



# 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 CML 16.0105X

Issue No: 1

Certificate history:

Issue No. 1 (2017-09-04)

Issue No. 0 (2016-11-11)

Status: **Current**

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Date of Issue: **2017-09-04**

Applicant: **Pulsar Process Measurement Ltd.**  
Cardinal Building  
Enigma Commercial Centre  
Sandy's Road  
Malvern  
WR14 1JJ  
**United Kingdom**

Equipment: **MicroFlow-i and Microflow-T**

*Optional accessory:*

Type of Protection: **Intrinsic safety**

Marking:

Ex ia IIC T4 Ga

Ex ia IIIC T135°C Da

Microflow-i: T<sub>amb</sub> -20°C to +60°C

Microflow-T: T<sub>amb</sub> -30°C to +60°C

*Approved for issue on behalf of the IECEx  
Certification Body:*

A Snowden

*Position:*

Certification Officer

*Signature:  
(for printed version)*

*Date:*

September 4, 2017

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](http://www.iecex.com).

Certificate issued by:

**Certification Management Limited**  
Unit 1, Newport Business Park  
New Port Road  
Ellesmere Port, CH65 4LZ  
United Kingdom





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Manufacturer: **Pulsar Process Measurement Ltd.**  
Cardinal Building  
Enigma Commercial Centre  
Sandy's Road  
Malvern  
WR14 1JJ  
**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:

**IEC 60079-0 : 2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-11 : 2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

*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/CML/ExTR16.0143/00](#) [GB/CML/ExTR17.0151/00](#)

Quality Assessment Report:

[GB/SIR/QAR06.0030/07](#)



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## Schedule

### EQUIPMENT:

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

MicroFlow-i and Microflow-T radar flow sensors

**See Annex for full description.**

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

**See Annex for specific conditions of use/special conditions for safe use.**



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

### Issue 1

This variation introduces the following modifications:

1. Changes to the circuit and PCB layout of the power supply board.
2. A revised front face arrangement of the MicroFlow-i.
3. Addition of a new version, MicroFlow-T, to the certificate.
4. The addition of a further "X" condition to consider the integral cable parameters.

### Annex:

[IECEX CML 16.0105X Annex Issue 1.pdf](#)

**Annexe to:** IECEx CML 16.0105X Issue 1  
**Applicant:** Pulsar Process Measurement Ltd.  
**Apparatus:** MicroFlow-i and MicroFlow-T



## Product Description

### MicroFlow-i

The MicroFlow-i is a two wire loop powered process flow measurement sensor utilising radar technology. The sensor is housed in a non-metallic enclosure with integral cable which connects to control equipment located in the safe area. The equipment can be operated in either 4-20 mA loop powered mode or digital HART mode. The enclosure incorporates a threaded cap which allows the equipment to be mounted on a suitable bracket.

Intrinsic safety is achieved by connecting to the non-hazardous area via an intrinsically safe interface device, and by encapsulation of the electronics and sensor.

The equipment has the following safety description:

$U_i = 28 \text{ V}$   
 $I_i = 162 \text{ mA}$   
 $P_i = 1.03 \text{ W}$   
 $C_i = 0$   
 $L_i = 0$

### MicroFlow-T

The MicroFlow-T is a DC powered process flow measurement sensor utilising radar technology. The sensor is housed in a non-metallic enclosure with integral five core cable which connects to control equipment located in the safe area providing power and data communication. The enclosure incorporates a threaded cap which allows the equipment to be mounted on a suitable bracket.

Intrinsic safety is achieved by connecting to the non-hazardous area via an intrinsically safe interface device, and by encapsulation of the electronics and sensor.

The equipment has the following safety description:

$U_i = 9.6 \text{ V}$   
 $I_i = 350 \text{ mA}$   
 $P_i = 0.65 \text{ W}$   
 $C_i = 0$   
 $L_i = 0$





## Conditions of manufacture

None

## Conditions of Certification/Special Conditions for Safe Use

- i. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. This is particularly important if the equipment is installed in a zone 0 location. In addition, the equipment shall only be cleaned with a damp cloth.
- ii. The equipment shall be routinely inspected to avoid the build-up of dust layers when installed in a Zones 20, 21, or 22.
- iii. When installing the equipment, the installer shall consider the length of integral cable attached to the equipment, in addition to any externally installed cable. The integral cable shall be considered to have parameters of 200pF/m, and 1 $\mu$ H/m or 30 $\mu$ H/ $\Omega$