



EU Type Examination Certificate CML 16ATEX5332X Issue 2

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **MicroFlow**
- 3 Manufacturer **Pulsar Process Measurement**
- 4 Address Cardinal Building,
 Enigma Commercial Centre
 Sandy's Road
 Malvern
 Worcestershire WR14 1JJ
 UK
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 CML B.V. , Chamber of Commerce No 6738671, Hoogoorddreef 15, Amsterdam, 1101 BA, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN 60079-0: 2012:A11:2013, Corr3 EN 60079-18:2015
- 10 The equipment shall be marked with the following:



II 2 G D

Ex mb IIC T4 Gb

Ex mb IIIC T135°C Db

Ta= -20°C to +60°C



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11 Description

The MicroFlow is a DC 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 is powered from a nominal 24Vdc power supply located in the safe area. The output of the sensor is sent via an RS485 data link to external control equipment. The enclosure incorporates a threaded cap which allows the equipment to be mounted on a suitable bracket.

The equipment is fully encapsulated to allow use in areas requiring equipment protection levels Gb and Db.

The equipment has the following ratings:

Um = 28Vdc (supply input)

Um = 5Vdc (RS485 data connection)

Variation 1

This variation introduces the following modifications:

- i. Changes to the circuit and PCB layout of the power supply board
- ii. Addition of supply parameters to the MicroFlow description

Variation 2

This variation introduces the following modifications:

- i. The transfer from a CML UK certificate to CML BV.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	27 Jan 2017	R950B/00	Issue of prime certificate
1	04 Sep 2017	R11291A/00	Introduction of Variation 1
3	15 Oct 2019	R12797C/00	The introduction of Variation 2

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of manufacture

The following are conditions of manufacture

- 13.1 Where the product incorporates certified parts or safety critical components, the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
- 13.2 Each piece of equipment shall be visually inspected. No damage shall be evident, such as cracks in the compound, exposure of encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion, or softening.



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14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

- 14.1 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. In addition, the equipment shall only be cleaned with a damp cloth.
- 14.2 The equipment shall be routinely inspected to avoid the build-up of dust layers when installed in Zones 21 or 22.
- 14.3 The equipment shall not be used if there are any cracks or damage to the enclosure.



Certificate Annex

Certificate Number CML 16ATEX5332X
Equipment MicroFlow
Manufacturer Pulsar Process Measurement Ltd.

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
D-804-1199-A	1 of 1	-	27/01/2017	Microflow transducer cap
D-804-1215-A	1 of 1	-	27/01/2017	Microflow RS485 Ex mb version generic wraparound label
D-804-1201-A	1 of 1	-	27/01/2017	Microflow base housing
D-804-1202-A	1 of 1	-	27/01/2017	Sub shield machining for ATEX Microflow
D-804-1203-A	1 of 1	-	27/01/2017	Microflow ATEX housing face
D-804-1205-B	1 of 1	B	27/01/2017	Microflow cable assembly for Ex mb
D-804-1189-A	1 to 2	A	27/01/2017	Flowradar sensor V1.2 (1) Haz area
D-804-1191-A	1 to 4	1.2	27/01/2017	Microflow sensor PCB
D-804-1190-A	1 to 2	A	27/01/2017	Flowradar power V1.2 (1) Haz area
D-804-1192-A	1 to 4	1.2	27/01/2017	Microflow power PCB
D-804-1206-A	1 to 2	1.0	27/01/2017	RS485 Input protection
D-804-1194-A	1 of 1	A	27/01/2017	RS485 Input protection
A-301-0148-A	1 to 2	1.2	27/01/2017	Microflow sensor PCB BOM
A-301-0149-A	1 to 2	1.2	27/01/2017	Microflow power PCB BOM
A-301-0156-A	1 to 1	1.0	27/01/2017	Microflow RS485 input protection PCB BOM
D-804-1214-A	1 of 1	-	27/01/2017	Microflow RS485 Ex mb hazardous area protection overview
D-804-1213-B	1 of 1	B	27/01/2017	Microflow RS485 Ex mb version general layout
BOM-0018-A	1 of 1	1.1	27/01/2017	Microflow RS485 Ex mb BOM
D-804-1222-A	1 of 1	-	27/01/2017	Microflow Exm specific ATEX potting detail

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
D-804-1190-B	1 to 2	B	04 Sep 2017	Flowradar Power V2.0 haz area sch
D-804-1192-B	1 to 4	B	04 Sep 2017	Microflow Power PCB
A-301-0149-A	1 of 1	2.0	04 Sep 2017	Microflow Power V2.0 hazardous area BOM



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Certificate Number CML 16ATEX5332X
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Drawing No	Sheets	Rev	Approved date	Title
BOM-0018-A	1 of 1	1.2	04 Sep 2017	Controlled Bill of Materials – Microflow RS485 Ex mb

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
D-804-1215-B	1 of 1	B	15-10-2019	MicroFlow RS485 Ex mb version generic wraparound label