



EU Type Examination Certificate CML 16ATEX2152 Issue 7

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **APEX2 Personal Air Sampling Pump**
- 3 Manufacturer **Casella Holdings Limited**
- 4 Address **Regent House,
Wolseley Road,
Kempston,
Bedford
MK42 7JY**
- 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 67386717, Koopvaardijweg 32, 4906CV Oosterhout, 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 IEC 60079-0:2018

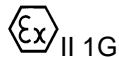
EN 60079-11:2012

- 10 The equipment shall be marked with the following:

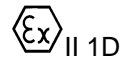


Ex ia I Ma

Ta = -20°C to +45°C



Ex ia IIC T4 Ga



Ex ia IIIC T135°C Da





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11 Description

The Casella APEX2 Personal Air Sampling Pump is a personal air sampling pump typically used to take samples of airborne materials or toxic contaminants. It is a bodily worn, battery-powered self-contained device housed within a PC anti-static enclosure. The pump is designed to provide a stable controlled flow rate of approximately 0.5 to 5 litre/min such that a known volume of air is passed through a passive sampling head and filter medium.

Airborne materials are collected onto a filter substrate and are subjected to mass or chemical analysis in a laboratory in order to establish a worker's exposure to potentially hazardous materials. Sampling pumps are typically worn on the user's belt and are connected to the sampling head via a short length of tube.

The equipment may only be recharged in the safe area using either:

1. APEX2/IS 5L Pump Five Way Charger
2. APEX2/IS 5L Pump Single Way Charger

The chargers must be supplied from a SELV source with $U_m = 63V$

These have an output of:

$U_m = 14.5V$
 $I_{max} = 850mA$

When connected to a USB in the safe area:

$U_m = 5.9V$
 $I_{max} = 85mA$

Variation 1

This variation introduces the following modifications:

To allow the following modifications to the APEX2 Personal Air Sampling Pump:

- i. The inclusion within the product description that the battery chargers must have an SELV source with a $U_m = 63V$
- ii. To permit the use of an optional protective boot.
- iii. To permit the use of additional filling holes in the battery pack.
- iv. To re-assess the circuit voltage from 5.355V to 6.0V (including circuit capacitance).
- v. To confirm circuit changes related to the motor circuit by means of spark testing.
- vi. To re-assess the rating of safety components from 7.4V to 14.5V.
- vii. To permit the Fuse F1 to be moved.
- viii. To permit the rating of R4, R7 and R231 to be altered.
- ix. To permit D1, D2, D3, D9, D10, D11 to be replaced by PMEG3015EJ diodes



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Variation 2

This variation introduces the following modification:

- i. To permit the use of Samsung INR18650-25R cells in place of the Samsung ICR18650-26F cells, within the battery pack.

Variation 3

This variation introduces the following modification:

- i. The standard has been updated to EN IEC 60079-0:2018 / IEC 60079-0 Ed. 7.

Variation 4

This variation introduces the following modifications:

- i. Change to connector type
- ii. Alternative CTI for all PCB's
- iii. Change to ICs to incorporate alternatives
- iv. Change to transistors to allow for alternatives
- v. Changes to component references in the BoM
- vi. Introduction of Barometric pressure sensor
- vii. Changes to battery pack PCB

Variation 5

This variation introduces the following modifications:

- i. Introduction of Prismatic cell.
- ii. Additional safety components added.
- iii. Change to component marking of non-safety related components.

Variation 6

This variation introduces the following modification:

- i. Update to Applicant/Manufacturer name.

Variation 7

This variation introduces the following modifications:

- i. Introduction of a new Bluetooth module.
- ii. Minor administrative changes.
- iii. Alternate materials options added

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	23 Nov 2016	R762A/00	Issue of prime certification
1	13 Sep 2017	R11242A/00	Introduction of Variation 1
2	27 Feb 2020	R13095A/00	Introduction of Variation 2
3	26 Oct 2021	R14633A/00	Introduction of Variation 3



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Issue	Date	Associated report	Notes
4	01 Apr 2022	R15153A/00	Introduction of Variation 4
5	31 Aug 2022	R15532A/00	Introduction of Variation 5
6	26 Oct 2022	R15790A/00	Introduction of Variation 6
7	21 May 2024	R17410A/00	Introduction of Variation 7

Note: Drawings that describe the equipment or component 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.
- ii. The APEX2 Personal Air Sampling Pump and chargers are to be designed in accordance with general electrical safety standards e.g. IEC 60950.

14 Specific Conditions of Use (Special Conditions)

None.

Certificate Annex

Certificate Number CML 16ATEX2152
Equipment APEX2 personal Air Sampling Pump
Manufacturer CML 16ATEX2152



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

Issue 0

Drawing No	Sheet s	Rev	Approved date	Title
04-209140D/IS-01	1 of 1	01	23 Nov 2016	General Assembly
13-209161A/IS(CMLEX)-01	1 of 1	01	23 Nov 2016	Certification Label
03-209147C/IS-01	1 of 1	01	23 Nov 2016	Battery Pack S/A (Sub Assembly)
93-209148C/IS-05	1 of 1	05	23 Nov 2016	Battery Pack PCB CCT Diagram
05-209150B/IS-05	1 of 1	05	23 Nov 2016	Battery Pack PCB Parts List
02-209149B/IS-02	1 of 1	02	23 Nov 2016	Battery Pack PCB Profile
05-209150B/IS-05	1 of 1	05	23 Nov 2016	Battery Pack PCB Layout
93-209141D/IS-04	1 of 2	04	23 Nov 2016	Main PCB CCT Diagram
93-209141D/IS-04	2 of 2	04	23 Nov 2016	Main PCB CCT Diagram
05-209143C/IS-06	1 & 2	06	23 Nov 2016	Main PCB Parts List
02-209142C/IS-06	1 of 1	06	23 Nov 2016	Main PCB Profile
05-209143C/IS-06	1 of 1	06	23 Nov 2016	Main PCB Layout
93-209144C/IS-02	1 of 1	02	23 Nov 2016	Display PCB CCT Diagram
05-209146B/IS-04	1 of 1	04	23 Nov 2016	Display PCB Parts List
02-209145B/IS-02	1 of 1	02	23 Nov 2016	Display PCB Profile
05-209146B/IS-04	1 of 1	04	23 Nov 2016	Display PCB Layout
04-209152B/IS-01	1 of 1	01	23 Nov 2016	Single Way Charger General Assembly
93-209153B/IS-02	1 of 1	02	23 Nov 2016	Single Way Charger PCB CCT Diagram
05-209155B/IS-01	1 of 1	01	23 Nov 2016	Single Way Charger PCB Parts List
02-209154B/IS-01	1 of 1	01	23 Nov 2016	Single Way Charger PCB Profile
05-209155B/IS-01	1 of 1	01	23 Nov 2016	Single Way Charger PCB Layout
04-209156C/IS-01	1 of 1	01	23 Nov 2016	Five Way Charger General Assembly
93-209157B/IS-02	1 of 1	02	23 Nov 2016	Five Way Charger PCB CCT Diagram

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05-209159C/IS-01	1 of 1	01	23 Nov 2016	Five Way Charger PCB Parts List
02-209158C/IS-01	1 of 1	01	23 Nov 2016	Five Way Charger PCB Profile
05-209159C/IS-01	1 of 1	01	23 Nov 2016	Five Way Charger PCB Layout
09-209065B/IS-01	1 of 1	01	23 Nov 2016	Main PCB Potting Box
09-209151B/IS-01	1 of 1	01	23 Nov 2016	Display Potting Box

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
04-209140D/IS-02	1 of 1	02	11 Sep 2017	General Assembly
13-209161A/IS(CMLEX)-01*	1 of 1	01	11 Sep 2017	Certification Label
03-209147C/IS-02	1 of 1	02	11 Sep 2017	Battery Pack S/A (Sub Assembly)
93-209148C/IS-06	1 of 1	06	11 Sep 2017	Battery Pack PCB CCT Diagram
05-209150B/IS-06	1 of 1	06	11 Sep 2017	Battery Pack PCB Parts List
02-209149B/IS-03	1 of 1	03	11 Sep 2017	Battery Pack PCB Profile
05-209150B/IS-06	1 of 1	06	11 Sep 2017	Battery Pack PCB Layout
93-209141D/IS-05	1 of 2	05	11 Sep 2017	Main PCB CCT Diagram
93-209141D/IS-05	2 of 2	05	11 Sep 2017	Main PCB CCT Diagram
05-209143C/IS-07	1 & 2	07	11 Sep 2017	Main PCB Parts List
02-209142C/IS-06*	1 of 1	06	11 Sep 2017	Main PCB Profile
05-209143C/IS-07	1 of 1	07	11 Sep 2017	Main PCB Layout
93-209144C/IS-03	1 of 1	03	11 Sep 2017	Display PCB CCT Diagram
05-209146B/IS-05	1 of 1	05	11 Sep 2017	Display PCB Parts List
02-209145B/IS-02*	1 of 1	02	11 Sep 2017	Display PCB Profile
05-209146B/IS-05	1 of 1	05	11 Sep 2017	Display PCB Layout
04-209152B/IS-02	1 of 1	02	11 Sep 2017	Single Way Charger General Assembly
93-209153B/IS-03	1 of 1	03	11 Sep 2017	Single Way Charger PCB CCT Diagram
05-209155B/IS-02	1 of 1	02	11 Sep 2017	Single Way Charger PCB Parts List
02-209154B/IS-01*	1 of 1	01	11 Sep 2017	Single Way Charger PCB Profile

Certificate Annex

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Drawing No	Sheets	Rev	Approved date	Title
05-209155B/IS-02	1 of 1	02	11 Sep 2017	Single Way Charger PCB Layout
04-209156C/IS-02	1 of 1	02	11 Sep 2017	Five Way Charger General Assembly
93-209157B/IS-03	1 of 1	03	11 Sep 2017	Five Way Charger PCB CCT Diagram
05-209159C/IS-02	1 of 1	02	11 Sep 2017	Five Way Charger PCB Parts List
02-209158C/IS-01*	1 of 1	01	11 Sep 2017	Five Way Charger PCB Profile
05-209159C/IS-02	1 of 1	02	11 Sep 2017	Five Way Charger PCB Layout
09-209065B/IS-01*	1 of 1	01	11 Sep 2017	Main PCB Potting Box
09-209151B/IS-01*	1 of 1	01	11 Sep 2017	Display Potting Box

Drawings marked * are identical to Issue 0 and are included for reference only.

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
04-209140D/IS-03	1 of 1	03	27 Feb 2020	General Assembly
03-209147C/IS-03	1 of 1	03	27 Feb 2020	Battery Pack S/A (Sub Assembly)

Issue 3

No additional drawings.

Issue 4

Drawing No	Sheets	Rev	Approved date	Title
02-209142C/IS-07	1 of 1	7	01 April 2022	APEX2/IS 5L Pump Main PCB Profile & Drilled
02-209145B/IS -03	1 of 1	3	01 April 2022	APEX2/IS 5L Pump Display PCB Profile & Drilled
02-209149B/IS-04	1 of 1	4	01 April 2022	APEX2/IS 5L Pump Battery Pack PCB Profile & Drilled
05-209143C/IS-08	1 of 1	8	01 April 2022	APEX2 /IS 5L Pump Main PCB S/A

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Drawing No	Sheets	Rev	Approved date	Title
05-209143C/IS-08 PList	1 to 2	8	01 April 2022	APEX2/IS 5L Pump Main PCB S/A
05-209146B/IS-06	1 of 1	6	01 April 2022	APEX2/ IS 5L Pump Display PCB S/A
05-209146B/IS-06 PList	1 of 1	6	01 April 2022	APEX2/ IS 5L Pump Display PCB S/A
05-209150B/IS-07	1 of 1	7	01 April 2022	APEX2/ IS 5L Pump Battery Pack PCB S/A
05-209150B/IS-07 PList	1 of 1	7	01 April 2022	APEX2/ IS 5L Pump Battery Pack PCB S/A
93-209144C/IS-04	1 of 1	4	01 April 2022	APEX2/IS 5L Pump Display PCB CCT Diagram
93-209148C/IS-07	1 of 1	7	01 April 2022	APEX2/IS 5L Pump Battery Pack PCB CCT Diagram
93-209141D/IS-06	1 of 2	6	01 April 2022	APEX2/IS 5L Pump Circuit Diagram PSU/Motor Drive Stage
93-209141D/IS-06	2 of 2	6	01 April 2022	APEX2/IS 5L Pump Circuit Diagram Processor Stage
13-209161A/IS (cmlEX) – 02	1 of 1	2	01 April 2022	APEX2/IS – Information /SN Label

Issue 5

Drawing No	Sheets	Rev	Approved date	Title
02-209142C/IS-08	1 of 1	8	31 Aug 2022	APEX2/IS 5L Pump Main PCB Profile and Drilled
02-209145B/IS-04	1 of 1	4	31 Aug 2022	APEX2/IS 5L Pump Display PCB Profile and Drilled
02-209192B/IS-01	1 of 1	1	31 Aug 2022	APEX2/IS 5L Pump battery pack PCB profile & Drilled (Prismatic cells)
03-209182C/IS-01	1 of 1	1	31 Aug 2022	APEX2/IS – Battery pack S/A (Prismatic cells)
04-209140D/IS-04	1 of 1	4	31 Aug 2022	APEX2/I.S- Case Body G/A
05-209143C/IS-09	1 of 1	9	31 Aug 2022	APEX2/IS 5L Pump Main PCB S/A

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Drawing No	Sheets	Rev	Approved date	Title
05-209143C/IS-09	1 to 2	9	31 Aug 2022	APEX2/IS 5L Pump Main PCB S/A (PLIST)
05-209146B/IS-07	1 of 1	7	31 Aug 2022	APEX2/IS 5L Pump Display PCB S/A
05-209146B/IS-07	1 of 1	7	31 Aug 2022	APEX2/IS 5L Pump Display PCB S/A (PLIST)
05-209193B/IS-01	1 of 1	1	31 Aug 2022	APEX2/IS 5L Pump battery pack PCB S/A (Prismatic cells)
05-209193B/IS-01	1 of 1	1	31 Aug 2022	APEX2/IS 5L Pump Battery Pack PCB S/A (Prismatic cells) (PLIST)
09-209180B/IS-01	1 of 1	1	31 Aug 2022	APEX2/IS – Main PCB Potting Frame
93-209141D/IS-07	1 of 2	7	31 Aug 2022	APEX2/IS 5L Pump circuit diagram PSU/Motor Drive stage
93-209141D/IS-07	2 of 2	7	31 Aug 2022	APEX2/IS 5L Pump circuit Diagram Processor stage
93-209144C/IS-05	1 of 1	5	31 Aug 2022	APEX2/IS 5L Pump Display PCB CCT Diagram
93-209191C/IS-01	1 of 1	1	31 Aug 2022	APEX2/IS 5L Pump Battery pack PCB CCT Diagram (Prismatic cells)

Issue 6

No documents introduced.

Issue 7

Drawing No	Sheets	Rev	Approved date	Title
93-209141D/IS-08	1 of 2	8	21 May 2024	APEX2/IS 5L Pump circuit diagram PSU/Motor Drive stage
93-209141D/IS-08	2 of 2	8	21 May 2024	APEX2/IS 5L Pump circuit Diagram Processor stage
05-209143C/IS-10	1 of 1	10	21 May 2024	APEX2/IS 5L Pump Main PCB S/A

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Drawing No	Sheets	Rev	Approved date	Title
05-209143C/IS-10	1 to 2	10	21 May 2024	APEX2/IS 5L Pump Main PCB S/A (PLIST)
93-209144C/IS-06	1 of 1	6	21 May 2024	APEX2/IS 5L Pump Display PCB CCT Diagram
02-209145B/IS-05	1 of 1	5	21 May 2024	APEX2/IS 5L Pump Display PCB Profile and Drilled
05-209146B/IS-08	1 of 1	8	21 May 2024	APEX2/IS 5L Pump Display PCB S/A
05-209146B/IS-08	1 of 1	8	21 May 2024	APEX2/IS 5L Pump Display PCB S/A (PLIST)
04-209140D/IS-05	1 of 1	5	21 May 2024	APEX2/I.S- Case Body G/A