IECEx TEST REPORT COVER

ExTR Reference Number..... :	NO/PRE/ExTR15.0012/02
ExTR Free Reference Number ..... :	PRJN-184491-2020-PA-NOR
Compiled by + signature (ExTL) .... :	Ke Shen
Reviewed by + signature (ExTL).... :	Arne Hortman
Approved by + signature (ExCB) ... :	Asle Kaastad
Date of issue ..... :	2020-08-18
Ex Testing Laboratory (ExTL) ..... :	DNV GL Presafe AS
Address ..... :	Veritasveien 3, 1363 Høvik, Norway
Ex Certification Body (ExCB) ..... :	DNV GL Presafe AS
Address ..... :	Veritasveien 3, 1363 Høvik, Norway
Applicant's name..... :	RIKEN KEIKI Co., Ltd.
Address ..... :	2-7-6, Azusawa, Itabashi-ku, Tokyo, 174-8744, Japan
Standards associated with this ExTR package ..... :	IEC 60079-0: 2011 6th Edition IEC 60079-11: 2011 6th Edition
Clauses considered ..... :	All clauses considered
Test Report Form Number ..... :	ExTR Cover_7 (released 2018-02)
Related Amendments, Corrigenda or ISHs ..... :	N/A
Test item description..... :	Portable Gas Monitor
Model/type reference ..... :	GX-6000
Code (e.g. Ex __ II__ T__)..... :	Ex II 1 G Ex ia IIC T4 Ga -20°C ≤ Ta ≤ +50°C
Rating..... :	Battery operated. Battery units BUL-6000 & BUD-6000. Charger modules BC-6000 or SDM-6000: U_m= 250V

ExTR Package Contents
Assembled ExTR documents and Additional reference material:
IECEx Test Report Cover
IECEx Test Report: ExTR Addendum report

Manufacturer's name .....:	RIKEN KEIKI Co., Ltd.
Address .....:	2-7-6, Azusawa, Itabashi-ku, Tokyo, 174-8744, Japan
Additional 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
Trademark .....:	RIKEN KEIKI
Certificate No. (optional) .....:	IECEx PRE 14.0061
QAR Reference No. (optional) .....:	NO/PRE/QAR19.0018/01

Particulars: Test item vs. Test requirements

Classification of installation and use ..... :	(portable / hand-held)
Ingress protection .....:	Min. IP 20
Rated ambient temperature range (°C).....:	-20°C ≤ Ta ≤ +50°C
Rated service temperature range (°C) for Ex Components .....:	Not applicable

General remarks:

The test results presented in this ExTR package relate only to the item or product tested.

- "(See Attachment #)" refers to additional information appended to the ExTR package.
- "(See appended table)" refers to a table appended to the ExTR package.
- Throughout this ExTR package, a point is used as the decimal separator.
- *Where the term "N/A" appears in any part of an ExTR package, it indicates that the associated issue was considered "Not applicable" to the involved evaluation.*
- *In accordance with IECEx 02, a Receiving ExCB may request a sample of the Ex equipment and copies of the documentation referred to in an ExTR Cover.*

The technical content of this ExTR package shall not be reproduced except in full without the written approval of the Issuing ExCB and ExTL.

General product information:

The test results presented in this ExTR package relate only to the item or product tested.

- "(see Attachment #)" refers to additional information appended to the ExTR package.
- "(see appended table)" refers to a table appended to the ExTR package.
- Throughout this ExTR package, a point is used as the decimal separator.
- *Where the term "N/A" appears in any part of an ExTR package, it indicates that the associated issue was considered "Not applicable" to the involved evaluation.*
- *In accordance with IECEx 02, a Receiving ExCB may request a sample of the Ex equipment and copies of the documentation referred to in an ExTR Cover.*
- The majority of test results presented in this ExTR package are extracted from the respective certification which are listed in appended tables for reference.

The technical content of this ExTR package shall not be reproduced except in full without the written approval of the Issuing ExCB and ExTL.

The standard IEC 60079-26: 2006 2nd Edition make reference to IEC 60079-0: 2004 4th edition. However since IEC 60079-0: 2004 4th edition is withdrawn, IEC 60079-0: 2011 6th edition is considered for this investigation.

This investigation is valid for both IECEx and ATEX certification which is handled by Presafe AS. The Ex codes for both ATEX and IECEx certification may appear in associated test reports.

Equipment under test hereby referred to as EUT is a portable gas monitor model GX-6000 manufactured by Riken Keiki Co., Ltd . EUT is used for measuring flammable gas concentration in hazardous location. EUT is build up in major by approximately same parts of similar models (e.g. models GX-2012GT, GX-2009 or GX-8000 which all are manufactured by Riken Keiki) and has same Ex protection concept (intrinsic safe). These similar models are separately Ex certified devices. This investigation is therefore based on

former evaluation of the used parts. Test results and safety info are extracted from respective test reports of similar models and are documented in this report package. Additional evaluation are performed for relevant requirements which may not be covered by these certifications.

EUT is an battery-operated handheld portable device and is built up by plastic enclosure with minor metal parts such as assembly screws. The display is located in front/top of EUT. At the bottom/rear side is the battery unit. Two alternative battery units may be used with EUT. BUD-6000 is the alkaline dry battery unit and BUL-6000 is the Li-ion battery unit. Replacement or charging of battery unit can be performed by end-users and is only allowed in non-hazardous areas. More technical details of design is explained in Appendix A.1 of the associated IEC60079-11 test report. See also Photos below.

Several safety instructions are found in attached manual. Specific safe instructions are also marked on labels. See Copy of marking plate in addition.

・Warning: ”Do not charge in hazardous location”

・Warning: ”Do not charge it except by genuine charger

. Warning: “Do not replace battery unit in hazardous location”

・Warning: ”Do not replace dry batteries in hazardous location

・Warning: “Do Not attempt to disassemble or alter the instrument”

・Use only battery unit type BUD-6000 with three series connected Alkaline Manganese AA batteries, type LR6 manufactured by Toshiba, or use chargeable battery unit type BUL-6000.

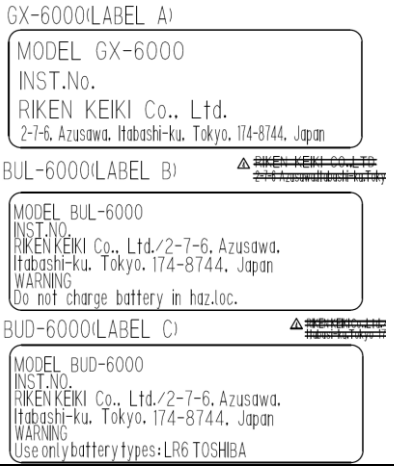
EUT is consisting of a main part and a battery unit (BUL-6000 or BUD-6000). No tools is needed to remove battery units from the main part. The BUL-6000 battery unit is an encapsulated device. The enclosure used anti-electrostatic material with minor smaller parts of other regular plastic material. Small accessible metal parts are built-in to the anti-electrostatic material and therefore are not considered to be isolated. Inside the main part is electronics including small internal pump RP-12, DC vibration motor and piezoelectric device BZ-9K. These devices are used in similar models which have been separately certified with regards to Ex requirements. The majority of this investigation is based on test reports and associated appendix with inter alia Test report no. NL/KEM/ExTR11.0038 & NL/DEK/ExTR13.0075/00. However report reference to extracted test results will be detailed in associated test reports of this certification.
The charger modules BC-6000 & SDM-6000 are assessed and included in this investigation but not the AC/DC power adapter. Electronic design concept of charger modules are identically. The difference between the two charger modules made no impact to the type of protection. Assessment of module BC-6000 is representative for module SDM-6000 as well.
Included in this certification are following parts which comprise EUT:

- GX-6000: Portable Gas Monitor
- BUL-6000: Rechargeable Li-ion battery unit
- BUD-6000: Alkaline battery unit. Only type Toshiba LR6 AA size is allowed.
- BC-6000: Charge module
- SDM-6000: Charge module
- NC-6264A: Combustible gas sensor
- Toxic gas sensor
- Oxygen sensor
- Smart sensor type DES
- Smart sensor type ESS
- Smart sensor type PIS
- Smart sensor type OSS

Details of change (applicable only when revising an existing ExTR package):

Add additional manufacturing location.

Copy of Marking Plate:



Details regarding 'trade agent' / 'local assembler' application in accordance with OD 203:

N/A

Testing not fully performed by ExTL staff at the above ExTL address:

N/A

National differences considered as part of this evaluation:

N/A

"Specific Conditions of Use" / "Schedule of Limitations":

No 'Specific condition of use' are claimed.

Routine tests:

N/A

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
E3-6991-5470-70-01K	INDEX GX-6000	4	2020.3.31

*Note: An * is included before the title of documents that are new or revised.*