



Features

- Explosion class Exd IIC T6 Gb
(CML 15ATEX1034 / IECEx (Pending))
- SIL2 IEC61508:2010 Parts 1-74-20mA DC output with HART
- IP65 ingress class
- Small, rugged, dust and weather proof construction
- One man maintenance by magnetic control key Self diagnosis by microprocessor

Standard accessories

- Magnetic control key

Optional accessories

- Calibration cap
- Sun shade cover (For pole stand)
- Sun shade cover (For wall)

Model	SD-1RI (TYPE HS)
Detection principle	Non Dispersive Infrared Ray (NDIR)
Gas to be detected	Combustible gas
Concentration display	Seven-segment LED (four-digit)
Detection range	0-100 %LEL (0.5%LEL/digit)
Detection method	Diffusion type
Alarm set-point	25 %LEL
External output	4-20mADC with HART (load resistance : 300 Ω Max)
Initial clear time	Approx. 25 seconds
Alarm delay time (under the same conditions)	Approx. 30 seconds when exposed to gas concentration of 1.6 times alarm level
Gas alarm display	ALM lamp on (red)
Gas alarm pattern	Non latching (auto-reset)
Fault alarm/self diagnosis	System abnormalities/sensor abnormalities
Fault alarm display	FAULT lamp on (yellow)/detail display
Fault alarm pattern	Non latching (auto-reset)

Transmission cable	CVVS 1.25 mm2 - 3-core or - 4-core CVVS 2.0 mm2 - 3-core or - 4-core
Transmission distance	Max 1.25 km CVVS 1.25 mm2 Max 2.0 km CVVS 2.0 mm2
Power supply	24 VDC (17 – 26.4 VDC)
Power consumption	Maximum 2 W
Cable connecting port	Flameproof cable gland
Operating temperatures	-20 - +60°C (at a constant condition)
Operating humidity	95% RH (Non-condensing)
Explosion-proof structure	Flame-proof enclosures
Explosion-proof class	Exd IIC T6 Gb
Explosion-proof certification number	CML 15ATEX1034 / IECEx
Dimensions /Weight	Approx. 148 (W) x 161 (H) x 88 (D) mm (projection portions excluded) Approx. 2.0 kg

Specifications subject to change without notice

SIL CERTIFICATE

Certificate / Certificat
Zertifikat / 合格証

RK 1310015 C001

audit/benchmarks conform to EN 184

Evaluating Assessor

Certifying Assessor

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Certificate / Certificat / Zertifikat / 合格証

RK 1310015 C001

Systematic Capability: SC 3 (SR 3 Capable)

Random Capability: Type B Element

SR 2 @ HFT=0; SR 3 @ HFT =1; Rule 1, 1P100, and 3 as Successive Conditions must be verified for each application

SD-1RI Infrared Gas Detector

Systematic Capability
The product has a manufacturer design process requirements of Safety Integrity Level (SIL) 2. It has an approved and certified software integrity. Safety functions are not subject to the evaluation.
A Safety Integrity and Function (SIF) assigned with this product must not be used at a SIL higher than SIL 2.
Random Capability
This SIL 2 has been achieved by the audit/benchmarks procedure and the test reports.

R-C SIL20 Failure Rate in F0H*

Device	A ₁	A ₂	A ₃	A ₄	MTT
SD-1RI Gas Detector	1	1	1	1	10 ⁻⁶

*F0H = 1 Subject to 10⁻⁶ Faults

SIL Verification
The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{avg} considering individual components and their associated proof test frequencies, and associated trip times, to ensure that the required SIL is achieved. The products included in the SIF, if each component must be checked to ensure compliance with the SIL, must have been evaluated (PFD) for compliance.

The following documents are a mandatory part of certification:
Declaration Report No. 1310-015-0010-01-01
Safety Manual No. 1310-015-0010-01-01

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