



For accurate measurement of the concentration
of a variety of types of gases

Optical Interferometric Gas Monitor

Model FI-8000

IECEX
ATEX
UKEX
CE/UKCA marking



Up to 8 types of gases can be measured with 1 unit

You can combine up to 8 types of your preferred gases.
You can also add or change measurement target gases after purchase.

Continuous measurement mode / intermittent measurement mode supported

In addition to the usual continuous measurement mode, an intermittent measurement mode is available in which you can set an interval, so that you can record the gas concentration value and the time at intervals. (The intermittent measurement mode is only available with the automatic suction specification.)

Two measurement methods

The product has a lineup of an automatic suction type using the built-in pump and a manual suction type which enables faster suction using the handy aspirator.



Manual suction by
handy aspirator

Protection class IP67 compliant

IP67 compliance provides reassurance during outdoor work.

Easy-to-view, large LCD screen

With the large numeral and character display, you can check the gas concentration and perform operations smoothly.

Intrinsically safe explosion-proof structure

IECEX: Ex ia IIC T4 Ga
ATEX/UKEX: II1G Ex ia IIC T4 Ga

RIKEN KEIKI Co., Ltd.

The History of the Optical Interferometric Gas Monitor

Products certified as analytical instrument and scientific instrument heritage items



Riken type 3 gas detector
(developed in 1930)



Riken type 18 gas detector
(developed in 1952)



FI-21
(developed in 2001)



FI-8000
(developed in 2014)

In the early Showa era, accidental explosions on oil tankers occurred frequently. To prevent the accidents, a gas concentration detector was developed based on the principle of optical interference developed at Riken, and Riken Keiki was established for the purpose of productizing the detector. The productized detector came to be widely used in coal mines and for safety supervision.

The Riken type 3 gas detector was certified as an “analytical instrument and scientific instrument heritage” item by the Japan Analytical Instruments Manufacturers' Association (JAIMA) and the Japan Scientific Instruments Association (JSIA), as it was a valuable device that contributed to the lives of Japanese people.

| | |
|--------------------|----------------------|
| Digital display | Reduced weight |
| Automatic analysis | Data logger function |
| IP67 | Simple operation |

3 Specifications in Total

Anesthetic gas specification

(Chamber length: 24 mm)



(8 types of gases detectable as standard)

Fumigation gas specification

(Chamber length: 48 mm)



(7 types of gases detectable as standard)

Select the measurement target gas from blank!

Customized specification

(Chamber length: one of 5 / 24 / 48 mm)



Regarding the gases detectable as standard in the anesthetic / fumigation gas specification, refer to “Measurement Target Gas List.” For the customized specification, you can select up to 8 types of measurement target gases. Select from among identical chamber lengths (the “Measurement Target Gas List” column). In addition, for all the specifications, measurement target gases can be added or changed after purchase.

FI-8000 Model

For the FI-8000 optical interferometric gas monitor, select the suction method and measurement target gas to match your intended use. The selected specification is reflected in the model name as follows.

FI-8000TYPE - -

Suction method

A: Manual suction by handy aspirator
P: Automatic suction by built-in pump

Chamber length

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

Measurement target gas

00: Anesthetic gas
02: Fumigation gas
99: Customized

Regarding the details of the measurement target gases, refer to “Measurement Target Gas List.”

Measurement Target Gas List

Chamber length 5 mm

| Measurement target gas | Base gas | Measurement range |
|------------------------|----------------|---|
| Acetylene | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| Isobutane | Air | 0 - 100 vol% |
| Ethylene | Air | 0 - 100 vol% |
| Vinyl chloride | Nitrogen | 0 - 100 vol% |
| Chlorine | Air | 0 - 100 vol% |
| Xenon | Air | 0 - 100 vol% |
| Dimethyl ether | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| Hydrogen | Carbon dioxide | 0 - 100 vol% |
| Carbon dioxide | Air | 0 - 100 vol% |
| Normal butane | Air | 0 - 100 vol% |
| Propane | Air | 0 - 100 vol% |
| Freon 410A | Nitrogen | 0 - 100 vol% |
| Freon 22 | Air | 0 - 100 vol% |
| Methyl bromide | Air | 0 - 100 vol% |
| Sulfur hexafluoride | Air | 0 - 100 vol% |
| | Air | 0 - 99.9%up |
| | Nitrogen | 0 - 100 vol% |
| Butane-air | — | 0 - 134.25 MJ/m ³ Gross 0°C |
| | — | 0 - 123.75 MJ/m ³ Net 0°C |
| Propane-air | — | 0 - 101.35 MJ/m ³ Gross 0°C |
| | — | 0 - 93.15 MJ/m ³ Net 0°C |

Regarding gases not included in the list, please make a separate inquiry with us.

Chamber length 24 mm

| Measurement target gas | Base gas | Measurement range |
|----------------------------------|----------|--|
| Isoflurene | Air | 0 - 8 vol% |
| | Oxygen | 0 - 8 vol% |
| Sevoflurane | Air | 0 - 10 vol% |
| | Oxygen | 0 - 10 vol% |
| Desflurane | Air | 0 - 20 vol% |
| | Oxygen | 0 - 20 vol% |
| Halothane | Air | 0 - 6 vol% |
| | Oxygen | 0 - 6 vol% |
| Nitrous oxide | Air | 0 - 100 vol% |
| Acetylene | Nitrogen | 0 - 50 vol% |
| Ethylene | Air | 0 - 50 vol% |
| Enflurane | Air | 0 - 10 vol% |
| | Oxygen | 0 - 10 vol% |
| Ozone | Oxygen | 0 - 100 vol% |
| Difluoromethane | Nitrogen | 0 - 100 vol% |
| Heavy hydrogen | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| Hydrogen | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| | Argon | 0 - 100 vol% |
| Carbon dioxide | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| Neon | Air | 0 - 100 vol% |
| | Argon | 0 - 100 vol% |
| Propane | Air | 0 - 20 vol% |
| | Argon | 0 - 100 vol% |
| Helium | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| | Argon | 0 - 100 vol% |
| Methane | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| Natural gas or natural gas + LPG | — | 25 - 50 MJ/m ³ Gross 0°C |
| | — | 22 - 45 MJ/m ³ Net 0°C |

Anesthetic gas specification (gases detectable as standard)

Chamber length 48 mm

| Measurement target gas | Base gas | Measurement range |
|-------------------------|----------|--------------------------|
| Sulfuryl fluoride | Air | 0 - 200 g/m ³ |
| Propylene oxide | Air | 0 - 10 vol% |
| Methyl bromide | Air | 0 - 200 g/m ³ |
| | Air | 0 - 5 vol% |
| Methyl iodide | Air | 0 - 200 g/m ³ |
| Phosphine | Air | 0 - 50 g/m ³ |
| Hydrogen cyanide | Air | 0 - 200 g/m ³ |
| Acetone | Air | 0 - 100 %LEL |
| | Air | 0 - 100 %LEL |
| | Air | 0 - 100 %LEL |
| Ammonia | Air | 0 - 100 vol% |
| | Nitrogen | 0 - 100 vol% |
| Isobutane | Air | 0 - 100 %LEL |
| | Nitrogen | 0 - 100 %LEL |
| Isopropyl alcohol | Air | 0 - 100 %LEL |
| Carbon monoxide | Air | 0 - 100 vol% |
| Ethyl alcohol | Air | 0 - 100 %LEL |
| Ethylbenzene | Nitrogen | 0 - 100 %LEL |
| | Air | 0 - 100 %LEL |
| Ethylene | Air | 0 - 20 vol% |
| | Nitrogen | 0 - 100 %LEL |
| Ethylene chloride | Air | 0 - 100 %LEL |
| Xylene | Air | 0 - 100 %LEL |
| | Nitrogen | 0 - 100 %LEL |
| Ethyl acetate | Air | 0 - 100 %LEL |
| Butyl acetate | Air | 0 - 100 %LEL |
| Oxygen | Nitrogen | 0 - 100 vol% |
| | Argon | 0 - 100 vol% |
| Dioxolane | Air | 0 - 100 %LEL |
| Dichloroethane | Nitrogen | 0 - 100 %LEL |
| Hydrogen | Air | 0 - 100 %LEL |
| | Air | 0 - 50 vol% |
| | Nitrogen | 0 - 100 %LEL |
| | Argon | 0 - 100 %LEL |
| Styrene | Air | 0 - 100 %LEL |
| | Nitrogen | 0 - 100 %LEL |
| Nitrogen | Argon | 0 - 100 vol% |
| Tetrahydrofuran | Air | 0 - 100 %LEL |
| Tetrafluoropropene | Air | 0 - 100 %LEL |
| Toluene | Air | 0 - 100 %LEL |
| | Nitrogen | 0 - 100 %LEL |
| Normal butane | Air | 0 - 100 %LEL |
| | Nitrogen | 0 - 100 %LEL |
| Propane | Air | 0 - 10 vol% |
| | Nitrogen | 0 - 100 %LEL |
| Methanol | Air | 0 - 100 %LEL |
| | Nitrogen | 0 - 100 %LEL |
| Methane | Air | 0 - 100 %LEL |
| | Air | 0 - 50 vol% |
| | Nitrogen | 0 - 100 %LEL |
| Methyl isobutyl ketone | Air | 0 - 100 %LEL |
| | Argon | 0 - 100 %LEL |
| Methyl isopropyl ketone | Air | 0 - 100 %LEL |
| Methyl ethyl ketone | Air | 0 - 100 %LEL |

Fumigation gas specification (gases detectable as standard)

Selection Examples

In oxygen



Chamber length: 24 mm

Halothane (vol%) Isoflurene (vol%) Enflurane (vol%)

We want to measure 3 types of gases via automatic suction using the built-in pump!

Automatic suction type Chamber length: 24 mm Customized specification

FI-8000 TYPE P - 24 - 99

In air



Chamber length: 48 mm

Methyl bromide (g/m³) Methyl iodide (g/m³) Toluene (%LEL) Methyl ethyl ketone (%LEL) Ethyl acetate (%LEL)

We want to measure 5 types of gases via manual suction using the handy aspirator!

Manual suction type Chamber length: 48 mm Customized specification

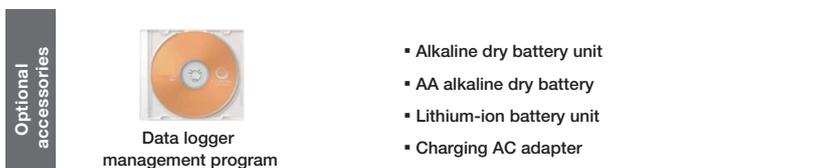
FI-8000 TYPE A - 48 - 99

Specifications

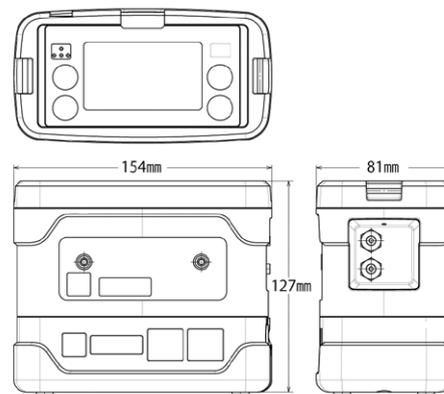
| | | |
|------------------------------------|--|--|
| Model | FI-8000 | |
| Measuring principle | Optical interferometric type | |
| Measurement target gases | See annexed table | |
| Reading accuracy | Indicated value $\pm 3\%$ (under identical conditions)* | |
| Type | Type P-□□-□□ | Type A-□□-□□ |
| Sampling method | Automatic suction by built-in pump | Manual suction by handy aspirator |
| Self-diagnosis function | Low battery voltage, low UV intensity, low contrast, abnormal pressure, abnormal temperature | |
| Display | LCD digital display (7-segment numeric display + symbol + 20-segment character display x 2 lines) | |
| Displays | Measurement target gas name, measurement target gas concentration, measurement unit, battery level | |
| Power supply | Dry battery unit (AA alkaline dry battery x 3) or lithium-ion battery unit | |
| Continuous operating time | Dry battery unit: 12 hours or more (For a new dry battery, at 25°C, with no lighting) Lithium-ion battery unit: 18 hours or more (For a fully charged battery, at 25°C, with no lighting) | Dry battery unit: 16 hours or more (For a new dry battery, at 25°C, with no lighting) Lithium-ion battery unit: 24 hours or more (For a fully charged battery, at 25°C, with no lighting) |
| Explosion-proofing | Intrinsically safe explosion-proof construction IECEX (Ex ia IIC T4 Ga), ATEX/UKEX (II1G Ex ia IIC T4 Ga), Japan Ex (Ex ia IIC T4) | |
| Protection class | Compliant with IP67 | |
| Certification | CE / UKCA marking | |
| External dimensions | Approx. 154(W) x 127(H) x 81(D)mm | |
| Mass | Approx. 1.1 kg (including the dry battery unit) / Approx. 1.2 kg (including the lithium-ion battery unit) | |
| Usage temperature / humidity range | -20°C to +50°C (no sudden changes), 95% RH or less (non-condensing) | |
| Data logger function | Maximum number of recorded items: 256 Communication method: IrDA | |
| Functions | Data logger, atmospheric pressure correction, temperature correction | |

* The reading accuracy varies depending on the measurement target gas.

Accessories



Outer appearance



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* The contents described in this catalog are subject to change without notice according to the performance improvement.