



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx PRE 20.0064X** Page 1 of 4 [Certificate history:](#)
Issue 0 (2020-09-15)

Status: **Current** Issue No: 1

Date of Issue: 2020-12-18

Applicant: **RIKEN KEIKI Co., Ltd.**
2-7-6, Azusawa, Itabashi-ku,
Tokyo, 174-8744,
Japan

Equipment: **Gas detection system**

Optional accessory:

Type of Protection: **Ex d, Ex i**

Marking: Ex db IIC T6/T5/T4 Gb, T_{amb} see attachment
Ex db ia IIC T4 Gb, T_{amb} -40°C to +70°C

Approved for issue on behalf of the IECEx
Certification Body:

Asle Kaastad

Position:

Certification manager

Signature:
(for printed version)

Date:

2020-12-18

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Certificate issued by:

DNV GL Presafe AS
Veritasveien 3
1363 Høvik
Norway





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Manufacturer: **RIKEN KEIKI Co., Ltd.**
2-7-6, Azusawa,
Itabashi-ku,
Tokyo, 174-8744,
Japan

Additional manufacturing locations: **RIKEN KEIKI Co., Ltd.**
2-3, Minamisakae-cho,
Kasukabe-shi,
Saitama, 344-0057,
Japan

RIKEN KEIKI NARA MFG. Co., Ltd.
49-1, Abe, Sakurai-shi,
Nara, 633-0054,
Japan

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[NO/PRE/ExTR20.0065/00](#)

[NO/PRE/ExTR20.0065/01](#)

Quality Assessment Report:

[NO/PRE/QAR19.0018/01](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The gas detectors type SD-3 and GD-3 are fixed mount, continuous-monitoring detectors which operate in accordance with two detection principles (diffusion and suction) and six detection methods (non-dispersive infrared, absorption method, solid sensor semi-conductor, catalytic combustion method, hot wire type semi-conductor method, thermal conductivity method, potentiostatic electrolysis method.

They consist of SD-3 and GD-3 flameproof enclosures with included sensor unit which can be either flameproof enclosure or intrinsic safe (EC barrier).

The flameproof enclosure consists of "housing", "threaded cover with or w/o cemented glass window" and "sensor head enclosure". The sensor head enclosure includes "sensor housing", "sensor guard", "socket", "sensor holder", "packing", "gas sensor" and "breathing element". If the sensor head is "EC barrier" then enclosure is cemented and equipped with intrinsic safe "gas sensor" w/o breather element.

The enclosure and all parts included are made from stainless steel while breather elements are made from plastics and stainless steel.

Equipment is provided with threaded holes M25, NPT 1/2, 3/4 intended for Ex certified thread entries. It can also be provided with the thread adapters and/or blanking elements which are tested as part of the equipment.

The measuring function of the apparatus hasn't been within the scope of this certificate.

Type designation: SD-3 and GD-3

Applicable models are specified in table (in attachment) together with Ex marking code, T-amb and T-class.

Electrical Data

Supply voltage: 24 VDC

Analogue output: 24V DC, 4-20 mA

Relays: 30 VDC - 1A or 250 VAC - 2A

Routine tests

N/A

SPECIFIC CONDITIONS OF USE: YES as shown below:

"X"-The Equipment with glass window plate must only be placed in areas with low risk of mechanical danger (ref clause 26.4.2 in IEC 60079-0:2017).

"X"-Refer to manufacturer's instructions for ambient temperature.

"X"-The manufacturer's instructions provides guidance for the user to minimize the risk from electrostatic discharge. Maximum capacitance of 6 nF can occur.

"X"-The flameproof joints are not intended to be repaired.

"X"-The measuring function of the EUT is not covered by this type examination. It shall comply with the requirements from the relevant harmonized standards which provide guidance on the performance of gas detection equipment and safety devices.

"X"-If the surge protection device are attached to the flameproof enclosure it shall be provided with a high strength locking compound on the mounting thread.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Minor updates of descriptive documents, inclusion of one primary battery and serial safety components on ESF DIGITAL PCB.

Annex:

[Type Designation-Issue1.pdf](#)

Type Designation: SD-3 and GD-3

Applicable models without surge protection device or HART adapter

Model	Protection Method	Group	Cat.	Type of Protection and Marking code	EPL	Ambient Temperature	Note
SD-3RI	d	II	2G	Ex db IIC T6/T5	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +60^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DRI							
GD-3RI							
SD-3GH	d	II	2G	Ex db IIC T5/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +44^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DGH							
GD-3GH							
SD-3GHS	d	II	2G	Ex db IIC T6/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +47^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DGHS							
GD-3GHS							
SD-3NC	d	II	2G	Ex db IIC T5/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +44^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DNC							
GD-3NC							
SD-3SP	d	II	2G	Ex db IIC T5/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +55^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DSP							
GD-3SP							
SD-3NP	d	II	2G	Ex db IIC T5/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +55^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DNP							
GD-3NP							
SD-3EC	d	II	2G	Ex db IIC T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +70^{\circ}\text{C}$	
SD-3DEC							
GD-3EC							
SD-3ECS	d	II	2G	Ex db IIC T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +70^{\circ}\text{C}$	
SD-3DECS							
GD-3ECS							
SD-3ECB	d+i	II	2G	Ex db ia IIC T4	Gb	$-40^{\circ}\text{C}\leq T_{\text{a}}\leq +70^{\circ}\text{C}$	
SD-3DECB							
GD-3ECB							
SD-3SC	d	II	2G	Ex db IIC T6/T5/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +47^{\circ}\text{C}/+55^{\circ}\text{C}/+70^{\circ}\text{C}$	When combined with: GD-3GHS, GD-3SP, GD-3NP, GD-3EC, GD- 3ECS
SD-3SC	d	II	2G	Ex db IIC T5/T4	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +44^{\circ}\text{C}/+70^{\circ}\text{C}$	When combined with: GD-3GH, GD-3NC
SD-3SC	d	II	2G	Ex db IIC T6/T5	Gb	$-50^{\circ}\text{C}\leq T_{\text{a}}\leq +60^{\circ}\text{C}/+70^{\circ}\text{C}$	When combined with: GD-3RI
SD-3SC	d	II	2G	Ex db IIC T4	Gb	$-40^{\circ}\text{C}\leq T_{\text{a}}\leq +70^{\circ}\text{C}$	When combined with: GD-3ECB

Applicable models with surge protection device or HART adapter

Model	Protection Method	Group	Cat.	Type of Protection and Marking code	EPL	Ambient Temperature	Note
SD-3RI	d	II	2G	Ex db IIC T6/T5	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+60/+70^{\circ}\text{C}$	
SD-3DRI							
GD-3RI							
SD-3GH	d	II	2G	Ex db IIC T5/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+44^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DGH							
GD-3GH							
SD-3GHS	d	II	2G	Ex db IIC T6/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+47^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DGHS							
GD-3GHS							
SD-3NC	d	II	2G	Ex db IIC T5/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+44^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DNC							
GD-3NC							
SD-3SP	d	II	2G	Ex db IIC T5/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+55^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DSP							
GD-3SP							
SD-3NP	d	II	2G	Ex db IIC T5/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+55^{\circ}\text{C}/+70^{\circ}\text{C}$	
SD-3DNP							
GD-3NP							
SD-3EC	d	II	2G	Ex db IIC T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+70^{\circ}\text{C}$	
SD-3DEC							
GD-3EC							
SD-3ECS	d	II	2G	Ex db IIC T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+70^{\circ}\text{C}$	
SD-3DECS							
GD-3ECS							
SD-3ECB	d+i	II	2G	Ex db ia IIC T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+70^{\circ}\text{C}$	
SD-3DECB							
GD-3ECB							
SD-3SC	d	II	2G	Ex db IIC T6/T5/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+47^{\circ}\text{C}/+55^{\circ}\text{C}/+70^{\circ}\text{C}$	When combined with: GD-3GHS, GD-3SP、 GD-3NP, GD-3EC、 GD-3ECS
SD-3SC	d	II	2G	Ex db IIC T5/T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+44^{\circ}\text{C}/+70^{\circ}\text{C}$	When combined with: GD-3GH、 GD-3NC
SD-3SC	d	II	2G	Ex db IIC T6/T5	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+60^{\circ}\text{C}/+70^{\circ}\text{C}$	When combined with: GD-3RI
SD-3SC	d	II	2G	Ex db IIC T4	Gb	$-40^{\circ}\text{C}\leq\text{Ta}\leq+70^{\circ}\text{C}$	When combined with: GD-3ECB