

# OPTICAL GAS INDICATOR

## Model FI-8000

- **CE Marking (EMC)**
- **ATEX**
- **IECEX**
- **TIIS**



- **Max 8 measuring gas range available**
- **Intermittent measuring mode available**  
(For pump suction type only)
- **Ingress proof rating IP67**  
Suited for outdoor work.
- **Easy-to-read wide LCD display**
- **Intrinsically safe (ATEX Presafe 14 ATEX 5711)**  
Explosion proof class Exia IIC T4 Ga
- **2 way of sampling method**  
Pump suction type or Hand aspirating type



## History for Riken optical detectors

Analysis-Scientific  
heritage  
approved



Riken gas indicator  
model 3  
(1930)



Riken gas indicator  
model 18  
(1952)



FI-21  
(2001)



FI-8000  
(2015)

Digital  
display

Automatic  
analysis

IP67

Light  
weight

Data  
Logging

Easy  
operation

In early 1930, many of explosion accidents at oil tanker were occurred. To prevent these accidents, a gas detector based on optical interferometric method was developed and Riken Keiki was founded as this product manufacture. The gas detectors were used in a coal mine for safety use throughout the world.

Riken gas indicator model 3 has been distributed to Japanese life as an valuable instrument and approved as a heritage of analytical and scientific instruments by JAIMA and JSIA.

### Model FI-8000

You can select the pump suction type or hand aspirating type, and measuring gas in accordance with the requirements.

# FI-8000 TYPE □-□□-□□

#### Suction method

A : Hand-aspirating type  
P : Pump suction type

#### Chamber length (※1)

05 : 5mm  
24 : 24mm  
48 : 48mm

※1 It differs by measuring gas.  
Anesthetic and fumigation : No need to specify  
For customized spec, refer the 3rd page.

#### Detection gas (※2)

50 : Anesthetic gas  
52 : Fumigation gas  
99 : Customized

※2 Refer the last page for anesthetic gas and fumigation gas.  
See the 3rd page customized spec.

- ◆ Specify suction method for anesthetic gas spec.

FI-8000 TYPE □-24-50

- ◆ Specify suction method for fumigation spec.

FI-8000 TYPE □-48-52

- ◆ Specify suction method and chamber length for customized spec.

FI-8000 TYPE □-□-99

## Measuring gas

1 set of FI-8000 can install maximum 8 kinds of measuring gas range under the same chamber length.

### Measuring gas list

#### <Chamber length: 5mm>

| Detection gas       | Base gas | Range     |
|---------------------|----------|-----------|
| Methyl bromide      | Air      | 0~100vol% |
| Sulfur Hexafluoride | Air      | 0~100vol% |
| Sulfur Hexafluoride | Air      | 0~99.9%up |
| Sulfur Hexafluoride | N2       | 0~100vol% |
| Propane             | Air      | 0~100vol% |
| Iso-butane          | Air      | 0~100vol% |
| N-butane            | Air      | 0~100vol% |
| Flon 22             | Air      | 0~100vol% |
| Dimethyl Ether      | Air      | 0~100vol% |
| Dimethyl Ether      | N2       | 0~100vol% |
| Xenon               | Air      | 0~100vol% |
| Ethylene            | Air      | 0~100vol% |
| Chorine             | Air      | 0~100vol% |
| Vinyl chloride      | N2       | 0~100vol% |

| Detection gas | Base gas | Detection gas                          |
|---------------|----------|----------------------------------------|
| Propane       | Air      | 0~101.3 MJ/m <sup>3</sup><br>Gross 0°C |
| Butane        | Air      | 0~134.2 MJ/m <sup>3</sup><br>Gross 0°C |
| Propane       | Air      | 0~93.15 MJ/m <sup>3</sup><br>Net 0°C   |
| Butane        | Air      | 0~123.7 MJ/m <sup>3</sup><br>Net 0°C   |

#### <Chamber length: 24mm>

| Detection gas | Base gas | Range    |
|---------------|----------|----------|
| Halothane     | O2       | 0~6vol%  |
| Isoflurane    | O2       | 0~8vol%  |
| Sevoflurane   | O2       | 0~10vol% |
| Desflurane    | O2       | 0~20vol% |
| Halothane     | Air      | 0~6vol%  |
| Isoflurane    | Air      | 0~8vol%  |
| Sevoflurane   | Air      | 0~10vol% |
| Desflurane    | Air      | 0~20vol% |
| Enflurane     | O2       | 0~10vol% |
| Enflurane     | Air      | 0~10vol% |

| Detection gas  | Base gas | Detection gas |
|----------------|----------|---------------|
| Helium         | Air      | 0~100vol%     |
| Helium         | N2       | 0~100vol%     |
| Helium         | Argon    | 0~100vol%     |
| Hydrogen       | Air      | 0~100vol%     |
| Hydrogen       | N2       | 0~100vol%     |
| Heavy Hydrogen | Air      | 0~100vol%     |
| Heavy Hydrogen | N2       | 0~100vol%     |
| Carbon dioxide | Air      | 0~100vol%     |
| Carbon dioxide | N2       | 0~100vol%     |
| Carbon dioxide | Argon    | 0~100vol%     |
| Neon           | Air      | 0~100vol%     |
| Methane        | Air      | 0~100vol%     |
| Methane        | N2       | 0~100vol%     |
| Nitrus Oxide   | Air      | 0~100vol%     |
| Ozone          | O2       | 0~100vol%     |

| Detection gas   | Base gas | Range                                |
|-----------------|----------|--------------------------------------|
| LNG or LNG +LPG | —        | 25~50 MJ/m <sup>3</sup><br>Gross 0°C |
| LNG or LNG +LPG | —        | 22~45 MJ/m <sup>3</sup><br>Net 0°C   |

#### <Chamber length: 48mm>

| Detection gas          | Base gas | Range     |
|------------------------|----------|-----------|
| Toluene                | Air      | 0~100%LEL |
| MEK                    | Air      | 0~100%LEL |
| Ethyl acetate          | Air      | 0~100%LEL |
| Xylene                 | Air      | 0~100%LEL |
| Iso-propyl alcohol     | Air      | 0~100%LEL |
| M.E.K                  | Air      | 0~100%LEL |
| Methanol               | Air      | 0~100%LEL |
| Propane                | Air      | 0~100%LEL |
| Iso-butane             | Air      | 0~100%LEL |
| Acetone                | Air      | 0~100%LEL |
| Ethyl alcohol          | Air      | 0~100%LEL |
| Methane                | Air      | 0~100%LEL |
| Hydrogen               | Air      | 0~100%LEL |
| Ethyl chloride         | Air      | 0~100%LEL |
| Ethylene               | Air      | 0~100%LEL |
| Styrene                | Air      | 0~100%LEL |
| Ammonia                | Air      | 0~100%LEL |
| Tetrahydroflane        | Air      | 0~100%LEL |
| Dioxolane              | Air      | 0~100%LEL |
| Methyl-isopropil-Keton | Air      | 0~100%LEL |
| Tetrafluoro-propane    | Air      | 0~100%LEL |
| Butylacetate           | Air      | 0~100%LEL |

| Detection gas     | Base gas | Range                 |
|-------------------|----------|-----------------------|
| Methyl Bromide    | Air      | 0~200g/m <sup>3</sup> |
| Methyl Iodine     | Air      | 0~200g/m <sup>3</sup> |
| Sulfuryl Fluoride | Air      | 0~200g/m <sup>3</sup> |
| Methyl Bromide    | Air      | 0~5vol%               |
| Propylene oxide   | Air      | 0~10vol%              |
| Phosphine         | Air      | 0~50g/m <sup>3</sup>  |
| Hydrogen Cyanide  | Air      | 0~200g/m <sup>3</sup> |

| Detection gas | Base gas | Range     |
|---------------|----------|-----------|
| Ammonia       | N2       | 0~100vol% |
| Oxygen        | N2       | 0~100vol% |

  Detection gas for anaesthetic

  Detection gas for fumigation

# Specification

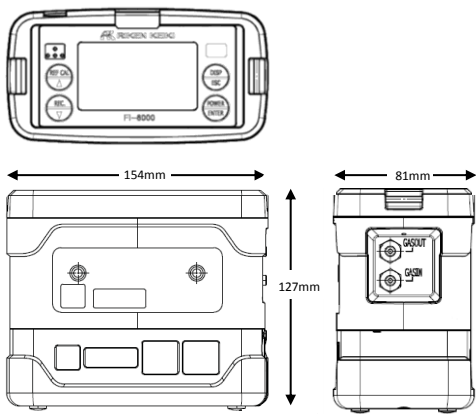
|                                |                                                                                                                     |                                                                                                                     |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Model                          | FI-8000                                                                                                             |                                                                                                                     |
| Measuring principle            | Optical interferometric method                                                                                      |                                                                                                                     |
| Measuring gas                  | Refer to the 3 <sup>rd</sup> page.                                                                                  |                                                                                                                     |
| Indication accuracy            | Within $\pm 3\%$ (at constant temperature)※                                                                         |                                                                                                                     |
| Type                           | TYPE P-□□-□□                                                                                                        | TYPE A-□□-□□                                                                                                        |
| Sampling method                | Pump suction type                                                                                                   | Hand-aspirating type                                                                                                |
| Self-diagnosis function        | Low battery, Low light , Low contrast, abnormal atmospheric pressure and abnormal temperature                       |                                                                                                                     |
| Display                        | LCD digital (7-segment value display + code + 20 segment word x 2 lines)                                            |                                                                                                                     |
| Each display                   | Measuring gas, gas concentration , measuring unit and battery capacity reminder                                     |                                                                                                                     |
| Power source                   | Alkaline battery pack (AA size battery x 3 pcs) (standard)<br>Or, Lithium ion battery(optional)                     |                                                                                                                     |
| Ingress proof rating           | IP67 equivalent                                                                                                     |                                                                                                                     |
| Ambient humidity & temperature | Temperature : -20~50°C, Humidity : Below 95%RH (Non-condensing)                                                     |                                                                                                                     |
| Dimensions                     | Approx. 154 (W) ×127 (H) ×81 (D) mm                                                                                 |                                                                                                                     |
| Weight                         | Approx. 1.1kg (including alkaline batteries)<br>Approx. 1.2kg (including lithium ion batteries)                     |                                                                                                                     |
| Explosion proof                | TIIS / ATEX / IECEx                                                                                                 |                                                                                                                     |
| Continuous operation           | Above 12 hrs(for alkaline battery use)<br>Above 18 hrs(for lithium ion battery use)<br>(25°C with no back light on) | Above 16 hrs(for alkaline battery use)<br>Above 24 hrs(for lithium ion battery use)<br>(25°C with no back light on) |
| External output                | IrDA(for data logging)                                                                                              |                                                                                                                     |
| Function                       | Data logging , atmospheric pressure correction, temp compensation                                                   |                                                                                                                     |

※ Indication accuracy subject to the measuring gas .

# Accessories

|             | Common<br>(Anaesthetic/fumigation/customized gas)                                                               |                                                                                                             |                                                                                                                            | Anaesthetic                                                                                            |                                                                                                      |
|-------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Accessories | Gas sampling tube(1m)<br>    | Shoulder strap<br>       | Hand-aspirator<br>(For TYPE A only)<br> | Absorption tube<br> | Tube Fix belt<br> |
| Optional    | Lithium ion battery unit<br> | Datalogging software<br> | AC adaptor<br>                          |                                                                                                        |                                                                                                      |

# Appearance



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