(1) EU-TYPE EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number

TÜV 17 ATEX 8115 X Issue: 00

(4) Equipment: Portable Multi-Gas detector, model BX616

(5) Manufacturer: Hanwei Electronics Group Corporation
(6) Address: No.169, Xuesong Road, National Hi-Tech Zone, Zhengzhou 450001,China

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle für Explosionsschutz of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 2014/34/EU of 26th February 2014, certifies this product which has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC/Ex8115.00/17

(9) Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012/A11:2013 **EN 60079-1:2014** **EN 60079-11:2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

(12) The marking of the equipment shall include the following:

II 2 G Ex ia IIC T4 Ga or

II 2 G Ex db ia IIC T4 Gb

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz Cologne, 2019-07-18

ATEX Notified body • TÜV Rheinland Industrie Service • 0035

Dipl.-Ing. Andreas Maschke

This EU-Type Examination Certificate without signature and stamp shall not be valid.
This EU-Type Examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
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(13) Annex

(14) # EU Type Examination Certificate

TÜV 17 ATEX 8115 X Issue: 00

(15) Description of equipment

15.1 Equipment and type:

Portable Multi-Gas detector, model BX616

15.2 Description / Details of Change

General product information

The enclosure of the gas detector BX616 is made from plastic material PC-110(+)+TPE,which are antistatic materials.It is powered by one Lithium-ion Polymer battery FRT-FB101S02-1800mAh(capacity:1800mAh,Max internal resistance:200mΩ),which has a maximum open circuit voltage of 4.2V,and the maximum constant discharge current is 0.9A.

Note1:The battery,power board and transfer board are encapsulated together completely.
Note2:The Lithium battery meet the requirements of UL1642(IEC 60079-11,clause 7.4),refer to UL file number MH12210,date Jan 02nd,2003,total 1page.

The gas detector is used to detect the gas concentration of oxygen and combustible gases(CO and H2S).
The equipment contains the following main features,
-adjustable 2-level alarms(STEL alarm and TWA alarm)
-data uploading
-self-test when power on
-self-diagnostic and auto-correction function
-100,000 records storage capacity
-calibration point adjustable

There are four sensor are used in this gas detector,they are one catalytic reaction sensor(model 4P75C CiTipeL) and three electrochemical sensors(model 4CFC CiTiceL,4HSC CiTiceL and 4OXV CiTiceL).
The catalytic reaction sensor(Sira 01ATEX1205X and IECEx SIR 04.0013X) was certified by ExNB Sira with Ex marking "Ex d IIC T4 Gb"(Ta=-20°C~+55°C/1.5W).This sensor only be used in Zone 1 with explosive gas atmosphere of IIC.In this case,the fully Ex marking of this gas detector is "Ex db ia IIC T4 Gb".

When the catalytic reaction sensor not used in the circuit,the gas detector can be used in zone 0.In this case,the fully Ex marking of this gas detector is "Ex ia IIC T4 Ga.

The electrical parts of this equipment are comprised of power board,transient protection circuit,transfer board,battery and main board,and the external protection circuit of battery is one part of power board.
The transient protection circuit contains USB protection board(data processing purpose) and adapter protection board(charging purpose).
The transient protection circuit is located between AC adapter and gas detector,the whole transient protection circuit is encapsulated by sealing material SYLGARD™160 Silicone Elastomer.

The power board and transfer board are encapsulated by sealing material SYLGARD™160 Silicone Elastomer also.
A conformal coating is applied to main board.
The electrical circuits are designed in accordance with type of protection "ia",except that the catalytic reaction sensor with type of protection "db" as mentioned above.

The adapter is used for charging purpose,and it is located and used in the non-hazardous area only.
The transient protection design of the external charging circuit and data processing circuit are considered in accordance with the intrinsic safety also.
Only the adapter type TEKA018-0652000XX is used,which was approved by safety standard IEC 61558-1:2005+A1 and IEC 61558-2-16:2009+A1,refer to certificate no.DE 2-021805,date 18.05.2017.

Technical Data

Electrical data
Um=7.48V(Charger output)
Ui:4.2V
Ii=1.08A

Environmental data
EPL Ga(without catalytic reaction sensor) or EPL Gb(with catalytic reaction sensor)
Tamb:-20°C ~+50°C
IP Rating:IP66

(16) Test-Report No. GC/Ex8115.00/17

(17) Special Conditions for safe use

1. WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
2. WARNING – DO NOT CHARGE THE BATTERY IN HAZARDOUS LOCATION
3. WARNING – USE ONLY FRT-FB101S02-1800mAh BATTERIES
4. USE ONLY TEKA018-0652000XX AC adapter for charging purpose
5. User are not permitted to open the enclosure of this gas detector,including replace the battery.

6. The gas detector needs to protected from impacts with high impact energy.
7. The gas detector are not permitted exposure to light for a long term directly,under the extreme situations,for example,the strong sunlight,the gas detector should be used with additional protection.
8. The gas detector is portable equipment,charging through normal handling of hand-held equipment is not considered to lead to a prolific charge generating mechanism.
   Under certain extreme circumstances,the plastic enclosure may store an ignition-capable level of electrostatic charge.Therefore,the user/installer shall implement precautions to prevent the build-up of electrostatic charge,e.g.locate the equipment where a charge-generating mechanism is unlikely to present and clean with a damp cloth.
9. If a footwear is used for this equipment,a anti-static material shall be applied.
10. The H_2S electro-chemical sensor and CO electro-chemical sensor are intended use in explosive atmosphere with gas concentration are not exceed 100ppm and 1000ppm respectively.
11. When the catalytic reaction sensor intended use in the circuit,the gas detector can be used in zone 1 with EPL Gb only.

(18) Basic Safety and Health Requirements

Covered by afore mentioned standard

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz — Cologne, 2019-07-18

Dipl.-Ing. Andreas Maschke