





## TECHNICAL REPORT

<b>Product</b>	Portable Gas Monitor		
<b>Name and address of the applicant</b>	RIKEN KEIKI Co., Ltd. 2-7-6, Azusawa, Itabashi-ku, Tokyo, 174-8744, Japan		
<b>Rating and principal characteristics</b>	Battery operated. BUL-6000 (rechargeable Li-ion battery unit) or BUD-6000 (Alkaline battery unit) For BUD-6000: use only Toshiba LR6 AA-batteries.		
<b>Trade mark (If any)</b>			
<b>Model/type</b>	GX-6000		
<b>Presafe certificate no.</b>	Presafe 15 ATEX 6171X Issue 2		
<b>Ex-code for component / electrical apparatus</b>	 II 1 G Ex ia IIC T4 Ga -20°C ≤ Ta ≤ +50°C		
<b>Additional information</b>			
<b>Report issue No.</b>	02		
<b>Tested according to</b>	EN 60079-0:2012 / A11: 2013 (IEC 60079-0 ed. 6)  EN 60079-11:2012 (IEC 60079-11 ed. 6)	Explosive atmospheres, Part 0: Equipment – General requirements  Electrical apparatus for potentially explosive atmospheres Equipment protection by intrinsic safety "i"	
<b>Name and address of the testing laboratory</b>	<div style="display: flex; align-items: center;">  <div> <b>DNV GL Presafe AS</b>  Veritasveien 3  1363 Høvik  Norway </div> <div style="margin-left: 20px;"> <b>Tel:</b> +47 67 57 88 00  <b>e-mail:</b> <a href="mailto:ex@dnvgl.com">ex@dnvgl.com</a>  <b>Web:</b> <a href="http://www.dnvgl.com">www.dnvgl.com</a> </div> </div>		
<b>Test sample(s) received</b>	x.		
<b>Tested in period</b>	The test results relate only to the sample(s) tested.		
<b>Tested by</b>			2020-08-06
	<b>signature</b>	<b>Date</b>	
	Ke Shen		
	<b>Printed name</b>		
<b>Verified by</b>			2020-08-06
	<b>signature</b>	<b>date</b>	
	Arne Hortman		
	<b>Printed name</b>		

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**General remarks:**

The test results presented in this Type Examination Report relate only to the item or product tested.  
The technical content of this Type Examination Report shall not be reproduced except in full without the written approval of the issuing Notified Body.

- "See Attachment #" refers to additional information appended to this document.
- Throughout this document, a point "." is used as the decimal separator.

This Appendix Report is used in conjunction with all former test reports which are associated to Presafe project no. D0001494 (ATEX Type Examination report, ExTR Reference No. NO/PRE/ExTR14.0062 including associated Addendum reports).

**Description of equipment under test:**

Refer to origin test report. This update concerns the following changes:

- Changed layout of DES sensor PCB in order to change the optical path length. The infrared sensor is then able to measure additional gas type.
- Minor changes of non-safety components on charger module SDM-6000

Due to the similarity with previously tested equipment, only the evaluation documented for this Appendix report was considered necessary for the changes concerned.

**Warning markings;**

N/A

**Descriptive documents;**

Drawing No.	Name/Title	Rev.	Date	Page/-s
E3-6991-5470-70-01K	INDEX GX-6000	4	2020.3.31	

**Copy of marking plate:**




2460

II 1G Ex ia IIC T4 Ga

Presafe15ATEX6171X

IECEX PRE 15.0011

-20°C ≤ T<sub>a</sub> ≤ +50°C

WARNING

Read manual for safety info.

Do not open in haz.loc.

GX-6000(LABEL A)

MODEL GX-6000

INST.No.

RIKEN KEIKI Co., Ltd.

2-7-6, Azusawa, Habashi-ku, Tokyo, 174-8744, Japan

BUL-6000(LABEL B)

MODEL BUL-6000

INST.No.

RIKEN KEIKI Co., Ltd./2-7-6, Azusawa, Habashi-ku, Tokyo, 174-8744, Japan

WARNING

Do not charge battery in haz.loc.

BUD-6000(LABEL C)

MODEL BUD-6000

INST.No.

RIKEN KEIKI Co., Ltd./2-7-6, Azusawa, Habashi-ku, Tokyo, 174-8744, Japan

WARNING

Use only battery types: LR6 TOSHIBA

**Tested according to additional information:**

No additional testing


**National requirements:**

N/A

**Other requirements:**

N/A

**Additional information:**

<b>Calibration:</b>	All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Further information about traceability will be given on request.
<b>Measurement uncertainty:</b>	Measurement uncertainties are calculated for all instruments and instrument set-ups given in this report. Calculations are based on the principles given in the standard EA-4/02 (Oct 2013). Further information about measurement uncertainties will be given on request
<b>Laboratory accreditation</b>	 Testing laboratory satisfy requirements in NS-EN ISO/IEC 17025

**Possible test case verdicts:**

- test case does not apply to the test item.....: N / A
- test item does meet the requirement.....: Pass




**Report History**

Issue No.	Date of revision	Description
0	2015-04-21	Origin report
1	2015-06-15	<ul style="list-style-type: none"> <li>- Changed layout of DES sensor PCB in order to change the optical path length. The infrared sensor is then able to measure additional gas type.</li> <li>- Minor changes of non-safety components on charger module SDM-6000</li> </ul>
2	2020-08-06	Change the notified body number.

EN 60079-0:2012 +A11:2013			
Clause	Requirement - Test	Result - Remark	Verdict
<b>Endorsement notice:</b> The text of the International Standard IEC 60079-0:2011 was approved by CENELEC as a European Standard with agreed common modifications as given below:			
17.1.5	<b>Ventilating fans</b> <ul style="list-style-type: none"> <li>- For Group I equipment, the applicable requirements of EN 1710 shall be applied.</li> <li>- For Group II and Group III equipment, all requirements except marking of EN 14986 shall be applied.</li> </ul>	No Fan	N/A
26.15	<b>Verification of ratings of ventilating fans</b> <ul style="list-style-type: none"> <li>- For Group I equipment, the applicable requirements of EN 1710 shall be applied.</li> <li>- For Group II and Group III equipment, all requirements of EN 14986 shall be applied.</li> </ul>		N/A
29.3	<b>General</b> Additionally, the nameplate shall include the following fan details: za) rating information (casing pressure and temperature), where applicable. zb) where appropriate, maximum inlet temperature. zc) for variable speed fans, the speed range.		N/A
29.3	<b>General</b> Delete the existing a) and replace by: a) the name and address of the manufacturer		N/A
29.9	<b>Ex components</b> Delete the existing a) and replace by: a) the name and address of the manufacturer		N/A
29.10	<b>Small equipment and small Ex Components,</b> Delete the existing a) and replace by: a) the name and address of the manufacturer		N/A

EN 60079-0:2012 +A11:2013			
<b>30.4</b>	<b>Ventilating fans</b> <ul style="list-style-type: none"> <li>- For Group I equipment, the applicable requirements of EN 1710 shall be applied.</li> <li>- For Group II and Group III equipment, all requirements of EN 14986 shall be applied.</li> </ul>		N/A
<b>Annex ZZ</b>	<b>Other requirements not included in this standard.</b>		
		EN 60079-11: 2012 & EN60079-26: 2007 considered.	Pass
<b>Annex ZY</b>	<b>Equipment groups and marking examples</b>		
<b>Annex ZY.1</b>	<b>Equipment groups</b>	Ex II 1 G Ex ia IIC T4 Ga -20°C ≤ Ta ≤ +50°C	Pass
<b>Annex ZY.2</b>	<b>Instructions</b>	Reviewed and recognized.	Pass
<b>Annex ZY.3</b>	<b>Marking</b>	Refer to checklist for MARKING: -ADDITIONAL REQUIREMENTS ACCORDING TO ATEX DIRECTIVE	Pass

EN 60079-11:2012			
Clause	Requirement - Test	Result - Remark	
<b>Endorsement notice:</b> The text of the International Standard IEC 60079-11:2011 was approved by CENELEC as a European Standard without any modifications.			

MARKING: -ADDITIONAL REQUIREMENTS ACCORDING TO ATEX DIRECTIVE			
Clause	Requirement - Test	Result - Remark	Verdict
	Where reference is made to Directive 2014/34/EU, the marking shall also include (Annex II, 1.0.5)		
	<ul style="list-style-type: none"> <li>name, registered trade name or registered trade mark, and address of the manufacturer,</li> </ul>	RIKEN KEIKI Co., Ltd. 2-7-6, Azusawa, Itabashi-ku, Tokyo, 174-8744, Japan	Pass
	<ul style="list-style-type: none"> <li>the year in which the equipment was constructed</li> </ul>		Pass
	<ul style="list-style-type: none"> <li>the specific marking of explosion protection  followed by the symbol of the equipment-group and the category</li> </ul>	 II 1G	Pass
	<ul style="list-style-type: none"> <li>CE marking with identification number to the notified body involved in the production control phase</li> </ul>	 2460	Pass
	<ul style="list-style-type: none"> <li>If ATEX component, no CE mark, only NB number</li> </ul>		N/A
	for equipment Group II:		
	<ul style="list-style-type: none"> <li>the letter 'G' where explosive atmospheres caused by gases, vapours or mists are concerned and/or</li> </ul>	G	Pass
	<ul style="list-style-type: none"> <li>the letter 'D' where explosive atmospheres caused by dusts are concerned</li> </ul>		N/A

## Measurement Section, including Additional Narrative Remarks (as deemed applicable)

### APPENDIX A: Description of product

#### A.1 General Technical description

The changes concerned:

- Changed layout of DES sensor PCB in order to change the optical path length. The infrared sensor is then able to measure additional gas type.
- Minor changes of non-safety components on charger module SDM-6000

Due to the similarity with previously tested equipment, only the evaluation in Addendum report was considered necessary for the changes concerned.

#### A.3 Thermal ignition considerations.

Non-safety component C4 on charger module SDM-6000 is changed from 0.1 $\mu$ F to 0.22 $\mu$ F. The charger module is intended to be used in non-hazardous zone. Other minor non-safety changes are documented. The changes make no impact on the type of protection. The changes are reviewed and recognized.

#### **B.6.3 Evaluation & test of sensors:**

Layout of DES sensor PCB is changed. No safety components are used on DES sensor PCB, thereof no safety distances/connections are required. The layout was checked and is considered to make no contribution to temperature rise of equipment. The change with regards to thermal aspects is negligible. The change is reviewed and recognized.