

Featuring the next-generation high-performance F Sensors
to meet a wide range of global standards

Gas Detector with Signal Converter

Model SD-3 Series

ATEX certified (ATEX: European directive for equipment for potentially explosive atmospheres)

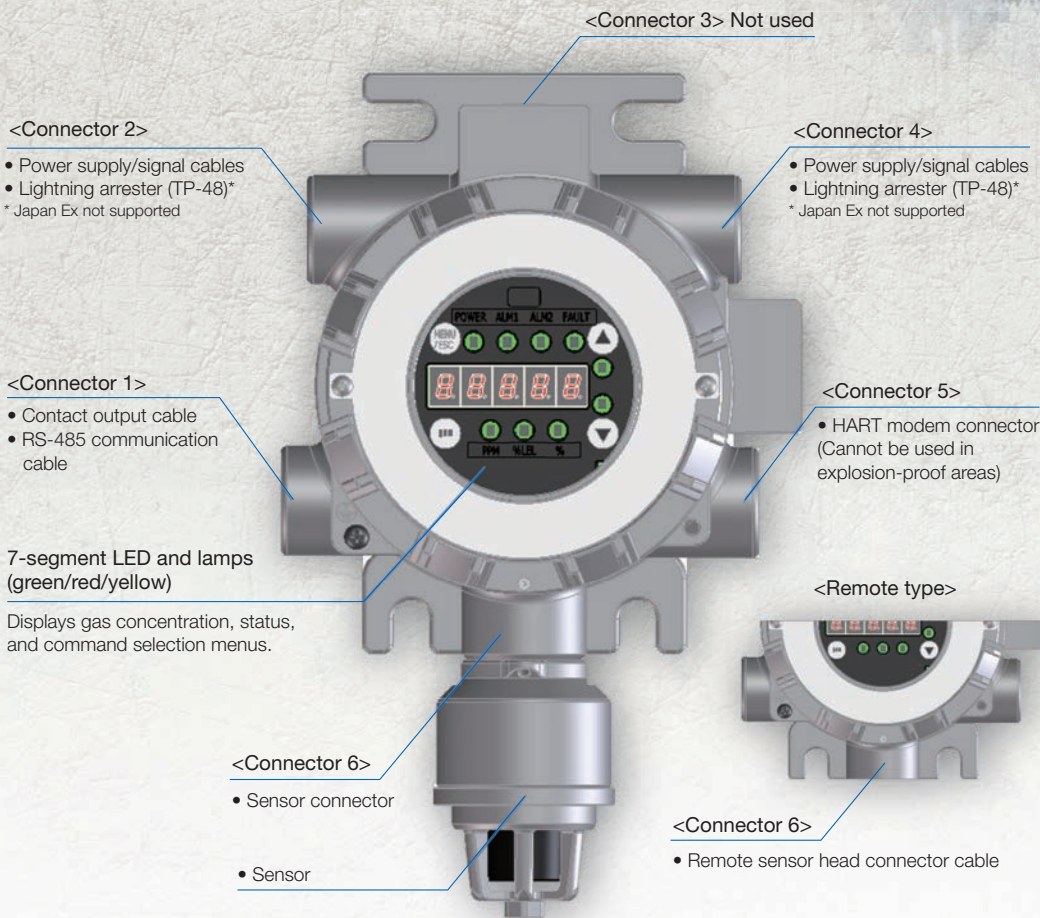
IECEx certified (IEC explosion-proof electrical equipment standard test)

Japan Ex (certificate of conformity for electrical equipment used in potentially explosive atmospheres): pending

Functional safety standard certified



The SD-3 Series of fixed explosion-proof gas detectors detect combustible gas and toxic gas leaks and continuously monitor oxygen levels in the surrounding atmosphere. These global products are certified explosion-proof in various countries (some scheduled) and meet the requirements of various international standards, including IEC/EN performance and SIL 2 certification.



- 1 *Featuring the next-generation high-performance F Sensors*
- Compatible with a wide range of toxic gases
- Double range capability
- 2 *Wide range of output options*
- 3 *Suitable for a variety of uses and installation environments*
- 4 *Complies with wide range of global standards*
- 5 *Rugged housing*

Features

- 1 **Incorporates the next-generation high-performance F sensors for dramatically improved functionality and performance**
 - 3-year sensor warranty
* Specific sensors excluded. Assumes sensor is inspected at least once a year.
 - Operating temperature range: -40 - +70 °C
* Specific sensors excluded
 - IEC/EN performance compliance scheduled
* Specific sensors excluded
 - Sensor degradation and life assessment function
The degradation and life assessment function notifies the user with a warning when the sensor needs to be replaced.

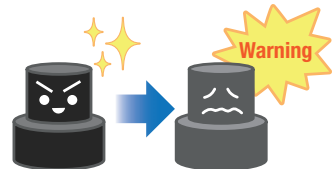
[Sensor degradation assessment]

The individual sensor principle characteristics are used to automatically diagnose sensor degradation (e.g., reduced zero point output and low electrolyte levels).

[Life assessment]

Diagnoses the sensor life during calibration by predicting the sensor output reserve value based on the past calibration history.

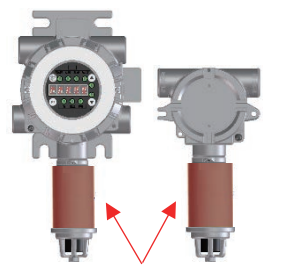
* A digital signal (HART or RS-485 communication) is required to output the sensor degradation and life assessment warning.



Compatible with a wide range of toxic gases

Devices in the SD-3EC Series lineup feature an intrinsically safe explosion-proof barrier integral construction (Flame-proof enclosure + intrinsically safe explosion-proof construction). This eliminates the need for sintered metal in the sensor and allows detection of a wide range of highly adsorptive toxic gases.

* Compatible models: SD-3ECB, SD-3DEC, GD-3ECB
For more information, refer to the F sensor list (with barrier).



Double range capability (NC type)

Double ranges in the form of low concentration (ppm) and lower explosive limit (LEL) can be detected with a single device. This allows measurement of a wide range of concentrations with greater accuracy.

* Not compatible with HART communication

2

Wide range of output options

The SD-3 Series also supports Modbus (RS-485) communication in addition to 4 - 20 mA output with HART (support planned). Three relay contacts are also available (ALARM1, ALARM2, and FAULT). Select any of the following three types to suit specific uses:

- ① 4 - 20 mA signal with HART communication [standard]
- ② 4 - 20 mA signal with HART communication + contact (3c) [optional]
- ③ 4 - 20 mA signal + Modbus (RS-485) communication [optional; future support planned]

3

Wide range of types to suit a variety of uses and installation environments

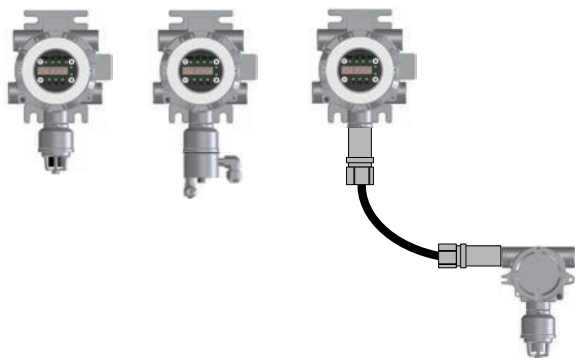
The SD-3 Series lineup includes diffusion type, suction type, remote type, and duct insertion type models. Select the optimal detection method to suit specific uses.

Using a suction type model in conjunction with an external pump allows use in limited installation space and high places where maintenance work is not possible.

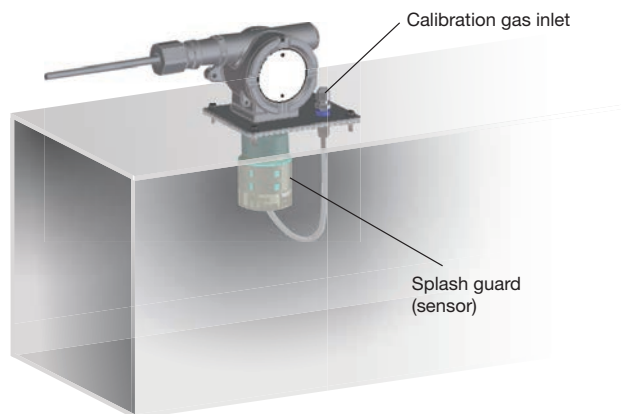
[Remote type/Duct insertion type]

Use a remote sensor to allow sensor installation up to 20 m from the detector main unit. An optional duct mount kit (sold separately) can be used for insertion inside a duct.

[Diffusion type] [Suction type] [Remote type]



[Duct insertion type]



4

Complies with wide range of global standards

Explosion-proof certifications in different countries	ATEX/IECEX, Japan Ex (Japan)*, FM/cFM*		
Performance	IEC/EN* performance compliance	Combustible gas: IEC/EN 60079-29-1	Toxic gas: EN 45544-2 Oxygen: EN 50104
Miscellaneous	CE marking (ATEX Directive, EMC Directive, RoHS Directive), SIL2 Certification (IEC 61508), MED Certification*, HART communication		

* Pending or due to be certified

5

Rugged housing construction allows use even in harsh environments

- Housing material: SCS14 stainless steel (equivalent to SUS316)
- Protection rating: Equivalent to IP66/67
- Wide range of operating temperatures (-40 - +70 °C)
- Extensive range of optional accessories: protective cover, splash guard, lightning arrester (Japan Ex not supported), various filters, etc.



With sunshade fitted



With splash guard fitted

Detection principles and detection target gases by model

The SD-3 Series consists of the following models, which vary by sampling method and detection principle. Please select the appropriate model for the intended use.

[List of detection target gases by model]

Model	Sampling method	Detection principle	Detection target gas			Nameplate color	Remarks
			Combustible gas	Oxygen	Toxic gas		
SD-3RI	Diffusion type	IRF: Non-dispersive infrared type	○		○	Red	
SD-3DRI	Suction type						
SD-3NC	Diffusion type	NCF: New ceramic type (catalytic type)	○			Red	
SD-3DNC	Suction type						
SD-3GH	Diffusion type	SGF: Semiconductor type	○		○	Yellow	
SD-3DGH	Suction type						
SD-3GHS	Diffusion type				○	Yellow	CS ₂ (carbon disulfide) only
SD-3DGHS	Suction type						
SD-3SP	Diffusion type	SHF: Hot-wire semiconductor type	○		○	Blue	
SD-3DSP	Suction type						
SD-3EC	Diffusion type	ESF: Electrochemical type		○	○	Yellow/silver	Toxic gas: Yellow certification plate Oxygen: Silver certification plate
SD-3DEC	Suction type						
SD-3ECS	Diffusion type				○	Yellow	H ₂ S (hydrogen sulfide) only
SD-3DECS	Suction type						
SD-3ECB	Diffusion type				○	Yellow	With EC barrier*
SD-3DECB	Suction type						

* Differs depending on detection target gas. For more information, refer to the F sensor list on the following page.

[List of detection target gases by model (remote type)]

Model (Main unit)	SD-3SC
-------------------	--------

Main unit model (Remote sensor unit)	Sampling method	Detection principle	Detection target gas			Nameplate color	Remarks	
			Combustible gas	Oxygen	Toxic gas			
GD-3RI	Diffusion type	IRF: Non-dispersive infrared type	○		○	Red		
GD-3NC		NCF: New ceramic type (catalytic type)	○				Red	
GD-3GH		SGF: Semiconductor type		○		○		Yellow
GD-3GHS						○	Yellow	
GD-3SP		SHF: Hot-wire semiconductor type	○		○	Blue		
GD-3EC		ESF: Electrochemical type			○	○	Yellow/silver	Toxic gas: Yellow certification plate Oxygen: Silver certification plate
GD-3ECS						○		
GD-3ECB						○	Yellow	With EC barrier*

* Differs depending on detection target gas. For more information, refer to the F sensor list on the following page.

Certification plate: Red



Certification plate: Blue



Certification plate: Yellow



Certification plate: Silver



F sensor list

Detection principle	Product No.	Sensor model	Gas name	Chemical formula	F.S.	1 digit	Calibration gas (replacement gas)	Operating temperature range (no sudden changes)	Operating humidity range (no condensation)	With/without barrier	Remarks
IRF	6201 02	IRF-1301	Methane	CH ₄	100 %LEL	0.5 %LEL	CH ₄	-40 °C - 70 °C	95 %RH or less	-	
	6212 03	IRF-1303	Isobutane	C ₄ H ₁₀	100 %LEL	0.5 %LEL	i-C ₄ H ₁₀	-40 °C - 70 °C	95 %RH or less	-	
	6212 02	IRF-1317	Propane	C ₃ H ₈	100 %LEL	0.5 %LEL	C ₃ H ₈ (i-C ₃ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6205 02	IRF-1435	Carbon dioxide	CO ₂	2,000 ppm	1 ppm	CO ₂	-40 °C - 70 °C	95 %RH or less	-	
	6205 03	IRF-1436	Carbon dioxide	CO ₂	5,000 ppm	10 ppm	CO ₂	-40 °C - 70 °C	95 %RH or less	-	
	6205 04	IRF-1433	Carbon dioxide	CO ₂	10,000 ppm	10 ppm	CO ₂	-40 °C - 70 °C	95 %RH or less	-	
	6205 12	IRF-1437	Carbon dioxide	CO ₂	2 vol%	0.005 vol%	CO ₂	-40 °C - 70 °C	95 %RH or less	-	
	6205 13	IRF-1438	Carbon dioxide	CO ₂	5 vol%	0.01 vol%	CO ₂	-40 °C - 70 °C	95 %RH or less	-	
	6205 14	IRF-1439	Carbon dioxide	CO ₂	10 vol%	0.01 vol%	CO ₂	-40 °C - 70 °C	95 %RH or less	-	
	6201 03	IRF-1334	Methane	CH ₄	100 vol%	0.5 vol%	CH ₄	-40 °C - 70 °C	95 %RH or less	-	
	6201 04	IRF-1316	Ethylene	C ₂ H ₄	100 %LEL	0.5 %LEL	C ₂ H ₄ (CH ₄)	-40 °C - 70 °C	95 %RH or less	-	
	6213 02	IRF-1340	Isobutylene	C ₄ H ₈	100 %LEL	0.5 %LEL	i-C ₄ H ₈ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6212 04	IRF-1308	N-hexane	C ₆ H ₁₄	100 %LEL	0.5 %LEL	n-C ₆ H ₁₄ (i-C ₆ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6201 05	IRF-1332	Butadiene	C ₄ H ₆	100 %LEL	0.5 %LEL	C ₄ H ₆ (CH ₄)	-40 °C - 70 °C	95 %RH or less	-	
NCF	6000 07	NCF-6318	Ethane	C ₂ H ₆	100 %LEL	0.5 %LEL	C ₂ H ₆ (CH ₄)	-40 °C - 70 °C	95 %RH or less	-	
	6000 14	NCF-6318	Propane	C ₃ H ₈	100 %LEL	0.5 %LEL	C ₃ H ₈ (CH ₄)	-40 °C - 70 °C	95 %RH or less	-	
	6000 19	NCF-6318	Methane	CH ₄	100 %LEL	0.5 %LEL	CH ₄	-40 °C - 70 °C	95 %RH or less	-	
	6000 20	NCF-6318	Methane	CH ₄	2 vol%	0.01 vol%	CH ₄	-40 °C - 70 °C	95 %RH or less	-	
	6000 21	NCF-6318	Methane	CH ₄	20,000 ppm	100 ppm	CH ₄	-40 °C - 70 °C	95 %RH or less	-	
	6000 22	NCF-6320	Hydrogen	H ₂	100 %LEL	0.5 %LEL	H ₂	-40 °C - 70 °C	95 %RH or less	-	Hydrogen selective
	6000 23	NCF-6320	Hydrogen	H ₂	2 vol%	0.01 vol%	H ₂	-40 °C - 70 °C	95 %RH or less	-	Hydrogen selective
	6000 24	NCF-6320	Hydrogen	H ₂	2,000 ppm	10 ppm	H ₂	-40 °C - 70 °C	95 %RH or less	-	Hydrogen selective
	6000 25	NCF-6319	Isobutane	C ₄ H ₁₀	100 %LEL	0.5 %LEL	i-C ₄ H ₁₀	-40 °C - 70 °C	95 %RH or less	-	
	6000 26	NCF-6319	Hydrogen	H ₂	2 vol%	0.01 vol%	H ₂	-40 °C - 70 °C	95 %RH or less	-	
	6000 27	NCF-6319	Hydrogen	H ₂	100 %LEL	0.5 %LEL	H ₂	-40 °C - 70 °C	95 %RH or less	-	
	6000 28	NCF-6319	N-hexane	C ₆ H ₁₄	2,000 ppm	10 ppm	n-C ₆ H ₁₄ (i-C ₆ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 29	NCF-6319	Hydrogen	H ₂	1 vol%	0.01 vol%	H ₂	-40 °C - 70 °C	95 %RH or less	-	
	6000 30	NCF-6319	Isopropyl alcohol	C ₃ H ₈ O	100 %LEL	0.5 %LEL	IPA(i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 31	NCF-6319	Toluene	C ₇ H ₈	100 %LEL	0.5 %LEL	C ₇ H ₈ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 32	NCF-6319	Acetone	C ₃ H ₆ O	100 %LEL	0.5 %LEL	C ₃ H ₆ O(i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 33	NCF-6319	Hydrogen	H ₂	4 vol%	0.02 vol%	H ₂	-40 °C - 70 °C	95 %RH or less	-	
	6000 34	NCF-6319	N,N-dimethylacetamide	C ₄ H ₉ NO	4,000 ppm	20 ppm	DMAC(i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 35	NCF-6319	Acetylene	C ₂ H ₂	100 %LEL	0.5 %LEL	C ₂ H ₂ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 36	NCF-6319	Ethylene	C ₂ H ₄	100 %LEL	0.5 %LEL	C ₂ H ₄ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 37	NCF-6319	Normal octane	C ₈ H ₁₈	100 %LEL	0.5 %LEL	C ₈ H ₁₈ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 38	NCF-6319	Ethyl alcohol	C ₂ H ₅ O	100 %LEL	0.5 %LEL	C ₂ H ₅ OH(i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 39	NCF-6319	Methyl alcohol	CH ₃ O	100 %LEL	0.5 %LEL	CH ₃ OH(i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 40	NCF-6319	Propylene	C ₃ H ₆	100 %LEL	0.5 %LEL	C ₃ H ₆ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 41	NCF-6319	Vinyl chloride	C ₂ H ₃ Cl	100 %LEL	0.5 %LEL	VCM(i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 48	NCF-6319	Isobutylene	i-C ₄ H ₈	100 %LEL	0.5 %LEL	i-C ₄ H ₈ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	6000 49	NCF-6319	Butadiene	C ₄ H ₆	100 %LEL	0.5 %LEL	C ₄ H ₆ (i-C ₄ H ₁₀)	-40 °C - 70 °C	95 %RH or less	-	
	SGF	6030 04	SGF-8562	Carbonyl sulfide	COS	2,000 ppm	10 ppm	COS(C ₂ H ₅ OH)	-20 °C - 65 °C	20 - 95 %RH	-
6030 05		SGF-8562	Carbon disulfide	CS ₂	200 ppm	1 ppm	CS ₂	-20 °C - 65 °C	20 - 95 %RH	-	
6030 06		SGF-8563	Ethylene oxide	C ₂ H ₄ O	100 ppm	1 ppm	EO	-20 °C - 65 °C	20 - 95 %RH	-	
6030 07		SGF-8562	Hydrogen sulfide	H ₂ S	100 ppm	1 ppm	H ₂ S	-20 °C - 65 °C	20 - 95 %RH	-	
6060 01		SHF-8601	Methane	CH ₄	5,000 ppm	25 ppm	CH ₄	-30 °C - 70 °C	20 - 95 %RH	-	
6060 02		SHF-8601	Isobutane	C ₄ H ₁₀	2,000 ppm	10 ppm	i-C ₄ H ₁₀	-30 °C - 70 °C	20 - 95 %RH	-	
6060 04		SHF-8601	Ethylene	C ₂ H ₄	2,000 ppm	10 ppm	C ₂ H ₄	-30 °C - 70 °C	20 - 95 %RH	-	
6060 05	SHF-8601	Acetylene	C ₂ H ₂	2,000 ppm	10 ppm	C ₂ H ₂	-30 °C - 70 °C	20 - 95 %RH	-		
6060 06	SHF-8601	Propylene	C ₃ H ₆	2,000 ppm	10 ppm	C ₃ H ₆	-30 °C - 70 °C	20 - 95 %RH	-		
6060 07	SHF-8601	N-hexane	C ₆ H ₁₄	200 ppm	1 ppm	n-C ₆ H ₁₄	-30 °C - 70 °C	20 - 95 %RH	-		
6060 08	SHF-8601	Octane	C ₈ H ₁₈	2,000 ppm	10 ppm	C ₈ H ₁₈	-30 °C - 70 °C	20 - 95 %RH	-		
6060 09	SHF-8601	Fluoromethane	CH ₃ F	2,000 ppm	10 ppm	R-41	-30 °C - 70 °C	20 - 95 %RH	-		
6060 10	SHF-8601	Diffuoromethane	CH ₂ F ₂	2,000 ppm	10 ppm	R-32	-30 °C - 70 °C	20 - 95 %RH	-		
6060 11	SHF-8601	Diffuoromethane	CH ₂ F ₂	5,000 ppm	25 ppm	R-32	-30 °C - 70 °C	20 - 95 %RH	-		
6060 12	SHF-8601	Isopropyl alcohol	C ₃ H ₈ O	2,000 ppm	10 ppm	IPA	-30 °C - 70 °C	20 - 95 %RH	-		
6060 13	SHF-8601	Hexafluoro-1,3-butadiene	C ₄ F ₆	2,000 ppm	10 ppm	C ₄ F ₆ (i-C ₄ H ₁₀)	-30 °C - 70 °C	20 - 95 %RH	-		
6060 14	SHF-8601	1,2-dichloroethylene	C ₂ H ₂ Cl ₂	600 ppm	5 ppm	C ₂ H ₂ Cl ₂	-30 °C - 70 °C	20 - 95 %RH	-		
6060 18	SHF-8601	Carbon monoxide	CO	1,000 ppm	10 ppm	CO	0 °C - 70 °C	20 - 95 %RH	-		
6060 15	SHF-8603	Hydrogen	H ₂	500 ppm	5 ppm	H ₂	-30 °C - 70 °C	20 - 95 %RH	-	Hydrogen selective	
6060 16	SHF-8603	Hydrogen	H ₂	1,000 ppm	10 ppm	H ₂	-30 °C - 70 °C	20 - 95 %RH	-	Hydrogen selective	
6060 03	SHF-8603	Hydrogen	H ₂	2,000 ppm	10 ppm	H ₂	-30 °C - 70 °C	20 - 95 %RH	-	Hydrogen selective	
6060 17	SHF-8603	Deuterium	D ₂	2,000 ppm	10 ppm	D ₂ (H ₂)	-30 °C - 70 °C	20 - 95 %RH	-	Hydrogen selective	
ESF	6100 28	ESF-A24RH	Hydrogen sulfide	H ₂ S	30 ppm	0.2 ppm	H ₂ S	-40 °C - 70 °C	40 - 95 %RH	Without barrier	High-humidity compatible sensor
	6100 04	ESF-A24R	Hydrogen sulfide	H ₂ S	100 ppm	1 ppm	H ₂ S	-40 °C - 70 °C	20 - 90 %RH	Without barrier	-
	6100 06	ESF-A24A	Nitrogen dioxide	NO ₂	15 ppm	0.1 ppm	NO ₂	-40 °C - 70 °C	20 - 90 %RH	With barrier	-
	6100 34	ESF-X24P2	Oxygen	O ₂	25 %	0.1 %	N ₂	-40 °C - 70 °C	20 - 90 %RH	Without barrier	-
		Scheduled to be added to lineup	Ammonia	NH ₃	75 ppm	0.5 ppm	-	-	-	-	-
		Scheduled to be added to lineup	Chlorine	Cl ₂	1.5 ppm	0.01 ppm	-	-	-	-	-
	Scheduled to be added to lineup	Carbon monoxide	CO	150 ppm	1 ppm	-	-	-	-	-	
	Scheduled to be added to lineup	Hydrogen chloride	HCL	15 ppm	0.1 ppm	-	-	-	-	-	

* Please contact Riken Keiki for information on other gas types and detection ranges.

IRF
Non-dispersive infrared type



NCF
New ceramic type (catalytic type)



SGF
Semiconductor type



SHF
Hot-wire semiconductor type



ESF
Electrochemical type



[SD-3 Series Specifications]

Model	Diffusion type	SD-3RI	SD-3NC	SD-3GH	SD-3GHS	SD-3SP	SD-3EC	SD-3ECS	SD-3ECB
	Suction type	SD-3DRI	SD-3DNC	SD-3DGH	SD-3DGHs	SD-3DSP	SD-3DEC	SD-3DECS	SD-3DECB
Detection principle		Non-dispersive infrared type	New ceramic type (catalytic type)	Semiconductor type		Hot-wire semiconductor type	Electrochemical type		
Detection target gas		Combustible gas/toxic gas/oxygen; detection range depends on detection target gas.							
Display		7-segment LED (5 digits) and 3-color lamps (red/green/yellow)							
Sampling method		Diffusion/Suction (introduced via an external unit)							
Set flow rate		0.4 - 1.5 L/min							
Gas alarm type		Two-step alarm (H-HH or H-L or L-LL)							
Fault alarm/self-diagnosis		System abnormality (E-9)/sensor abnormality (E-1)							
Warning		Sensor life assessment/clock abnormality diagnosis/communication diagnosis/sensor warning							
Gas concentration output	Standard	Gas concentration output (4 - 20 mA with HART), 4 - 20 mA DC (non-insulated, linear output), load resistance 600 Ω or less, maximum resolution 250 divisions (depending on specifications)							
	Option	RS-485 (half duplex)							
Contact output (optional)		SPDT (2 alarms, 1 fault output operation), 250 V 2 A AC, 30 V 1 A DC (resistance load), minimum load 5 V 0.1 A DC							
Power supply		24 V DC (18 V - 30 V DC)							
Power consumption		Maximum 3.8 W	Maximum 4.5 W	Maximum 4.5 W	Maximum 4.5 W	Maximum 3.5 W	Maximum 2.8 W	Maximum 2.8 W	Maximum 3.1 W
Cable connectors		M25 × 1.5, option: NPT3/4, NPT1/2, M20 × 1.5 (using adapter)							
Operating temperature/humidity range		-40 - +70 °C (no sudden changes), 0 - 95 %RH or less (no condensation), or according to sensor specifications if restrictions apply							
Housing material		SCS14 stainless steel (equivalent to SUS316)							
Protection level		IP66/67 equivalent							
External dimensions (excluding projections)	Diffusion type	Approximately 171 (W) × 277 (H) × 127 (D) mm							Approximately 171 (W) × 322 (H) × 127 (D) mm
	Suction type	Approximately 171 (W) × 289 (H) × 127 (D) mm							Approximately 171 (W) × 334 (H) × 127 (D) mm
Weight	Diffusion type	Approximately 6.7 kg							Approximately 7.3 kg
	Suction type	Approximately 7.0 kg							Approximately 7.6 kg
Explosion-proof construction		Flame-proof enclosure							Flame-proof enclosure + Intrinsically safe explosion-proof construction
Explosion-proof certification	ATEX	II 2G Ex db IIC T6/T5 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex db IIC T6/T4 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex db IIC T4 Gb	II 2G Ex db IIC T4 Gb	II 2G Ex db ia IIC T4 Gb
	IECEx	Ex db IIC T6/T5 Gb	Ex db IIC T5/T4 Gb	Ex db IIC T5/T4 Gb	Ex db IIC T6/T4 Gb	Ex db IIC T5/T4 Gb	Ex db IIC T4 Gb	Ex db IIC T4 Gb	Ex db ia IIC T4 Gb
Functional safety*		IEC 61508 SIL2 (SC 3)	IEC 61508 SIL2 (SC 3)	-	-	-	Pending	Pending	Pending
CE marking		ATEX Directive, EMC Directive, RoHS Directive							
HART communication		HART7							

* Select SIL certified external units when used in conjunction.

[Remote type: SD-3SC + GD-3 Series Specifications]

Model	Main unit	SD-3SC							
	Remote sensor unit	GD-3RI	GD-3NC	GD-3GH	GD-3GHS	GD-3SP	GD-3EC	GD-3ECS	GD-3ECB
Detection principle		Non-dispersive infrared type	New ceramic type (catalytic type)	Semiconductor type		Hot-wire semiconductor type	Electrochemical type		
Detection target gas		Combustible gas/toxic gas/oxygen; detection range depends on detection target gas.							
Display		7-segment LED (5 digits) and 3-color lamps (red/green/yellow)							
Sampling method		Diffusion type							
Gas alarm type		Two-step alarm (H-HH or H-L or L-LL)							
Fault alarm/self-diagnosis		System abnormality (E-9)/sensor abnormality (E-1)							
Warning		Sensor life assessment/clock abnormality diagnosis/communication diagnosis/sensor warning							
Gas concentration output	Standard	Gas concentration output (4 - 20 mA with HART), 4 - 20 mA DC (non-insulated, linear output), load resistance 600 Ω or less, maximum resolution 250 divisions (depending on specifications)							
	Option	RS-485 (half duplex)							
Contact output (optional)		SPDT (2 alarms, 1 fault output operation), 250 V 2 A AC, 30 V 1 A DC (resistance load), minimum load 5 V 0.1 A DC							
Remote cable		Shielded twisted pair cable 1.25 sq (1.38 mm ² /AWG16), maximum 20 m between main unit (SD-3SC) and remote sensor unit (GD-3)							
Power source		24 V DC (18 V - 30 V DC)							
Power consumption	Main unit	Maximum 5.0 W							
	Remote sensor unit	Maximum 1.2 W	Maximum 2.0 W	Maximum 2.0 W	Maximum 2.0 W	Maximum 1.0 W	Maximum 1.0 W	Maximum 1.0 W	Maximum 1.0 W
Cable connectors		M25 × 1.5, option: NPT3/4, NPT1/2, M20 × 1.5 (using adapter)							
Operating temperature/humidity range		-40 - +70 °C (no sudden changes), 0 - 95 %RH or less (no condensation), or according to sensor specifications if restrictions apply							
Housing material		SCS14 stainless steel (equivalent to SUS316)							
Protection level		IP66/67 equivalent							
External dimensions (excluding projections)	Main unit	Approximately 171 (W) × 193 (H) × 127 (D) mm							Approximately 125 (W) × 240 (H) × 88 (D) mm
	Remote sensor unit	Approximately 125 (W) × 195 (H) × 88 (D) mm							Approximately 125 (W) × 240 (H) × 88 (D) mm
Weight	Main unit	Approximately 6.0 kg							Approximately 4.0 kg
	Remote sensor unit	Approximately 3.0 kg							Approximately 4.0 kg
Explosion-proof construction		Flame-proof enclosure							Flame-proof enclosure + Intrinsically safe explosion-proof construction
Explosion-proof certification	ATEX	II 2G Ex db IIC T6/T5 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex db IIC T6/T4 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex db IIC T4 Gb	II 2G Ex db IIC T4 Gb	II 2G Ex db ia IIC T4 Gb
	IECEx	Ex db IIC T6/T5 Gb	Ex db IIC T5/T4 Gb	Ex db IIC T5/T4 Gb	Ex db IIC T6/T4 Gb	Ex db IIC T5/T4 Gb	Ex db IIC T4 Gb	Ex db IIC T4 Gb	Ex db ia IIC T4 Gb
Functional safety		IEC 61508 SIL2 (SC 3)	IEC 61508 SIL2 (SC 3)	-	-	-	Pending	Pending	Pending
CE marking		ATEX Directive, EMC Directive, RoHS Directive							
HART communication		HART7							

[Terminal specifications: Power supply + 4 - 20 mA signal (with HART communication)]

<Using 3-core cable>

Terminal No.	Power supply/signal cable connection
1	Power supply (+)
2	Common (Power supply (-), signal (-))
3	Signal (+)




<Using 4-core cable>

Terminal No.	Power supply/signal cable connection
1	Power supply (+)
2	Power supply (-)
3	Signal (+)
4	Signal (-)

[Terminal specifications: Contact output (3c)]

Terminal No.	Cable connection
1	N.O. (Normal Open)
2	Common
3	N.C. (Normal Close)

Accessories

	Name	Quantity	Part No.	Description
	Control key	*	4286 9200 80	Key used to operate the product
	Operating lever	×1	2594 0481 90	Tool used to connect cables to the terminal plate
	Hex key wrench (2 across flats)	*	1510 5020 40	Tool used to tighten M4 hex socket set screws

* The number will differ depending on the number of units purchased. 1 - 10 units: × 1, 11 - 20 units: × 2, 21 - 50 units: × 3, 51 or more units: × 4

Order information

SD-3 (① ② (③ 1 ⑤ 0 ⑦ ⑧)

Explosion-proof
application type

[Remote type: Main unit (SD-3SC) + Sensor unit (GD-3 Series)]

SD-3SC (③ 1 ⑤ 0 ⑦ ⑧)

GD-3 ②

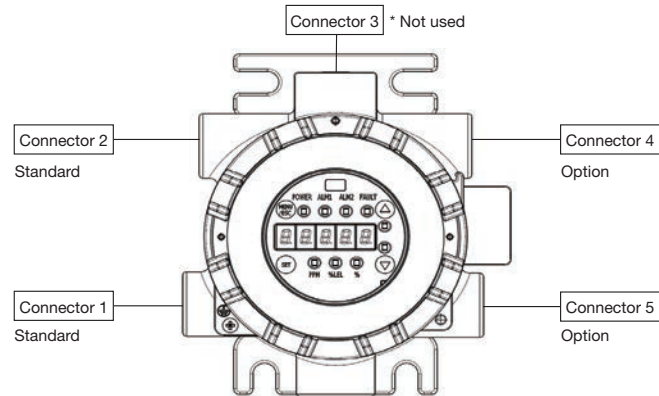
①	Diffusion type/suction type selection	
	Blank	Diffusion type
	D	Suction type (introduced via an external unit)
②	Sensor type selection	
	RI	Non-dispersive infrared type
	NC	New ceramic type (catalytic type)
	GH	Semiconductor type
	GHS	Semiconductor type + sintered metal (selectable for CS ₂ only)
	SP	Hot-wire semiconductor type
	EC	Electrochemical type (selectable for CO/O ₂ only)
	ECS	Electrochemical type + sintered metal (selectable for H ₂ S only)
	ECB	Electrochemical type + barrier (selectable for gases other than CO/O ₂ /H ₂ S)
③	Cable connectors (See diagram on right.)	
	0	Connector 1 + Connector 2
	1	Connector 1 + Connector 2 + Connector 4 + Connector 5
④	Explosion-proof	
	1	ATEX/IECEX
	2	—
	3	—
	4	—

⑤	Functional safety ¹	
	0	N/A
	1	SIL (selectable for RI/NC only)
⑥	Performance certification	
	0	N/A
	1	—
	2	—
	3	—

⑦	Range setting ²	
	0	Single range
	1	Double range + 4-16 (selectable with NC only)
	2	Double range + L4-20 (selectable with NC only)
	3	Double range + H4-20 (selectable with NC only)
⑧	Output type selection	
	0	4 - 20 mA with HART
	1	4 - 20 mA with HART + contact (3c)
	2	—

¹ Double range is not available when SIL is selected.

² HART communication is not available when double range is selected.



Example: Cable connectors

* Connectors must always be blanked off with blanking plugs (sold separately) when not in use.

RIKEN KEIKI Co., Ltd.

2-7-6 Azusawa, Itabashi-ku, Tokyo 174-8744, Japan

Phone : +81-3-3966-1113

Telefax : +81-3-3558-9110

E-mail : intdept@rikenkeiki.co.jp

Web site : <https://www.rikenkeiki.co.jp/english>

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

★ Distributed by: