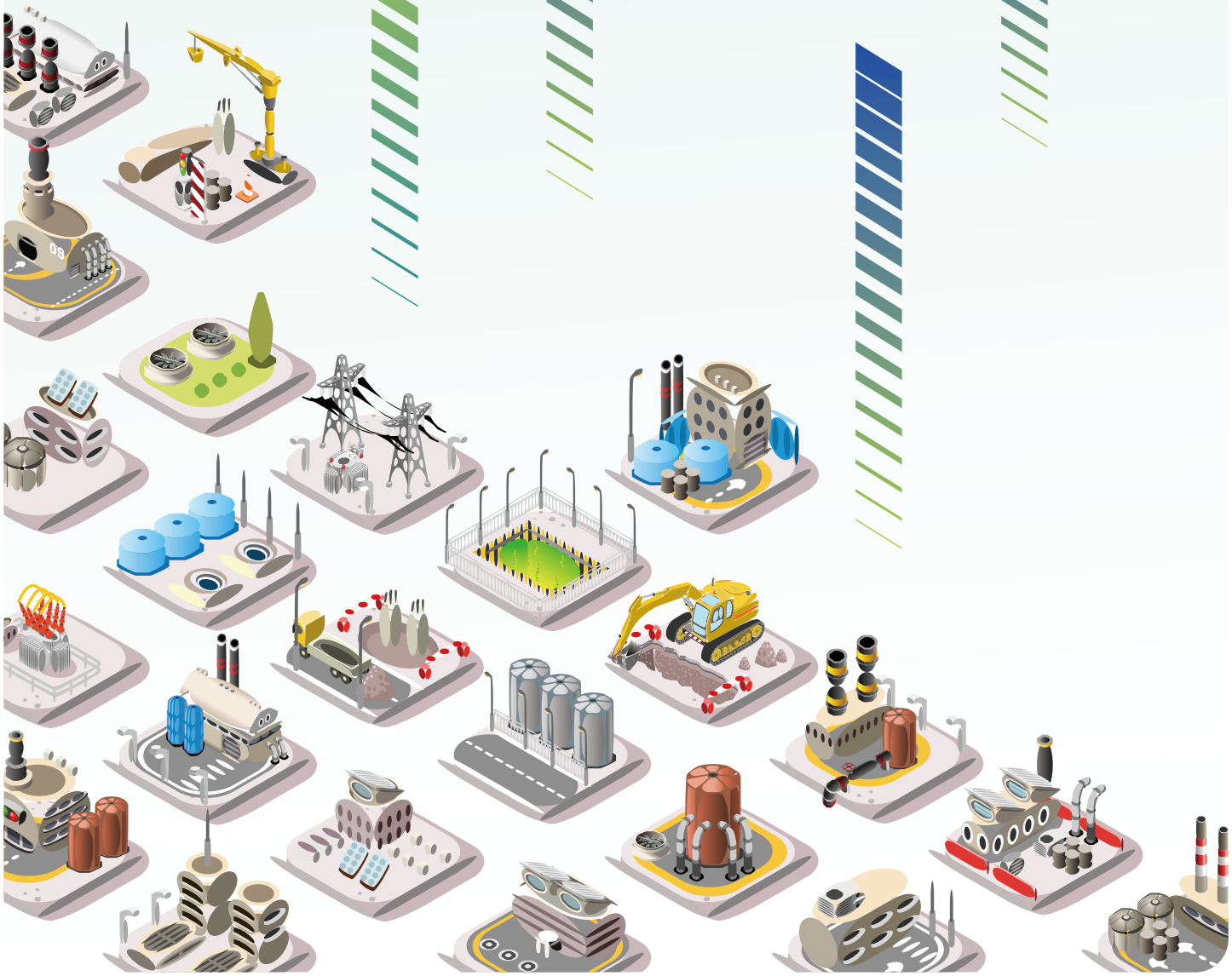
COSMOS

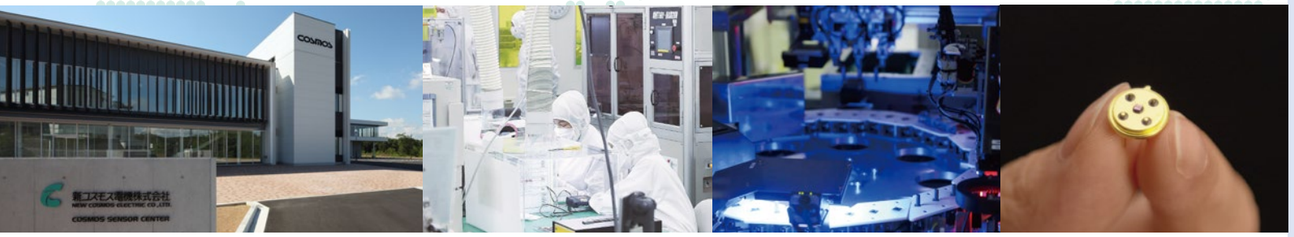
Portable Gas Detectors
Gas Detection and Alarm Systems

PRODUCT GUIDE



Protecting Lives with Our Sensor Technology.

New Cosmos Electric is the only manufacturer in Japan that handles gas alarms for both household and industrial use.



"Eliminating gas accidents around the world" is at the heart of everything we do

NEW COSMOS ELECTRIC CO., LTD. is a Japanese company that researches, develops, manufactures, sells, and maintains a wide range of gas safety products such as residential gas alarms, residential fire alarms, fixed gas detection and alarm systems for industrial use, portable gas detectors, odor level indicators, air quality detectors, etc. By handling everything from research and development to maintenance in-house, we are able to custom tailor our products to meet customer needs.

Portable Gas Detectors

Gas Detection and Alarm Systems

Odor Sensors

Residential Gas Alarms

Residential Fire Alarms

Air Quality Detection

Website
www.new-cosmos.co.jp/en

LinkedIn
@new cosmos electric co., ltd.

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PORTABLE GAS DETECTOR
XP-3000II SERIES

Features

- **Convert to 32 different types of gas**
  *Only for XP-3310II, XP-3318II, XP-3360II-W and XP-3368II-W units, in which GAS1 (target gas) is set to methane, isobutane or propane.
  *Converted gas concentration is only an estimate and not guaranteed.

Convertible Gas List

Acetone	Cyclohexane	Ethyl acetate	n-Hexane	Methanol	Propane
Toluene	Acetylene	Cyclopentane	Ethylbenzene	Hydrogen	Methylcyclohexane
Propyl acetate	o-Xylene	Benzene	DME	Ethylene	IPA
MIBK	Propylene	m-Xylene	n-Butane	Ethane	Gasoline
MEK	n-Pentane	THF	p-Xylene	i-Butane	Ethanol
n-Heptane	Methane				

- **Waterproof IP67**
- **Measures in "%LEL" and "ppm" (for XP-3360II-W and XP-3368II-W)**

Certifications
• CE marking • IECEx • ATEX
• Japan Ex (JPEx) • UL

Combustible Gas O_2 Oxygen Others

Lineup

Target Gas \ Model		XP-3310II	XP-3360II	XP-3360II-W	XP-3340II	XP-3318II	XP-3368II	XP-3368II-W	XP-3380II (-E)
Combustible Gas	%LEL	○		○		○		○	
	ppm		○	○			○	○	
	Vol%				○				
Oxygen						○	○	○	○

Specifications

Sampling Method	Internal pump
Power Source	·4 x AA Alkaline batteries, Approx. 15 hours ·Rechargeable nickel metal hydride batteries, Approx. 15 hours
Operating Temperature & Humidity	-20 to +50°C 95 %RH. No condensation
Certifications	ATEX: Ex II 1G Ex ia da IIC T4 Ga *1 IECEx: Ex ia da IIC T4 Ga *1 CE (ATEX, EMC, RoHS, RE and LVD directives) UL: Class 1, Division 1, Groups A, B, C and D, Class 1, Zone 0 AEx da ia IIC Ga (Other than XP-3380II)
IP Rating	IP67
Dimensions	W91 × H164 × D44 mm
Weight	Approx. 460 g
Accessories	Gas sampling tube (1 m), Shoulder strap, Drain filter, Filter element, 4 x AA Alkaline batteries (or 4 x Rechargeable nickel metal hydride AA batteries), 3 x Screen protector films

Model	Multi Gas Detector					
	XP-3368II-W		XP-3368II		XP-3318II	
Target Gas	Combustible gas /Solvent vapor	Oxygen	Combustible gas /Solvent vapor	Oxygen	Combustible gas /Solvent vapor	Oxygen
Sensor Type	Catalytic	Galvanic cell	Catalytic	Galvanic cell	Catalytic	Galvanic cell
Measuring Range (Reference Indication)	0.0–100.0 %LEL (100.1–110.0 %LEL) Enable to display in ppm.	0–25 vol% (25.1–50.0 vol%)	0–5000 ppm or 0–10000 ppm (5001–5500 ppm or 10001–11000 ppm)	0–25 vol% (25.1–50.0 vol%)	0–100 %LEL (100.1–110.0 %LEL)	0–25 vol% (25.1–50.0 vol%)
Display Resolution	0.1 %LEL or 1 ppm	0.1 vol%	1 ppm	0.1 vol%	0.1 %LEL	0.1 vol%
Alarm Set Value	20 %LEL	18 vol%	250 ppm or 500 ppm	18 vol%	20% LEL	18 vol%
Response Time	T90: 30 sec.	—	T90: 30 sec.	—	T90: 30 sec.	—

Model	Combustible Gas Detector				Oxygen Detector
	XP-3360II-W	XP-3360II	XP-3310II	XP-3340II	XP-3380II (-E) *2
Target Gas	Combustible gas/Solvent vapor			Combustible gas/Inert gas	Oxygen
Sensor Type	Catalytic			Thermal conductivity	Galvanic cell
Detection Range (Reference Indication)	0.0–100.0 %LEL (100.1–110.0 %LEL) Enable to display in ppm.	0–5000 ppm or 0–10000 ppm (5001–5500 ppm or 10001–11000 ppm)	0–100 %LEL (100.1–110.0 %LEL)	0–100.0 vol%	0–25 vol% (25.1–50.0 vol%)
Display Resolution	0.1 %LEL or 1 ppm	1 ppm	0.1 %LEL	0.1 vol%	0.1 vol%
Alarm Set Value	20 %LEL	250 ppm or 500 ppm	20 %LEL	50 vol%	18 vol%
Response Time	T90: 30 sec.			T90: 60 sec.	—

*1. Differs when using XP-3380 II or rechargeable nickel hydride batteries. Please contact us for full details. *2. With cooling drain filter

GAS LEAK DETECTOR
XP-702IIIS

Features

- **Trace gas detectable with high sensitivity sensor**
- **Automatic zero adjustment and stop pump functionality**
- **Detects combustible and refrigerant gases**

Certifications
• Japan Ex (JPEx) • UL

Combustible Gas CFC

Target Gas

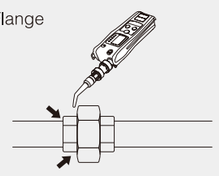
Refrigerant	R22, R32, R404A, R407C, R600a (i-B), R410A, etc.
Combustible Gas	Methane, i-butane, Hydrogen, Ammonia, Propane, Benzene, Acetylene, EO, Ethylene, Ethane, Butadiene, etc.

Specifications

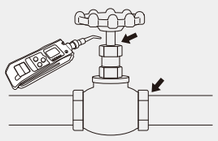
Model	XP-702IIIS-A	XP-702IIIS-B	XP-702IIIS-F
Target Gas	2 combustible gases	1 combustible gas	Refrigerant and 1 combustible gas
Sensor Type	Hot-wire semiconductor		
Sampling Method	Internal Pump		
Detectable Leak Rate	Methane, LPG 3.3×10-6 Pa.m3/s		R-407C 12.4 g/y, R-410A 11.2 g/y
Detectable Concentration	10 ppm		30 ppm
Response time	≤5 sec. except Refrigerant		
Power Source	2 × AA Alkaline batteries, Approx.12 hours		
Operating Temperature & Humidity	-20°C~50°C, 30 to 85 %RH		
Certifications	UL: Class 1, Division 1, Groups C and D, T3 Class 1, Zone 0, AEx ia IIB T3 Ga Japan Ex: Ex ia IIB T3 Ga		
Dimensions	W38 × H135 × D32 mm		
Weight	Approx.190 g		
Accessories	Soft case, Drain filter, Filter element, Gas prove, Dust filter, 2×AA Alkaline batteries		
Options	Annealed copper tube, Gas collector, etc.		

Example of Use

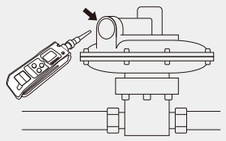
Flange



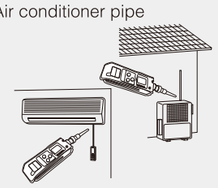
Valve



Reducing valve



Air conditioner pipe



DIGITAL OXYGEN INDICATOR
XO-326IIs

O_2 Oxygen

Features
- **Monitor continuously for up to 15,000 hours with 2 × AA Alkaline batteries**
- **Automatic zero adjustment**
- **Detects oxygen from a distance with detached sensor**

Specifications

Model	XO-326IIsA	XO-326IIsB	XO-326IIsC
Cable Length	5 m	1 m (spiral cable)	10 m
Target gas	Oxygen		
Sensor Type	Galvanic cell		
Detection Range (Reference Indication)	0 to 25.0 vol% (25.1 to 40.0 vol%)		
Display Resolution	0.1 vol%		
Alarm Set Value	1st: 19.5 vol% 2nd: 18.0 vol%		
Response Time	20 sec.		
Power Source	2 x AA Alkaline batteries, Approx. 15,000 hours		
Certifications	Ex ia IIC T3 Ga (Japan Ex)		
Operting Temperature & Humidity	-10 to +40°C 30 to 85 %RH		
Dimensions	W66 × H170 × D29 mm	W66 × H120 × D29 mm	W66 × H200 × D29 mm
Weight	Approx. 340 g	Approx. 265 g	Approx. 410 g

Certifications
- Japan Ex (JPEx)

O_2/H_2S INDICATOR
XOS-326

O_2 Oxygen Toxic Gas

Features
- **Detects oxygen and hydrogen sulfide from a distance**
- **Waterproof sensor**
- **3 alarm types: buzzer, alarm lamp, flashing LCD**

Specifications

Model		XOS-326	
Target gas		Oxygen	Hydrogen sulfide
Sensor Type		Galvanic cell	Electrochemical
Detection Range (Reference Indication)		0.0 to 25.0 vol% (25.1 to 99.9 vol%)	0.0 to 30.0 ppm (30.5 to 50.0 ppm)
Display Resolution		0.1 vol%	0.5 ppm
Alarm Set Value	1st	19.5 vol%	10.0 ppm
	2nd	18.0 vol%	15.0 ppm
Response Time		≤20s sec. (90%)	≤30s sec. (90%)
Operating Temperature		-10 to 40°C	
Power Source		2 × AA alkaline batteries, Approx. 50 hours	
Dimensions		Main unit: W66 × H195 × D29 mm Sensor part: Φ44 × H75 mm Sensor cable: 5 m	
Weight		Approx. 450 g	
Accessories		Soft case, Sholder strap, 2 × AA Alkaline batteries, 2 × Filter element	

MULTI-GAS DETECTOR
XA-4000II SERIES

Combustible Gas O_2 Oxygen Toxic Gas

Features
- **40 hours or more of continuous operation with a single AAA battery (when used in long-life mode)**
- **Expected Sensor life of 3 years**
- **2 battery types (alkaline battery unit or rechargeable battery unit)**

Specifications

Model		XA-4000II			
Target Gas		Combustible Gas (Methane or Isobutane)	Oxygen	Hydrogen Sulfide	Carbon Monoxide
Sensor Type		Catalytic	Galvanic cell	Electrochemical	Electrochemical
Detection Range (Reference Indication)		0 to 100 %LEL (101 to 110 %LEL)	0 to 25.0 vol% (25.1 to 50.0 vol%)	0 to 30.0 ppm (30.1 to 50.0 ppm)	0 to 300 ppm (301 to 2000 ppm)
Display Resolution		1 %LEL	0.1 vol%	0-35 ppm: 0.1 ppm 35-150 ppm: 0.5 ppm	0-350 ppm: 1 ppm 350-2000 ppm: 5 ppm
Alam Set Value	1st	10 %LEL	19.5 vol%LEL	10.0 ppm	50 ppm
	2nd	30 %LEL	18.0 vol%LEL	15.0 ppm	150 ppm
Operating Temperature & Humidity		-20 to +50°C, 30 to 85 %RH (non condensing)			
Power Source		1 × AAA alkaline battery, Approx. 40 hours (long-life mode) Rechargeable nickel metal hydride AA battery, Approx. 40 hours (long-life mode)			
Certifications		Ex ia IIC T3 Gd (Japan Ex) II 1 G Ex ia IIC T3 Ga (ATEX) Class I, Zone 0, AEx ia IIC T3 Ga (UL)			
IP Rating		IP67			
Dimensions		W70 × H72 × D26 mm			
Weight		Approx. 130 g			
Accessories		Safety-Pin band, 1 x AAA Alkaline battery, 2 × Filter elements			
Options		Pump unit, Alligator clip, Datalogger kit, Leather case, Belt clip			

Certifications
- ATEX • UL • Japan Ex (JPEx)

PERSONAL CO/O_2/H_2S MONITOR
XX-2200 SERIES

O_2 Oxygen Toxic Gas

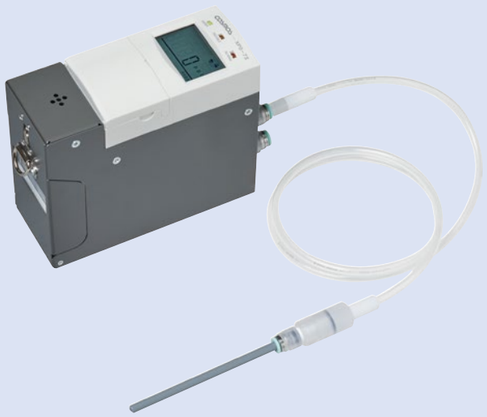
Features
- **5,000 hours of continuous operation**
- **3 alarm types: loud buzzer, alarm lamp and vibration**
- **Available with TWA (Time Weighted Average) concentration display**

Specifications

Model		XOC-2200		
			XOS-2200	
		XC-2200	XO-2200	XS-2200
Target gas		Carbon Monoxide	Oxygen	Hydrogen Sulfide
Sensor Type		Electrochemical	Galvanic cell	Electrochemical
Detection Range (Reference Indication)		0 to 300 ppm (300 to 2000 ppm)	0 to 25 vol% (25 to 50 vol%)	0 to 30.0 ppm (30.1 to 100 ppm)
Display resolution		1 ppm	0.1 vol%	0.1 ppm
Alarm Set Value	1st	50 ppm	19.5 vol%	10.0 ppm
	2nd	150 ppm	18.0 vol%	15.0 ppm
Response Time		30 sec.	20 sec.	30 sec.
Certifications		Ex ib IIB T3 Gb (Japan Ex) CE		
Operting Temperature & Humidity		-10 to +40°C, 30 to 90 %RH		
Power Source		1 × AAA Alkaline battery, Approx. 5,000 hours		
Dimensions		W65 × H64 × D22 mm		
Weight		Approx. 75 g		
Accessories		1 × AAA Alkaline battery, 1 × Safety pin adaptor		
Options		Leather case, Heat resistant leather case, Simple inspection jig, Helmet clip, etc.		

SEMICONDUCTOR GAS DETECTOR
XPS-7II

Toxic Gas



Features
- **World's smallest portable NF3 detector**
- **Detect various toxic gases using simple 'plug-and-play' sensors**
- **No need to calibrate before each use**

Specifications

Model	XPS-7II
Target Gas	Semiconductor gases
Sensor Type	Electrochemical, Electrochemical + Catalyst conversion
Sampling Method	Internal Pump
Detection Range	As per the attached list
Alarm Set Values	As per specifications
Response time	T60: ≤60 s
Power Source	4 × AA Alkaline batteries Approx. 12 hours Approx. 8 hours (XDS-7NF)
Operating Temperature & Humidity	0 to 40°C, 30 to 85%RH
Dimensions	W62 × H150 × D128 mm
Weight	Approx. 1.3 kg
Certifications	CE (EMC: 2014/30/EU)
Options	AC adaptor, Sensor stocker, Datalogger kit

List of Target gases

TYPE	GAS	RANGE
XDS-7NH	NH_3	100 ppm
XDS-7SH	SiH_4	25 ppm
XDS-7DC	SiH_2Cl_2	25 ppm
XDS-7AH	AsH_3	250 ppb
XDS-7PH	PH_3	1 ppm
XDS-7BH	B_2H_6	50 ppb
XDS-7SE	H_2Se	25 ppb
XDS-7GH	GeH_4	1 ppm
XDS-7CL	Cl_2	5 ppm
XDS-7CF	ClF_3	1 ppm
XDS-7HC	HCl	25 ppm

TYPE	GAS	RANGE
XDS-7HF	HF	10 ppm
XDS-7HB	HBr	10 ppm
XDS-7NO	NO	100 ppm
XDS-7HS	H_2S	50 ppm
XDS-7CO	CO	250 ppm
XDS-7DS	Si_2H_6	25 ppm
XDS-7F2	F_2	5 ppm
XDS-7OZ	O_3	1 ppm
XDS-7SD	SO_2	10 ppm
XDS-7ND	NO_2	10 ppm
XDS-7NF	NF_3	100 ppm

GAS LEAK DETECTOR
XP-703DIII

Toxic Gas

Features
- **Trace gas detectable with high sensitivity sensor**
- **Automatic zero adjustment and stop pump functionality**
- **Detects toxic gases**

Specifications

Model	XP-703DIII
Target Gas	Hydrogen, Arsine, Diborane, Silane, Phosphine
Sensor Type	Hot-wire semiconductor
Sampling Method	Internal Pump
Detectable Leak Rate	H_2: 5.07 x 10-7, AsH_3: 2.53 x 10-7, B_2H_6: 1.01 x 10-7, SiH_4: 2.53 x 10-7, PH_3: 1.52 x 10-7 (Pa·m³/s)
Detectable Gas Concentration	H_2: 1.0 ppm, AsH_3: 0.5 ppm, B_2H_6: 0.2 ppm, SiH_4: 0.5 ppm, PH_3: 0.3 ppm
Response time	10 sec.
Power Source	2 × AAA Alkaline batteries, Approx. 12 hours
Operating Pressure	Atmospheric pressure (800 to 1100 hPa)
Operating temperature & humidity	0 to 40 °C, 30 to 85 %RH
Dimensions	W38 × H135 × D32 mm
Weight	Approx. 190 g
Accessories	Soft case, Drain filter, Filter element, Gas probe, Dust filter, Hand strap, 2 × AA Alkaline batteries

GAS LEAK DETECTOR
XP-704III

CFC

Features
- **Trace gas detectable with high sensitivity sensor**
- **Automatic zero adjustment and stop pump functionality**
- **Dedicated refrigerant gas detector**

Specifications

Model	XP-704III
Target Gas	R-22, R-32, R-404A, R-407C, R-600a, R-410A, R-134a, R-290, HFO-1234yf
Sensor Type	Hot-wire semiconductor
Sampling Method	Internal Pump
Detectable Leak Rate	R-22: 2.84(g), R-32: 1.71(g), R-404A: 3.30(g), R-407C: 3.12(g), R600a: 1.91(g), R410A: 2.82(g), R-134a: 20.09(g), R-290: 1.45(g), HFO-1234yf: 3.74(g) (Pa·m³/s)
Detectable Gas Concentration	5 ppm (R-134a: 30 ppm)
Response time	10 sec.
Power Source	2 × AAA alkaline batteries Approx. 12 hours
Operating Pressure	Atmospheric pressure (800 to 1100 hPa)
Operating temperature & humidity	0 to 40°C, 30 to 85 %RH
Dimensions	W38 × H135 × D32 mm
Weight	Approx. 190 g
Accessories	Soft case, Drain filter, Filter element, Gas probe, Dust filter, Hand strap, 2 × AA Alkaline batteries

STEEL DUST METER
SDM-72/SDM-73

Steel Dust Concentration

Features
- **Measures bearing, gear, and cylinder wear conditions**
- **Monitors steel dust contamination in hydraulic oil and grinding oil**
- **Ferrography and SOAP method pre-diagnosis**

Specifications

Model	SDM-72	SMD-73
Measurement Principle	Magnetic balance type electromagnetic method	Magnetic balance type electromagnetic method
Substance Measured	Steel dust concentration in grease	Steel dust concentration in lubricating oil
Measurement Range	0 to 5.000 %Wt	0 to 19999 wt ppm
Minimum Resolusion	0.001 %Wt	1 wt ppm
Amount of sample	Approx. 0.8 ml	1.5 ml
Power Source	4 × AA Alkaline battries, Approx. 30 hours	
Certifications	CE	
Operating temperature	0 to 40°C	
Dimensions	W84 × H190 × D40 mm	
Weight	Approx. 500 g	
Accessories	Carrying case, Grease sampling spatula, Grease sample case (10 pieces) and 4 × AA Alkaline battries	Carrying case, 2 ml syringe (5 pieces), Oil sampling nozzle (2 pieces), Syringe holder and 4 × AA Alkaline battries

Certifications
- CE marking

Certifications
- CE marking

ODOR LEVEL INDICATOR
XP-329m

Odor

Features
- **Detects and visualizes various odors**
- **No maintenance, disposable type**
- **Detects lithium-ion battery electrolytes**

Specifications

Model	XP-329m
Target Gas	Various odors, Odor components
Sensor Type	Tin oxide-based high sensitivity hot wire semiconductor sensor
Sampling Method	Internal Pump
Indicated Value	0 to 999
Operating Temperature & Humidity	0 to 40°C, 10 to 80 %RH
Dimensions	W60 × H140 × D40 mm
Weight	Approx. 300 g
Power Source	3 × AA alkaline batteries or AC adaptor (AC100-240 V) Approx. 10 hours
Accessories	Drain filter, 3 × AA alkaline batteries, Filter elements (10 pcs)
Options	Activated carbon filter (DF-105), Activated carbon (FE-110), AC adapter

ODOR LEVEL INDICATOR
XP-329IIIR

Odor

Features
- **Detects and visualizes various odors**
- **Switch between continuous monitoring mode with real-time display and 1 minute batch measurement mode**
- **Equipped with an activated carbon filter for automatic zero adjustment**
- **Sensor status bar graph display shows when maintenance is required**

Specifications

Model	XP-329IIIR
Target Gas	Various odors, Odor components
Sensor Type	Indium oxide-based sensitivity hot wire semiconductor sensor
Sampling Method	Extractive *Extractive flow: 400±150ml/min
Display	LCD digital indication (64 × 128 dots matrix) (measurement value, measurement mode, operating conditions, remaining battery level, data memory, bar indication for sensor output and communication channel etc.)
Measurement Mode	Monitoring mode/Batch mode
Indicated Value	Level indication: 0-2000 (In case of zero-based setting at the 2nd dot from the left in the sensor output bar graph)
External Output	Analog output: DC0-200 mV.
	Digital input/output: RS-232C output the indicated value (ASCII Code)
Operating Temperature & Humidity	0 to 40°C 10 to 80 %RH
Dimensions	W84 × H275 × D40 mm
Weight	Approx. 640 g
Power Source	4 × AA alkaline batteries or AC adaptor, Approx. 8 hours
Accessories	Tube intake, AC adaptor, Output connector, Communication pack (CD), 4 × AA Alkaline batteries, Teflon tube (1 m), 2 × Activated carbons, 2 × Filter elements (10 pcs.)

REAL-TIME VOC MONITOR
XP-3320II-V Coming Soon

VOC

Certifications
- Japan Ex (JPEx)

Features
- **Real-time VOC monitoring**
- **Converts to detect 92 different gases***1
- **Trend graphs displayable directly on device or on dedicated app***2
- **Significantly improved impact resistance**

*1 Reference value
*2 Optional log data collection software (sold separately) is required to read log data on PC.

Specifications

Model	XP-3320II-V
Target Gases	VOC calibration gas: Toluene
Gas Sampling Method	Automatic suction-type
Sensor Type	Hot wire semiconductor
Detection Range	0-1000 ppm
Power Source	4 AA alkaline batteries Or 4 AA size nickel-metal hydride rechargeable batteries
Continuous Use Time *1	Approximately 22 hours
Operating Temperature and Humidity Range	0 to +40°C, 85% RH or less (However, there should be no condensation or sudden changes in temperature or humidity.)
Certifications	Alkaline battery specifications: Ex ia da IIC T4 Ga Nickel-metal hydride battery specifications: Ex ia da IIC T3 Ga
Protection Rating	IP67 equivalent
Wireless communication	Bluetooth 5.0*5
External dimensions	W91 × H164 × D44 mm (excluding protrusions)
Weight	Approx. 460 g (including batteries)
Standard accessories	Shoulder belt, 1m gas sampling hose for solvents, filter element, LCD protective film, alkaline battery (or nickel-metal hydride battery)

*1. 25°C, no alarm, backlight off, data logging OFF, and Bluetooth OFF.

VOC MONITOR
XV-389

VOC

Features
- **Select target gas from 17 available VOCs**
- **Alarm levels (TWA, STEL) can be set for selected VOCs**
- **Monitors the instantaneous values, average values, TWA, and STEL values of VOCs in the air in real time**

Specifications

Model	XV-389		
Target gas	17 types of VOC (Calibration gas: Toluene)		
Sensor Type	Hot-wire semiconductor		
Detection Range	0 to 500 ppm		
Display Resolution	1 ppm		
Alarm Set Value	TWA Alarm	Exposure limit of eight-hours	Depends on gas type
	STEL Alarm	Exposure limit of short time (15 minutes)	
Power Source	1 x AAA alkaline dry battery, Approx. 30 hours		
Operating Temperature & Humidity	-10 to 40°C, 30 to 85 %RH		
Certifications	IP52		
Dimensions	W94 × H40 × D20 mm		
Weight	Approx. 73 g		
Accessories	1 × AAA alkaline battery, 1 × Safety pin adaptor, Sensor cover with filter		

DIFFUSION TYPE GAS DETECTOR HEAD with DISPLAY

KD-12 SERIES

Features

- **Rugged, compact, and lightweight**
- **Explosion proof**
- **Water and dust proof (IP65)**
- **Easy sensor replacement**
- **Multiple models available (HART, SIL2, Suction type)**

Certifications

• CE marking • UKCA • IECEx • ATEX • China Ex (NEPSI)*1
• Korea Ex (KCs)*2 • India Ex (PESO) • Taiwan Ex (ITRI)*3 • Japan Ex (JPEx)

*1. Only KD-12A/B/C/D/R/O
*2. Only KD-12A/B
*3. Only KD-12A/B/C/O

- Energy Industry
- Petrochemical Plant
- Steel Industry
- Semiconductor Fab
- Civil Engineering and Construction
- Environment
- Electrical Equipment, Machinery, and Various Manufacturing Industries
- Government, Schools, and Research Institutions
- Transportation and Communications
- Agriculture and Livestock Industries
- Detection inside Boilers and Furnaces
- Maintenance, Service, etc.

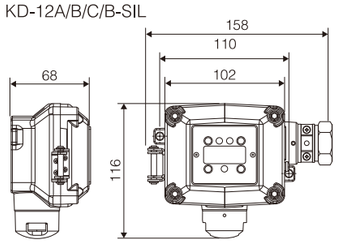
Specifications

Model	KD-12A	KD-12B	KD-12C	KD-12R	KD-12D		KD-12O	KD-12B-SIL	KD-12AH/BH	
Target Gas	Combustible gas, Toxic gas *1		Hydrogen, Helium, Carbon dioxide	Methane, Carbon dioxide	Carbon monoxide	Hydrogen sulfide	Oxygen	Combustible gas, Toxic gas	Combustible gas	
Sensor Type	Hot wire semiconductor	Combustion	Thermal conductivity	NDIR	Electrochemical cell		Galvanic cell	Combustion	Hot wire semiconductor	Combustion
Detection Range	ppm	%LEL	vol%	ppm, %LEL, vol%	ppm	ppm	vol%	%LEL	ppm	%LEL
Power Supply	24 VDC (±20%)									
Power Consumption	3 W max.									
Repeatability	F.S: ±20%	F.S: ±5%	F.S: ±5%	F.S: ±10%	F.S: ±10%	F.S: ±10%	±0.5vol%	F.S: ±5%	F.S: ±20%	F.S: ±10%
External Output	Gas concentration analog signal • 4-20 mADC (common to the negative side of power supply) Gas alarm contact (one stage only) *2 • 1a no-voltage contact output, Non-latching • HART Communication Protocol Rev. 7.5 (option) *except KD-12C									
Certifications	II 2 G Ex db IIC T5 Gb (ATEX) Ex db IIC T5 Gb (IECEx) Ex d IIC T5 (Japan EX)								II 2 G Ex db IIC T5 Gb (ATEX) Ex db IIC T5 Gb (IECEx)	
IP Rating	IP65									
Operating Temperature *3	-10 to +50 °C				-10 to +40 °C		0 to +40 °C	-10 to +40 °C		
Operating Humidity *4	10 to 90 %RH (0 to 50 °C)				30 to 85 %RH		30 to 85 %RH	10 to 90 %RH (0 to 50 °C)		
Weight	Approx. 1.2 kg			Approx. 1.3 kg				Approx. 1.2 kg		

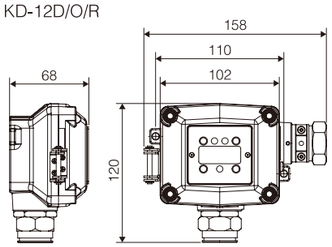
*1. Only combustible gas for ATEX certified models *2. Screwless type only *3. No rapid temperature change *4. No rapid humiddity changes, No condensation

External Dimensions (units: mm)

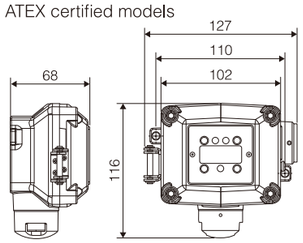
KD-12A/B/C/B-SIL



KD-12D/O/R



ATEX certified models



SUCTION TYPE GAS DETECTOR HEAD with DISPLAY

PD-12 SERIES

Features

- **Suction type with hydrogen explosion proof**
- **Explosion proof**
- **Water and dust proof (IP65)**
- **Easy sensor replacement**

Certifications

• CE marking • UKCA • IECEx • ATEX • China Ex (NEPSI) • Korea Ex (KCs)*1
• India Ex (PESO) • Taiwan Ex (ITRI) • Japan Ex (JPEx)

*1. Only PD-12A/B

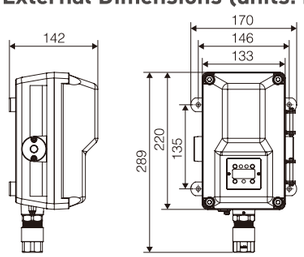
- Energy Industry
- Petrochemical Plant
- Steel Industry
- Semiconductor Fab
- Civil Engineering and Construction
- Environment
- Electrical Equipment, Machinery, and Various Manufacturing Industries
- Government, Schools, and Research Institutions
- Transportation and Communications
- Agriculture and Livestock Industries
- Detection inside Boilers and Furnaces
- Maintenance, Service, etc.

Specifications

Model	PD-12A	PD-12B	PD-12C
Target Gas	Combustible gas, toxic gas, etc. *1		
Sensor Type	Hot wire semiconductor	Combustion	Thermal conductivity
Detection Range	ppm	%LEL	vol%
Repeatability	F.S: ±20%	F.S: ±5%	F.S: ±5%
Power Supply	24 VDC (18 to 30 VDC)		
Power Consumption	7.5 W max.		
Flow Rate	Over 0.5 L/min		
External Output	• 4-20 mADC (common to the negative side of power supply) • 1a no-voltage contact output (Automatic return)		
Certifications	II2 G Ex db IIB +H2 T4 Gb (ATEX) *1 Ex d IIB + H2 T4 X (Japan EX)		
IP Rating	IP65		
Operating Temperature *2	-10 to +50 °C		
Operating Humidity *3	10 to 90 %RH (0 to 50 °C)		
Weight	Approx. 5.2 kg		

*1. Some are not ATEX approved. For further information, please ask. *2. No rapid temperature change *3. No rapid humidity changes, No condensation

External Dimensions (units: mm)



SEMICONDUCTOR GAS DETECTOR
PS-8 SERIES

Features
- **Long-life Sensors**
- **Integrated thermal decomposition converter**
- **Large LCD display for easy visual verification**

Certifications
- CE marking (pending)

Semiconductor Fab
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions

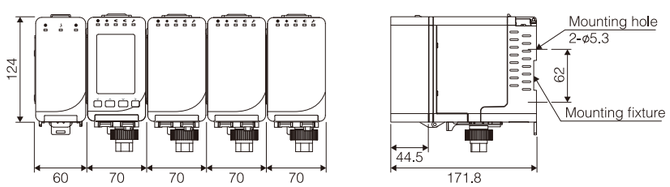
Specifications

Model		Main Unit		Sub Unit
		PS-8N	PS-8M	PS-8S
Target Gas		Combustible gas, Toxic gas, Oxygen		
Display		Monochrome LCD full dot display Gas concentration: 5- digit display (with units of measurement) Others: gas name, flow rate status, first and second stage alarm indicator, fault alarm		None (Main Unit contains display)
External Output	Digital signal*1	*When using the expansion unit MR module RS485 (Modbus-RTU)	Ethernet 10BASE-T/100base-Tx (Modbus/TCP) Modbus/TCP (Maximum number of connections depends on system configuration) Maximum transmission distance 100m (to HUB)	—
	Gas concentration analog signal*2	DC4-20 mA (common negative with power source) (Output accuracy: within FS ± 0.5%) *0.6 mA or less when a fault alarm indication occurs *The resistance, including wiring resistance, must be 300 Ω or less		—
	Combined gas alarm contact (1st and 2nd stage), Combined fault alarm indication contact*3	1a non-voltage contact/automatic return *Rated load: AC125V 0.5A or DC30V 1.0A (resistive load) *Individual contact outputs require an expansion unit.		—
Operating Temperature and Humidity Range		0 °C to 40 °C (with no sudden changes), 30 to 85%RH (with no condensation)		
Power Source Used		DC24V ± 10%	DC24V ± 10% or PoE (Power over Ethernet, IEEE 802.3at)	Supplied from the main unit
Dimensions		W70 mm × H124 mm × D172 mm (excluding protrusions)		
Weight		Approx. 850 g (excluding sensor)		Approx. 770 g (excluding sensor unit)

Model		Expansion unit (up to 2 modules can be installed)			
		PS-8EU			
Module		AO module (analog output)	DO module (contact output)	MR module (Modbus-RTU)	AI module (analog input)
External Output	Signal type	Gas concentration analog signal	Gas alarm contact (1- stage and 2- stage), fault alarm indication contact	Modbus-RTU (Maximum number of connections: 32 (including master))	—
	Output	DC4-20mA (Common negative terminal with power source) (Output accuracy: within FS ± 0.5%) *0.6 mA or less when a fault alarm indication occurs *The resistance, including wiring resistance, must be 300 Ω or less	1a non-voltage contact/automatic return *Rated load 125 VAC 0.5 A or 30VDC 1.0 A (Resistive load)	Communication method: RS485 2- wire half duplex Maximum transmission distance: 1.2 km (to host device) Speed: 4800bps, 9600 bps, 19200 bps, 38400 bps	
External Input	Signal type	—			4-20 mA analog input
	Input number				2
	Input				0-21.6 mA
External connection terminal compatibility/cable		Terminal block (12pin x 1, 1pin x 1) Compatible cables:CVV-S 1.25 mm² and others	Terminal block (12 pin x 1) Compatible cables: CVV-S 1.25 mm² and others	Terminal block (3pin x 1, 1pin x 2) Compatible cables: CVV-S 1.25mm² and others twisted pair shielded cable	Terminal block (3pin x 2, 1pin x 1) Compatible cables: CVVS 1.25 mm² and others
Operating Temperature and Humidity Range		0 °C to 40 °C (with no sudden changes), 30 to 85%RH (with no condensation)			
Power Source Used		Supplied from the main unit			
Dimensions		W60 mm x H124 mm x D172 mm (excluding protrusions)			
Weight		Approx. 410 g			

*1. Modbus-RTU can be used with Ethernet or dispersion unit. *2. The Main Unit analog output is limited to the Main Unit. The Sub Unit sensor analog output requires the AO expansion module. The AO expansion module can output analog signals from the Main Unit allowing for multiple connections. *3. When installing two or more sensors using a Sub Unit and using individual contact output, use a DO expansion module. In this case, the individual outputs for the sensors installed in the Main Unit will be output from the expansion unit (the main unit's contacts will be output all at once).

External dimensions (units: mm)



SEMICONDUCTOR GAS DETECTOR
PS-7/PS-7-M

Features
- **Automatic sampling flow control**
- **Easy sensor and pump replacement**
- **Capable of detecting a wide range of gases by changing the sensor unit**

Certifications
- CE marking

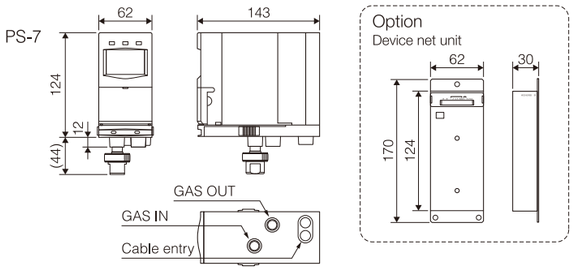
Semiconductor Fab
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions

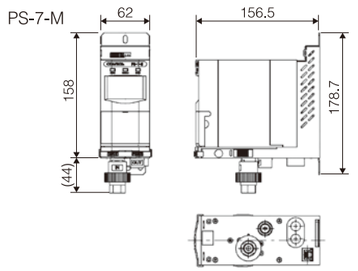
Specifications

Model	PS-7	PS-7-M
Target Gas	Combustible gas, Toxic gas, Oxygen	
Sensor Type	Electrochemical cell, Hot wire semiconductor, Galvanic cell, Catalytic combustion	
Transport System	Flow rate: 0.5 mL/min, Teflon, 4 mm in ID x 6 mm in OD, Length: Up to 20 m	
Power Supply	24 VDC ±10%	24 VDC ±10%, PoE (Power over Ethernet, IEEE 802.3af/ANSI X3.263)
Power Consumption	Approx. 6 W	Approx. 9 W
Alarm Indication	• Gas alarm (1st and 2nd stage) • Low flow alarm • Sensor trouble alarm/Incorrect sensor inserting alarm • Pyrolyzer wire break alarm *1	
External Output	• 4-20 mADC (shared with the power source negative terminal) • Gas alarm contact (1st and 2nd): 1a no-voltage contact/Non-latching • Fault contact (Open collector/Non-latching)	• Digital signal Ethernet100base-Tx (Modbus/TCP) • Digital signal RS-485 (Modbus/RTU)
Applicable Cable	• 3C or 4C shielded control cable (Φ8-11 mm) × 2 • Digital signal Ethernet100base-Tx and PoE : LAN cable, CAT-5e or higher (PS-7M)	
Operating Temperature *2	0 to +40 °C	
Operating Humidity *3	30 to 85 %RH	
Weight	Approx. 1.0 kg	Approx. 1.3 kg

*1. Only for the model with a pyrolyzer. *2. No rapid temperature change *3. No rapid humidity change, no condensation

External Dimensions (units: mm)





ODOR (ENVIRONMENT) DETECTOR
COD-203

Features
- Creates visualization of environmental air quality
- Continuous monitoring of chemical substances in clean rooms
- Built-in ultra-sensitive sensor
- Compact and lightweight

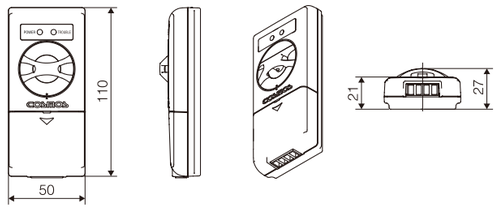
Petrochemical Plant
Semiconductor Fab
Environment
Government, Schools, and Research Institutions

Specifications

Model	COD-203A			COD-203B
Calibration Gas	Ethanol			Toluene
Sensor Type	Hot wire semiconductor			
Power Supply	DC24 V ±6 V			
Power Consumption	Approx. 2 W			
External Output	Analog 4 to 20 mA DC			
Full Scale	100ppm	200ppm	200ppm	5ppm
Recommended Location	Indoor / Working place		Clean room	
Operating Temperature *1	5 to +35 °C			
Operating Humidity *2	30 to 85 %RH			
Weight	Approx. 0.2 kg			

*1. No rapid temperature change *2. No rapid humidity change, No condensation

External Dimensions (units: mm)



DIFFUSION TYPE GAS DETECTOR HEAD
KD-5A/KD-5B

Specifications

Model	KD-5A	KD-5B
Target Gas	Combustible gas, Toxic gas,etc.	
Sensor Type	Hot wire semiconductor, Catalytic or Thermal conductivity	
Detection Range	As per specifications	
Power Source for Sensor	Supplied from the indicator unit	
Certifications	d3aG4	d2G4
Operating Temperature *1	-10 to +60 °C	
Operating Humidity *2	10 to 85 %RH	
Dimensions	W141 x H192 x D194 mm	
Weight	Approx. 1.0 kg	

*1. No rapid temperature change *2. No rapid humidity changes, No condensation

DIFFUSION TYPE GAS DETECTOR HEAD
KS-2D-N/KS-20-N

Specifications

Model	KS-2D-N	KS-20-N
Target Gas	Toxic gas	Oxygen
Sensor Type	Electrochemical	Galvanic cell
Detection Range	As per specifications	
Power Source for Sensor	Supplied from the indicator unit	
Operating Temperature *1	0 to +40 °C	
Operating Humidity *2	30 to 85 %RH	
Dimensions	W102 x H200 x D75 mm	
Weight	Approx. 1.5 kg	

*1. No rapid temperature change *2. No rapid humidity changes, No condensation

SUCTION TYPE GAS DETECTOR HEAD
PD-14A/PD-14B

Specifications

Model	PD-14A	PD-14B
Target Gas	Combustible gas, Toxic gas, etc.	
Sensor Type	Hot wire semiconductor	Catalytic
Detection Range	ppm	%LEL
Repeatability	± 20%	F.S: ± 5%
Detection Range	As per specifications	
Power Supply	24 VDC (18 to 30 VDC)	
Applicable Cable	Cable outer diameter: 10.5 mm to 14.5 mm 6-conductor shielded cable: CVV-S 1.25 mm² or 2.0 mm²	
Certifications	Ex d IIB + H2T4 (Japan Ex)	
IP Rating	IP65	
Operating Temperature *1	-10 to +50 °C	
Operating Humidity *2	10 to 90 %RH	
Dimensions	W133 x H260 x D132 mm	
Weight	Approx. 5.2 kg	

*1. No rapid temperature change *2. No rapid humidity changes, No condensation

SUCTION TYPE GAS DETECTOR HEAD
PE-2CC/PE-2DC

Specifications

Model	PE-2CC	PE-2DC
Target Gas	Combustible gas, Toxic gas,etc.	
Sensor Type	Hot wire semiconductor, Catalytic or Thermal conductivity	
Detection Range	As per specifications	
Power Source for Sensor	Supplied from the indicator unit	
Power Source for Pump	100 VAC ±10%	24 VDC ±10%
Certifications	d2G4	
Operating Temperature *1	-10 to +40 °C	
Operating Humidity *2	30 to 85 %RH	
Applicable Cable	6C shielded cable: CVV-S 0.75 mm² to 2.0 mm²	
Dimensions	W122 x H390 x D196 mm (excluding accessories)	
Weight	Approx. 6.2 kg	

*1. No rapid temperature change *2. No rapid humidity changes, No condensation

SUCTION TYPE GAS DETECTOR HEAD
PS-2DP-N/PS-2DE-Ex

Specifications

Model	PS-2DP-N	PS-2DE-Ex
Target Gas	Toxic gas	
Sensor Type	Electrochemical	
Detection Range	As per specifications	
Power Source for Sensor	Supplied from the indicator unit	
Power Source for Pump	100 VAC ±10% or 24 VDC ±10%	
Air Supply		Instrumentation air 0.3 MPa
Certifications	Non-explosion-proof	Intrinsically safe explosion-proof 3nG5 when combined with a Zener barrier
Operating Temperature *1	0 to +40 °C	
Operating Humidity *2	30 to 85 %RH	
Applicable Cable	2C+2C shielded cable: CVV-S 0.75 mm² to 2.0 mm² shielded	2C shielded cable: CVV-S 0.75 mm² to 2.0 mm² shielded
Dimensions	W300 x H350 x D100 mm	
Weight	Approx. 5.0 kg	

*1. No rapid temperature change *2. No rapid humidity changes, No condensation

SUCTION TYPE GAS DETECTOR HEAD
PS-20P-N/PS-20E-Ex

Specifications

Model	PS-20P-N	PS-20E-Ex
Target Gas	Oxygen	
Sensor Type	Galvanic cell	
Detection Range	As per specifications	
Power Source for Sensor	Supplied from the indicator unit	
Power Source for Pump	100 VAC ± 10% or 24 VDC ±10%	
Air Supply		Instrumentation air 0.3 MPa
Certifications	Non-explosion-proof	Intrinsically safe explosion-proof 3nG5 when combined with a Zener barrier
Operating Temperature *1	0 to +40 °C	
Operating Humidity *2	30 to 85 %RH	
Applicable Cable	2C+2C shielded cable: CVV-S 0.75 mm² to 2.0 mm² shielded	2C shielded cable: CVV-S 0.75 mm² to 2.0 mm² shielded
Dimensions	W300 x H350 x D100 mm	
Weight	Approx. 5.0 kg	

*1. No rapid temperature change *2. No rapid humidity changes, No condensation

PANEL MOUNT UNIT
VAS/V3 SERIES

Features
- LED bar graph for easy alarm status checking
- Compatible with existing NEW COSMOS indicator units
- Various outputs to external devices

Certifications
- CE marking (VSC-4B+V3 type M)

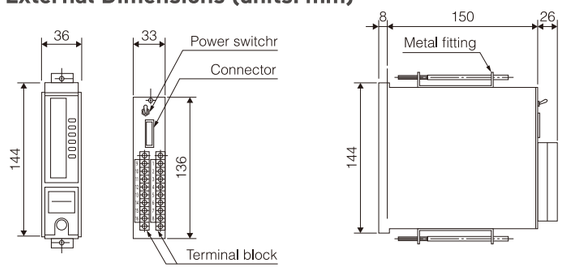
Energy Industry
Petrochemical Plant
Steel Industry
Semiconductor Fab
Civil Engineering and Construction
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions
Transportation and Communications
Agriculture and Livestock Industries
Detection inside Boilers and Furnaces
Maintenance, Service, etc.

Specifications

Model		VAS
External Output	Alarm Contact	1c no-voltage for 1st and 2nd stage alarm (100 VAC/1 A resistance load)
	Trouble Contact	1a no-voltage (100 VAC/1 A resistance load, 24 VDC, 1 A resistance load)
	Buzzer Contact	
Power Supply		24 VDC ±10%
Power Consumption		Approx. 3.5 W (24 V for alarm)
Operating Temperature		-10 to +40 °C
Operating Humidity		10 to 90 %RH
Weight		Approx. 600 g (including 450 g single case)

Model		V3	
Type		Hv, Hi, Cv, Ci, Tv, Ti, D, O	M
Alarm Levels		Adjustable within the detection range for 1st and 2nd stage alarm	
Power Supply		24 VDC ±10%	
Power Consumption		Approx. 4.0 W (excluding power consumption of extractive gas detector)	Approx. 5.0 W (excluding power consumption of detector)
External Output	Contact Output	1c no-voltage, 1a for fault	
	Analog Output	4-20 mADC	
Operating Temperature		-10 to +40 °C	
Operating Humidity		10 to 90 %RH	
Weight		Approx. 600 g (including 450 g single case)	

External Dimensions (units: mm)



INDICATOR PANEL
UV-810 SERIES

Features
- Connect up to 15 V3 indicator units
- Wide variety of input power sources and external outputs

Energy Industry
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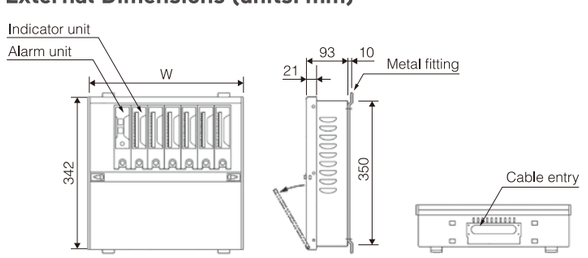
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions
Transportation and Communications
Agriculture and Livestock Industries
Detection inside Boilers and Furnaces
Maintenance, Service, etc.

Specifications

Model	UV-810/UVB-810 *
Number of Indicator Units	Up to 15 points (line up: 3/6/9/12/15 point type) *
External Outputs	Terminal for collective alarm • Alarm1, Alarm2, Fault • Energised/de-energised & latching,non-latching *Collective alarm contacts of 1st alarm and 2nd alarm can be changed to 1b contact (need to specify) Terminal for individual alarm • Alarm1, Alarm2, Fault Analog output • Gas concentration analog output signal: 4-20 mA, selectable from 1-5 V (need to specify)
Power Supply	AC specification: 100-240 VAC ±10% DC specification: 24 VDC ±10% (need to specify)
Operating Temperature	-10 to +40 °C (excluding rapid temperature change)
Operating Humidity	10 to 90 %RH (excluding rapid temperature change, non-condensing)
Weight	UV-810=5.5-13.5 kg UVB-810=8.0-16 kg (depends on the number of units)

* Including backup battery (Up to 6 points)

External Dimensions (units: mm)



	Mounting Points	Dimensions of W (mm)
UV-810	3	236
	6	350
	9	526
	12	640
	15	814
UVB-810	3	414
	6	642

SINGLE POINT GAS ALARM SYSTEM
NV-120 SERIES

Features
- Color LCD for gas concentration display and various settings
- Voiced alarm available in 4 languages
- Equipped with jog dial for improved operability

Certifications
- CE marking (NV-120Mx)

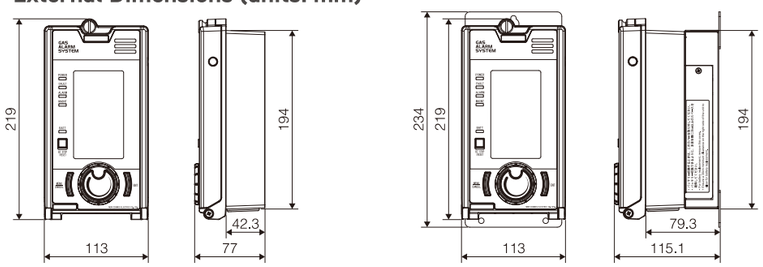
Energy Industry
Petrochemical Plant
Steel Industry
Semiconductor Fab
Civil Engineering and Construction
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions
Transportation and Communications
Agriculture and Livestock Industries
Detection inside Boilers and Furnaces
Maintenance, Service, etc.

Specifications

Model	NV-120Mx	NV-120Cv	NV-120Ci	NV-120Hv	NV-120Hi	NV-120Dx	NV-120Sx
Connectable Detectors	KD-12 PD-12	KD-5A-N KD-5B-N	PE-2DC	KD-5A-N KD-5B-N	KD-14 PE-2DC	KS-2D PS-2DP	KS-2O PS-2OP
Power Supply	AC type: 100 to 240 VAC ±10% or DC: 24 VDC (18 to 26.4 VDC) *1						
Power Consumption *2	Non-backup power type: 2.0 VA (Standard)/3.4 VA (Max) Backup power type: 2.1 VA (Standard)/4.7 VA (Max)						
External Output	• Power output: 24 VDC ±10% Max.0.3 A • Signal output: 4-20 mA analog or 1-5 V *1 In the event of failure: ≤ 0.6 mA (for 4-20 mA type) and ≤ 0.25 V (for 1-5 V type) • Alarm1, Alarm2, Fault • Energised/de-energised & latching, non-latching						
Operating Temperature	Non-backup power type: -10 to +50 °C Backup power type: 0 to +40 °C						
Operating Humidity	0 to 90 %RH						
Dimensions	Non-backup power type: W113 mm × D77 mm × H219 mm Backup power type: W113 mm × D115 mm × H234 mm						
Weight	Non-backup power type: Approx. 750 g Backup power type: Approx. 2.2 kg						

*1. Must be specified at the time of ordering. *2. Consumption power of the connected gas detector is excluded.

External Dimensions (units: mm)



MULTI POINT GAS ALARM SYSTEM
NV SERIES

NV-520

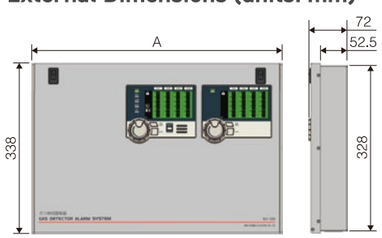
Features
- 2 day backup power supply (optional)
- Easy operation
- Robust design
- Voiced alarms available in 4 languages (Japanese, English, Chinese, Korean)

Energy Industry
Petrochemical Plant
Steel Industry
Semiconductor Fab
Civil Engineering and Construction
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions
Transportation and Communications
Agriculture and Livestock Industries
Detection inside Boilers and Furnaces
Maintenance, Service, etc.

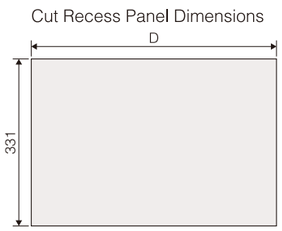
Specifications

Model		NV-520	NV-400/NV-410	NV-600/NV-600HS
Target Gas		LPG (%LEL)	Methane (%LEL)	NV-600: Combustible gas (%LEL) NV-600HS: Combustible gas (ppm and %LEL)
Connectable Detectors		Diffusion type: KD-5A-N/KD-5B-N, KD-14 Extractive type: PE-2DC, PD-14		
Number of Indicator Units		Up to 12 units		
Sensor Type		Catalytic	Hot wire semiconductor	Catalytic/Hot wire semiconductor
Power Supply		AC type: 100 to 240 VAC±10% or DC: 24 VDC (18 to 26.4 VDC)		
External Output	Individual Alarm Contact	Alarm1	Alarm1, Alarm2	
	Individual Voltage Output	0-6-12 VDC		
	Collective Alarm Contact	Alarm1	Alarm1, Alarm2	
	Centralized Monitor Panel Output	0-6-12 VDC		
	External Buzzer Contact	Alarm1	Alarm1, Alarm2	
	External Buzzer Voltage Output	12 VDC		
Operating Temperature		-10 to 50 °C		
Operating Humidity		0 to 90 %RH		
Weight		As per specifications 5.0 kg~		
Options		External buzzer, Panel mounting attachement		

External Dimensions (units: mm)



Cut Recess Panel Dimensions



Dimension Chart

Number of Detection Head Points	A	D
2 point system without backup power source	221	215±1
2 point system with backup power source supply specification/ 4 point system	299	293±1
6 point system/ 8 point system	496	490±1
10 point system/ 12 point system	644	638±1

Backup power source does not change the size of 4 point, 6/8 point, or 10/12 point systems

SIMPLIFIED GAS ALARM SYSTEM
B-780/KD-5

Features
- Compact and light weight
- Connect with up to 3 detector heads
- Easy sensor status check

B-780


KD-5

Civil Engineering and Construction
Environment
Electrical Equipment, Machinery, and Various Manufacturing Industries
Government, Schools, and Research Institutions
Transportation and Communications
Detection inside Boilers and Furnaces

Specifications

Alarm Unit

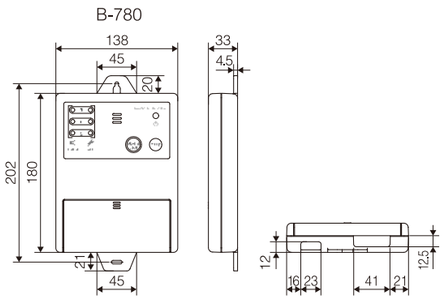
Model	B-780
Target Gas	Methane (LNG)/LPG
Power Voltage	AC 100V/220V ±10% 50/60Hz
Number of Connected Detectors	Up to 3 units
Connectable Detectors	KD-5G, KD-5GM
External Outputs	(1) 6 VDC at nomal operation, 12 VDC at gas alarm, and 0 VDC at fault alarm
	(2) 100/220 VAC, 1 A
	(3) Alarm Energised/de-energised
Weight	420 g
Operating Temperature	-10 to 40 °C

Detector Head

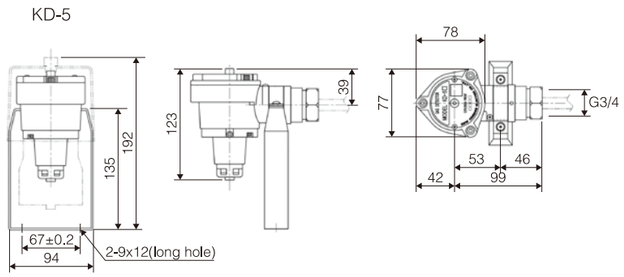
Model	KD-5G	KD-5GM
Target Gas	LPG	Methane
Detection Range	1/100 to 1/4 %LEL	
Power Supply	24V DC ± 20%	
Certifications	d2G4	
Operating Temperature	-10 to +60 °C	
Weight	Approx. 1.5 kg	

External Dimensions (units: mm)

B-780



KD-5



SINGLE POINT GAS DETECTOR with INDICATOR and ALARM
KS-7 SERIES

Features
- LED lights for clear alarm indication
- Automatic backup power for more than 2 weeks (350 hrs.)
- Compact, lightweight, and easy to install

KS-7D

Certifications
- CE marking

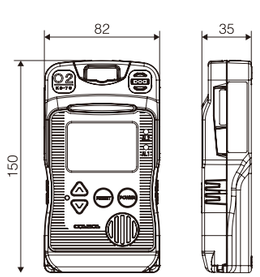
Steel Industry
Semiconductor Fab
Civil Engineering and Construction
Government, Schools, and Research Institutions
Transportation and Communications
Agriculture and Livestock Industries

Specifications

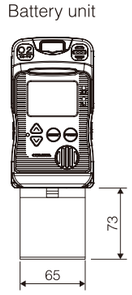
Model	KS-7O	KS-7D	KS-7R
Target Gas	Oxygen	Carbon Monoxide	Carbon Dioxide
Sensor Type	Galvanic cell	Electrochemical	NDIR
Detection Range	0 to 25.0 vol% or 0 to 50.0 vol%	0 to 75 ppm, 0 to 150 ppm, 0 to 250 ppm, or 0 to 4000 ppm	360 to 5,000 ppm
Power Supply	24 VDC ±10%		
Power Consumption	Monitoring: 1 W, During alarm: 3 W		
Alarm Set Value	For 25.0 vol%: 1st stage 19.0 vol% 2nd stage: 18.0 vol% For 50.0 vol%: 1st stage 18.0 vol% 2nd stage: 25.0 vol%	For F.S. 75 ppm: 25/50 ppm For F.S. 150 ppm: 50/100 ppm For F.S. 250 ppm: 50/150 ppm For F.S. 400 ppm: 50/150 ppm	AL1: 2,000ppm AL2: 5,000ppm
External Output	Gas concentration analog output: 4-20 mA DC Alarm1, Alarm2, Fault Latching, non-latching		
Operating Temperature *1	-10 to +40 °C	-5 to +40 °C	-10 to +50 °C
Operating Humidity *2	30 to 85 %RH		0 to 85 %RH
Weight	Approx. 300 g		
Options (No CE marking)	Separate Sensor Unit (KS-7OF) Battery Unit KS-7xB	Battery Unit KS-7xB	Battery Unit KS-7xB

*1. No rapid temperature change *2. No rapid humidity, No condensation

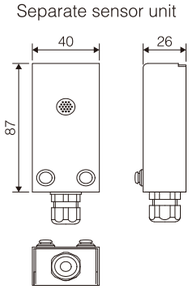
External Dimensions (units: mm)



Battery unit



Separate sensor unit



Classification of Explosive Gases and Explosion Protection

Classification of Explosive Gases

Classification as per the Japanese Standards

• Explosion Classes and Ignition Groups of Typical Explosive Gases

Explosion Class \ Ignition Group	G1	G2	G3	G4	G5
1	Acetone Ammonia Carbon monoxide Ethane Acetic acid Toluene Benzene Methane	Ethanol Isopentyl acetate 1-Butanol Butane Acetic anhydride Ethyl acetate Propane Methanol	Gasoline Hexane	Acetaldehyde Ethyl ether	
2	Coal gas	Ethylene Ethylene oxide			
3	Water gas Hydrogen	Acetylene			Carbon disulfide

• Explosion Classes

Class	Minimum gap with 25 mm-length path which permits the flame propagation (mm)
1	> 0.6
2	0.4 < gap ≤ 0.6
3	≤ 0.4

* Explosion is categorized into three classes according to the minimum gap to allow for flame propagation, determined by using a standard container for explosion gas.

• Ignition Groups

Group	Ignition Temperature (˚C)
G1	> 450
G2	≤ 450
G3	≤ 300
G4	≤ 200
G5	≤ 135

* Ignition is categorized into five groups according to the ignition temperature of explosive gases.

Classification as per the IEC Standards

• Equipment Groups and Temperature Classes of Typical Explosive Gases

Equipment Group \ Temperature Class	T1	T2	T3	T4	T5	T6
IIA	Acetone Ammonia Ethyl acetate Toluene Benzene Methane Ethane Acetic acid Isobutane	1-Butanol Propane Methanol Acetic anhydride	n-Hexane	Acetaldehyde		
IIB	Carbon monoxide	Ethanol Ethylene Ethylene oxide		Ethyl ether		
IIC	Hydrogen	Acetylene				Carbon disulfide

• Equipment Groups

Flameproof Enclosure

Group	Maximum Experimental Safe Gap (mm)
IIA	≥ 0.9
IIB	< 0.9
IIC	≤ 0.5

Intrinsic Safety

Group	Minimum Ignition Current (MIC) Ratio
IIA	> 0.8
IIB	0.45 ≤ MIC ≤ 0.8
IIC	< 0.45

• Temperature Classes

Class	Surface Temperature (˚C)
T1	≤ 450
T2	≤ 300
T3	≤ 200
T4	≤ 135
T5	≤ 100
T6	≤ 85

* Source: ISO/IEC 80079-20-1:2017

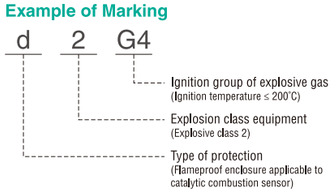
Classification of Explosion Protection

Symbols as per the Japanese Standards

Item	Symbol	Description
Type of protection	d	Flameproof enclosure
	o	Oil immersion
	f	Pressurization
	e	Increased safety
	ia, ib	Intrinsic safety
	s	Special measures
Gas Group	1	Applicable to explosion class 1 gases/vapors
	2	Applicable to explosion classes 1&2 gases/vapors
	3a	Applicable to explosion classes 1&2 gases/vapors + water gas + H_2
	3b	Applicable to explosion classes 1&2 gases/vapors + CS_2
	3c	Applicable to explosion classes 1&2 gases/vapors + C_2H_2
	3n	Applicable to all gases
Ignition Group of Explosive Gas	G1	Ignition temperature > 450˚C
	G2	Ignition temperature ≤ 450˚C
	G3	Ignition temperature ≤ 300˚C
	G4	Ignition temperature ≤ 200˚C
	G5	Ignition temperature ≤ 135˚C

* Only Intrinsically safe equipment can be used in Zone 0.

Example of Marking

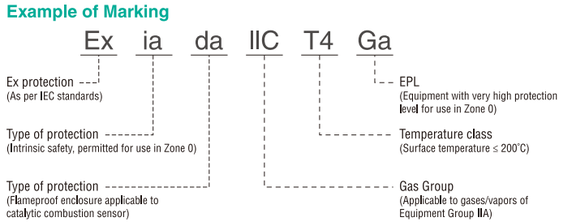


Symbols as per the IEC Standards

Item	Symbol	Description
Ex Protection	Ex	Explosion-proof structure in conformity to the IEC-harmonized standards
Type of Protection	da	Flameproof enclosure
	db	Flameproof enclosure
	dc	Flameproof enclosure
	pv	Pressurization
	pxb	Pressurization
	pyb	Pressurization
	pzc	Pressurization
	eb	Increased safety
	ec	Increased safety
	ob	Oil immersion
	oc	Oil immersion
	ia	Intrinsic safety
	ib	Intrinsic safety
	ic	Intrinsic safety
Gas Group	II	For industrial applications
	IIA	Applicable to gases/vapors of Equipment Group IIA
	IIB	Applicable to gases/vapors of Equipment Group IIB
	IIC	Applicable to gases/vapors of Equipment Group IIC
Temperature Class	T1	Surface temperature ≤ 450˚C
	T2	Surface temperature ≤ 300˚C
	T3	Surface temperature ≤ 200˚C
	T4	Surface temperature ≤ 135˚C
	T5	Surface temperature ≤ 100˚C
	T6	Surface temperature ≤ 85˚C
Equipment Protection Level (EPL)	Ga	Equipment with very high protection level for use in Zone 0
	Gb	Equipment with high protection level for use in Zone 1
	Gc	Equipment with enhanced protection level for use in Zone 2

* Source: IEC 60079-0:2017

Example of Marking



* Source: IEC 60079-0:2017

Danger of Combustible and Toxic Gases and Vapors

Gas/Vapor	Chemical Formula	Flammable Range (vol%)	Explosion Class	Ignition Group	Flash Point (˚C)	TLV (ppm)	Specific Gravity of Gas (air=1)
Hydrogen	H_2	4.0 – 75.0	3	G1	(gas)	—	0.07
Methane	CH_4	5.0 – 15.0	1	G1	(gas)	—	0.55
Propane	C_3H_8	2.1 – 9.5	1	G2	(gas)	—	1.60 I
n-Butane	C_4H_{10}	1.6 – 8.5	1	G2	(gas)	—	2.05
Isobutane	C_4H_{10}	1.8 – 8.4 I	*1	*1	(gas)	—	2.00 I
n-Pentane	C_5H_{12}	1.5 – 12.5	1	G3	< -40	1,000	2.49
Ethylene	C_2H_4	2.7 – 36	2	G2	(gas)	200	0.98 I
Propylene	C_3H_6	2.0 – 11.0	1	G1	(gas)	500	1.49
Butylene (cis-2-Butene)	C_4H_8	1.7 – 9.0 I	*1	*1	(gas)	—	1.9 I
Acetylene	C_2H_2	1.5 – 100	3	G2	(gas)	—	0.90
Toluene	$C_6H_5CH_3$	1.2 – 7.1	1	G1	4	20	3.18
o-Xylene	$C_6H_4(CH_3)_2$	1.0 – 6.0	1	G1	32	100	3.66
Methanol	CH_3OH	6.0 – 36	1	G2	11	200	1.10
Ethanol	C_2H_5OH	3.3 – 19	1	G2	13	(STEL1,000)	1.59
Acetone	$(CH_3)_2CO$	2.1 – 13	1	G1	-20	250	2.00
Methyl ethyl ketone	$CH_3COC_2H_5$	1.8 – 11.5	1	G2	-9	200	2.48
Ethyl acetate	$CH_3COOC_2H_5$	2.0 – 11.5	1	G2	-4	400	3.04
Butyl acetate	$CH_3COO(CH_3)_2CH_3$	1.7 – 7.6	1	G2	22	50	4.01
Town gas (methane)	—	As per Methane	*1	*1	(gas)	—	0.55
LPG (Isobutane)	—	As per Isobutane	*1	*1	(gas)	—	2.0 I
Gasoline	—	1.0 – 7.0	1	G3	< -20	300	3~4
Kerosene	—	0.7 – 5 I	1	G3	37–65	200mg/m^3	4.5 I
n-Hexane	$CH_3(CH_2)_4CH_3$	1.1 – 7.5	1	G3	-22	50	2.79
Butadiene	CH_2=$CHCH$=CH_2	2.0 – 12	2	G2	(gas)	2	1.87
Acetaldehyde	CH_3CHO	4.0 – 60	1	G4	-39	(C25)	1.52
Polyvinyl chloride	CH_2=$CHCl$	3.6 – 23	1	*1	(gas)	1	2.16
Carbon monoxide	CO	12.5 – 74	1	G1	(gas)	25	0.97
Ammonia	NH_3	15.0 – 28	1	G1	(gas)	25	0.60 I
Hydrogen sulfide	H_2S	4.0 – 44	2	G3	(gas)	1 (10*2)	1.19
Chlorine	Cl_2	— —	—	—	—	0.1	2.5 I
Sulfur dioxide	SO_2	— —	—	—	—	(STEL0.25)	2.25 I
Benzene	C_6H_6	1.3 – 7.1	1	G1	-11	0.5	2.70
Acrylonitrile	CH_2=$CHCN$	3.0 – 17	1	G1	0	2	1.83
Methyl bromide	CH_3Br	10.0 – 16.0 I	*1	*1	—	1	3.3 I
Ethylene oxide	CH_2CH_2O	3.6 – 100	2	G2	(gas)	1	1.52
Hydrogen cyanide	HCN	5.6 – 40	1	G1	-18	(C4.7)	0.93
Phosgene	$COCl_2$	— —	—	—	—	0.1	3.4 I
Hydrogen chloride	HCl	— —	—	—	—	(C2)	1.3 I
Arsine	AsH_3	4.5 – 78 I	—	—	—	0.005	2.70 I
Phosphine	PH_3	1.8 – I	—	—	—	0.05	1.17 I
Silane	SiH_4	1.37 – 100 I	—	—	—	5	1.3 I
Diborane	B_2H_6	0.8 – 88 I	—	—	—	0.1	0.96 I
Germane	GeH_4	— —	—	—	—	0.2	2.65 I
Dichlorosilane	SiH_2Cl_2	4.1 – 99 I	—	—	—	—	3.48 I
Hydrogen selenide	H_2Se	— —	—	—	—	0.05	2.8 I
Fluorine	F_2	— —	—	—	—	0.1	1.3 I
Nitrogen dioxide	NO_2	— —	—	—	—	0.2	1.58 I
Chlorine trifluoride	ClF_3	— —	—	—	—	(C0.1)	3.18 I
Hydrogen fluoride	HF	— —	—	—	—	0.5	0.7 I
Hydrogen bromide	HBr	— —	—	—	—	(C2)	2.8 I

NOTE
· The flammable range, explosion class, ignition group, flash point and specific gravity are derived from the Recommended Practices for Explosion-Protected Electrical Installation in General Industries issued by the National Institute of Industrial Safety (TIIS) on March 31, 2006. The entries marked with "I" are derived from the International Chemical Safety Cards (ICSCs).
· The TLVs are the ones released by ACGIH in 2020. There are three types of TLVs, TWA, STEL and Ceiling. The values of STEL and Ceiling are noted in brackets with "STEL" or "C".
*1. Not provided in the Recommended Practices for Explosion-Protected Electrical Installation in General Industries.
*2. When in the oxygen deficiency state as per Article 2 (2) in the Ordinance on Prevention of Anoxia, etc. (a state under which the oxygen concentration in the air is less than 18%, or in which the concentration of hydrogen sulfide in the air is 10ppm or more).

Flammable Range (Explosive Range)

When mixed with air or oxygen, a combustible gas within a specific concentration range will generate an explosion on contact with an ignition source. This range is called explosive range. The lowest concentration of the range is the Lower Explosive Limit (LEL) and the highest is the Upper Explosive Limit (UEL).

Threshold Limit Value (TLV)

TLVs refer to airborne concentrations of chemical substances (e.g., toxic gas) and represent occupational exposure limits under which workers may work repeatedly for 8 hours a day, day after day, without adverse health effects. Established as guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) and Japan Society for Occupational Health.

Quality Management System <ISO 9001>

For the continuous development of our quality management system, we obtained ISO 9001 certification, the global standard for quality management systems, in 1996. As a manufacturer of safety equipment, we will continue to strive for continuous improvement of our quality management system and deliver high quality products to our customers.

Environmental Management System <ISO14001>

We acquired ISO 14001 certification, the global standard for environmental management systems, in 2000 with the aim of becoming an environmentally friendly company. We are working to develop products that do not place a burden on the environment from development and manufacturing to transportation, use, and disposal, as well as products that contribute to the promotion of carbon neutrality.

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SAFETY WARNING
Carefully read the instruction manual prior to use.
Select and use the device designed to detect the required type of gas. Use of a wrong sensor type may cause an accident.

(P)2025030000