



# 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](http://www.iecex.com)

Certificate No.: **IECEX PRE 20.0064X** Page 1 of 4 Certificate history:  
Status: **Current** Issue No: 3 [Issue 2 \(2022-05-13\)](#)  
Date of Issue: 2022-10-13 [Issue 1 \(2020-12-18\)](#)  
[Issue 0 \(2020-09-15\)](#)  
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, i, op is**  
Marking: Ex db IIC T6/T5/T4 Gb, T<sub>amb</sub> see attachment  
Ex db ia IIC T4 Gb, T<sub>amb</sub> -40°C to +70°C  
Ex db [op is] IIC T4 Gb, T<sub>amb</sub> see attachment

Approved for issue on behalf of the IECEx  
Certification Body:

**Ståle Sandstad**

Position:

**Certification Manager**

Signature:  
(for printed version)

Date:  
(for printed version)

2022-10-13

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Certificate issued by:

**DNV Product Assurance AS**  
Veritasveien 1  
1363 Høvik  
Norway





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

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**

**TOKYO MICRO SEIKI Co., Ltd.**  
1-15-24, Shingashi, Itabashi-ku,  
Tokyo, 175-0081,  
**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

[IEC 60079-28:2015](#) Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation  
Edition:2

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/ExTR20.0065/03](#)

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

[NO/PRE/ExTR20.0065/02](#)

Quality Assessment Report:

[NO/PRE/QAR19.0018/05](#)



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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 intrinsic safe (EC barrier) or flameproof enclosure with or w/o inherently safe optical radiation source.

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. Remote sensor head "RIP" models include heater and optical radiation source mounted inside the flameproof enclosure fixed together by special fasteners and glass window instead of breather element.

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.

"X"-The property class of (M5) fastening screws used for fixing of the parts of the sensor head flameproof enclosure of "RIP" models specified by the manufacturer is A4-70.



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

Minor documentation changes.

**Annex:**

[Type Designation-Issue3.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°C≤Ta≤+60°C/+70°C	
SD-3DRI							
GD-3RI							
SD-3GH	d	II	2G	Ex db IIC T5/T4	Gb	-50°C≤Ta≤+44°C/+70°C	
SD-3DGH							
GD-3GH							
SD-3GHS	d	II	2G	Ex db IIC T6/T4	Gb	-50°C≤Ta≤+47°C/+70°C	
SD-3DGHS							
GD-3GHS							
SD-3NC	d	II	2G	Ex db IIC T5/T4	Gb	-50°C≤Ta≤+44°C/+70°C	
SD-3DNC							
GD-3NC							
SD-3SP	d	II	2G	Ex db IIC T5/T4	Gb	-50°C≤Ta≤+55°C/+70°C	
SD-3DSP							
GD-3SP							
SD-3NP	d	II	2G	Ex db IIC T5/T4	Gb	-50°C≤Ta≤+55°C/+70°C	
SD-3DNP							
GD-3NP							
SD-3EC	d	II	2G	Ex db IIC T4	Gb	-50°C≤Ta≤+70°C	
SD-3DEC							
GD-3EC							
SD-3ECS	d	II	2G	Ex db IIC T4	Gb	-50°C≤Ta≤+70°C	
SD-3DECS							
GD-3ECS							
SD-3ECB	d+i	II	2G	Ex db ia IIC T4	Gb	-40°C≤Ta≤+70°C	
SD-3DECB							
GD-3ECB							
SD-3RIP	d+op is	II	2G	Ex db [op is] IIC T4	Gb	-50°C≤Ta≤+70°C	
SD-3DRIP							
GD-3RIP							
SD-3SC	d	II	2G	Ex db IIC T6/T5/T4	Gb	-50°C≤Ta≤+47°C/ +55°C/+70°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°C≤Ta≤+44°C/+70°C	When combined with: GD-3GH、GD-3NC
SD-3SC	d	II	2G	Ex db IIC T6/T5	Gb	-50°C≤Ta≤+60°C/+70°C	When combined with: GD-3RI
SD-3SC	d	II	2G	Ex db IIC T4	Gb	-40°C≤Ta≤+70°C	When combined with: GD-3ECB

SD-3SC	d	II	2G	Ex db IIC T4	Gb	-50°C≤Ta≤+70°C	When combined with: GD-3RIP
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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°C≤Ta≤+60/+70°C	
SD-3DRI							
GD-3RI							
SD-3GH	d	II	2G	Ex db IIC T5/T4	Gb	-40°C≤Ta≤+44°C/+70°C	
SD-3DGH							
GD-3GH							
SD-3GHS	d	II	2G	Ex db IIC T6/T4	Gb	-40°C≤Ta≤+47°C/+70°C	
SD-3DGHS							
GD-3GHS							
SD-3NC	d	II	2G	Ex db IIC T5/T4	Gb	-40°C≤Ta≤+44°C/+70°C	
SD-3DNC							
GD-3NC							
SD-3SP	d	II	2G	Ex db IIC T5/T4	Gb	-40°C≤Ta≤+55°C/+70°C	
SD-3DSP							
GD-3SP							
SD-3NP	d	II	2G	Ex db IIC T5/T4	Gb	-40°C≤Ta≤+55°C/+70°C	
SD-3DNP							
GD-3NP							
SD-3EC	d	II	2G	Ex db IIC T4	Gb	-40°C≤Ta≤+70°C	
SD-3DEC							
GD-3EC							
SD-3ECS	d	II	2G	Ex db IIC T4	Gb	-40°C≤Ta≤+70°C	
SD-3DECS							
GD-3ECS							
SD-3ECB	d+i	II	2G	Ex db ia IIC T4	Gb	-40°C≤Ta≤+70°C	
SD-3DECB							
GD-3ECB							
SD-3RIP	d+op is	II	2G	Ex db [op is] IIC T4	Gb	-40°C≤Ta≤+70°C	
SD-3DRIP							
GD-3RIP							
SD-3SC	d	II	2G	Ex db IIC T6/T5/T4	Gb	-40°C≤Ta≤+47°C /+55°C/+70°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°C≤Ta≤+44°C/+70°C	When combined with: GD-3GH, GD-3NC
SD-3SC	d	II	2G	Ex db IIC T6/T5	Gb	-40°C≤Ta≤+60°C/+70°C	When combined with: GD-3RI

SD-3SC	d	II	2G	Ex db IIC T4	Gb	-40°C≤Ta≤+70°C	When combined with: GD-3ECB
SD-3SC	d	II	2G	Ex db IIC T4	Gb	-40°C≤Ta≤+70°C	When combined with: GD-3RIP