RIKEN KEIKI

New Gas Detectors with Signal Converters

Model: SD-3 Series

ATEX
IECEx
CE marking
JAPAN Ex: pending
SIL 2: pending

HART COMMUNICATION FOUNDATION

Features

- **Incorporates newly developed "F sensor" for improved functionality and performance**
  - Three-year sensor warranty *Specific sensors excluded
  - Operating temperature range: -40 - +70 °C *Specific sensors excluded
  - Sensor degradation and life assessment function
  - IEC/EN, ANSI/ISA, and CSA performance compatibility planned
- **Complies with different global standards (including planned certifications).**
  - Explosion-proof certifications in different countries (ATEX/IECEx, JAPAN Ex (Japan), FM/cFM), CE marking, SIL 2 (IEC 61508), etc.
- **Wide range of output options**
  - Supports Modbus (RS-485) communication in addition to 4 - 20 mA output + HART communication.
  - Three relays (ALARM1, ALARM2, FAULT) can be mounted
  - Allows up to three relays (ARM1, ALARM2, FAULT) to be mounted.
- **Rugged housing construction allows use even in harsh environments.**
  - Housing material: Stainless steel SCS14 (SUS316 equivalent), protection rating equivalent to IP66/67, compatible with wide temperature range (-40 - +70 °C)
  - Extensive range of optional accessories: Protective cover, splash guard, lightning arrester (except JAPAN Ex), filters, etc.
- **Wide range of types to suit a variety of uses and installation environments**
  - Diffusion type, suction type, remote type, duct insertion type

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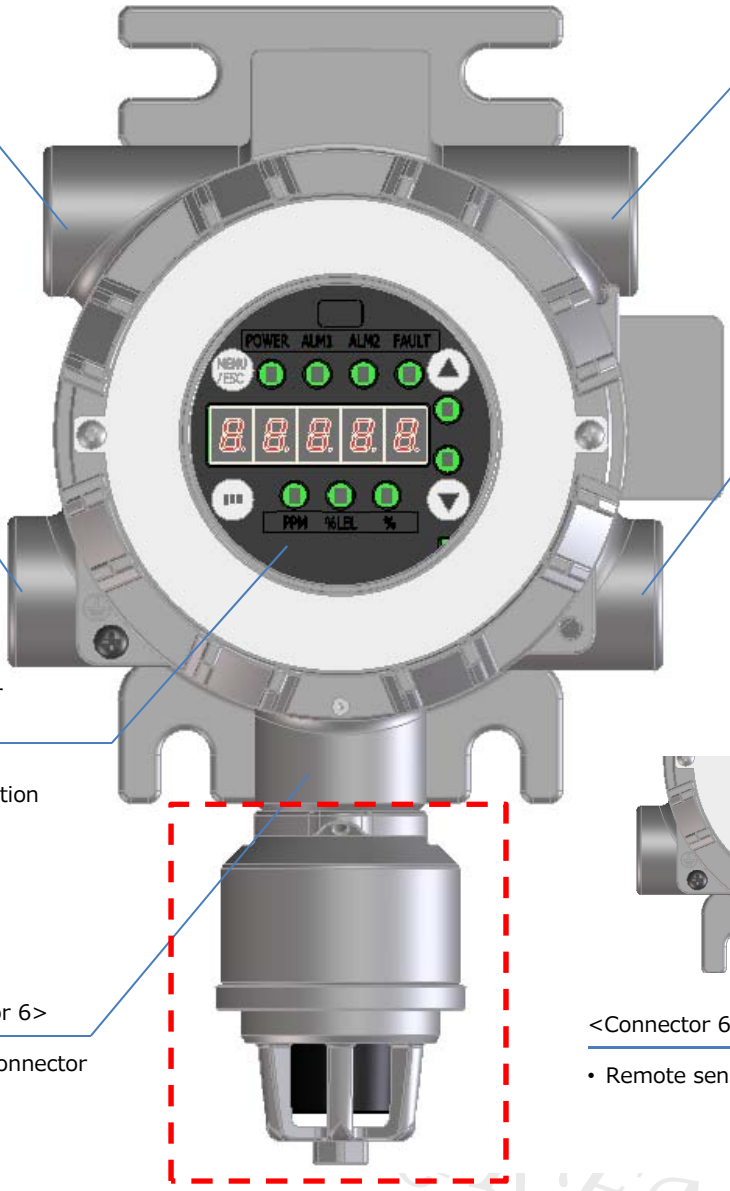
The SD-3 Series are fixed explosion-proof gas detectors that continuously monitor for combustible gases, toxic gases, and oxygen in the surrounding atmosphere. These gas detectors detect gas leaks and activate an alarm when preset concentrations are exceeded. Detected gas concentrations are converted and output as 4 - 20 mA analog and digital HART signals. Output options include Modbus (RS-485) communication and the use of three relays.

The rugged housing construction (material: stainless steel, protection rating equivalent to IP66/67) allows use in a wide temperature range (-40 - +70 °C). A range of different mounting types (e.g., wall, pole, and duct mounted) support a variety of uses and installation environments.

These global products are certified explosion-proof in various countries and meet the requirements of various international standards, including IEC/EN performance and SIL 2 certification.



<Connector 2>

- Power supply/signal cable
- Lightning arrester (TP-48)*

*Requires adapter.

<Connector 4>

- Power supply/signal cable
  Lightning arrester (TP-48)*

*Requires adapter.

<Connector 1>

- Contact output cable
- RS-485 interface cable

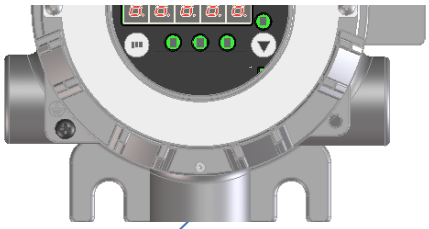
<Connector 5>

- HART modem connector (Cannot be used in explosion-proof areas)

7-segment LED and 3-color lamps (Red/Green/Yellow)

Displays gas concentration, status, and command selection menu.

<Remote type>



<Connector 6>

- Sensor connector

<Connector 6>

- Remote sensor head connector cable

New improved fixed-type sensors!

Incorporates the newly developed “F Sensor” sensor series. The “F Sensor” series products are high-performance sensors with dramatically improved sensor performance. The sensors are covered by a three-year warranty for peace of mind.

<Features>	IRF Non-dispersive infrared type	NCF New ceramic type	SGF Semiconductor type	SHF Hot-wire semiconductor type	ESF Electrochemical type
• Three-year sensor warranty* • Operating temperature range of -40 - +70 °C* • Sensor degradation and life assessment function • IEC/EN performance compatibility planned*					

*Specific sensors excluded

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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	Certification plate	Detection target gas			Remarks
				Combustible gas	Toxic gas	Oxygen	
SD-3RI	Diffusion type	IRF: Infrared type	Red	○	○		
SD-3DRI	Suction type						
SD-3NC	Diffusion type	NCF: New ceramic 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_2S (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. See the F-sensor list for details.

<List of detection target gases by model (remote type)>

Model (Main unit)	SD-3SC

Main unit model (Remote sensor unit)	Sampling method	Detection principle	Certification plate	Detection target gas			Remarks
				Combustible gas	Toxic gas	Oxygen	
GD-3RI	Diffusion type	IRF: Infrared type	Red	○	○		
GD-3NC		NCF: New ceramic type	Red	○			
GD-3GH		SGF: Semiconductor type	Yellow	○	○		
GD-3GHS			Yellow		○		CS_2 (carbon disulfide) only
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			Yellow		○		H_2S (hydrogen sulfide) only
GD-3ECB			Yellow		○		With EC barrier*

*Differs depending on detection target gas. See the F-sensor list for details.

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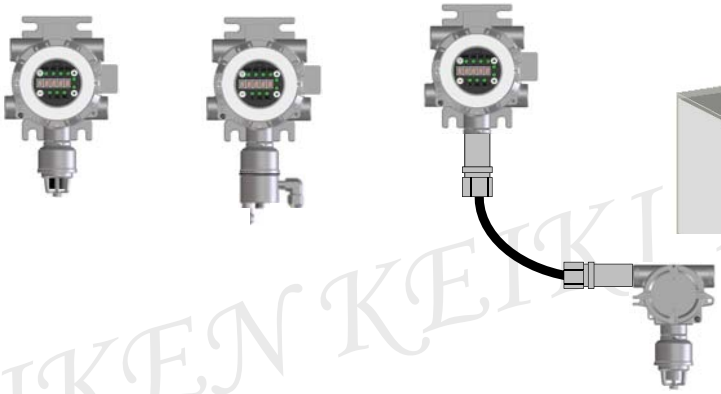
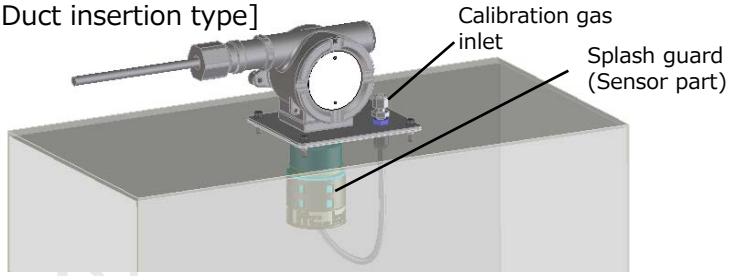
Wide range of types to suit a variety of uses and installation environments!

The SD-3 Series detectors can be used with a remote sensor which can be installed in a location up to 20 m from the main detector unit. An optional splash guard and dedicated kit (sold separately) can be used to allow insertion inside ducts. 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.

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



[Duct insertion type]

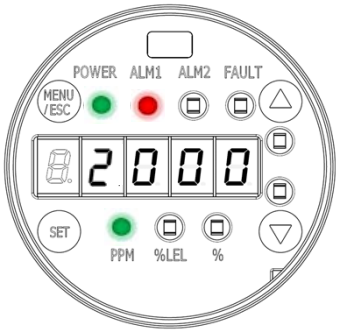


NC

With double range! Allows high-accuracy measurements over a wide concentration range from low concentrations (ppm) to the lower explosive limit (LEL)! *HART communication not available

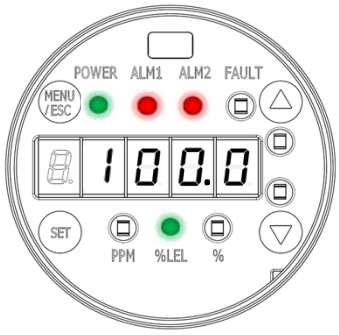
SD-3NC and SD-3DNC models with the NCF (new ceramic type) sensor support double range. The double range feature allows the scale to be switched between Low range (low concentration side) and High range (high concentration side) depending on gas concentration levels. For example, if the detection target gas is methane, the display range automatically switches between Low range for 0 - 2,000 ppm and High range for 5 - 100 %LEL. Using two different calibration gases for the Low and High ranges allows high-accuracy measurements.

<Low range: 0 - 2,000 ppm>



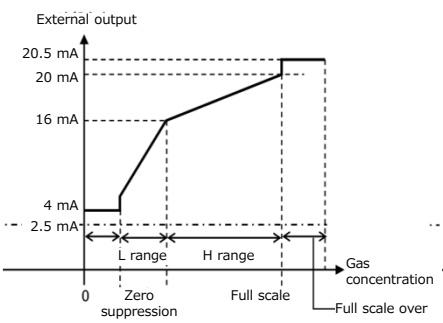
Auto range switching

<High range: 5 - 100 %LEL>

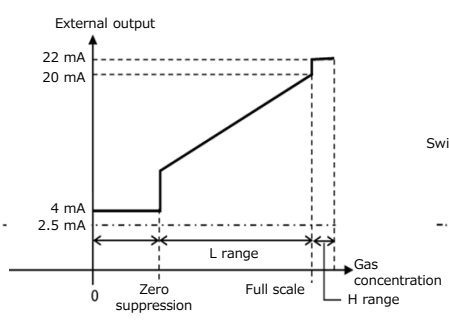


Any of the following three can be selected for the 4 - 20 mA analog output:

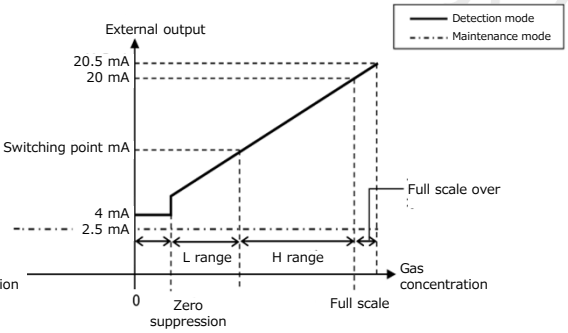
[Double range + 4-16]



[Double range + L4-20]



[Double range + H4-20]



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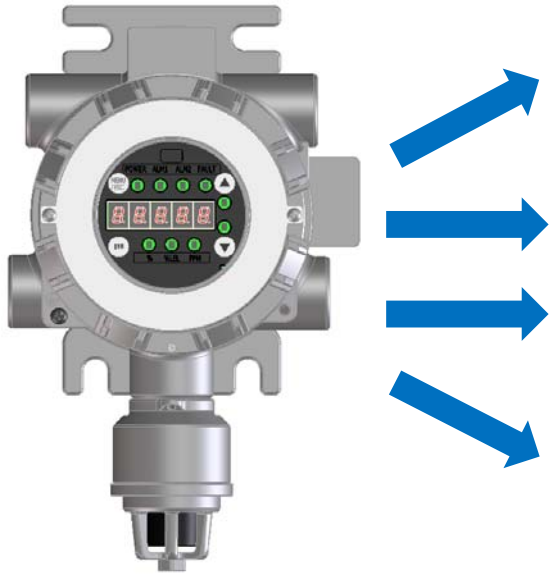
Wide range of output options

The SD-3 Series detectors allow Modbus (RS-485) communication or contact output to be added for external output, in addition to 4 - 20 mA signal output + HART communication. This support for a wide variety of communication types enables flexible integration with existing systems.

The optional contact output can also output gas alarms (ALARM1/ALARM2) and fault alarms (FAULT), allowing you to organize a local gas detection system by combining with external devices such as alarm lamps and buzzers.



[Option] Alarm contact outputs
- Gas alarm output: ALARM 1
- Gas alarm output: ALARM 2
- Fault alarm output: FAULT

4 - 20 mA signal
+
HART communication

[Option] Modbus (RS-485) communication

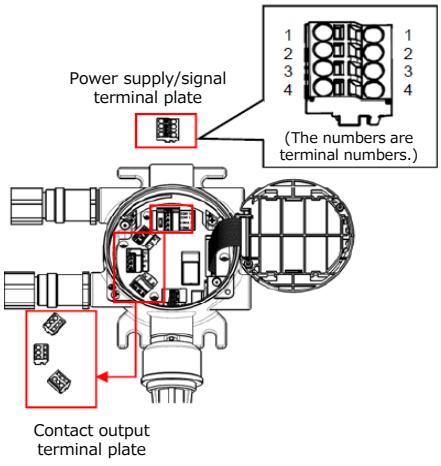
[Terminal specifications: 4 - 20 mA signal + HART communication]

<Using 3-core cable>

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

<Using 4-core cable>

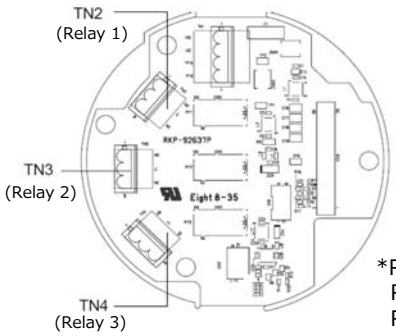
Terminal No.	Power supply/signal cable connection
1	Power source (+)
2	Power source (-)
3	Signal (+)
4	Signal (-)



[Terminal specifications: Contact output (option)]

Terminal No.	Cable connection
1	N.O.
2	Common
3	N.C.

N.O.: Normal Open
N.C.: Normal Close



*Relays 1 : ALARM1
Relays 2 : ALARM2
Relays 3 : FAULT

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Specifications

[SD-3 Series]

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
Display		7-segment LED (5-digit) and 3-color lamps (power, gas alarm, fault alarm)							
Detection principle		Non-dispersive infrared type	Catalytic type (New ceramic type)	Semiconductor type		Hot-wire semiconductor type	Electrochemical type		
Detection target gas		Combustible gas/toxic gas/oxygen; detection range depends on detection target gas.							
Detection method		Diffusion type/suction 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)							
Warnings		Sensor life assessment/clock abnormality diagnosis/communication diagnosis/sensor warning							
External output	Standard	Gas concentration output (4 - 20 mA + 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)							
Relays (option)		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 source		24 V DC (18 - 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		Stainless steel SCS14 (SUS316 equivalent)							
IP class		IP66/67 equivalent							
Explosion-proof construction		Flame-proof enclosure							Flame-proof construction + intrinsically safe explosion-proof construction
Explosion-proof class		II 2G Ex db IIC T6 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 T5/T4 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex ia IIC T4 Gb
Certifications		ATEX/IECEx							
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		Approximately 7 kg							Approximately 8 kg

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

Model	Main unit	SD-3SC							
	Remote sensor unit	GD-3RI	GD-3NC	GD-3GH	GD-3GHS	GD-3SP	GD-3EC	GD-3ECS	GD-3ECB
Display		7-segment LED (5-digit) and 3-color lamps (power, gas alarm, fault alarm)							
Detection principle		Non-dispersive infrared type	Catalytic type (New ceramic type)	Semiconductor type		Hot-wire semiconductor type	Electrochemical type		
Detection target gas		Combustible gas/toxic gas/oxygen; detection range depends on detection target gas.							
Detection 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)							
Warnings		Sensor life assessment/clock abnormality diagnosis/communication diagnosis/sensor warning							
External output	Standard	Gas concentration output (4 - 20 mA + 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)							
Relays (option)		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 1.25sq (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 - 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		Stainless steel SCS14 (SUS316 equivalent)							
IP class		IP66/67 equivalent							
Explosion-proof construction	Main unit	Flame-proof enclosure							
	Remote sensor unit	Flame-proof enclosure							Flame-proof construction + intrinsically safe explosion-proof construction
Explosion-proof class	Main unit	II 2G Ex db IIC T6 Gb							
	Remote sensor unit	II 2G Ex db IIC T6 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 T5/T4 Gb	II 2G Ex db IIC T5/T4 Gb	II 2G Ex ia IIC T4 Gb
Certifications		ATEX/IECEx							
External dimensions (excluding projections)	Main unit	Approx. 171 (W) × 193 (H) × 127 (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 7 kg							
	Remote sensor unit	Approximately 3 kg							Approximately 4 kg

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<F sensor list>

F sensor	Product No.	Sensor model	Gas name	Chemical formula	F.S.	Digit	Calibration gas	Operating temperature range (no sudden changes)	Operating humidity range (no condensation)	Barrier or not (ESF only)	Remarks
IRF	6200 00	IRF-1301	Methane	CH4	100 %LEL	0.5 %LEL	CH4	-40 - 70 °C	95 %RH or less	–	
	6200 01	IRF-1303	Isobutane	C4H10	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6200 02	IRF-1315	Propane	C3H8	100 %LEL	0.5 %LEL	C3H8 or i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6200 03	IRF-1435	Carbon dioxide	CO2	2,000 ppm	1 ppm	CO2	-20 - 70 °C	95 %RH or less	–	
	6200 04	IRF-1436	Carbon dioxide	CO2	5,000 ppm	10 ppm	CO2	-20 - 70 °C	95 %RH or less	–	
	6200 05	IRF-1433	Carbon dioxide	CO2	10,000 ppm	10 ppm	CO2	-40 - 70 °C	95 %RH or less	–	
	6200 06	IRF-1437	Carbon dioxide	CO2	2 vol%	0.005 vol%	CO2	-40 - 70 °C	95 %RH or less	–	
	6200 07	IRF-1438	Carbon dioxide	CO2	5 vol%	0.01 vol%	CO2	-40 - 70 °C	95 %RH or less	–	
	6200 08	IRF-1439	Carbon dioxide	CO2	10 vol%	0.01 vol%	CO2	-40 - 70 °C	95 %RH or less	–	
	6200 09	IRF-1334	Methane	CH4	100 vol%	0.5 vol%	CH4	-40 - 70 °C	95 %RH or less	–	
	6200 10	IRF-1316	Ethylene	C2H4	100 %LEL	0.5 %LEL	C2H4 or CH4	-40 - 70 °C	95 %RH or less	–	
	6200 11	IRF-1340	Isobutylene	C4H8	100 %LEL	0.5 %LEL	i-C4H8 or i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6200 12	IRF-1308	N-hexane	C6H14	100 %LEL	0.5 %LEL	n-C6H14 or i-C4H10	-40 - 70 °C	95 %RH or less	–	
	**** **	IRF-1332	Butadiene	C4H6	100 %LEL	0.5 %LEL	C4H6 or CH4	-40 - 70 °C	95 %RH or less	–	
NCF	6000 07	NCF-6318	Ethane	C2H6	100 %LEL	0.5 %LEL	CH4	-40 - 70 °C	95 %RH or less	–	
	6000 14	NCF-6318	Propane	C3H8	100 %LEL	0.5 %LEL	CH4	-40 - 70 °C	95 %RH or less	–	
	6000 19	NCF-6318	Methane	CH4	100 %LEL	0.5 %LEL	CH4	-40 - 70 °C	95 %RH or less	–	
	6000 20	NCF-6318	Methane	CH4	2 vol%	0.01 vol%	CH4	-40 - 70 °C	95 %RH or less	–	
	6000 21	NCF-6318	Methane	CH4	2,000 ppm	10 ppm	CH4	-40 - 70 °C	95 %RH or less	–	
	6000 22	NCF-6320	Hydrogen	H2	100 %LEL	0.5 %LEL	H2	-40 - 70 °C	95 %RH or less	–	Hydrogen selectivity
	6000 23	NCF-6320	Hydrogen	H2	2 vol%	0.01 vol%	H2	-40 - 70 °C	95 %RH or less	–	Hydrogen selectivity
	6000 24	NCF-6320	Hydrogen	H2	2,000 ppm	10 ppm	H2	-40 - 70 °C	95 %RH or less	–	Hydrogen selectivity
	6000 25	NCF-6319	Isobutane	C4H10	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 26	NCF-6319	Hydrogen	H2	2 vol%	0.01 vol%	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 27	NCF-6319	Hydrogen	H2	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 28	NCF-6319	N-hexane	C6H14	2,000 ppm	10 ppm	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 29	NCF-6319	Hydrogen	H2	1 vol%	0.01 vol%	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 30	NCF-6319	Isopropyl alcohol	C3H8O	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 31	NCF-6319	Toluene	C7H8	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 32	NCF-6319	Acetone	C3H6O	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 33	NCF-6319	Hydrogen	H2	4 vol%	0.02 vol%	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 34	NCF-6319	N,N-dimethylacetamide	C4H9NO	4,000 ppm	20 ppm	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 35	NCF-6319	Acetylene	C2H2	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 36	NCF-6319	Ethylene	C2H4	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 37	NCF-6319	Normal octane	C8H18	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 38	NCF-6319	Ethyl alcohol	C2H6O	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 39	NCF-6319	Methyl alcohol	CH4O	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 40	NCF-6319	Propylene	C3H6	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
	6000 41	NCF-6319	Vinyl chloride	C2H3CL	100 %LEL	0.5 %LEL	i-C4H10	-40 - 70 °C	95 %RH or less	–	
SGF	6030 01	SGF-8581	Methane	CH4	2,000 ppm	10 ppm	CH4	-20 - 65 °C	20 - 95 %RH	–	
	6030 03	SGF-8581	Methane	CH4	5,000 ppm	25 ppm	CH4	-20 - 65 °C	20 - 95 %RH	–	
	6030 08	SGF-8581	Difluoromethane	CH2F2	2,000 ppm	10 ppm	R-32	-20 - 65 °C	20 - 95 %RH	–	
	6030 04	SGF-8562	Carbonyl sulfide	COS	2,000 ppm	10 ppm	COS	-20 - 65 °C	20 - 95 %RH	–	
	6030 05	SGF-8562	Carbon disulfide	CS2	200 ppm	1 ppm	CS2	-20 - 65 °C	20 - 95 %RH	–	
	6030 06	SGF-8563	Ethylene oxide	C2H4O	100 ppm	1 ppm	EO	-20 - 65 °C	20 - 95 %RH	–	
	6030 07	SGF-8562	Hydrogen sulfide	H2S	100 ppm	1 ppm	H2S	-20 - 65 °C	20 - 95 %RH	–	
SHF	6060 01	SHF-8601	Methane	CH4	5,000 ppm	25 ppm	CH4	-30 - 70 °C	20 - 95 %RH	–	
	6060 02	SHF-8601	Isobutane	C4H10	2,000 ppm	10 ppm	i-C4H10	-30 - 70 °C	20 - 95 %RH	–	
	6060 04	SHF-8601	Ethylene	C2H4	2,000 ppm	10 ppm	C2H4	-30 - 70 °C	20 - 95 %RH	–	
	6060 05	SHF-8601	Acetylene	C2H2	2,000 ppm	10 ppm	C2H2	-30 - 70 °C	20 - 95 %RH	–	
	6060 06	SHF-8601	Propylene	C3H6	2,000 ppm	10 ppm	C3H6	-30 - 70 °C	20 - 95 %RH	–	
	6060 07	SHF-8601	N-hexane	C6H14	200 ppm	1 ppm	n-C6H14	-30 - 70 °C	20 - 95 %RH	–	
	6060 08	SHF-8601	Octane	C8H18	2,000 ppm	10 ppm	C8H18	-30 - 70 °C	20 - 95 %RH	–	
	6060 09	SHF-8601	Fluoromethane	CH3F	2,000 ppm	10 ppm	R-41	-30 - 70 °C	20 - 95 %RH	–	
	6060 10	SHF-8601	Difluoromethane	CH2F2	2,000 ppm	10 ppm	R-32	-30 - 70 °C	20 - 95 %RH	–	
	6060 11	SHF-8601	Difluoromethane	CH2F2	5,000 ppm	25 ppm	R-32	-30 - 70 °C	20 - 95 %RH	–	
	6060 12	SHF-8601	Isopropyl alcohol	C3H8O	2,000 ppm	10 ppm	IPA	-30 - 70 °C	20 - 95 %RH	–	
	6060 13	SHF-8601	Hexafluoro-1,3-butadiene	C4F6	2,000 ppm	10 ppm	C4F6	-30 - 70 °C	20 - 95 %RH	–	
	6060 14	SHF-8601	1,2-dichloroethylene	C2H2CL2	600 ppm	5 ppm	C2H2CL2	-30 - 70 °C	20 - 95 %RH	–	
	6060 18	SHF-8601	Carbon monoxide	CO	1,000 ppm	10 ppm	CO	0 - 70℃	20 - 95 %RH	–	
	6060 15	SHF-8603	Hydrogen	H2	500 ppm	2.5 ppm	H2	-30 - 70℃	20 - 95 %RH	–	
	6060 16	SHF-8603	Hydrogen	H2	1,000 ppm	10 ppm	H2	-30 - 70 °C	20 - 95 %RH	–	
	6060 03	SHF-8603	Hydrogen	H2	2,000 ppm	10 ppm	H2	-30 - 70 °C	20 - 95 %RH	–	
	6060 17	SHF-8603	Deuterium	D2	2,000 ppm	10 ppm	D2	-30 - 70 °C	20 - 95 %RH	–	
ESF	6100 01	ESF-B242	Ammonia	NH3	75 ppm	0.5 ppm	NH3	-40 - 70 °C	30 - 80 %RH	○	
	6100 02	ESF-B245	Chlorine	CL2	1.5 ppm	0.01 ppm	CL2	-40 - 70 °C	30 - 80 %RH	○	
	6100 03	ESF-A24P	Carbon monoxide	CO	150 ppm	1 ppm	CO	-40 - 70 °C	20 - 90 %RH	×	
	6100 07	ESF-A24E	Hydrogen chloride	HCL	15 ppm	0.1 ppm	HCL	-40 - 70 °C	20 - 90 %RH	○	
	6100 28	ESF-A24RH	Hydrogen sulfide	H2S	30 ppm	0.2 ppm	H2S	-40 - 70 °C	40 - 95 %RH	×	High-humidity compatible sensor
	6100 04	ESF-A24R	Hydrogen sulfide	H2S	100 ppm	1 ppm	H2S	-40 - 70 °C	20 - 90 %RH	×	
	6100 06	ESF-A24A	Nitrogen dioxide	NO2	15 ppm	0.1 ppm	NO2	-40 - 70 °C	20 - 90 %RH	○	
	6100 08	ESF-X24P	Oxygen	O2	25 %	0.1 %	O2	-40 - 70 °C	20 - 90 %RH	×	

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

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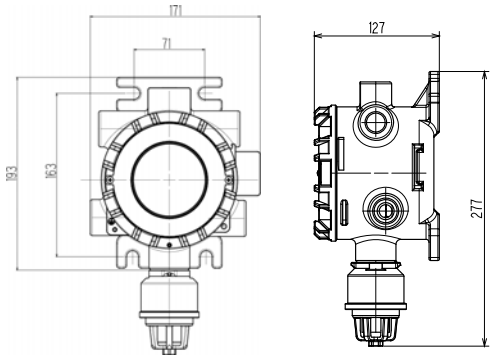
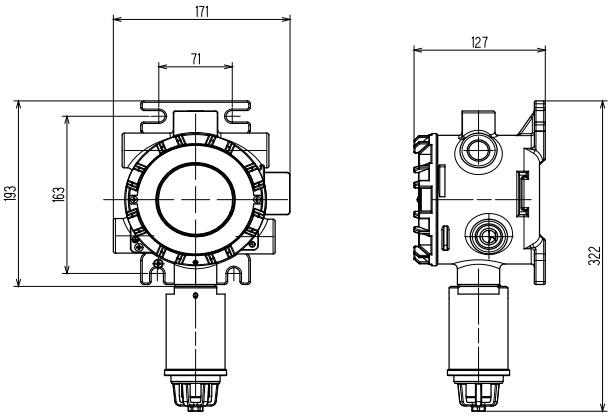
Exterior drawings

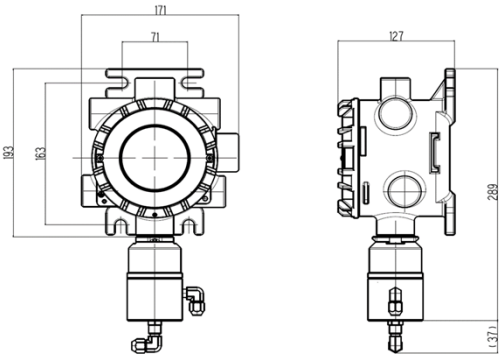
[SD-3 Series]



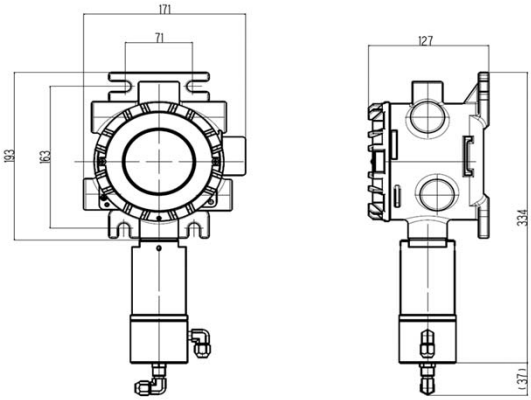
Diffusion type without EC barrier



Diffusion type with EC barrier

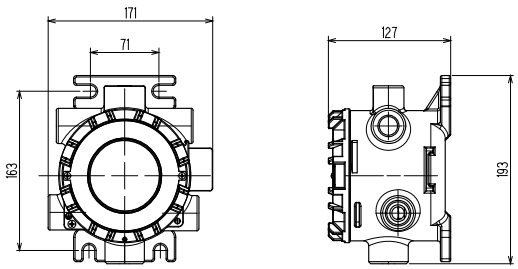


Suction type without EC barrier

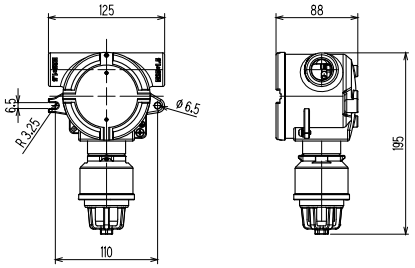


Suction type with EC barrier

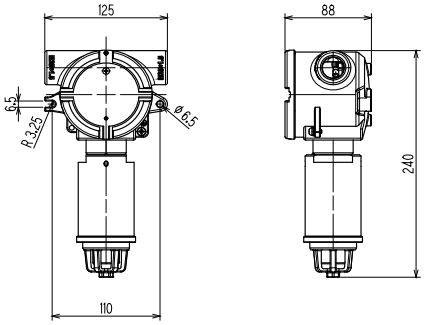
[Remote type: SD-3SC + GD-3 Series]



Main unit



Remote sensor unit
Diffusion type without EC barrier



Remote sensor unit
Diffusion type with EC barrier

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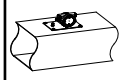
Standard accessories

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

Optional accessories (sold separately)

	Part No.: 4283 9011 00	
	Calibration adapter (for IRF sensor only)	Calibration adapter for the SD-3RI <Materials> Body: PP, nipple: stainless steel/Teflon
	Part No.: 4283 9012 70	
	Calibration adapter (for combustible gas sensor only)	Calibration adapter for the SD-3NC/GH/GHS/SP <Materials> Body: PP, nipple: stainless steel/Teflon
	Part No.: 4283 9013 40	
	Calibration adapter (for ESF sensor only)	Calibration adapter for the SD-3EC/ECS/ECB <Materials> Body: PP, nipple: stainless steel/Teflon
	Part No.: 4283 9019 80	
	Protective cover	Cover for protecting the SD-3 main unit <Material> SUS316
	Part No.: 4283 9015 90	
	Sunshade	Cover to minimize rise in temperature due to direct sunlight or radiant heat <Material> SUS316
	Part No.: 4283 9018 10	
	Blanking plug	M25 × 1.5 blanking plug <Material> Equivalent to SUS316
	Part No.: 4283 4081 70	
	Adapter	Adapter for converting M25 × 1.5 threads to 1/2NPT threads <Material> Equivalent to SUS316
	Part No.: 4283 4082 40	
	Adapter	Adapter for converting M25 × 1.5 threads to 3/4NPT threads <Material> Equivalent to SUS316
	Part No.: 4283 4132 20	
	Adapter	Adapter for converting M25 × 1.5 threads to M20 × 1.5 threads <Material> Equivalent to SUS316
	Part No.: 2905 2439 10	
	HART modem connector	Relay connector used when connecting a HART modem
	Part No.: 2564 0125 10	
	Fuse	Littelfuse fuse (1.25 A, 100 V DC)

	Part No.: 4283 4136 1A	
	Splash guard (for IRF)	Cover for protecting sensors against water and dust. “2” is marked on the underside of the guard. <Material> Resin
	Part No.: 4283 4137 9A	
	Splash guard (for NCF/SGF/SHF)	Cover for protecting sensors against water and dust. “2” is marked on the underside of the guard. <Material> Resin
	Part No.: 4283 4139 3A	
	Splash guard (for ECF)	Cover for protecting sensors against water and dust. “3” is marked on the underside of the guard. <Material> Resin
	Part No.: 4283 4132 20	
	Silicone removal filter (SI-8)	Filter for removing traces of silicone from atmosphere. Fitting the filter extends sensor service life.*1
	Part No.: 4283 0040 10	
	Activated carbon filter (CF-8304)	Filter for removing traces of silicone from atmosphere. Fitting the filter extends sensor service life. Offers silicone removal performance superior to the silicone removal filter.*2 It can also be used to remove interference gas. This minimizes interference effects from gases other than the detection target gas.
	Part No.: 4283 9014 10	
	Duct mounting kit	Kit for mounting the remote sensor head on a duct <Material> SUS316
	Part No.: 2032 0099 50	
	Lightning arrester (TP48-3-N-NDI)	Device for limiting instantaneous overvoltage due to lightning
	Part No.: 2032 0116 40	
	Lightning arrester (TP48-4-N-NDI)	Device for limiting instantaneous overvoltage due to lightning
	Part No.: 1092 0505 50	
	U-bolt	Bolt used for mounting the main unit on a pole (size: 50A (2B)) <Material> SUS304

*1: Fitting the silicone removal filter will limit the types of detection target gases.
*2: Fitting the activated carbon filter will further limit the types of detection target gases than with the silicone removal filter.

Order information

SD-3 ① ② (③ ④ 1 0 0 ⑧ ⑨ – ⑩)

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

SD-3SC (③ ④ 1 0 0 ⑧ ⑨)

GD-3 ① ② (③ ④ 1 0 0 ⑧ ⑨ – ⑩)

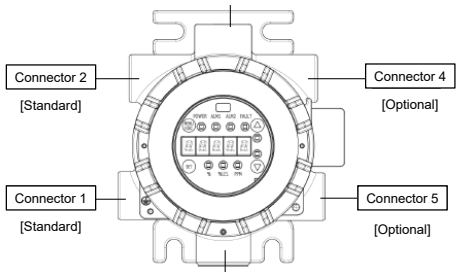
*Explosion-proof application model

①	Diffusion type/suction type selection
Blank	Diffusion type
D	Suction type

②	Sensor type selection
RI	Infrared type
NC	New ceramic type
GH	Semiconductor type
GHS	Semiconductor type + sintered metal (selectable for CS2 only)
SP	Hot-wire semiconductor type
EC	Electrochemical type (selectable for CO/O2 only)
ECS	Electrochemical type + sintered metal (selectable for H2S only)
ECB	Electrochemical type + barrier (selectable for gases other than CO/H2S)

③	Cable connector diameter
0	M25 [Standard]
1	NPT 3/4 (adapter)
2	NPT 1/2 (adapter)
3	M20 (adapter)

④	Additional cable connectors
0	Connector 1 + Connector 2 [standard]
1	Connector 1 + Connector 2 + Connector 4 + Connector 5



Additional cable connectors

* If you do not use the connection port, be sure to plug it with a blanking plug (sold separately)

⑤	Explosion-proof
1	ATEX/IECEx [Standard]
2	-
3	-
4	-

⑥	Functional safety
0	No [Standard]
1	-

⑦	Performance certification
0	No [Standard]
1	-
2	-
3	-

⑧	Range setting (with NC sensor type only)*
0	Single range [Standard]
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)

⑨	Output type selection
0	4 - 20 mA + HART [Standard]
1	4 - 20 mA + HART + contact (3c)
2	-

⑩	Suction type calibration adapter model
1	For RI
2	For NC/SH/SG
3	For EC

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

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