

Gas Detector with Signal Converter

SD-3GH Series SPECIFICATION

Model		SD-3GH	SD-3DGH
Detection principle		Semiconductor type	
Detection gas*1		Combustible gas and toxic gas	
Display		7-segment LED (5 digits), 3-color lamp (red, green, yellow)	
Detection range*1		Depends on sensor specifications	
Alarm set points*1		Depends on sensor specifications	
Sampling method*1		Diffusion type	Suction type (pour into by external unit)
Setting flow rate		—	0.4 - 1.5 L/min
Power supply indication		Power lamp lit (green)	
Gas alarm	Alarm type	Two-step alarm (H-HH)	
	Indication	Alarm lamp lit (red)	
	Reset type*1	Auto reset or self-latching	
Fault alarm	Self-diagnosis	System abnormality (E-9), sensor abnormality (E-1)	
	Indication	Fault lamp lit (yellow), error code display	
	Reset type	System abnormality: Self-latching Sensor abnormality: Auto reset (self-latching if sensor is disconnected)	
Warnings	Self-diagnosis	Sensor life assessment, clock abnormality diagnosis, communication diagnosis, sensor warning	
	Display	Blinking display alternating between gas concentration and error code	
	Operation	Same as normal operation	
Functions		Alarm delay, suppression, HART communication	
External output*1		Gas concentration signal (4-20 mA DC + HART output), contact output (optional)	
Gas concentration signal	Transmission Method	3-wire analog transmission (common power supply <power supply, signal, common>) or 2-wire analog transmission (current source)	
	Transmission Specifications	4-20 mA DC (non-insulated linear output) Maximum load resistance 600 Ω (with derating depending on power supply voltage) Resolution: max. 250 divisions (depending on specifications)	
	Transmission cable*2	Shielded cable 1.25 sq (1.38 mm ² /AWG16) or 2.0 sq (2.08 mm ² /AWG14) (same as power supply cable)	
	Transmission Distance	For 1.25 sq (1.38 mm ² /AWG16): Not exceeding 1.25 km For 2.0 sq (2.08 mm ² /AWG14): Not exceeding 2 km (with derating depending on supply voltage)	
Alarm contact (Optional)*1		SPDT (× 3): 2 alarms, 1 fault output, non-exciting at normal (exciting at alarm) or exciting at normal (non-exciting at alarm), 250 V AC, 2 A; 30 V DC, 1 A (resistance load), Minimum load 5V DC, 0.1A	
Power supply	Input voltage range*3	24 V DC (18 V - 30 V DC)	
	Power supply cable*2	Shielded cable 1.25 sq (1.38 mm ² /AWG16) or 2.0 sq (2.08 mm ² /AWG14) (same as transmission cable)	
	Power consumption	Max. 4.5 W	
Housing	Material	Stainless steel: SCS14 (equivalent to SUS316)	
	Cable connectors*1	M25 × 1.5, conversion adapter (optional): NPT3/4, NPT1/2, M20 × 1.5	
	Tube connecting port	—	NPT1/4 (with SUS elbow union for 0. Dφ8-1t)
	Degrees of protection	Equivalent to IP66/67	
	Installation type*1	Wall mounting (standard)/2B pole mounting (optional)	
	External dimensions (excluding projections)	Approx. 171(W) × 277(H) × 127(D) mm	Approx. 171(W) × 289(H) × 127(D) mm
	Weight	Approx. 6.7 kg	Approx. 7.0 kg
Operating temperature range*4		-40 °C - +70 °C (no sudden changes)	
Operating humidity range*4		0 %RH - 95 %RH (no condensation)	
Operation method		Dedicated magnet control key	
Type of protection		Flameproof enclosures	
Explosion-proof approvals	ATEX	II 2G Ex db IIC T5/T4 Gb, -50°C ≤ Ta ≤ +44°C/+70°C (when lightning arrester is not installed), -40°C ≤ Ta ≤ +44°C/+70°C (when lightning arrester is installed)	
	IECEX	Ex db IIC T5/T4 Gb, -50°C ≤ Ta ≤ +44°C/+70°C (when lightning arrester is not installed), -40°C ≤ Ta ≤ +44°C/+70°C (when lightning arrester is installed)	
CE marking		ATEX directive, EMC directive, RoHS directive	
HART communication		HART7	

*1 Please specify your request when ordering.

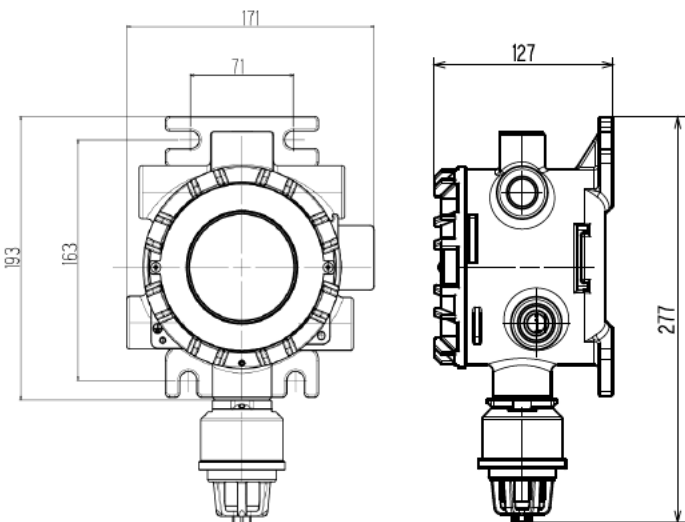
*2 To ensure explosion protection, use a cable designed for use in temperatures at least 5 °C above the maximum anticipated ambient temperature.

*3 Use a power supply capable of minimum temporary output of 2.5 A to ensure that fuses blow normally in the event of a product abnormality.

*4 In accordance with sensor specifications if restrictions apply due to sensor specifications.

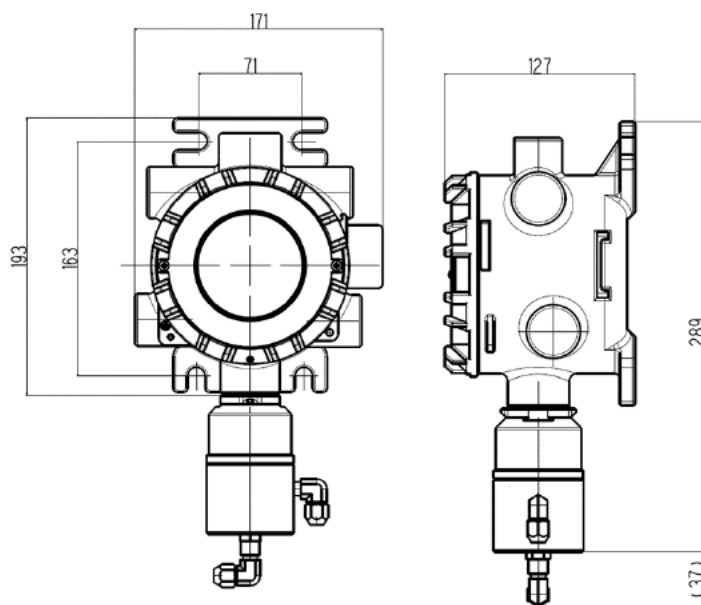
Dimensional drawings

<Diffusion type>



<Suction type>

* Pour into by external unit



Terminal Block Diagram

<Using 3-core cable>

Terminal No.	Power/signal cable connection	
1	Power supply (+)	24 V DC
2	Common (Power supply (-), signal (-))	
3	Signal (+)	4-20 mA + HART
4	Not used	

<Using 4-core cable>

Terminal No.	Power/signal cable connection	
1	Power supply (+)	24 V DC
2	Power supply (-)	
3	Signal (+)	4-20 mA + HART
4	Signal (-)	

<Contact output (optional)>

Relay1 (ALARM1)

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

Relay2 (ALARM2)

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

Relay3 (FAULT)

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

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

Gas Detector with Signal Converter

SD-3GHS Series SPECIFICATION

Model		SD-3GHS	SD-3DGHS
Detection principle		Semiconductor type	
Detection gas		Carbon disulfide	
Display		7-segment LED (5 digits), 3-color lamp (red, green, yellow)	
Detection range*1		Depends on sensor specifications	
Alarm set points*1		Depends on sensor specifications	
Sampling method		Diffusion type	Suction type (pour into by external unit)
Setting flow rate		—	0.4 - 1.5 L/min
Power supply indication		Power lamp lit (green)	
Gas alarm	Alarm type	Two-step alarm (H-HH)	
	Indication	Alarm lamp lit (red)	
	Reset type*1	Auto reset or self-latching	
Fault alarm	Self-diagnosis	System abnormality (E-9), sensor abnormality (E-1)	
	Indication	Fault lamp lit (yellow), error code display	
	Reset type	System abnormality: Self-latching Sensor abnormality: Auto reset (self-latching if sensor is disconnected)	
Warnings	Self-diagnosis	Sensor life assessment, clock abnormality diagnosis, communication diagnosis, sensor warning	
	Display	Blinking display alternating between gas concentration and error code	
	Operation	Same as normal operation	
Functions		Alarm delay, suppression, HART communication	
External output*1		Gas concentration signal (4-20 mA DC + HART output), contact output (optional)	
Gas concentration signal	Transmission Method	3-wire analog transmission (common power supply <power supply, signal, common>) or 2-wire analog transmission (current source)	
	Transmission Specifications	4-20 mA DC (non-insulated linear output) Maximum load resistance 600 Ω (with derating depending on power supply voltage) Resolution: max. 250 divisions (depending on specifications)	
	Transmission cable*2	Shielded cable 1.25 sq (1.38 mm ² /AWG16) or 2.0 sq (2.08 mm ² /AWG14) (same as power supply cable)	
	Transmission Distance	For 1.25 sq (1.38 mm ² /AWG16): Not exceeding 1.25 km For 2.0 sq (2.08 mm ² /AWG14): Not exceeding 2 km (with derating depending on supply voltage)	
Alarm contact (Optional)*1		SPDT (× 3): 2 alarms, 1 fault output, non-exciting at normal (exciting at alarm) or exciting at normal (non-exciting at alarm), 250 V AC, 2 A; 30 V DC, 1 A (resistance load), Minimum load 5V DC, 0.1A	
Power supply	Input voltage range*3	24 V DC (18 V - 30 V DC)	
	Power supply cable*2	Shielded cable 1.25 sq (1.38 mm ² /AWG16) or 2.0 sq (2.08 mm ² /AWG14) (same as transmission cable)	
	Power consumption	Max. 4.5 W	
Housing	Material	Stainless steel: SCS14 (equivalent to SUS316)	
	Cable connectors*1	M25 × 1.5, conversion adapter (optional): NPT3/4, NPT1/2, M20 × 1.5	
	Tube connecting port	—	NPT1/4 (with SUS elbow union for 0. Dφ8-1t)
	Degrees of protection	Equivalent to IP66/67	
	Installation type*1	Wall mounting (standard)/2B pole mounting (optional)	
	External dimensions (excluding projections)	Approx. 171(W) × 277(H) × 127(D) mm	Approx. 171(W) × 289(H) × 127(D) mm
	Weight	Approx. 6.7 kg	Approx. 7.0 kg
Operating temperature range*4		-40 °C - +70 °C (no sudden changes)	
Operating humidity range*4		0 %RH - 95 %RH (no condensation)	
Operation method		Dedicated magnet control key	
Type of protection		Flameproof enclosures	
Explosion-proof approvals	ATEX	II 2G Ex db IIC T6/T4 Gb, -50°C ≤ Ta ≤ +47°C/+70°C (when lightning arrester is not installed), -40°C ≤ Ta ≤ +47°C/+70°C (when lightning arrester is installed)	
	IECEX	Ex db IIC T6/T4 Gb, -50°C ≤ Ta ≤ +47°C/+70°C (when lightning arrester is not installed), -40°C ≤ Ta ≤ +47°C/+70°C (when lightning arrester is installed)	
CE marking		ATEX directive, EMC directive, RoHS directive	
HART communication		HART7	

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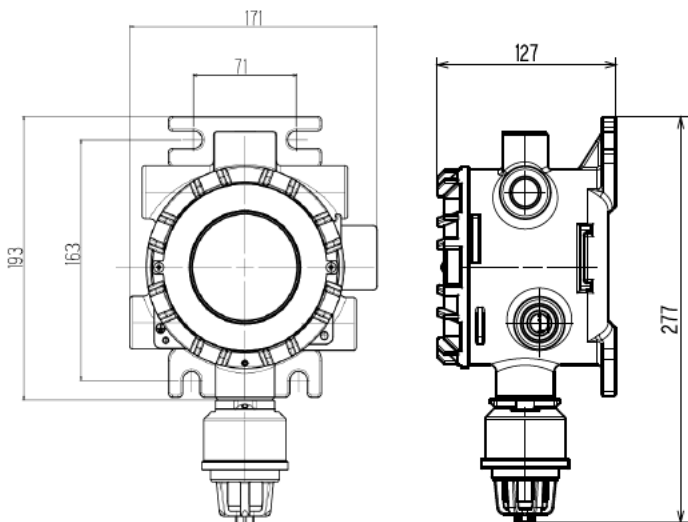
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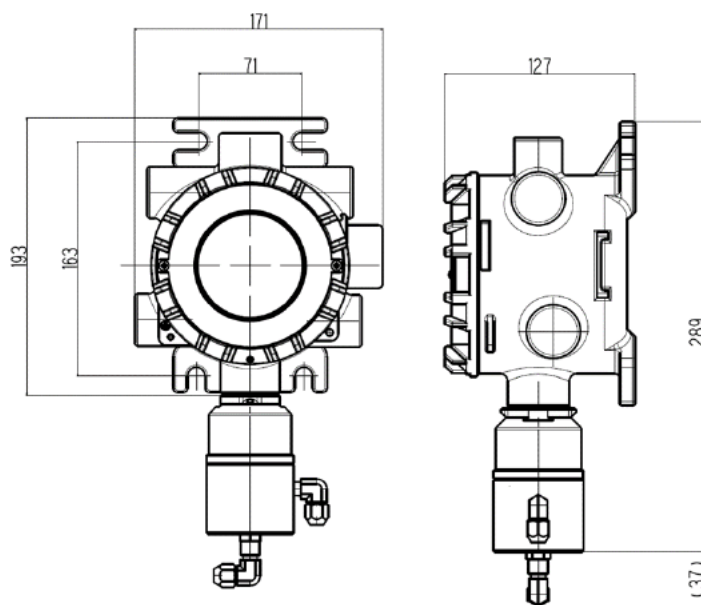
Dimensional drawings

<Diffusion type>



<Suction type>

* Pour into by external unit



Terminal Block Diagram

<Using 3-core cable>

Terminal No.	Power/signal cable connection	
1	Power supply (+)	24 V DC
2	Common (Power supply (-), signal (-))	
3	Signal (+)	4-20 mA + HART
4	Not used	

<Using 4-core cable>

Terminal No.	Power/signal cable connection	
1	Power supply (+)	24 V DC
2	Power supply (-)	
3	Signal (+)	4-20 mA + HART
4	Signal (-)	

<Contact output (optional)>

Relay1 (ALARM1)

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

Relay2 (ALARM2)

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

Relay3 (FAULT)

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

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