

UK Type Examination Certificate CML 21UKEX2098X Issue 6

United Kingdom Conformity Assessment

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **LIDoTT Smart, External battery pack and LIDoTT Alarm**
- 3 Manufacturer **Detectronic Ltd**
- 4 Address **Ground Floor Office Suite,
16 Lindred Road,
Brierfield, Nelson,
Lancashire, BB9 5SR,
United Kingdom**

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

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 specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.

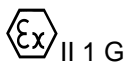
8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.

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 IEC 60079-0:2018

EN 60079-11:2012

10 The equipment shall be marked with the following:



Ex ia IIB T4 Ga

Ta=-20°C to +60°C





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11 Description

The LIDoTT Smart is a flow monitoring device (data logging Global System for Mobile Communications (GSM)) for use within sewer networks. It is housed in a plastic moulded case and designed for connection to suitably certified associated equipment.

The LIDoTT Smart will be fastened to the sewer wall by means of a bracket and bolts. It is powered from a battery pack. The battery pack is either internal (contained within the enclosure) or externally connected by a plug and short length of cable. Only the external battery pack is replaceable.

LIDoTT Smart comprises a Data Logger / GSM Modem board which may be connected to suitably certified equipment such as the LIDoTT Sensor. There is an option for the datalogger/GSM board to be fitted with an internal antenna or through a socket in the base.

The data Logging GSM board has two output sensor connections with the following parameters:

U _o	=	7.14V
I _o	=	150 mA
P _o	=	0.65W
C _o	=	239.9 μ F
L _o	=	0

There is an external antenna connection for suitable certified antennas or simple apparatus, with the following port parameters:

U _o	=	7.14V
I _o	=	0.7 mA
P _o	=	0.001 W
C _o	=	0
L _o	=	47 nH

The internal or external battery pack is fully encapsulated, the internal battery pack has three cells, and the external battery pack comprises of four cells.

An optional LIDoTT Alarm model comprises the main board within the LIDoTT Smart and a radar sensor board. This has an internal battery pack that consists of two cells.

Variation 1

This variation introduces the following modifications:

- i. Changes to non-safety critical components.
- ii. Change to circuit capacitance.

Variation 2

This variation introduces the following modification:

- i. To introduce alternative potting compounds.



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Variation 3

This variation introduces the following modifications:

- i. The introduction of alternative IC's.
- ii. New PCB layout to accommodate the new IC's.
- iii. Change to the label to allow for non-certification related changes.
- iv. Removal of the LIDoTT Alarm.

Variation 4

This variation introduces the following modifications:

- i. Introduction of the LIDoTT Alarm
- ii. Alternative battery Pack for the LIDoTT Alarm
- iii. Defining the Antenna port parameters.

Variation 5

This variation introduces the following modifications:

- i. Non-safety related changes to Main PCB for the LIDDoTT Smart
- ii. Modifications to battery pack

Variation 6

This variation introduces the following modifications:

- i. Changes to the port parameter Co of the LIDoTT Smart.
- ii. Update to Manufacturer Address.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	14 Apr 2021	R13811A/00	Issue of Prime Certificate
1	21 Jan 2022	R14901A/00	Introduction of Variation 1
2	07 Apr 2022	R15190A/00	Introduction of Variation 2
3	06 Jun 2022	R15382A/00	Introduction of Variation 3
4	17 Jan 2023	R15794A/00	Introduction of Variation 4
5	23 Aug 2023	R16814A/00	Introduction of Variation 5
6	06 Feb 2025	R18166A/00	Introduction of Variation 6

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

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.



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14 Specific Conditions of Use

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

- 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. In addition, the equipment shall only be cleaned with a damp cloth. This is particularly important if the equipment is installed in a zone 0 location.
- ii. Only an approved LIDoTT Battery Pack may be used for either internal or external use.
- iii. Only suitably certified Antennas that meet (or are less than) the following port parameters can be connected to the Antenna port or Antennas that have been defined as Simple Apparatus:

U _i	=	7.14V
I _i	=	0.7 mA
P _i	=	0.001 W
C _i	=	13.5 μ F
L _i	=	1 mH

Certificate Annex

Certificate Number CML 21UKEX2098X
Equipment LIDoTT Smart, External battery pack & LIDoTT Alarm
Manufacturer Detectronic Ltd



The following documents describe the equipment defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
C126-PN001-SCH-1.2	1 of 8	1.2	14 Apr 2021	MCU
C126-PN001-SCH-1.2	2 of 8	1.2	14 Apr 2021	Bluetooth
C126-PN001-SCH-1.2	3 of 8	1.2	14 Apr 2021	Cellular
C126-PN001-SCH-1.2	4 of 8	1.2	14 Apr 2021	Antenna Protection
C126-PN001-SCH-1.2	5 of 8	1.2	14 Apr 2021	Magnet Detect
C126-PN001-SCH-1.2	6 of 8	1.2	14 Apr 2021	Power Supplies
C126-PN001-SCH-1.2	7 of 8	1.2	14 Apr 2021	LIDoTT & RS485
C126-PN001-SCH-1.2	8 of 8	1.2	14 Apr 2021	ATEX Protection
C131-PN001-1-SCH	1 of 1	2	14 Apr 2021	LIDoTT Battery Pack
C130-PN001-2	1 of 1	1	14 Apr 2021	Dual PTI ATEX Schematic
P130-PN001-2-BOM-1	1 of 1	1	14 Apr 2021	Dual PTI ATEX BoM
C131-DRW003-1	1 of 1	1	14 Apr 2021	LIDoTT Smart Front Face Label
C127-DRW003-1	1 of 1	1	14 Apr 2021	LIDoTT Alarm Front Face Label
C127-DRW004-1	1 of 1	1	14 Apr 2021	LIDoTT Alarm Int. Battery and Int. Antenna
C131-DRW002-2	1 of 1	2	14 Apr 2021	LIDoTT Smart Ext. Battery & Ext. Antenna
C131-DRW001-2	1 of 1	2	14 Apr 2021	LIDoTT Smart Int. Battery & Int. Antenna
C126-PN001-1-PCB-1_3	1 to 6	1.3	14 Apr 2021	Detectronic – Obadiah V1.3
C126-1-DRW001-4	1 of 1	4	14 Apr 2021	Obadiah ATEX sector
C131-PN001-2-DRW	1 to 2	2	14 Apr 2021	LIDoTT Smart – Ext. Battery Pack
C131-PN002-2-DRW	1 to 2	2	14 Apr 2021	LIDoTT Smart – Int. Battery Pack
C131-PN004-2-DRW	1 of 1	2	14 Apr 2021	LIDoTT Smart Ext. Battery Pack Label
C126-PN001-1-BOM-1_2	1 of 13	2	14 Apr 2021	LIDoTT Smart Obadiah Board

Issue 1

Drawing No.	Sheets	Rev	Approved date	Title
C126_PN001_1_PCB-1_4	1 to 6	1.4	19 Jan 2022	Detectronic – Obadiah V1.4
P126-PN001-1-SCH-1_4	1 of 10	1.4	19 Jan 2022	OBETWO Cover Sheet

Certificate Annex

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Equipment LIDoTT Smart, External battery pack & LIDoTT Alarm

Manufacturer Detectronic Ltd



Drawing No.	Sheets	Rev	Approved date	Title
P126-PN001-1-SCH-1_4	2 of 10	1.4	19 Jan 2022	OBETWO MCU
P126-PN001-1-SCH-1_4	3 of 10	1.4	19 Jan 2022	OBETWO Bluetooth
P126-PN001-1-SCH-1_4	4 of 10	1.4	19 Jan 2022	OBETWO Cellular
P126-PN001-1-SCH-1_4	5 of 10	1.4	19 Jan 2022	OBETWO Antenna Protection
P126-PN001-1-SCH-1_4	6 of 10	1.4	19 Jan 2022	OBETWO Magnet Detect
P126-PN001-1-SCH-1_4	7 of 10	1.4	19 Jan 2022	OBETWO Power Supplies
P126-PN001-1-SCH-1_4	8 of 10	1.4	19 Jan 2022	OBETWO LIDoTT & RS485
P126-PN001-1-SCH-1_4	9 of 10	1.4	19 Jan 2022	OBETWO ATEX Protection
P126-PN001-1-SCH-1_4	10 of 10	1.4	19 Jan 2022	OBETWO History & Notes

Issue 2

Drawing No.	Sheets	Rev	Approved date	Title
C131-DRW002-3	1 of 1	3	07 Apr 2022	LIDoTT Smart Ext. Battery & Ext. Antenna
C131-DRW001-3	1 of 1	3	07 Apr 2022	LIDoTT Smart Int. Battery & Int. Antenna
C127-DRW004-2	1 of 1	2	07 Apr 2022	LIDoTT Alarm Int. Battery & Int Antenna

Issue 3

Drawing No.	Sheets	Rev	Approved date	Title
C126-PN001-2-SCH-1	2 of 11	2.1	06 Jun 2022	OBADIAH-V2 MCU
C126-PN001-2-SCH-1	3 of 11	2.1	06 Jun 2022	OBADIAH-V2 Bluetooth
C126-PN001-2-SCH-1	4 of 11	2.1	06 Jun 2022	OBADIAH-V2 Cellular
C126-PN001-2-SCH-1	5 of 11	2.1	06 Jun 2022	OBADIAH-V2 Antenna Protection
C126-PN001-2-SCH-1	6 of 11	2.1	06 Jun 2022	OBADIAH_V2 Magnet Detect
C126-PN001-2-SCH-1	7 of 11	2.1	06 Jun 2022	OBADIAH-V2 Power Supplies #1
C126-PN001-2-SCH-1	8 of 11	2.1	06 Jun 2022	OBADIAH-V2 Power Supplies #2
C126-PN001-2-SCH-1	9 of 11	2.1	06 Jun 2022	OBADIAH-V2 LIDoTT & RS485
C126-PN001-2-SCH-1	10 of 11	2.1	06 Jun 2022	OBADIAH-V2 ATEX Protection

Certificate Annex

Certificate Number CML 21UKEX2098X
Equipment LIDoTT Smart, External battery pack & LIDoTT Alarm
Manufacturer Detectronic Ltd



Drawing No.	Sheets	Rev	Approved date	Title
C126-PN001-2-SCH-1	11 of 11	2.1	06 Jun 2022	OBADIAH-V2 History & Notes
C126-PN001-2-PCB-1	1 to 6	2.1	06 Jun 2022	Obadiah V2 PCB
C121-PN001-2-BOM-1	1 to 13	1	06 Jun 2022	LIDoTT Smart V2 BoM
C131-DRW003-2	1 of 1	2	06 Jun 2022	LIDoTT Smart Front ATEX Label
C131-PN004-2-DRW-2	1 of 1	2	06 Jun 2022	LIDoTT Smart Ext. Battery Pack Label
C131-2-DRW001-2	1 of 1	2	06 Jun 2022	LIDoTT Smart V2 Int. Battery & Int. Antenna
C131-2-DRW002-2	1 of 1	2	06 Jun 2022	LIDoTT Smart V2 Ext. Battery & Ext. Antenna

*Note: The following drawings has been removed: C127-DRW003-1

Issue 4

Drawing No.	Sheets	Rev	Approved /issued date	Title
C133-DOC001-6	1 of 1	6	16 Jan 2023	LIDoTT Radar Board Sector Diagram
C133-1-SCH-6	1 to 2	6	16 Jan 2023	LIDoTT Radar Sensor Schematic
C133-1-BOM-6	1 to 2	6	16 Jan 2023	LIDoTT Radar Sensor Board BOM
C134-DRW004-1	1 of 1	1	16 Jan 2023	LIDoTT Alarm Front ATEX Label
C134-DRW001-2	1 of 1	2	16 Jan 2023	LIDoTT Alarm Int. Antenna General Assy
C134-DRW002-2	1 of 1	2	16 Jan 2023	LIDoTT Alarm Ext. Antenna General Assy
C134-PN006-DRW001-1	1 to 2	1	16 Jan 2023	LIDoTT Alarm Internal Battery Pack Assy
C133-1-PCB-6	1 to 6	6	16 Jan 2023	LIDoTT Radar Sensor PCB

Issue 5

Drawing No	Sheets	Rev	Approved date	Title
C134-PN006-DRW-001-3	1 to 2	3	23 Aug 2023	LIDoT Alarm Internal Battery Pack Assy
C126-PN001-2-PCB-2	1 to 6	2.1	23 Aug 2023	Obadiah V2 PCB

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Manufacturer Detectronic Ltd



Issue 6

Drawing No.	Sheets	Rev	Approved date	Title
P131-SRT-C-PN004-1-DRW-X	1 of 1	X	06 Feb 2025	LIDoTT Smart Ant. Loop Front Label