


# EU-TYPE EXAMINATION CERTIFICATE

- [2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU
- [3] EU-Type Examination Certificate Number: **Presafe 20 ATEX 69725 X** **Issue 1**
- [4] Product: **Gas detection system**
- [5] Manufacturer: **RIKEN KEIKI Co., Ltd.**
- [6] Address: **2-7-6, Azusawa, Itabashi-ku,  
Tokyo, 174-8744,  
Japan**
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV GL Presafe AS, notified body number 2460, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
- The examination and test results are recorded in confidential reports listed in section 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN IEC 60079-0:2018, EN 60079-1:2014 and EN 60079-11:2012**
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- [11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

 **II 2 G Ex db IIC T6/T5/T4 Gb, Tamb: see [15]  
Ex db ia IIC T4 Gb, Tamb: -40°C to +70°C**



Date of issue:  
2020-12-18



Asle Kaastad  
For DNV GL Presafe AS  
The Certificate has been digitally signed.  
See [www.dnvgl.com/digitalsignatures](http://www.dnvgl.com/digitalsignatures) for info

[13]

**Schedule**[14] **EU-Type Examination Certificate No:**

Presafe 20 ATEX 69725X

Issue 1

[15] **Description of Product**

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 contains the connection terminals for field connection and it 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 equipment can include Ex certified equipment (surge and wireless adapter) mounted in the threaded entries.

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 below together with Ex marking code, T-amb and T-class.

**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-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

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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-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

**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

[16] **Report No.:** [D0003863/01](#)  
**Project No.:** PRJC-596929-2019-PRC-

[17] **Specific Conditions of Use**

“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 EN 60079-0).

“X”-Refer to manufacturer’s instructions for ambient temperature.

“X”-The manufacturer’s instructions provide 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 according to Annex II paragraph 1.5.5 of the Directive is not covered by this EU-type examination. It shall comply with the requirements from the relevant European harmonized standards which provide guidance on the performance of gas detection equipment and safety devices.

“X”-If the Surge Protection Devices are attached to the flameproof enclosure it shall be provided with a high strength locking compound on the mounting thread.

[18] **Essential Health and Safety Requirements**

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

[19] **Drawings and documents**

Number	Title	Rev.	Date
-	Document package	9	2020-12-09

[20] **Certificate History**

Issue	Description	Issue date	Report no.
0	Original issue	2020-09-15	D0003863
1	Minor updates of descriptive documents, inclusion of one primary battery and serial safety components on ESF DIGITAL PCB.	2020-12-18	PRJC-596929-2019-PRC-

END OF CERTIFICATE