1 **EU TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 19ATEX2061X** Issue: **0**

4 Equipment: **The Multi-Sensor Flow Monitor S2.5 (MSFM S2.5)**

5 Applicant: **Detectronic Ltd**

6 Address: Whitewalls Industrial Estate
Regent Street
Colne BB8 8LJ
United Kingdom

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service, notified body number 0518 in accordance with Articles 17 and 21 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 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This EU type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 1G
Ex ia IIB T4 Ga
Ta = -40°C to +60°C

Project Number 70198634

R A Craig
Certification Support Officer

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Sira Certification Service
Unit 6 Hawarden Industrial Park,
Hawarden, CH5 3US, United Kingdom
Tel: +44 (0) 1244 670900
Fax: +44 (0) 1244 681330
Email: ukinfo@csagroup.org
Web: www.csagroupuk.org

SCHEDULE

EU TYPE-EXAMINATION CERTIFICATE **Sira 19ATEX2061X**
Issue 0

13 **DESCRIPTION OF EQUIPMENT**

The Multi-Sensor Flow Monitor S2.5 (MSFM S2.5) is used in flow monitoring applications in 'dirty water' environments such as sewerage. It combines a data logger and a mobile 'phone modem module and provides for external connections for several suitably-approved intrinsically safe sensors/transducers. It features an internal antenna as well as the provision for the connection of an external antenna. It also features a SIM card. It comprises a plastic enclosure housing two printed circuit boards, a component-approved (Sira 18ATEX2066U) intrinsically safe interface board and a partially encapsulated processor board. Two power supplies are required for operation.

MSFM S2.5 has the following internal power supply options:

i. Internal user-replaceable non-rechargeable intrinsically safe '9E3000' battery pack (single 3.9V lithium cell).
ii. Internal user-replaceable non-rechargeable intrinsically safe '9V3000' battery pack (dual 3.9V lithium cells in parallel, component-approved - Sira 08ATEX2238U).

There is also the provision for the connection of a suitably approved intrinsically safe external battery pack that is 12.6V maximum.

The entity parameters are as follows:

	Ui (V)	Ii (A)	Pi (W)	Ci (µF)	Li (mH)	Uo (V)	Io (mA)	Po (mW)	Co (µF)	Lo (mH)
CSO/ENC	0	-	-	0	0	7.14	162	288	0.6	1
COMMS	5.88	-	-	0	0	5.88	26	39	0.6	1
PULSE/PC (PC port- J7 – Pins 1&2)	0	-	-	-	0.9	8.61	36	76	54	108
PULSE/PC (Volt free port- J7 pin 4)	5.5	-	-	-	-	8.61	1	2	54	142221
VEL	0	-	-	-	-	8.61	270	799	50	1
PRESS/LEV	0	-	-	-	-	8.61	270	799	54	0.9
EXT PWR	12.6	2.708	6.142	0	0.019	0	-	-	-	-

14 **DESCRIPTIVE DOCUMENTS**

14.1 **Drawings**

Refer to Certificate Annexe.

14.2 **Associated Sira Reports and Certificate History**

Issue	Date	Report number	Comment
0	12 March 2019	R70198634A	The release of prime certificate.

14.3 Certificate number Sira 18ATEX2245X Issue 0

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SCHEDULE

EU TYPE-EXAMINATION CERTIFICATE **Sira 19ATEX2061X**
Issue 0

15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

15.1 The Multi-Sensor Flow Monitor S2.5 has provision for the installer to connect an external antenna, which is not covered by the certificate. The circuit ground is connected to the exposed metal shell of this antenna connector, so the equipment does not meet the 500 Vac isolation requirements between circuit and enclosure. This shall be considered during installation.

15.2 The circuit ground is deliberately connected to the connector shells of the 'VEL' and 'PRESS/LEV' ports, so the equipment does not meet the requirements of the 500 V dielectric strength test in accordance with EN 60079-11. This shall be taken into consideration during installation.

15.3 Only a 9E3000 or a 9V3000 internal battery pack, is permitted as a replacement. These battery packs are intrinsically safe and may be replaced by the user in the hazardous area whilst the equipment is live.

15.4 Under certain extreme circumstances, the exposed plastic parts of the enclosure and the metallic connectors 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 (such as wind-blown dust) is unlikely to be present and clean with a damp cloth. The metallic connectors have a capacitance of up to 13pF with respect to an earthed conductor.

15.5 Some of the external metallic parts may be manufactured from light metal. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation, particularly if the equipment is installed in a zone 0 location.

15.6 The 'EXT PWR' port shall be connected to a resistive supply with a source resistance of 4.431 Ω minimum.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF MANUFACTURE**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EU type-examination certificates are required to comply with the production control requirements defined in Article 13 of directive 2014/34/EU.

17.3 The Multi-Sensor Flow Monitor S2.5 incorporates a previously certified interface board (Sira 18ATEX2066U) and a previously approved 9V3000 battery pack (Sira 08ATEX2238U). It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with this device. The manufacturer shall inform Sira of any modifications to the device that may impinge upon the explosion safety design of the Multi-Sensor Flow Monitor S2.5.

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Web: www.csagroupuk.org

Certificate Annexe

Certificate Number: **Sira 19ATEX2061X**

Equipment: **The Multi-Sensor Flow Monitor S2.5 (MSFM S2.5)**

Applicant: **Detectronic Ltd**

Issue 0

Drawing	Sheets	Rev	Date (Sira stamp)	Title
2148TC5010	1 of 1	A	05 March 19	Multi-sensor Flow Monitor Series 2.5

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