



# COSMOS

## Portable Gas Detectors Product Guide



# Combustible Gas Detectors

## Detect Combustible Gases in General with High Sensitivity

**COSMOTECTOR** Automatic Suction Type For Measurement of Combustible Gas Concentration of 0-10/0-100% LEL

### XP-311/311A



#### Features

- Measures combustible gases in general. (Please specify gas to be detected.)
- Best suited for monitoring a risk of explosion.
- Compact and lightweight body of only 700 grams.
- Easy to use, measuring in one hand.
- Alarm function warns operators of the dangerous concentration. (XP-311A)

#### Specifications

Type	XP-311	XP-311A (with alarm function)
Gas Detected	LPG, Manufactured gas, Other combustible gases and vapors (Methane, 13A and the like are specified separately.) * Please specify gas to be detected.	
Detection Principle	Catalytic combustion	
Sampling Method	Automatic suction	
Detection Range	0-10%LEL (L Range)/0-100%LEL (H Range) Selectable	
Indication Accuracy *1	±5% of full scale	
Alarm Set Value	—	20%LEL
Alarm Indication	—	Gas alarm (flashing lamp, intermittent buzzer) Low battery (continuous buzzer)
Operating Temperature Range	-20°C to 50°C (0°C to 40°C for methane specification)	
Power Source	Four AA (R6) manganese dry cells	
Battery Life *2	Approx. 10 continuous hours by alkaline dry cells (without meter illumination and alarm. Approx. 6 hours for methane specification.)	
Explosion-Proof Structure	Intrinsic safety/Flameproof id2G3	
Dimensions	W84 × H190 × D40mm	
Weight	Approx. 700g	
Built-in Circuit	Meter illumination	
Accessories	Leather carrying case, Four AA (R6) manganese dry cells, Gas sampling tube (1m), Drain filter, Filter element, Suction pipe, Suction pipe rubber	
Options	Gas sampling tube, Sampling float, Output connector, Mixer, External alarm unit	

\*1 Under identical conditions.

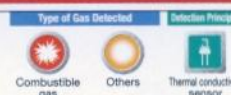
\*2 Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.



Type approved by ClassNK (NK) No.87T609  
The Ship Equipment Inspection Society of Japan (HK)  
approved product (Designation required)

**COSMOTECTOR** Automatic Suction Type For Measurement of High Concentration Gas Up to 100vol %

### XP-314



#### Features

- Measures both combustible and non-combustible gases including carbon dioxide, argon, and helium. (Please specify gas to be detected.)
- Suitable for inspecting the amount of gas remaining in tanks.
- Also suitable for agricultural use including astringency removal. (CO<sub>2</sub> concentration control)

#### Specifications

Type	XP-314 □ ← letter of the model	
Gas Detected and Detection Range (Please make sure to specify the type of gas)	Model	Type of gas
	A	Manufactured gas, Natural gas Methane, Hydrogen, Helium Others
	B	Carbon dioxide, Argon
	C	Propane, Butane
	D	Mixture of butane and air (6A)
Detection Principle	Thermal conductivity	
Sampling Method	Automatic suction	
Indication Accuracy *1	H Range : ±5% of full scale	
	L Range : ±10% of full scale	
Operating Temperature Range	0°C to 40°C	
Power Source	Four AA (R6) manganese dry cells	
Battery Life *2	10 continuous hours or more by alkaline dry cells (without meter illumination)	
Explosion-Proof Structure	Intrinsic safety/Flameproof id2G3	
Dimensions	W84 × H190 × D40mm	
Weight	Approx. 700g	
Built-in circuit	Meter illumination	
Accessories	Leather carrying case, Four AA (R6) manganese dry cells, Gas sampling tube (1m), Drain filter, Filter element, Suction pipe, Suction pipe rubber	
Options	Gas sampling tube, Sampling float, Output connector, Mixer, Silica gel for astringency removal (100g)	

\*1 Under identical conditions.

\*2 Battery life may vary with ambient conditions, conditions of use, storage period,



Type approved by ClassNK (NK) No.87T609  
UL classified (Designation required)

**COSMOTECTOR** Automatic Suction Type Super-Sensitive and Best Suited for Detecting Gases in the ppm Range

# XP-316/316A



## Features

- High sensitivity detector with 0-500ppm measuring range (standard).
- Best suited for measuring toxic and combustible vapors. (Please specify gas to be detected.)
- Suitable for detecting combustible gases in typical factories.

## Specifications

Type	XP-316	XP-316A (with alarm function)
Gas Detected	LPG, Manufactured gas, Other combustible gases and vapors (Methane, 13A and the like are specified separately.) * Please specify gas to be detected.	
Detection Principle	Catalytic combustion	
Sampling Method	Automatic suction	
Detection Range	(L Range) 0-500/ (H Range) 0-5000ppm (L Range) 0-1000/ (H Range) 0-10000ppm (Consult us as for range specification and the type of gas.)	
Indication Accuracy *1	H Range: ±5% of full scale L Range: ±10% of full scale	
Alarm Set Value	-	250ppm 0.05vol% (standard specification)
Alarm Indication	-	Gas alarm (flashing lamp, intermittent buzzer) Low battery (continuous buzzer)
Operating Temperature Range	0°C to 40°C	
Power Source	Four AA (R6) manganese dry cells	
Battery Life *2	Approx. 10 continuous hours by alkaline dry cells (without meter illumination and alarm; Approx. 6 hours for methane specification)	
Explosion-Proof Structure	Intrinsic safety/Flameproof id2G3	
Dimensions	W84 × H190 × D40mm	
Weight	Approx. 700g	
Built-in circuit	Meter illumination	
Accessories	Leather carrying case, Four AA (R6) manganese dry cells, Gas sampling tube (1m), Drain filter, Filter element, Suction pipe, Suction pipe rubber	
Options	Gas sampling tube, Sampling float, Output connector, Mixer, External alarm unit	

\*1 Under identical conditions.

\*2 Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.



Type approved by ClassNK (NK) No.87T609  
UL classified (Designation required)

**COSMOTECTOR** Automatic Suction Type Digital

Combustible Gas Detector

## XP-331



### Main Specifications

Gas Detected:	Combustible gases and vapors
Detection Principle:	Catalytic combustion
Detection Range:	0-100.0%LEL (0.1%LEL resolution)
Concentration Indication:	4-digit LCD
Alarm Set Value:	20%LEL
Power Source:	Four AA (R6) manganese dry cells

**COSMOTECTOR** Automatic Suction Type Digital

High Concentration Gas Detector

## XP-334



### Main Specifications

Gas Detected:	Carbon dioxide, argon, CFC-12, etc.
Detection Principle:	Thermal conductivity
Detection range:	0-100.0vol% (standard range) (0.1vol% resolution)
Concentration Indication:	4-digit LCD
Alarm Set Value:	50.0vol%
Power Source:	Four AA (R6) manganese dry cells

**COSMOTECTOR** Automatic Suction Type Digital

High Sensitivity Combustible Gas Indicator

## XP-336



### Main Specifications

Gas Detected:	Combustible gases and vapors
Detection Principle:	Catalytic combustion
Detection Range:	0-1000ppm (standard range) up to 1990ppm (service range) (10ppm resolution)
Concentration Indication:	4-digit LCD
Alarm Set Value:	500ppm
Power Source:	Four AA (R6) manganese dry cells

# Combustible Gas Detectors

## Powerful Tools for Detecting Manufactured Gas and LPG

Combustible Gas Detector Automatic Suction Type

### XP-702II Z



#### Features

- Far more sensitive than leak detection liquid. Suitable for detecting small gas leaks.
- Detect two types of gas using a single Gas Detector.
- Extended battery life reduces running costs.

#### Specifications

Type	XP-702II Z-B	XP-702II Z-A	XP-702II Z-F
Gas Detected	One type of combustible gas (e.g., city gas, LPG)	Two types of combustible gas (selectable)	CFC substitutes and combustible gas (selectable)
Detection Principle	Hot wire semiconductor		
Minimum Detectable	City gas, LPG, etc. : $3.3 \times 10^{-4} \text{ Pa} \cdot \text{m}^3/\text{S}$		
Leak Rate	CFCs : Leakage of 12.4 g/year (R-407C) or 11.2 g/year (R-410A)		
Minimum Detectable	City gas, LPG, etc. : 10ppm		
Concentration	CFCs : 30ppm		
Response Time	3s or less (not including CFCs)		
Detection Indication	Intermittent buzzer and flashing lamp		
Power Source	Three AA alkaline dry cells		
Battery Life	Approx. 18 hours (by alkaline dry cells) at constant temperature and humidity		
Explosion-Proof Structure	Sensor: Pressurization, Other parts: Intrinsic safety		
Operating Temperature Range	-20°C to 50°C		
Dimensions	W60 × H140 × D40mm (not including extruding parts)		
Weight	Approx. 260g (not including batteries)		
Accessories	Drain filter, Filter element, Check gas, Standard attachment, Three AA alkaline dry cells, Hand strap		
Options	Probe for testing roadway surfaces, Telescopic gas probe, Earphones, etc.		

\*1 Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.

\*2 The gas probe set is available in four types. Contact us for details.

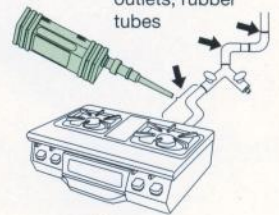
\*3 Contact us for information on the types of gas that can be detected.

#### Example of how XP-702II Z is used.

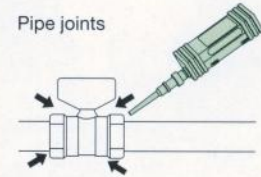
Inspection for leaks from gas pipes



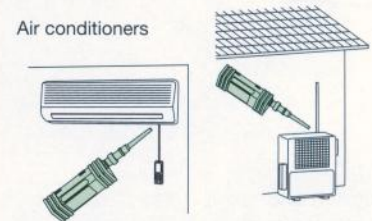
Indoor piping, gas outlets, rubber tubes



Pipe joints



Air conditioners



### Cart Type High Performance Gas Detector

### XP-707A



#### Features

- Reduced cost.
- Detects gas leaks efficiently.
- Smooth detecting operation.
- Sounds an alarm when concentration changes.

#### Specifications

Type	XP-707A
Detection Principle	Methane selective Hot wire semiconductor
Gas Detected	Natural gas
Detection Range	0-100/0-10000ppm (Two ranges)
Alarm Set Value	Any point between 5-100ppm
Response Time	Approx. 7s (90% response)
Alarm Indication	(Gas detection) Buzzer sound changes from intermittent to continuous according to gas concentration. (Sensor wire break) Buzzer sound becomes continuous and the power indicator turns to red. (Low battery) When the voltage drops below standard level, buzzer sound becomes continuous and the power indicator turns off.
Operating Temperature Range	0°C to 40°C
Power Source	Four D (R20) manganese dry cells
Battery Life *1	Approx. 7 hours (manganese dry cells) Approx. 20 hours (alkaline dry cells)
Form	Cart type (Simple drip-proof structure)
Dimensions	W240 × H1110 × D390mm
Weight	Approx. 3.8kg
Accessories	Primary filter (10 pieces), Mat (1 piece), Earphone, D (R20) manganese dry cells

\* Manufactured gas type is also available. (XP-707B)

\*1 Battery life may vary with ambient conditions, conditions of use,



## Functionality and Operability Best Suited for Measuring Oxygen

COSMOS Personal Gas Monitor XX-2000 Series Oxygen Indicator

### XO-2000



(Actual size)

#### Features

- One-button simplicity.
- Ultra compact and light weight of only 69 grams.
- A COSMOS product adapting to the recycling-oriented society. COSMOS will handle inconvenient replacement of batteries and sensors.
- Provides two years continuous operation. \* Without alarming.

#### Specifications

Type	XO-2000
Gas Detected	Oxygen
Detection Principle	Galvanic cell
Sampling Method	Diffusion
Detection Range	0-25.0vol%
Indication Accuracy *1	±0.5vol% (Conforms to JIS T 8201)
Alarm Set Value	19.5 vol%(1st stage) 18.0vol%(2nd stage)
Alarm Indication	Red lamp flashing, intermittent buzzer, and concentration indication
Response Time *2	20s or less (90% response)
Operating Temperature Range	-10°C to 40°C
Power Source	Lithium battery
Battery Life	2 years (at 20°C without alarming)
Explosion-Proof Structure	Ex ia IIC T4X
Dimensions	W65 × H50 × D21mm (excluding protrusions)
Weight	Approx. 69g
Additional Functions	Self-diagnosis, Peak hold, Automatic calibration at 21.0vol%
Accessories	Attachment clip, Strap, Filter

\*1 Under identical conditions.

\*2 Operating at 20±2°C.



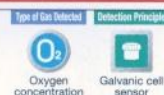
#### Environmentally Friendly COSMOS Gas Monitoring Products

Please return used products. COSMOS will be responsible for disposing their batteries and sensors. The products are reusable with new batteries and sensors.

■ Conforms to JIS T 8201

"Mini" Gas Detector Oxygen Indicator

### XA-912



#### Features

- Provides 2000 hours continuous operation. \* Without alarming.
- Clever digital display.
- Peak hold function.

#### Specifications

Type	XA-912
Gas Detected	Oxygen
Detection Principle	Galvanic cell
Detection Range	0-25.0vol% (0.1vol% resolution)
Indication Accuracy	±0.5vol%
Alarm Set Value *1	Lower limit: 18.0vol% Upper limit: 25.0vol%
Alarm Accuracy	±1.0vol%
Response Time *2	20 s or less (90% response)
Operating Temperature Range	0°C to 40°C
Power Source	Three AA (R6) alkaline dry cells
Battery Life	Approx. 2000 hours continuous
Explosion-Proof Structure	Ex ia IIC T4
Dimensions	W56 × H121 × D32mm
Weight	Approx. 165g (excluding battery)
Options	Drip-proof case, Toss-in case, Pump (P-90), Inspection tool, Earphone

\*1 Consult us if non-standard alarm set value is desired.

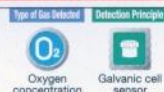


\* "Mini" series are also available for combustible gas, hydrogen sulfide, and carbon monoxide. Please refer

# Oxygen Indicators

## Digital Oxygen Indicators

# XO-326ALA/ALB



**XO-326ALA**

(Cable: 5m with a spool attached to the body)

**XO-326ALB**

(Cable: 1m coiled cord)

Conforms to JIS T 8201

The Ship Equipment Inspection Society of Japan (HK) approved product (Designation required)

### Features

- Excellent functions and operability best suited for monitoring oxygen deficiency.
- Galvanic cell sensor's excellent stability.

### Specifications

Type	XO-326ALA	XO-326ALB
Gas Detected	Oxygen	
Detection Principle	Galvanic cell	
Sampling Method	Diffusion	
Meter Indication	3-digit LCD	
Detection Range	0-40.0vol%	
Indication Accuracy *1	±0.3vol% (±0.7vol% in JIS T 8201)	
Alarm Set Value	18.0vol%	
Alarm Indication	Intermittent buzzer at or below the Alarm Set Value Continuous buzzer on Low battery	
Response Time	20s or less (90% response)	
Power Source	Two AA (R6) manganese dry cells	
Explosion-Proof Structure	Intrinsic safety I3aG4	
Sensor Extension Cable	5m with a spool attached to the body	1m coiled cord
Dimensions	W66 × H170 × D29mm	W66 × H120 × D29mm
Weight	Approx. 300g	Approx. 250g
Accessories	Leather carrying case, Two AA (R6) manganese dry cells	
Options	Sensor extension cable (5m/with a carrying bag)	

\*1 Under identical conditions.

## COSMOTECTOR COSMOTECTOR Digital Oxygen Indicator

# XPO-318



### Features

- Automatic suction type oxygen indicator.
- Convenient for measuring oxygen concentration in containers or where sampling is difficult.

### Specifications

Type	XPO-318 (with alarm function)
Gas Detected	Oxygen
Detection Principle	Galvanic cell
Sampling Method	Automatic suction
Meter Indication	3-digit LCD
Detection Range	0-25.0vol%
Indication Accuracy *1	±0.3vol% (±0.7vol% in JIS T 8201)
Alarm Set Value	18.0vol%
Alarm Indication	Oxygen deficiency alarm: Intermittent buzzer Low battery: BATT. lamp goes off
Operating Temperature Range	0°C to 40°C
Power Source	Four AA (R6) manganese dry cells
Battery Life *2	Approx. 24 continuous hours by alkaline dry cells (without meter illumination or alarming)
Explosion-Proof Structure	Intrinsic safety I2G3
Dimensions	W84 × H190 × D40mm
Weight	Approx. 800g
Additional Functions	Meter illumination
Accessories	Leather carrying case, Four AA (R6) manganese dry cells, Gas sampling tube (1m), Drain filter, Filter element, Suction pipe, Suction pipe rubber
Options	External alarm unit, Gas sampling tube, Output connector

\*1 Under identical conditions.

\*2 Battery life may vary with ambient conditions, conditions of use, storage period.

The Ship Equipment Inspection Society of Japan (HK)

# Toxic Gas Detectors (Carbon Monoxide)

## Accurately Detect Low Concentration Toxic Gases, Using High Sensitivity Sensors

COSMOS Personal Gas Monitor XX-2000 Series Carbon Monoxide Detector

### XC-2000



(Actual size)

#### Features

- One-button simplicity.
- Ultra compact and light weight of only 69 grams.
- A COSMOS product adapting to the recycling-oriented society. COSMOS will handle inconvenient replacement of batteries and sensors.
- Provides two years continuous operation. \* Without alarming.

#### Specifications

Type	XC-2000
Gas Detected	Carbon monoxide
Detection Principle	Controlled potential electrolysis type
Sampling Method	Diffusion
Detection Range	0-300ppm (service range: up to 500ppm)
Indication Accuracy *1	±10%FS (0-150ppm)
Alarm Set Value	50ppm (1st stage), 150ppm (2nd stage)
Alarm indication	Red lamp flashing, intermittent buzzer, and concentration indication
Response Time *2	30s or less (90% response)
Operating Temperature Range	0°C to 40°C
Power Source	Lithium battery
Battery Life	2 years (at 20°C without alarming)
Explosion-Proof Structure	Ex ia IICt4
Dimensions	W65 × H50 × D21mm (excluding protrusions)
Weight	Approx. 69g
Additional Functions	Self-diagnosis, Peak hold, Automatic zero calibration
Accessories	Attachment clip, Strap, Filter

\*1 Under identical conditions.  
\*2 Operating at 20±2°C.



#### Environmentally Friendly COSMOS Gas Monitoring Products

Please return used products. COSMOS will be responsible for disposing their batteries and sensors. The products are reusable with new batteries and sensors.

### Carbon Monoxide Detector/Alarm

### XC-341



#### Features

- Sounds 2-stage alarm at 50ppm (TLV of carbon monoxide) and 150 ppm.
- Pocket-type with large and clear display.

#### Specifications

Type	XC-341
Gas Detected	Carbon monoxide
Detection Principle	Controlled potential electrolysis
Sampling Method	Diffusion
Meter Indication	3-digit LCD
Detection Range	Standard range: 0-300ppm (Service range: 310-1990ppm)
Indication Accuracy *1	Standard range: ±10%±10ppm resolution
Alarm Set Value	50ppm, 150ppm
Alarm indication	Alarm type and indication 50ppm Lamp flashing and intermittent buzzer at long intervals 150ppm Lamp flashing and intermittent buzzer at short intervals Low battery Lamp lighting and continuous buzzer
Response Time	20s or less (90% response)
Operating Temperature Range	-10°C to 40°C
Power Source	Two AA (R6) manganese dry cells
Battery Life *2	200 continuous hours or more by alkaline cells
Dimensions	W66 × H153 × D29mm
Weight	Approx. 230g
Accessories	Leather carrying case, Earphone, Two AA (R6) manganese dry cells
Options	Sampling set, Calibration tool, Tripod with PATLITE

\*1 Under identical conditions.  
\*2 Battery life may vary with ambient conditions, condition of use, storage method, battery.

### COSMOTECTOR Carbon Monoxide Detector

### XP-333H



#### Features

- Automatic suction type.
- Measures the average value.
- Peak hold function.

#### Specifications

Type	XP-333H
Gas Detected	Carbon monoxide
Detection Principle	Controlled potential electrolysis
Sampling Method	Automatic suction
Detection Range	0-300ppm (1ppm resolution)
Indication Accuracy *1	±15ppm±1digit (under identical conditions)
Alarm Set Value	50ppm, 150ppm
Alarm Indication	Gas alarm (intermittent buzzer) Low battery (continuous buzzer)
Concentration Indication	3-digit LCD
Additional Functions	Indication of Average/Peak values and Battery voltage, Automatic zero adjustment
Operating Temperature Range	0°C to 40°C
Power Source	Four AA (R6) alkaline dry cells
Battery Life *2	Approx. 16 hours by alkaline dry cells (without alarming)
Dimensions	W84 × H190 × D40mm
Weight	Approx. 700g
Accessories	Leather carrying case, Four AA (R6) alkaline dry cells, Gas sampling tube, Drain filter, Filter element

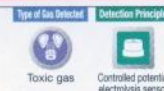
\*1 Under identical conditions.  
\*2 Battery life may vary with ambient conditions, condition of use, storage method, battery.

# Toxic Gas Detectors (Hydrogen Sulfide)

## COSMOS Personal Gas Monitor XX-2000 Series Hydrogen Sulfide Detector

COSMOS Personal Gas Monitor XX-2000 Series Hydrogen Sulfide Detector

### XS-2000



(Actual size)



### Environmentally Friendly COSMOS Gas Monitoring Products

Please return used products. COSMOS will be responsible for disposing their batteries and sensors. The products are reusable with new batteries and sensors.

### Features

- One-button simplicity.
- Ultra compact and light weight of only 69 grams.
- A COSMOS product adapting to the recycling-oriented society. COSMOS will handle inconvenient replacement of batteries and sensors.
- Provides two years continuous operation. \* Without alarming.

### Specifications

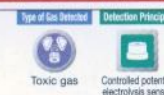
Type	XS-2000
Gas Detected	Hydrogen sulfide
Detection Principle	Controlled potential electrolysis
Sampling Method	Diffusion
Detection Range	0-30ppm (service range: up to 50ppm)
Indication Accuracy *1	±5%FS
Alarm Set Value	10ppm (1st stage), 15ppm (2nd stage)
Alarm Indication	Red lamp flashing, intermittent buzzer, and concentration indication
Response Time *2	30s or less (90% response)
Operating Temperature Range	-10°C to 40°C
Power Source	Lithium battery
Battery Life	2 years (at 20°C without alarming)
Explosion-Proof Structure	Ex ia IIC T4
Dimensions	W65 × H50 × D21mm (excluding protrusions)
Weight	Approx. 69g
Additional Functions	Self-diagnosis, Peak hold, Automatic zero calibration
Accessories	Attachment clip, Strap, Filter

\*1 Under identical conditions.

\*2 Operating at 20±2°C.

**COSMOTECTOR** Hydrogen Sulfide Detector Digital

### XP-335



### Specifications

Type	XP-335
Gas Detected	Hydrogen sulfide
Detection Principle	Controlled potential electrolysis
Sampling Method	Automatic suction
Detection Range	0-30.0ppm (0.1ppm resolution)
Indication Accuracy *1	±1.5ppm±1 digit
Alarm Set Value	10.0ppm, 30.0ppm
Alarm Indication	Gas alarm (intermittent buzzer) Low battery (continuous buzzer)
Concentration Indication	3-digit LCD
Additional Functions	Indication of Average/Peak values and Battery voltage, Automatic zero adjustment
Operating Temperature Range	0°C to 40°C
Power Source	Four AA (R6) alkaline dry cells
Battery Life *2	Approx. 16 hours by alkaline dry cells (without alarming)
Dimensions	W84 × H190 × D40mm
Weight	Approx. 700g
Accessories	Leather carrying case, Four AA (R6) alkaline dry cells, Gas sampling tube, Drain filter, Filter element, Suction pipe

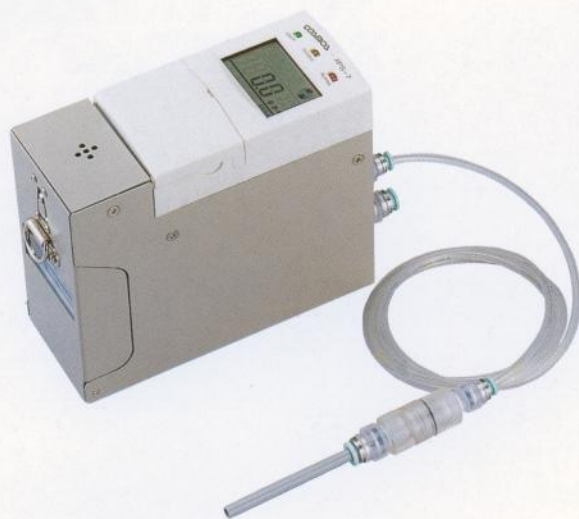
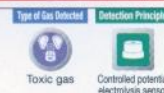
\*1 Under identical conditions.

\*2 Battery life may vary with ambient conditions, conditions of use, storage period.



## Gas Detector for Semiconductor Manufacturing Gases

# XPS-7



### Features

- Detect a range of gases with a single Gas Detector by exchanging the Sensor Unit.
- Cassette-type Sensor Units eliminate the need for Gas Detector adjustment.

### Specifications

Type	XPS-7
Detection Principle	Controlled potential electrolysis
Gas Detected	Semiconductor manufacturing gases
Gas Sampling Method	Pump suction
Detection Range	Depends on the specifications
Resolution	1/100 of full scale
Indication Accuracy	±10% of full scale
Alarm Mode	Two-level alarm
Alarm Indication	Intermittent buzzer, flashing lamp
Response Time	60s or less (60% response)
Operating Temperature Range	0°C to 40°C
Power Source	Four AA alkaline dry cells (*2) or an AC adaptor
Battery Life (*2)	Up to 12 continuous hours (by alkaline dry cell at 20°C without alarms)
Dimensions	W62 × H150 × D128mm (not including extruding parts)
Weight	Approx. 1.3kg
Accessories	Shoulder strap, Four AA alkaline dry cells, Two filter elements
Options	AC adaptor (100 VAC/6 VDC), Sensor power block, Log data collection kit

\*1 Under identical measurement conditions.

\*2. Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.

### ● List of Detected Gases

Type	Gas	Full Scale	Type	Gas	Full Scale	Type	Gas	Full Scale
XDS-7NH	NH <sub>3</sub>	100ppm	XDS-7GH	GeH <sub>4</sub>	1ppm	XDS-7HS	H <sub>2</sub> S	50ppm
XDS-7SH	SiH <sub>4</sub>	25ppm	XDS-7CL	Cl <sub>2</sub>	5ppm	XDS-7CO	CO	250ppm
XDS-7DC	SiH <sub>2</sub> Cl <sub>2</sub>	25ppm	XDS-7CF	ClF <sub>3</sub>	1ppm	XDS-7DS	Si <sub>2</sub> H <sub>2</sub>	25ppm
XDS-7AS	AsH <sub>3</sub>	250ppb	XDS-7HC	HCl	25ppm	XDS-7F <sub>2</sub>	F <sub>2</sub>	5ppm
XDS-7PH	PH <sub>3</sub>	1ppm	XDS-7HF	HF	10ppm	XDS-7O <sub>2</sub>	O <sub>2</sub>	1ppm
XDS-7BH	B <sub>2</sub> H <sub>6</sub>	500ppb	XDS-7HB	HBr	10ppm			
XDS-7SE	H <sub>2</sub> Se	250ppb	XDS-7NO	NO	100ppm			

Contact us for information on gases not included in the table.

## Gas Leak Detector for Semiconductor Manufacturing Gases

# XP-703D



### Features

- Best suited for detecting trace leaks of semiconductor manufacturing gases.
- Detects gas leaks and alerts you by lamp and buzzer.









### Specifications

Type	XP-703D
Detection Principle	Hot wire semiconductor
Gas Detected	Semiconductor manufacturing gases (arsine, phosphine, diborane, silane, etc.)
	arsine      phosphine      diborane      silane      hydrogen
	AsH <sub>3</sub> PH <sub>3</sub> B <sub>2</sub> H <sub>6</sub> SiH <sub>4</sub> H <sub>2</sub>
Minimum Detectable Leak rate	1.0×10 <sup>-7</sup> 1.5×10 <sup>-7</sup> 0.5×10 <sup>-7</sup> 2.5×10 <sup>-7</sup> 5×10 <sup>-7</sup> Pa · m <sup>3</sup> /s
Minimum Detectable Concentration	0.2      0.3      0.1      0.5      1.0ppm
Response Time	10s
Detection Indication	Intermittent buzzer and flashing lamp
Power Source *1	Four AA (R6) manganese dry cells
Battery Life	Approx. 9 hours by alkaline dry cells (Approx. 3 hours by manganese dry cells)
Operating Temperature Range	0°C to 40°C
Dimensions	W68 × H155 × D32mm
Weight	Approx. 400g
Accessories	Leather carrying case, Drain filter, Filter element, Check gas, Standard attachment, Four AA (R6) manganese dry cells
Options	Battery charger (NiCd only), Earphone

# Multi-Gas Detectors

Oxygen/Combustible Gas/Hydrogen Sulfide/Carbon Monoxide

## "Mini" Multi-Gas Detector XA-900 Series

Type of Gas Detected		Detection Principle		
	Combustible gas			
	Oxygen concentration			
	Toxic gas			



Good Design Product  
Selected by METI Japan

### Features

- A range of gas variations are possible by combining detected gases. Fifteen combination patterns are possible.
- Long service life has been achieved through greatly reduced power requirements. No need to change battery for 48 hours when using combinations with combustible gases, or for 2,000 hours when using combinations without combustible gases.

### Options

#### Pump Unit

- Used as a suction type when connected to "Mini" Multi-gas Detector XA-900 series (for one gas and two gases only).

#### Throw-in Set

- Can be used to detect gas in pits or manholes (for one gas and two gases only).

### Specifications

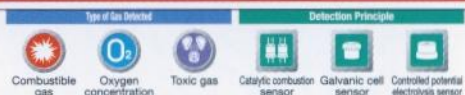
Gas Detected	Combustible gas (methane or isobutane)	Oxygen	Hydrogen sulfide	Carbon monoxide
Detection Principle	Catalytic combustion	Galvanic cell	Controlled potential electrolysis	Controlled potential electrolysis
Detection Range	0-100%LEL (1%LEL resolution)	0-25.0vol% (0.1vol% resolution)	0-30.0ppm (0.5ppm resolution)	0-300ppm (5ppm resolution)
Indication Accuracy *1	±10%FS	±0.5vol%	±5%FS	±10%FS (1-150ppm)
Alarm Set Value	1st stage: 10%LEL 2nd stage: 25%LEL	Lower limit: 18.0vol% Upper limit: 25.0vol%	1st stage: 10.0ppm 2nd stage: 20.0ppm	1st stage: 50ppm 2nd stage: 150ppm
Alarm Accuracy *1	±25% of Set Value	±1.0vol%	±30% of Set Value	±30% of Set Value
Response Time	30s or less (90% response)	20s or less (90% response)	30s or less (90% response)	30s or less (90% response)
Concentration Indication	3-digit LCD (When two gases are selected, the concentrations are displayed alternately in every five seconds.)			
Alarm Indication	1st stage: Intermittent buzzer and LCD "AL" part flashing 2nd stage: Continuous buzzer and LCD "AL" part lighting			
Power Source	Three AA (R6) alkaline dry cells			
Battery Life *2	Combustible gas combined : Approx. 48 hours (by alkaline cells) Combustible gas NOT combined : Approx. 2000 hours (by alkaline cells)		Battery remaining indication : 4-level display in LCD "BATT." part Low battery : Intermittent buzzer and LCD "BATT." part flashing	
Additional Functions	Gas concentration peak hold function, Auto-zero function (except oxygen), Earphone terminal			
Explosion-Proof Structure	Ex ia IIC T4 (with combustible gas)		Ex ia IIC T4 (without combustible gas)	
Operating Temperature Range	-10°C to 40°C			
Dimensions/Weight	W56 × H121 × D32mm (excluding protrusions) Approx. 165g (excluding battery)			

### "Mini" Type List

Gas Detected	Diffusion type	Suction type
Combustible gas	<b>XA-911</b>	XP-911
Oxygen	<b>XA-912</b>	XP-912
Hydrogen sulfide	<b>XA-913H</b>	XP-913H
Carbon monoxide	<b>XA-913C</b>	XP-913C
Combustible gas/Oxygen	<b>XA-927</b>	XP-927
Combustible gas/Hydrogen sulfide	<b>XA-924H</b>	XP-924H
Combustible gas/Carbon monoxide	<b>XA-924C</b>	XP-924C
Oxygen/Hydrogen sulfide	<b>XA-925H</b>	XP-925H
Oxygen/Carbon monoxide	<b>XA-925C</b>	XP-925C
Hydrogen sulfide/Carbon monoxide	<b>XA-926</b>	XP-926
Combustible gas/Oxygen/Hydrogen sulfide	XA-936H	—
Combustible gas/Oxygen/Carbon monoxide	XA-936C	—
Combustible gas/Hydrogen sulfide/Carbon monoxide	XA-937	—
Oxygen/Hydrogen sulfide/Carbon monoxide	XA-938	—
Combustible gas/Oxygen/Hydrogen sulfide/Carbon monoxide	XA-948	—

Types printed in bold characters have an explosion-proof structure.

# XP-302M



Ordering information  
 Model: XP-302M-  
 Specification code:   
 Choose one from A - C  
 A 4 gases (Combustible, Oxygen, Hydrogen sulfide, Carbon monoxide)  
 B 3 gases (Combustible, Oxygen, Hydrogen sulfide)  
 C 3 gases (Combustible, Oxygen, Carbon monoxide)  
 ※ Combustible: Methane

## Features

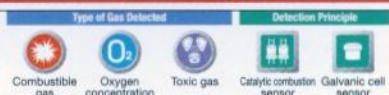
- Compact and Lightweight
- Large, bright display with auto-backlight
- 4 gas simultaneous gas display

## Specifications

Type	XP-302M			
Gases detected	Combustible Gas (Methane)	Oxygen	Hydrogen Sulfide	Carbon Monoxide
Detection Principle	Catalytic combustion	Galvanic cell	Controlled potential electrolysis	Controlled potential electrolysis
Gas sampling method	Sample-draw by internal electric sampling pump			
Measuring range (Service range)	0-100%LEL	0-25.0vol% (25.1-50.0vol%)	0-30.0ppm (30.1-150ppm)	0-150ppm (151-300ppm)
Accuracy (Repeatability) **	< ±5%LEL	< ±0.5vol%	< ±1.5ppm	< ±10ppm to 100ppm < ±15ppm to 150ppm
Alarm set points	Level 1: 10%LEL Level 2: 30%LEL	19.5vol% 18.0vol%	10.0ppm 15.0ppm	50ppm 100ppm
Response time **	with a 1m sampling hose: < 25 sec. with an 8m sampling hose: < 40 sec.	< 20 sec.	< 30 sec.	< 30 sec.
Operating temperature & humidity	-10°C to 40°C, 95% RH (non-condensing)			
Battery type	4 x AA Alkaline			
Display	A large LCD with backlight provides simultaneous and continuous readout of all gases being monitored. 3 user-selectable display modes (standard display / graphic display / English display).			
Alarms	90+ dB buzzer, flashing LCD and warning lamp			
Operating hours **	8+ hours on 4 x AA alkaline cells (20°C, no alarm, no backlight and datalogging OFF)			
Safety design	Intrinsically safe design Ex ibd II BT3			
Functions	• Automatic backlight (in dim light or alarm condition) • Zero adjustment • Peak hold • Buzzer control • Low flow alarm • Datalogging function (up to 150 hours) • Buzzer stop • Alarm test • Display of remaining battery level, current time and temperature			
Dimensions	Approx. W152 x H152 x D42 mm			
Weight	Approx. 870g			
Standard accessories	XP-302M-□-1*	1m sampling hose (with drain filter and probe) and soft case		
	XP-302M-□-2*	8m sampling hose (with float), soft case and carrying case		
	XP-302M-□-3*	Aluminum case**, 8m sampling hose (with float), an external alarm (with 8m cable) and AC adaptor		
	XP-302M-□-4*	Aluminum case**, 8m sampling hose with hose reel (with float), an external alarm with a cable reel (with 8m cable) and AC adaptor		
Optional accessories **	• Log data download software (for Windows 2000 or XP) • 20m sampling hose for float • 30m sampling hose for float			

\* 1 Under identical conditions \* 2 T90 \* 3 It depends on the environmental conditions, service conditions, storage period, and battery manufacturers  
 \* 4 Non explosion-proof type \* 5 Please contact our dealers / distributors for available accessories

# XPO-317



## Specifications

is for XPO-317H (high sensitivity type)

Type	XPD-317		
Gas Detected	Combustible gas	Oxygen	Toxic gas
Detection Principle	Methane and Combustible gases in general	Oxygen in the atmosphere	Carbon monoxide or Hydrogen sulfide
	Catalytic combustion	Galvanic cell	Reagent discoloration (Direct reading gas detector tube)
Sampling Method	Automatic suction		
Detection Range	0-100%LEL	0-0.1vol%	0-25.0vol%
Indication Accuracy (under identical conditions)	±5%FS	±10%FS	±0.3vol% (±0.7vol% in JIS T 8201)
Alarm Set Value	20%LEL	0.05vol%	18vol%
Alarm Indication	Lamp flashing and intermittent buzzer at long intervals	Lamp flashing and intermittent buzzer at short intervals	---
Operating Humidity Range	1-2 atm (21% O2 calibration required for pressure at site of measurement)		
Operating Temperature Range	-10°C to 40°C		
Power Source	Four AA (R6) manganese dry cells		
Battery Life *2	7 continuous hours or more by alkaline dry cells (without alarming)		
Explosion-Proof Structure	Intrinsic safety/Flameproof id2G3		
Dimensions	W84 x H190 x D40mm		
Weight	Approx. 850g		
Additional Functions	1. Meter illumination 2. Low battery alarm	3. Distinguishable alarm between combustible gas and oxygen deficiency 4. Detector tube sampling completion alarm	---
Accessories	Leather carrying case, Four AA (R6) manganese dry cells, Gas sampling tube (1m), Drain filter, Filter element, CO detector tube (10 pieces)		

\*1 CO : 0/50/100/300/500ppm (graded) \* Standard type comes with a CO detection tube.  
 H2S : 0/10/20/40/60ppm (graded) Please designate as for H2S.

\*2 Battery life may vary with ambient conditions, conditions of use, storage period

# Odor Level Indicators etc.

## Serve Diverse Purposes with Wide Variety of Sensors

Portable Odor Level Indicator

# XP-329/329S/329N

(For general purpose) (For hydrogen sulfide odor) (For ammonia odor)

Type of Gas Detected



Odor



XP-329  
(For general purpose)

### Features

- Instant digital display of odor intensity.

### Applications

- Performance check on deodorizing apparatus and air cleaners.
- Measuring smells of factory exhaust, waste water, and drainage.
- Quality control of foods and spices.

### Specifications

Type	XP-329	XP-329S	XP-329N
Substance Measured	Various odors, odor components	Hydrogen sulfide odor in the main	Ammonia odor in the main
Detection Principle	Stannic oxide-based high sensitivity hot wire semiconductor sensor	Zinc oxide-based super sensitivity thin film semiconductor sensor	Stannic oxide-based super sensitivity thick film semiconductor sensor
Sampling Method	Automatic suction by micro air pump		
Display	LCD digital (0-2000) with Peak hold function		
Power Source *1	Four AA (R6) alkaline dry cells or AC adaptor		
Battery Life *2	Approx. 10 continuous hours (by alkaline cells) Low battery alarm function		
External Output Terminal	Recorder output (0-200mVDC)		
Operating Temperature Range	0°C to 40°C		
Dimensions	W84 × H190 × D40mm		
Weight	Approx. 550g		
Accessories	Leather carrying case, AC adaptor, Suction attachment, External output connector, Filter element, Suction attachment without filter, Drain filter, Rubber tube cap, Teflon pipe, Four AA (R6) alkaline dry cells		
Options	Recorder, Tripod, Switch cock, Activated carbon filter (with case), Sample bottle, Odor sampling probe for flat surface, Sampling pump, Odor bag, Teflon tube (1m)		

\*1 Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.

# Flue Gas Detectors

Provide Maximum Convenience of Operation for Measuring CO or Combustion Efficiency of Combustion Appliances

**COSMOTECTOR** Digital Oxygen Indicator for Combustion Control

# XPO-318-E

Type of Gas Detected



Oxygen concentration

Detection Principle



Galvanic cell sensor



### Features

- Suitable for measuring concentration of oxygen in the flue gas of boilers etc.

### Specifications

Type	XPO-318-E
Gas Detected	Oxygen in the flue gas
Detection Principle	Galvanic cell
Sampling Method	Automatic suction
Detection Range	0-25.0vol%
Indication Accuracy *1	±0.3vol% of the reading
Response Time	15s (90% response)
Operating Temperature Range	-5°C to 40°C
Power Source	Four AA (R6) manganese dry cells
Battery Life *2	Approx. 24 continuous hours by alkaline dry cells
Explosion-Proof Structure	Intrinsic safety I2G3
Dimensions	W84 × H190 × D40mm
Weight	Approx. 800 g
Accessories	Cooling drain filter set, Filter element, Four AA (R6) manganese dry cells, Suction pipe, Gas sampling tube (1m), Leather carrying case

\*1 Under identical conditions.

\*2 Battery life may vary with ambient conditions, conditions of use, storage period,

## Detect Formaldehyde and VOCs with Ease

Portable and Simplified Formaldehyde Detector

### FORMTECTOR XP-308B



#### Considerations for Use

- Measured value can be influenced if aldehyde group other than formaldehyde, like acetaldehyde, coexists.
- Cigarette smoke or alcohol like liquor will cause measurement errors.
- Sudden change in environment, such as temperature and humidity, will cause measurement errors.

#### Features

- No need to replace reagents for each measurement.
- Select either mg/m<sup>3</sup> or ppm as the displayed measurement mode for the measurement time.
- Select either the 30-min or 10-min measurement mode for the measurement time.
- Fully automatic operation simply by pushing operation buttons at the site of measurement.
- Random access to measurement data after measurement (up to 32 values).
- Reduced influence of VOCs through the use of DNPH filter.

#### Applications

- Indoor air control.
- Housing material control.
- Checking remodeling byproducts.

#### Specifications

Type	XP-308B
Substance Detected	Formaldehyde
Detection Principle	Controlled potential electrolysis sensor (Influence of VOCs reduced by DNPH filter.)
Detection Range	0.01 to 0.38mg/m <sup>3</sup> (Service range: 0.39 to 3.00mg/m <sup>3</sup> ) 0.01 to 0.30ppm (Service range: 0.31 to 3.00ppm)
Sampling Method	Automatic suction by micro air pump
Measurement Time	30min/10min measurement mode (selectable)
Power Source	Six C dry cells or AC adaptor (9VDC)
Battery Life	30-min measurement mode : Approx. 50 measurement operations (by manganese dry cells) (10-min measurement mode : Approx. 100 measurement operations)
Filter Life	30-min measurement mode : 50 measurement operations (10-min measurement mode : 100 measurement operations)
Operating Temperature Range	5°C to 40°C
Display	Digital numbers, Message, Bar graph
Dimensions	W175 × H140 × D86mm
Weight	Approx. 2.5kg
Accessories	Three DNPH Filters, Six C manganese dry cells, Leather carrying case, Sampling tube, Ten filter elements, Tweezers
Options	AC adaptor, External output cable, Data reception software

\*1 Battery life may vary with storage conditions, conditions of use, storage period, battery manufacturers, etc.

\*2 These values are for an average formaldehyde concentration per measurement of 0.01mg/m<sup>3</sup>. The battery life will be shortened at higher concentrations.

Portable TVOC Detector

### XP-339V



#### Considerations for Use

- This detector provides a readout with "no unit," indicating relative intensity of TVOC. It does not directly measure and indicate the "TVOC value," an interim target set by Ministry of Health, Labour and

#### Features

- Detects VOCs totally.
- Measures just by turning a switch.
- Quick measurement in 30 seconds.
- Peak hold function.

\* VOCs stand for Volatile Organic Compounds included in building materials, paints, wallpaper, heat insulating materials, and adhesives used for walls, ceilings, and floors.

#### Applications

- When purchasing housing materials.
- At the delivery of the house.
- Sales promotion of housing.
- Checking out remodeling byproducts.

#### Specifications

Type	XP-339V
Substance Detected	Volatile Organic Compounds
Detection Principle	Super sensitivity hot wire semiconductor
Sampling Method	Automatic suction by micro air pump
Response Time	30s or less (90% response)
Power Source	Four AA (R6) alkaline dry cells or AC adaptor
Battery Life *1	Approx. 8 continuous hours (by alkaline cells) Low battery alarm function
Operating Temperature Range	0°C to 40°C
Display	Digital (0-2000), Peak hold function
Dimensions	W84 × H190 × D40mm
Weight	Approx. 550g
Accessories	AC adaptor, Four AA (R6) alkaline dry cells, Filter element, Activated carbon filter (with case), Suction attachment, Leather carrying case, Suction attachment without filter, Drain filter, Rubber tube cap, Teflon pipe

\*1 Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.

## Ozone Detector

# AET-030P

Type of Gas Detected	Detection Principle
Ozone	Thin film semiconductor sensor



### Features

- **Best suited for measurement in environmental management**  
The minimum detection limit is 0.01ppm.
- **User friendly**  
Incorporates Microprocessor-controlled self-diagnostic function.
- **Simple operation**  
Anyone can use it by just pushing a switch.
- **Quick measurement**  
A built-in micro pump enables the operator to measure ozone concentration just by bringing a measured object near the suction port.
- **Compact and lightweight**  
The light weight of approx. 500g and the small size of W84 × H190 × D40mm fits in the palm and enables the operator to measure with one hand.

### Specifications

Type	AET-030P
Detection Principle	Thin film semiconductor sensor
Detection Range	0.01-1ppm (Service range: 0-9.5ppm)
Resolution	0.01ppm (excluding the service range)
Indication Accuracy	±30% (from 5°C to 30°C of environmental temperature)
Warm-up Time	30min. or less
Response Time	3min. or less after a warm-up (90% response)
Recorder Output	Analog 0-1V/0-1ppm (excluding the service range)
Operating Environment	Temperature: 0°C to 40°C Humidity: 10-80%RH
Display	Digital display (Two decimal places)
Dimensions	W84 × H240 × D40mm
Weight	Approx. 500g
Power Source	2-way power source: ● Four AA (R6) alkaline dry cells (approx. 5 hours) ● Exclusive AC adaptor
Additional Functions	● Auto-zero function ● Self-diagnostic function ● End purge function

Note: This product is not a concentration indicator but a leak detector.  
Figures may vary with conditions of use.

## HCFC/HFC Detector

# XP-704

Type of Gas Detected	Detection Principle
CFC	Hot wire semiconductor sensor



### Features

- **Newly developed low-power hot wire semiconductor sensor for HCFCs and HFCs realized super-sensitive detection.**
- **Compact, lightweight, and easy to use!**  
Furthermore, it's automatic suction type.
- **Detection indicated in two ways - lamp and buzzer.**
- **Far more sensitive than leak detection liquid (soapy water etc.), and easier to use.**

### Specifications

Type	XP-704
Detection Principle	Hot wire semiconductor
Gas Detected	R-22, R-123, R-23, R-32, R-134a, R-142b, R-404A, R-407A, R-407C, R-407E, R-410A, R-507A, R-290, R-600a, R-707 * Please specify gas to be detected.
Minimum Detectable Concentration	5ppm
Minimum Detectable Leak rate	2.1 × 10 <sup>-6</sup> Pa · m <sup>3</sup> /s 2.8g/year leak
Response Time	10s or less
Detection Indication	Intermittent buzzer and flashing lamp
Power Source	Four AA (R6) dry cells
Battery Life *1	Approx. 3 continuous hours (by manganese dry cells) Approx. 9 continuous hours (by alkaline dry cells)
Low battery	BATT. Lamp goes off
Operating Temperature Range	0°C to 40°C
Dimensions	W68 × H155 × D32mm
Weight	Approx. 400g
Accessories	Gas probe set, Drain filter, Check gas, Filter element, Leather carrying case, Four AA (R6) manganese dry cells
Options	Battery charger (NiCd only), Earphone

\*1 Battery life may vary with ambient conditions, conditions of use, storage period, battery manufacturers, etc.

## Portable Grease Steel Dust Meter

# SDM-72

Type of Gas Detected
Steel dust concentration



### Features

- **Enables diagnosis of the wear condition of bearings before an increase in vibration.**
- **Simple operation - simply place the grease sample.**

### Applications

- **Simple diagnosis and trend monitoring of the wear condition of greased bearings, gears, etc.**
- **Pre-diagnosis for Ferroglyph method and SOAP method.**

### Specifications

Type	SDM-72
Measurement Principle	Magnetic balance type electromagnetic induction method
Substance Measured	Steel dust concentration in grease
Measurement Range	0-5.00wt%
Resolution	0.001wt%
Zero Adjustment	Automatic adjustment
Amount of Sample	Approx. 0.8ml
Power Source	Four AA (R6) alkaline dry cells or AC adaptor
Battery Life *1	Approx. 30 continuous hours by alkaline cells
Operating Temperature Range	0°C to 40°C
Dimensions	W84 × H190 × D40mm
Weight	Approx. 500g (including battery)
Accessories	Carrying case, Grease sampling spatula, Grease sample case (10 pieces), Four AA (R6) alkaline dry cells
Options	AC adaptor

\*1 Battery life may vary with ambient conditions, conditions of use, storage period, battery

## Oil Steel Dust Checker

# SDM-73

Type of Gas Detected
Steel dust concentration



### Features

- **Enables simple diagnosis and trend monitoring of the wear condition of bearings, gears, cylinders, etc. by checking steel dust concentration in lubricating oil.**
- **Simple operation - simply place the oil sample.**

### Applications

- **Simple diagnosis of the wear condition of bearings, gears, cylinders, etc. in rotational equipment.**
- **Monitoring steel dust contamination in hydraulic oil and grinding oil.**

### Specifications

Type	SDM-73
Measurement Principle	Magnetic balance type electromagnetic induction method
Substance Measured	Steel dust concentration in lubricating oil
Measurement Range	0-19999wt ppm
Resolution	1wt ppm
Zero Adjustment	Automatic adjustment
Amount of Sample	1.5ml
Power Source	Four AA (R6) alkaline dry cells or AC adaptor
Battery Life *1	Approx. 30 continuous hours by alkaline cells
Operating Temperature Range	0°C to 40°C
Dimensions	W84 × H190 × D40mm
Weight	Approx. 500g (including battery)
Accessories	Carrying case, 2ml syringe (5 pieces), Oil sampling nozzle (2 pieces), Syringe holder, Four AA (R6) alkaline dry cells
Options	AC adaptor

\*1 Battery life may vary with ambient conditions, conditions of use, storage period, battery

## COSMOS Gas Sensors

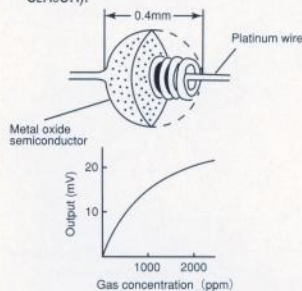
### Hot Wire Semiconductor Sensor (CH)



Detects resistance change across both edges of platinum wire as a result of variation in thermal and electrical conductivity due to a gas absorbed on the surface of a semiconductor.

#### ■ Features

- ① Sensitive and large variation in output at low gas concentration.
- ② Less initial stabilization time, more compact, more energy saving as compared with a semiconductor sensor.
- ③ Long service life, high stability, and high durability.
- ④ Selective sensitivity to gases (H<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>5</sub>OH).



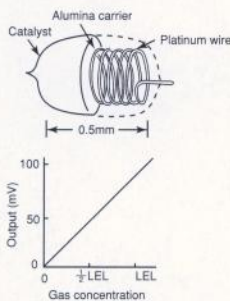
### Catalytic Combustion Sensor (CS)



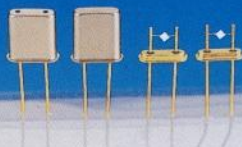
Detects the temperature rise (change in resistance) of the platinum coil by oxidizing a gas in contact with the surface of a catalyst.

#### ■ Features

- ① Output - gas concentration is linear to LEL.
- ② High accuracy, superior repeatability.
- ③ Immune to surrounding temperature and humidity.
- ④ Power saving type (CSS) consumes only 1/4 of our conventional contact combustion sensor.



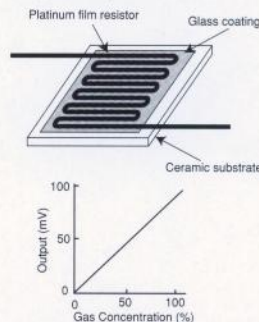
### Thermal Conductivity Sensor (CT)



Detects temperature variation of the heat source (platinum coil) by the gas heat conduction differential.

#### ■ Features

- ① Output - gas concentration is linear up to 100vol%, suitable for high concentration gas measurements.
- ② Employment of thermal conductivity, a physical property of a gas, makes measurement free from catalyst deterioration or poison, and ensures economy.
- ③ Catalyst not required.



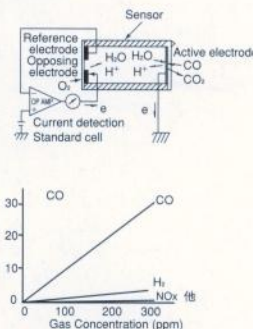
### Controlled Potential Electrolysis Sensor (COS)



Detects gas concentrations through electrolytic current which results from gas electrolysis.

#### ■ Features

- ① Extremely sensitive - 1 ppm of CO detectable.
- ② Selective sensitivity to gases, most suited to detection of toxic gas.
- ③ Superior linearity at low concentration, suitable to analytical applications.
- ④ High immunity to interfering gas.



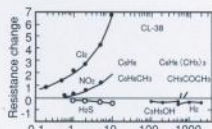
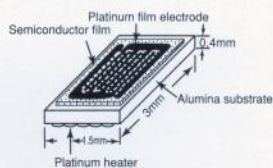
### Thin Film Semiconductor Sensor (AET)



Detects electric conductivity variation due to a gas absorbed on a thin film semiconductor having the thickness of 100nm.

#### ■ Features

- ① More sensitive than the semiconductor sensor.
- ② Selective to gases (Cl<sub>2</sub>, H<sub>2</sub>S, EO, etc.)
- ③ Self-cleaning effect on the surface ensuring high repeatability and long-term stability due to high working temperature.



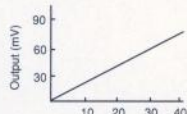
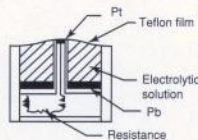
### Galvanic Cell Sensor (GS)



Detects reactive current resulting from using oxygen as an active material for the battery cell which consists of electrodes Pt-Pb, diaphragm, and electrolytic solution.

#### ■ Features

- ① Requires no external power supply.
- ② Easy to use, inexpensive, wide marketability.
- ③ Output is proportional to oxygen concentration linear up to 40vol%.



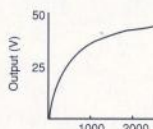
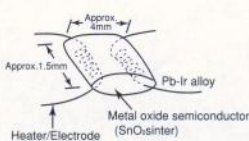
### Semiconductor Sensor (CZ)



Detects variation in electric conductivity caused by a gas absorbed on the surface of a metal oxide semiconductor.

#### ■ Features

- ① High sensitivity, large output variation at low concentration.
- ② Long service life, long-term stability.
- ③ Superior to catalytic combustion sensors in toxic gas or severe atmospheric conditions.



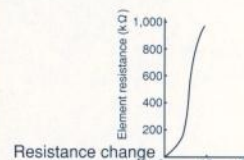
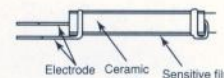
### Orgastor Sensor (OR)



Detects variation in resistance representing swelling property of a carbon resistor, especially binding polymer, with respect to oil or organic solvent vapor.

#### ■ Features

- ① Works at normal temperatures with high response speed.
- ② Compact, lightweight, excellent to withstand mechanical shocks.
- ③ Selective detection for oil or organic solvent vapor by choosing binding agent.



We received ISO 9001 certification for our design, manufacturing, sales, and service operations at our head office, branches and factories.



Registered No. : JQ 064C

We obtained the ISO 14001 International Environmental Management System certification at head office.



### Type of Gas Detected

-  Combustible gas
-  Toxic gas
-  Oxygen concentration
-  CFC
-  Ozone
-  Oil
-  Odor
-  Steel dust concentration
-  Indoor air pollutant
-  Others

### Detection Principle

-  Hot wire semiconductor sensor
-  Catalytic combustion sensor
-  Thin film semiconductor sensor
-  Semiconductor sensor
-  Thermal conductivity sensor
-  Controlled potential electrolysis sensor
-  Galvanic cell sensor
-  Orgastor sensor
-  Electrolysis sensor with gel electrolyte
-  Infrared sensor



#### Safety warning

- Read the operating instructions thoroughly before use. Always operate in accordance with the instructions.
- Be sure to choose the sensor designed to detect the required type of gas. Use of the wrong sensor type could cause an accident.

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