

Detects hydrogen leaks in nitrogen atmospheres!

Hydrogen Gas Detector with Thermal Conductive Sensor

Model **SD-3NPM** Series

Supported by

**THE NIPPON
 FOUNDATION**

This gas detector was developed under a grant program of The Nippon Foundation.



*The photos shown are of the suction type.

■ Supports hydrogen leak detection in nitrogen atmospheres

We have adopted our company's first 'thermal conductive sensor' equipped with a MEMS heater. It detects hydrogen leaks in nitrogen atmospheres.

*This product is intended for hydrogen leak detection in nitrogen atmospheres. It cannot be used for applications requiring continuous monitoring of hydrogen concentration.

■ Ideal for hydrogen-fueled ships

For detecting hydrogen leaks in oxygen-free environments using nitrogen purges, such as the outer piping of double-piped pipes in hydrogen-fueled engine rooms, it is optimal. It detects hydrogen leaks and contributes to safe facility operation.

■ MEMS heater-equipped "thermal conductive sensor"

By adopting MEMS heaters, it achieves superior vibration and shock resistance compared to conventional coil types. It delivers stable detection performance even around the engine of highly vibrating vessels.

Furthermore, in addition to optimized temperature correction and improved zero-drift performance, our proprietary machine learning zero correction function (patent pending) to achieve high detection accuracy and long-term stability.

■ Two types to choose from depending on your installation environment

- Remote Type: SD-3SC + GD-3NPM
- Suction Type: SD-3DNPM

* By combining the duct flange kit (sold separately) or the customer-ordered flange (gasket sold separately) with the remote sensor unit (GD-3NPM), you can achieve double-piping as a direct-insert type. Supports hydrogen leak detection for external pipes.

Specifications (Remote Type)

Type	Main body: SD-3SC Remote Sensor Unit: GD-3NPM
Detection Principle	thermal conductive type
Detected Gas	Hydrogen in nitrogen (H ₂)
display	7-segment LED (5 digits), 3-color lamp (red/green/yellow)
detection range	0~100 %LEL
Alarm Settings	1st : 25 %LEL, 2nd : 50 %LEL * Minimum alarm setting value: 20% LEL
Sampling Method	diffusion type
Remote cable	Shielded twisted pair cable 1.25sq (1.308mm ² /AWG16)
Gas Alarm Type	Two-stage alarm (H-HH)
Malfunction Alarm & Self-Diagnosis	System Abnormality (E-9) / Sensor Abnormality (E-1/E-1A)
warning	Sensor Life Diagnosis / Watch Abnormality Diagnosis / Communication Diagnosis / Sensor Warning
Gas concentration output (Standard)	Gas concentration output (4-20mA with HART), DC4~20mA (non-insulated, linear output), load resistance below 600Ω
Gas concentration output (Optional)	RS-485 (Half Duplex)
Contact output (Optional)	SPDT (2 alarms, 1 fault output operation), AC250V 2A, DC30V 1A (resistive load), minimum load DC5V 0.1A
power supply	DC24V (DC18~30V)
power consumption	Main unit: up to 3W Remote sensor unit: up to 1W
cable connection port	【Japan Ex】 Pressure-resistant packing cable ground 〈M20 × 1.5〉 (Compatible cable outer diameter φ6.0~12.0mm) 〈M25 × 1.5〉 (Compatible cable outer diameter φ12.0~16.0mm) 【ATEX/IECEX】 M25 × 1.5, Conversion Adapter (Optional): NPT3/4, NPT1/2, M20 × 1.5
Operating temperature and humidity range	-20~+60° C (no sudden changes) 0~95% RH or less (no condensation) * Absolute humidity: 46g/m ³ or less (equivalent to 95% RH at 37°C)
Chassis Material	Stainless Steel SCS14 (equivalent to SUS316)
protection level	Equivalent to IP66/67, equivalent to NEMA4X (excluding sensors)
External Dimensions & Mass (Excluding cable grounds)	Main body: approx. 171(W)×193(H)×127(D) mm, approx. 6.0kg Remote sensor section: approx. 125(W)×230(H)×88(D) mm, approx. 3.0kg
explosion-proof structure	Pressure-resistant and explosion-proof structure
Explosion-proof certification	【Japan Ex】 Main body: Ex db II.C T6 Gb, -20°C ≤ Ta ≤ +70°C Remote sensor unit: Ex db II.C T4 Gb, -20°C ≤ Ta ≤ +70°C 【ATEX】 Main body: II.2 G Ex db II.C T4 Gb, -40°C ≤ Ta ≤ +70°C Remote sensor section: II.2 G Ex db II.C T4 Gb, -40°C ≤ Ta ≤ +70°C 【IECE x】 Main body: Ex db II.C T4 Gb, -40°C ≤ Ta ≤ +70°C Remote sensor section: Ex db II.C T4 Gb, -40°C ≤ Ta ≤ +70°C
Compatible Specifications	CE Marking, NK
communication	HART communication (HART7), Modbus communication (RS-485)

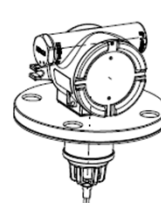
* The above specifications are for remote types. For details on suction specifications, please contact us.

Accessories

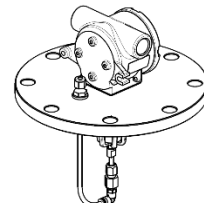
- Control key
- Control lever
- Hex bar spanner (2 opposite sides)
- Nipple (included only with GD-3NPM)

Options (sold separately)

- Calibration cap
 - Protective cover (for walls/pipes)
 - Sunshade cover
 - Splash Guard
 - Duct flange kit (without calibrating port / JIS 5K80A)
 - Duct flange kit (with calibration port / JIS 5K150A)
 - Gasket *Used when customers arrange flanges
 - Mounting angle for GD-3
 - Lightning arrester (for 3-wire/4-wire) *Not compatible with Japan Ex
 - Fuse (1.25A DC100V)
 - U-bolt parts (for pipes)
- *We also have other options available. For details, please contact us.



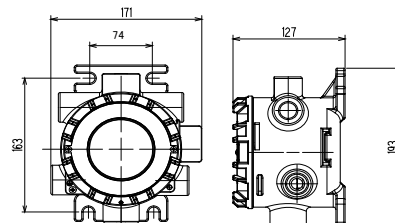
Duct Flange Kit
(No calibration port / JIS 5K80A)



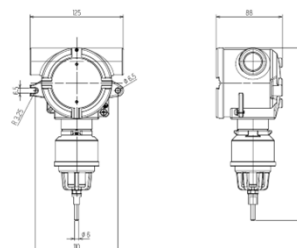
Duct Flange Kit
(With calibration port / JIS 5K150A)

[Exterior View]

Main body (SD-3SC)



Remote Sensor Unit (GD-3NPM)



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