



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX ITS 10.0036X** issue No.: **5**

Status: **Current**

Date of Issue: **2016-06-01** Page 1 of 4

### Certificate history

Issue No. 5 (2016-6-1)  
Issue No. 4 (2015-3-24)  
Issue No. 3 (2011-11-25)  
Issue No. 2\* (2014-10-21)  
Issue No. 1 (2010-9-30)  
Issue No. 0 (2010-5-19)

Applicant: **ION SCIENCE LIMITED,  
THE WAY,  
FOWLMERE,  
CAMBRIDGESHIRE,  
SG8 7UJ  
United Kingdom**

Electrical Apparatus: **PHOCHECK TIGER**  
Optional accessory:

Type of Protection: **Intrinsic Safety Ex i.a**

Marking: **ION SCIENCE LIMITED,  
IECEX ITS 10.0036X  
Ex ia IIC T4 Ga  
Tamb = -15°C to +45°C (with Li-Ion Battery pack)  
Tamb = -15°C to +40°C (with Alkaline Battery pack)**

Approved for issue on behalf of the IECEx  
Certification Body:

A T Austin

Position:

Certification Officer

Signature:  
(for printed version)

Date:

2016-06-01

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website

Certificate issued by:

**Intertek Testing & Certification Limited**  
ITS House, Cleeve Road,  
Leatherhead,  
Surrey, KT22 7SB  
United Kingdom



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Manufacturer: **ION SCIENCE LIMITED.**  
THE WAY,  
FOWLMERE,  
CAMBRIDGESHIRE,  
SG8 7UJ  
United Kingdom

Additional Manufacturing Location  
(s):

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 electrical apparatus 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:

<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-11 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-26 : 2006</b> Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*This Certificate does not indicate compliance with electrical 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 Report  
GB/ITS/ExTR10.0032/02

GB/ITS/ExTR10.0032/03

Quality Assessment Report

GB/BAS/QAR07.0023/05



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

Handheld, battery powered instrument using photo-ionisation technology for the detection of Volatile Organic Compounds (VOC's) which can be dangerous from both a poisoning and explosive perspective. The TIGER uses a Photo-Ionization Detector (PID) to measure gas concentrations and a patented fence electrode technology to minimise the effects of moisture and contamination, avoiding the need for compensation. The TIGER can be connected directly to a PC via a standard USB cable facilitating data download. An audio output, vibration and LED's are used to indicate alarm conditions. Orange and Red LED's indicate High and Low conditions respectively.

The Instrument comprises three printed circuit boards, a pump motor, a vibration motor, certified PID Sensor and a battery pack all housed inside a plastic enclosure. There are two battery pack options; namely a rechargeable lithium ion battery pack using a SAFT MP174565 Integration cell and a non-rechargeable pack using three alkaline manganese cells, type Duracell Procell MN1500 which are user replaceable.

Input Parameters: USB port:  $U_m = 6V$ . Charging connector for Li-Ion Battery Pack:  $U_m = 6V$ .  
Refer to attached schedule of drawings.

### CONDITIONS OF CERTIFICATION: YES as shown below:

The PhoCheck Tiger must be functionally checked prior to entering a hazardous area after every occasion when a connection has been made to the USB port. The instrument must complete its start up routine and display legible readings. If the LCD display fails to show an intelligible and uncorrupted display the instrument must not enter a hazardous area.

Do not make any connection to the charger port or USB port of this instrument in a hazardous area.



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Issue 0

Standards IEC60079-0: 2004 & IEC60079-11: 2006

Marking: Ex ib IIC T4

### Issue 1

The PCB Layouts of all PCBs have been changed to improve segregation; allowing the product to remain safe under two countable faults.

Components have been added to permit triple redundancy in critical circuits, allowing the product to remain safe under two countable faults.

The schematic diagrams for all circuits have been re-drawn for clarity.

Encapsulant has been added to wire connection point on the Li-ion battery to improve wire anchorage.

The marking is updated to reflect the requirements of IEC60079-0 [Ed 5]. The coding is changed to reflect an upgrade from ib to ia.

Marking: Ex ia IIC T4 Gb

### Issue 2

No Changes - Document not issued.

### Issue 3

Construction in accordance with GB/ITS/ExTR11.0032/00 schedule documents to permit use within a Zone 0 hazardous area and marking with EPL Ga.

Changes to product labels to facilitate inclusion of a second language translation for some content as detailed in schedule drawings.

Modification to the Battery Charger in accordance with GB/ITS/ExTR11.0053/00 schedule documents to permit marking of charger label with parameters: Um 42.4V AC and 60V DC, Uo: 6V

Marking: Ex ia IIC T4 Ga

### Issue 4

Update assessment to address latest standards: IEC60079-0: 2011 & IEC60079-11: 2011.

The maximum capacitance permitted for isolated metal probes is reduced to 3pF in accordance with IEC60079-0 2011, Section 7.5

An alternative fuse is specified on the Main PCB FU1.

Drawing CERT0082 is modified to clarify the permitted metallurgy and changes to permitted plastics for the probe accessory

Drawing CERT0083 is modified to reflect changes to permitted materials for the LCD window.

Change to drawings CERT0099 and CERT0102 to correct package type for transistors Q4-Q6 and Q390-Q392 on the Main PCB and Q100-Q102 on the Sensor PCB

### Issue 5; Intertek Rpt No.102437242CHE-001 dated April 2016

Additional of alternative casting compound for fuses FU400 & FU401

Alternative vibration motor specified.

Unused connectors made optional on Bill of Materials