

Gas Detectors with Signal Converters

Model: **SD-3** Series



Features

- **Next generation high performance sensor "F Sensor Series" is installed, greatly improving both functions and performance.**
 - Three-year sensor warranty *Specific sensors excluded. Inspection at least once a year is a requirement.
 - 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 (pour into by external unit), remote type, duct insertion type

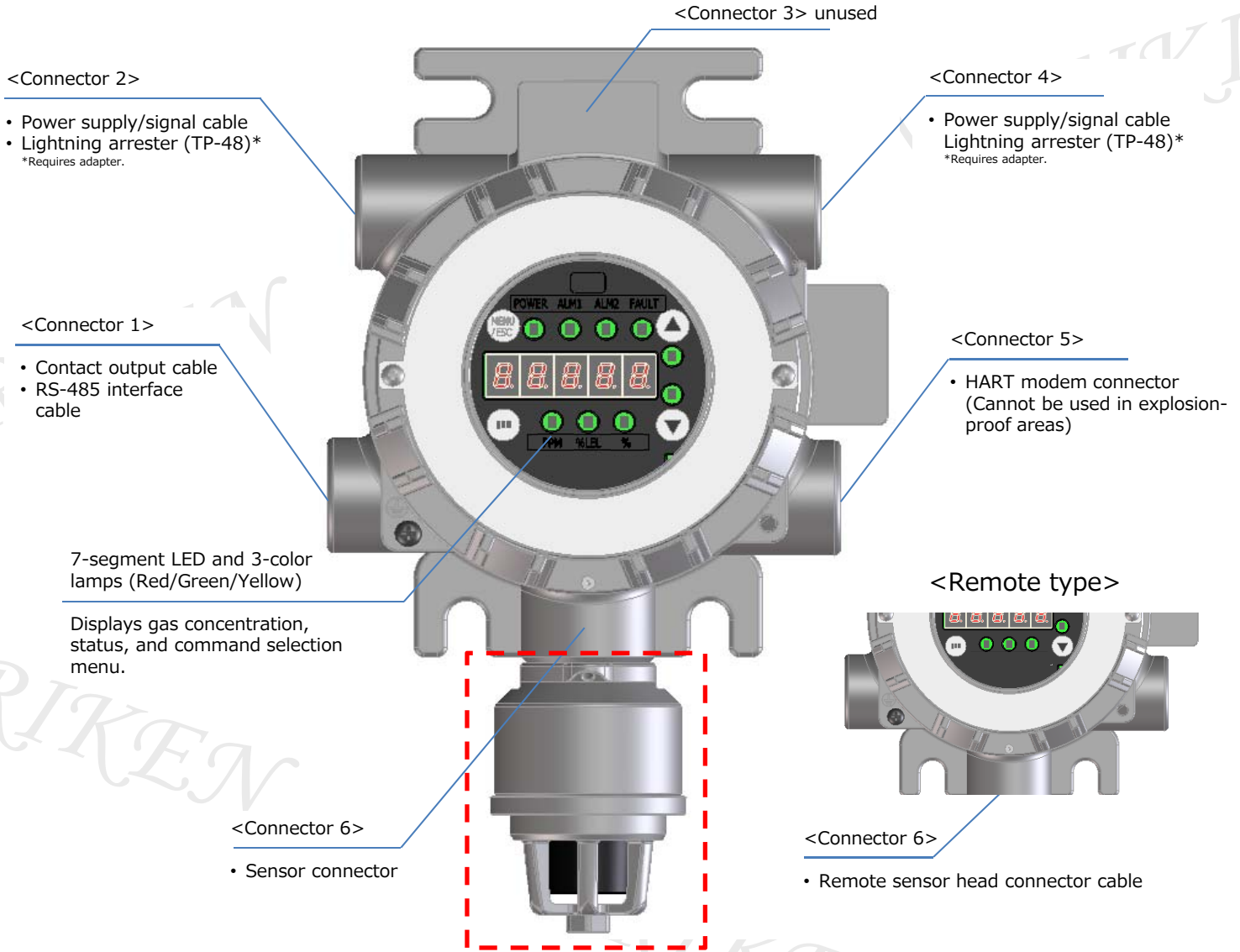


RIKEN KEIKI

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.



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 |
|--|---|---|--|---|---|
| <ul style="list-style-type: none"> • 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

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 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. See the F-sensor list for details.

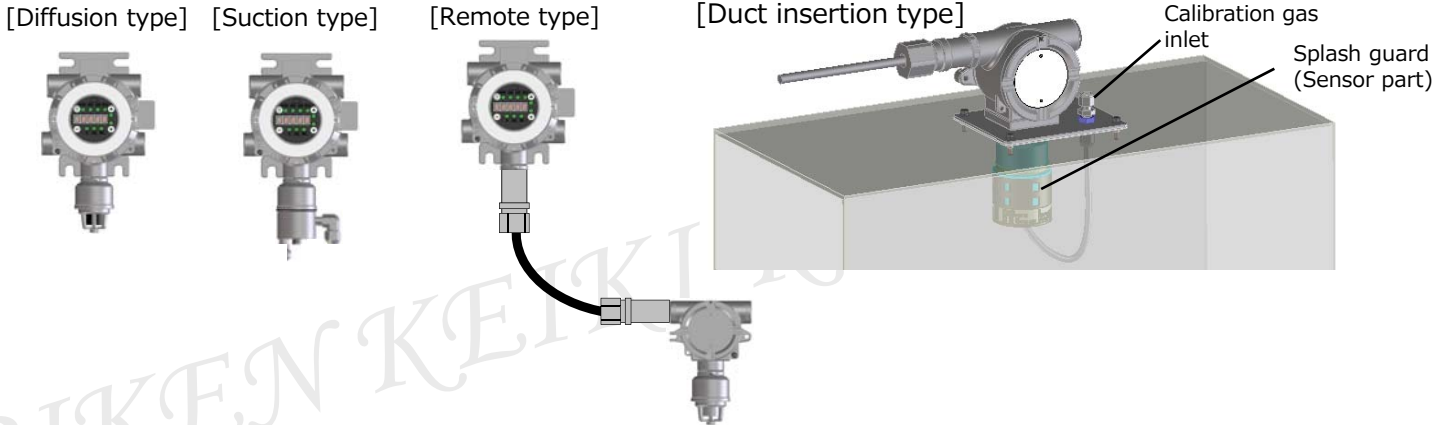
<List of detection target gases by model (remote type)>

| 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 ₂ S (hydrogen sulfide) only | |
| GD-3ECB | | | Yellow | | ○ | | With EC barrier* | |
| | | | | | | | | |

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

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.

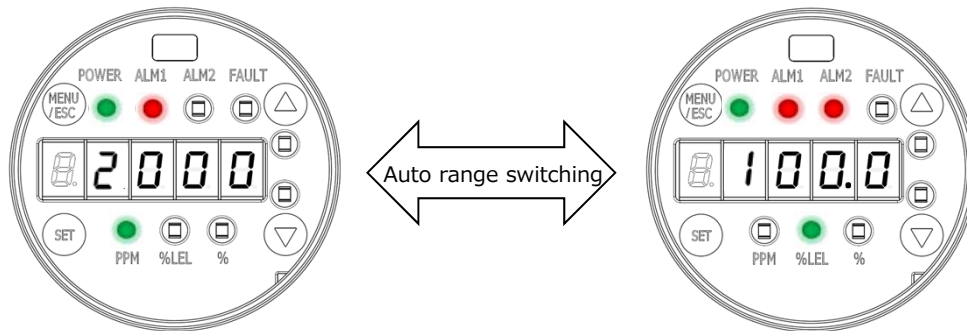


NC With double range! Allows high-accuracy measurements over a wide concentration range from low concentrations (ppm) to the lower explosive limit (LEL)! *HART communication not available

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>

<High range: 5 - 100 %LEL>

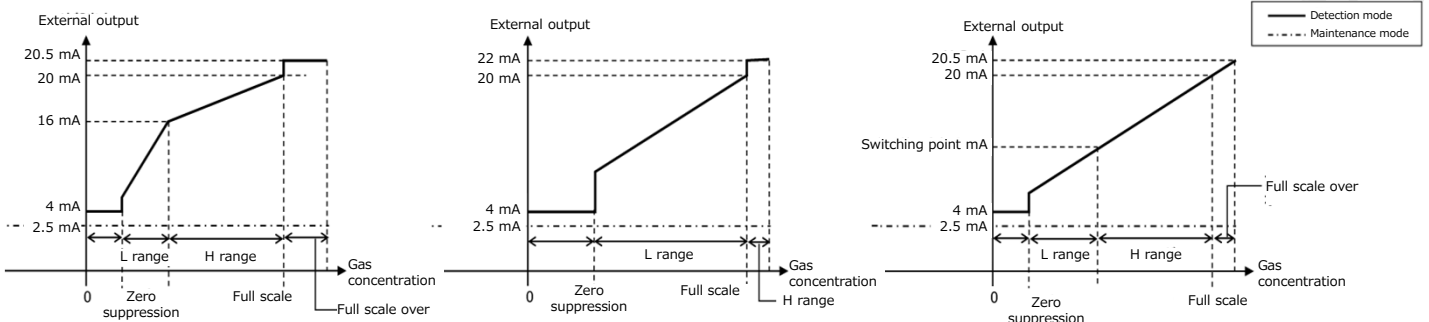


Any of the following three can be selected for the 4 - 20 mA analog output:

[Double range + 4-16]

[Double range + L4-20]

[Double range + H4-20]



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

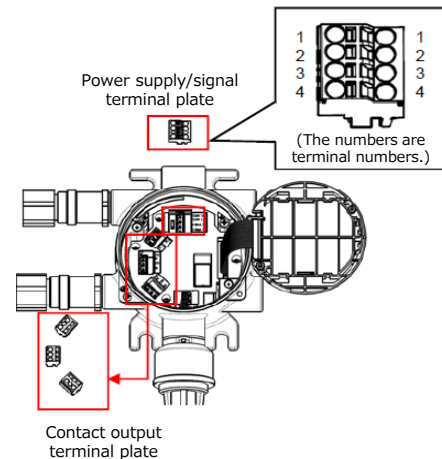
[Terminal specifications: 4 - 20 mA signal + HART communication]

<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>

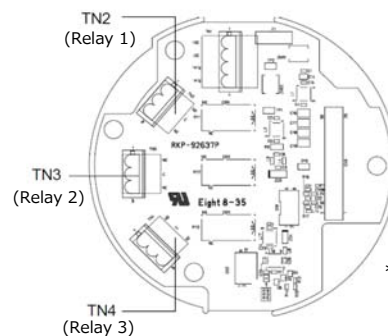
| Terminal No. | Power supply/signal cable connection |
|--------------|--------------------------------------|
| 1 | Power source (+) |
| 2 | Power source (-) |
| 3 | Signal (+) |
| 4 | Signal (-) |



[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

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 |
| Detection principle | | Non-dispersive infrared type | Catalytic type (New ceramic type) | Semiconductor type | | Hot-wire semiconductor type | Electrochemical type | | |
| Detection gas | | Combustible gas/toxic gas/oxygen; detection range depends on detection target gas. | | | | | | | |
| Display | | 7-segment LED (5-digit) and 3-color lamps (red / green / yellow) | | | | | | | |
| Sampling method | | Diffusion type/suction type (pour into by external unit) | | | | | | | |
| Setting 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) | | | | | | | |
| Warnings | | Sensor life assessment/clock abnormality diagnosis/communication diagnosis/sensor warning | | | | | | | |
| Gas Concentration Signal | 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) | | | | | | | |
| Alarm contact (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 supply | | 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) | | | | | | | |
| Degrees of protection | | Equivalent to IP66/67 | | | | | | | |
| 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 |
| Type of protection | | Flameproof construction | | | | | | | Flameproof construction + intrinsically safe explosion-proof construction |
| Explosion-proof approvals | 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 T5/T4 Gb | II 2G Ex db IIC T5/T4 Gb | II 2G Ex db ia IIC T4 Gb |
| | IECEX | IEx 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 T5/T4 Gb | Ex db IIC T5/T4 Gb | Ex db ia IIC T4 Gb |
| CE marking | | ATEX directive, EMC directive, RoHS directive | | | | | | | |
| HART communication | | HART7 | | | | | | | |

[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 |
| 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. | | | | | | | |
| Display | | 7-segment LED (5-digit) 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) | | | | | | | |
| Warnings | | Sensor life assessment/clock abnormality diagnosis/communication diagnosis/sensor warning | | | | | | | |
| Gas Concentration Signal | 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) | | | | | | | |
| Alarm contact (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 supply | | 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) | | | | | | | |
| Degrees of protection | | Equivalent to IP66/67 | | | | | | | |
| 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 6.0 kg | | | | | | | |
| | Remote sensor unit | Approximately 3.0 kg | | | | | | | Approximately 4.0 kg |
| Type of protection | Main unit | Flameproof enclosure | | | | | | | |
| | Remote sensor unit | Flameproof construction | | | | | | | Flameproof construction + intrinsically safe explosion-proof construction |
| Explosion-proof approvals | 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 T5/T4 Gb | II 2G Ex db IIC T5/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 T5/T4 Gb | Ex db IIC T5/T4 Gb | Ex db ia IIC T4 Gb |
| CE marking | | ATEX directive, EMC directive, RoHS directive | | | | | | | |
| HART communication | | HART7 | | | | | | | |

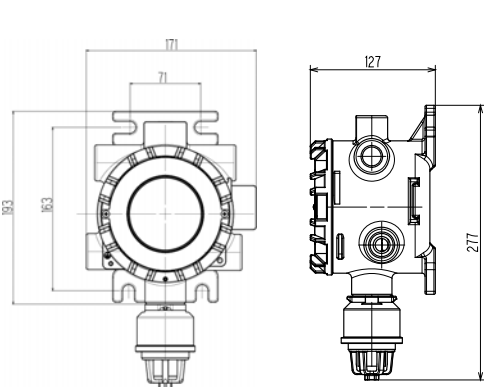
<F sensor list>

| 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 | — | | |
| | 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 | — | | |
| 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 | — | | |
| SHF | 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 °C | 20 - 95 %RH | — | | |
| | 6060 15 | SHF-8603 | Hydrogen | H2 | 500 ppm | 2.5 ppm | H2 | -30 - 70 °C | 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 | × | Scheduled to be released | |
| 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 | × | | |

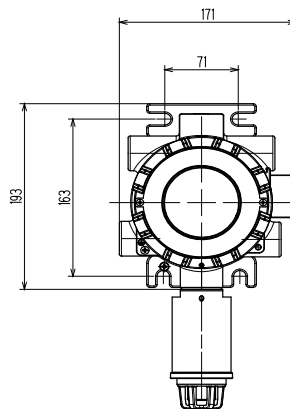
*Please contact Riken Keiki for information on other gas types and detection ranges.

Exterior drawings

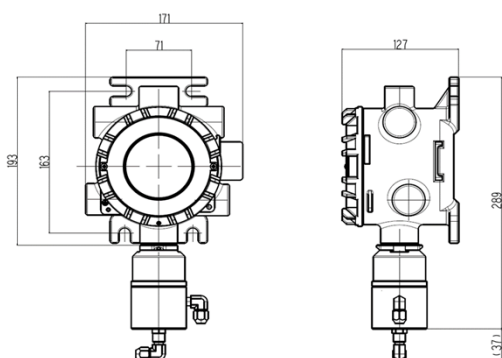
[SD-3 Series]



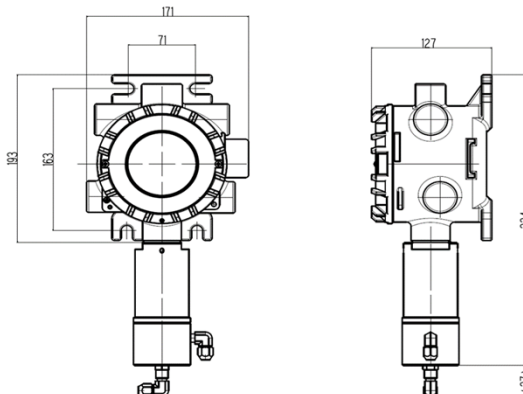
Diffusion type without EC barrier



Diffusion type with EC barrier

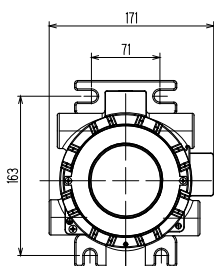


Suction type (pour into by external unit)
without EC barrier

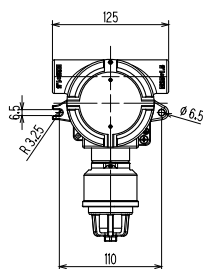
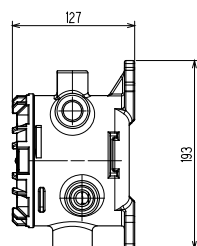


Suction type (pour into by external unit)
with EC barrier

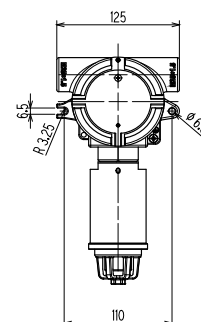
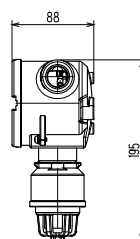
[Remote type: SD-3SC + GD-3 Series]



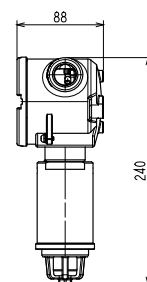
Main unit (SD-3SC)






Remote sensor unit (GD-3 Series)
Diffusion type without EC barrier



Remote sensor unit (GD-3 Series)
Diffusion type with EC barrier














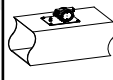








Standard accessories

| | 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 9016 60 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 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 9017 30 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 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 9031 80 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 9019 80 (wall mounting) / 4283 9045 60 (pole mounting) Protective cover | Cover for protecting the SD-3 main unit <Material> SUS316 |  | Part No.: 4283 0030 10 Silicone removal filter (SI-8) | Filter for removing traces of silicone from atmosphere. Fitting the filter extends sensor service life.*1 |
|  | Part No.: 4283 9015 90 Sunshade | Cover to minimize rise in temperature due to direct sunlight or radiant heat <Material> SUS316 |  | 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 9018 10 Blanking plug | M25 × 1.5 blanking plug <Material> Equivalent to SUS316 |  | Part No.: 4262 9580 80 Duct mounting kit | Kit for mounting the remote sensor head on a duct <Material> SUS316 |
|  | Part No.: 4283 9058 70 Adapter | Adapter for converting M25 × 1.5 threads to 1/2NPT threads <Material> Equivalent to SUS316 |  | Part No.: 4283 9055 50 Lightning arrester (TP48-3-N-NDI) | Device for limiting instantaneous overvoltage due to lightning With conversion adapter(M25×1.5⇒1/2NPT) |
|  | Part No.: 4283 9057 00 Adapter | Adapter for converting M25 × 1.5 threads to 3/4NPT threads <Material> Equivalent to SUS316 |  | Part No.: 2032 0116 40 Lightning arrester (TP48-4-N-NDI) | Device for limiting instantaneous overvoltage due to lightning With conversion adapter(M25×1.5⇒1/2NPT) |
|  | Part No.: 4283 9047 10 Adapter | Adapter for converting M25 × 1.5 threads to M20 × 1.5 threads <Material> Equivalent to SUS316 |  | Part No.: 4283 9046 30 U-bolt parts | U-bolt, spring washers, and hexagonal nuts for use when installing the main unit on a pole (size: 50A (2B)) <Material> SUS316 |
|  | Part No.: 2905 2439 10 HART communication cable | Relay connector used when connecting a HART modem | | | |
|  | Part No.: 2564 0125 10 Fuse | Littelfuse fuse (1.25 A, 100 V DC) | | | |

*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) 0 0 0 (7) (8)

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

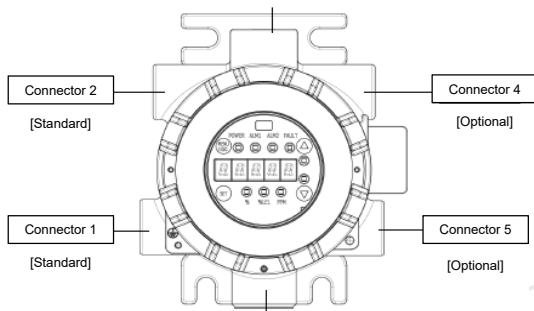
SD-3SC (3) 0 0 0 (7) (8)

GD-3 (1) (2)

*Explosion-proof application model

| ① Diffusion type/suction type selection | |
|---|--|
| Blank | Diffusion type |
| D | Suction type (pour into by external unit) |
| ② Sensor type selection | |
| RI | Infrared type |
| NC | New ceramic 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 Additional cable connectors | |
|-------------------------------|---|
| 0 | Connector 1 + Connector 2 [standard] |
| 1 | Connector 1 + Connector 2 + Connector 4 + Connector 5 |
| ④ Explosion-proof | |
| 1 | ATEX/IECEX [Standard] |
| 2 | - |
| 3 | - |
| 4 | - |
| ⑤ Functional safety | |
| 0 | No [Standard] |
| 1 | - |
| ⑥ Performance certification | |
| 0 | No [Standard] |
| 1 | - |
| 2 | - |
| 3 | - |
| ⑦ Range setting * | |
| 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) |
| ⑧ Output type selection | |
| 0 | 4 - 20 mA + HART [Standard] |
| 1 | 4 - 20 mA + HART + contact (3c) |
| 2 | - |



Additional cable connectors

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

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

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 : <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: