OPTICAL INTERFEROMETRIC GAS ANALYSER

LEADERS IN GAS DETECTION

Since 1977

Model FI-900

Features:

- Uses an optical interferometric sensor with high reliability and backed with an 80-year track record
  - Gas analyser with refinements made to the optical interferometric sensor developed when our company was founded
  - Sensor with no degradation in sensitivity and excellent long-term stability means replacement is not required for 10 years
  - Takes measurements using gas-specific refractive indices, making it capable of measuring a wide range of gases
- Capable of detecting corrosive gases like methylene chloride, NH_3 and VCM gases
- Flameproof enclosure (ATEX/IECEx/Japan Ex) that can even be used in H_2 environment
- Comprehensive self-diagnostic function, and checks of gas concentrations as well as status using MODBUS communications
- Ideal for preventing explosions and monitoring concentrations of VOCs, and monitoring concentrations of hydrogen gas

Applications:

- Petroleum Refining
- Petrochemicals
- Hydrogen Production
- Foodstuff (e.g. breweries)
- Painting (e.g. automobile)
- Gravure Painting

The FI-900 is equipped with Long-term Stability Optical Interferometric Sensor Ideal for Controlling Gas Concentrations in Manufacturing Processes. Uses an optical interferometric sensor with high reliability and backed with an 80-year track record. Capable of detecting corrosive gases like methylene chloride, NH3 and VCM gases. Flameproof enclosure (ATEX/IECEx/Japan Ex) that can even be used in H2 environment. Comprehensive self-diagnostic function, and checks of gas concentrations as well as status using MODBUS communications. Ideal for preventing explosions and monitoring concentrations of VOCs, and monitoring concentrations of hydrogen gas.

ATEX (Equipment for explosive atmospheres) explosion-proof certified product. IECEx (IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres) certified product. TIIS (Technology Institution of Industrial Safety) explosion-proof certified product. CE Marking conforming product.

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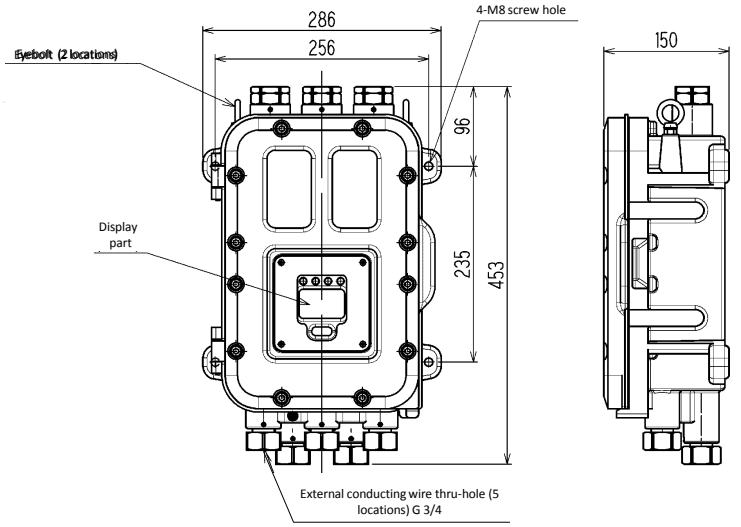
Specifications Model FI-900

Model	FI-900
Measuring principle	Optical interferometric method
Measuring gas	Combustible gases, solvent vapors, inert gases
Measuring range	Depending on gas specifications
Alarm setpoint	Depending on gas specifications
Measurement accuracy	F.S. within ±3% (under same conditions)
Response time	T90: within 30 seconds
Measurement method	Specified flow gas feed from external sampling unit
Display	Full-dot LCD (with backlight)
External output	4-20 mA DC (insulated, current throw type), permitted resistive load 300 Ω or less Minimum resolution 0.01 mA or less
Communications output	RS-485 (MODBUS) communication function
Alarm relay contact 1	Non-voltage contact, contact capacity 1 A 30 V DC (resistive load)
Alarm relay contact 2	Non-voltage contact, contact capacity 1 A 30 V DC (resistive load)
Malfunction contact	Non-voltage contact, contact capacity 1 A 30 V DC (resistive load)
Power supply	24V DC±10% / 100 - 240V AC±10% 50/60Hz *The ATEX/IECEx specifications apply to DC power source only
Power consumption	Max. 6 W (24 V DC±10%) / Max. 20 VA (100 - 240 V AC ±10% 50/60 Hz) *The ATEX/IECEx specifications apply to DC power source only
Protection class	Equivalent to IP66/67
Operating temperature range	-20 to +60℃ (ATEX/IECEx specifications) / -20 to +57°C (Japan Ex specifications) (no sudden changes)
Operating humidity range	0 to 95% RH (no condensation/use of condensible gases within unit) (no condensation)
Operating pressure range	Atmospheric pressure or equivalent (no pulses)
Outer dimensions	Approx. 286 (W) x 453 (H) x 150 (D) mm (projection portions excluded)
Weight	Approx. 23 kg
Explosion-proof structure	Flame-proof enclosures
Explosion-proof class	Ⅱ2G Ex db ⅡB+H2 T4 Gb (ATEX) / Ex db ⅡB+H2 T4 Gb (IECEx) / Ex d ⅡB+H2 T4 (Japan Ex)
Self-diagnostic function	Status monitoring in 4 separate categories ・FAILURE ・FUNCTION CHECK ・MAINTENANCE REQUIRED ・OUT OF SPECIFICATION
Accessories	Control key, Allen key (2 types), cable ground, plug



Gas Specifications

Measuring gas	Measuring range	Measurement accuracy
Toluene in air	0－100%LEL	±3%LEL
Acetone in air	0－100%LEL	±3%LEL
Ethyl acetate in air	0－100%LEL	±3%LEL
Methylene chloride in air	0－100%LEL	±3%LEL
Methylene chloride in air	0－20vol%	±0.6vol%
Hydrogen in nitrogen	0－100%LEL	±3%LEL
Hydrogen in nitrogen	0－100vol%	±0.6vol%

*1 Gas specifications are planned to be added to the lineup, however if you need the product to measuring gases, base gases, or measurement ranges not included in this list, please inquire with our Sales Department.

*2 In order for the device to be able to detect gases, a separate sampling unit is required for drawing in the measuring gas and reference gas.

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Broad range of gases measured

Measurements are conducted using gas-specific refractive indexes capable of a broad range of gas measurement, making it capable of measuring over 80 types of gases.

Measurement of additional gas types is also possible to suit requirements (gases in the list are an example).

In addition to air and nitrogen, the sensor can also be used with various base gases such as argon and CO_2.

[0 -100% LEL]

Measuring Gas	Measurement Range	Base Gas
Butadiene	0 -100% LEL	Air
2,3,3,3-Tetrafluoropropene	0 -100% LEL	Air
Acetone	0 -100% LEL	Air
Acetonitrile	0 -100% LEL	Air
Acrylonitrile	0 -100% LEL	Air
Benzene	0 -100% LEL	Air
Cyclohexane	0 -100% LEL	Air
Cyclopentanone	0 -100% LEL	Air
Dichloromethane	0 -100% LEL	Air
Dimethyl ether	0 -100% LEL	Air
Ethane	0 -100% LEL	Air
Ethyl alcohol	0 -100% LEL	Air
Ethyl acetate	0 -100% LEL	Air
Ethylcyclohexane	0 -100% LEL	Air
Ethylene	0 -100% LEL	Air
Hydrogen	0 -100% LEL	Air/N_2
Isoprene	0 -100% LEL	Air
Isopropyl alcohol	0 -100% LEL	Air
M-Xylenehexafluoride	0 -100% LEL	Air
Methyl alcohol Methyl	0 -100% LEL	Air
ethyl ketone Methyl	0 -100% LEL	Air
isobutyl ketone Methyl	0 -100% LEL	Air
methacrylate	0 -100% LEL	Air
Methylcyclohexane	0 -100% LEL	Air
Butyl acetate Normal	0 -100% LEL	Air
heptane Normal hexane	0 -100% LEL	Air
Normal propyl alcohol	0 -100% LEL	Air
Propane	0 -100% LEL	Air
	0 -100% LEL	Air
R-454C	0 -100% LEL	Air
Styrene	0 -100% LEL	Air/N_2
Toluene	0 -100% LEL	Air
Polyvinyl chloride	0 -100% LEL	Air
Xylene	0 -100% LEL	Air

[0-100 vol%]

Measuring Gas	Measurement Range	Base Gas
Ammonia*1	0-100 vol%	N_2
Carbon dioxide	0-100 vol%	Air/N_2/ Hydrogen
Deuterium	0-100 vol%	Air
Ethylene	0-100 vol%	N_2
Hydrogen*1	0-100 vol%	Air/N_2/CO_2 Argon/ Methane
Methane	0-100 vol%	Air
FC218	0-100 vol%	Air
Propane	0-100 vol%	N_2
Sulfur hexafluoride	0-100 vol%	Air

[0-50 vol%]

Measuring Gas	Measurement Range	Base Gas
Butadiene	0-50 vol%	N_2
Carbon dioxide	0-50 vol%	Argon
Chlorofluorocarbon 22	0-50 vol%	N_2
Hydrogen	0-50 vol%	N_2
Propylene	0-50 vol%	N_2

[0-20 vol%]

Measuring Gas	Measurement Range	Base Gas
Dichloromethane	0-20 vol%	Air
Ethylene	0-20 vol%	Air/N_2
Hydrogen	0-20 vol%	N_2
Propylene	0-20 vol%	N_2

[0-10 vol%]

Measuring Gas	Measurement Range	Base Gas
Carbon dioxide	0-10 vol%	Air
Dichloromethane	0-10 vol%	Air
Hydrogen	0-10 vol%	N_2
Normal hexane	0-10 vol%	Air/N_2
Propylene	0-10 vol%	N_2

[Others]

Measuring Gas	Measurement Range	Base Gas
Normal heptane	0-8 vol%	N_2
Acetone	0-5 vol%	N_2
Benzene	0-5 vol%	Air
Carbon dioxide	0-5 vol%	Air
Deuterium	0-5 vol%	N_2
Dichloromethane	0-5 vol%	Air
Ethyl acetate	0-5 vol%	Air
Hydrogen	0-5 vol%	N_2
Methane	0-5 vol%	Air
Normal hexane	0-5 vol%	N_2
Propylene	0-5 vol%	N_2
Butadiene	0-2 vol%	N_2
Dichloromethane	0-2 vol%	Air
Ethylcyclohexane	0-1 vol%	Air
Methylcyclohexane	0-1 vol%	Air
Toluene	0-1 vol%	Air
Trichloroethylene	0-1 vol%	Air
Hydrogen	40-100 vol%	Methane

*1 Specify the optional SUS sensor part.

Contact us for other gas types.

Outer diagram (including sample unit, suction pump, etc.*)

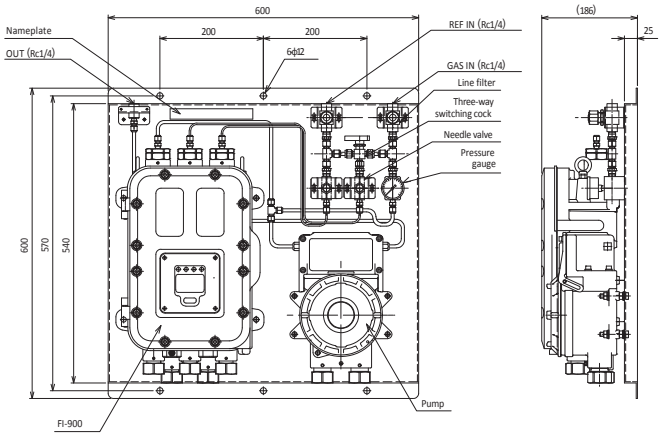
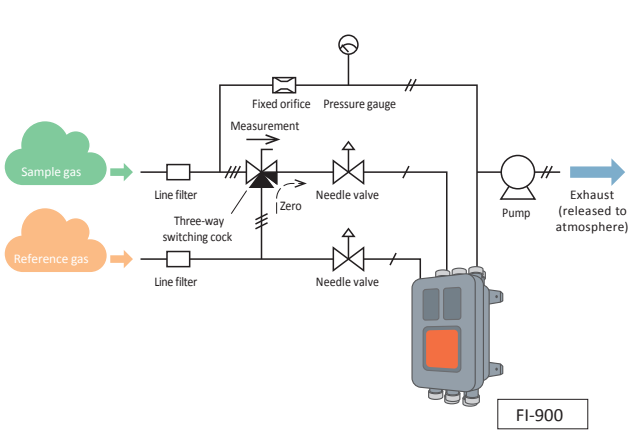


Illustration of piping for pump suction type



* This detector must be used in combination with a sampling unit. Contact us if you require a sampling unit.

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