.

## RIKEN KEIKI Co., Ltd.

2-7-6 Azusawa, Itabashi-ku, Tokyo 174-8744, Japan

Phone : +81-3-3966-1113

Telefax : +81-3-3558-9110

E-mail : [intdept@rikenkeiki.co.jp](mailto:intdept@rikenkeiki.co.jp)

Web site : <https://www.rikenkeiki.co.jp/english>

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