

## UK Type Examination Certificate CML 22UKEX2594X Issue 0

### 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 **Portable Gas Analyzer, Online Gas Analyzer and Loop Powered Gas Analyzer**
- 3 Manufacturer **Analytical Industries Inc**
- 4 Address **2855 Metropolitan Place, Pomona, CA, 91767 USA**

- 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 60079-1:2014

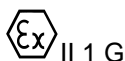
EN 60079-11:2012

- 10 The equipment shall be marked with the following:

Portable Gas Analyzer

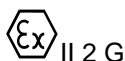
Online Gas Analyzer

Loop powered Gas Analyzer



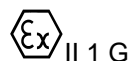
Ex ia IIC T4 Ga

Ta= -20°C to +50°C



Ex db ia IIC T4 Gb

Ta= -20°C to +50°C



Ex ia IIC T4 Ga

Ta= -20°C to +50°C



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## 11 Description

### Portable Gas Analyzer

The Portable Gas Analyzer type is housed within an aluminium enclosure. The Portable Gas Analyzer (Models GPR-1000, GPR-1100, GPR-1200, GPR-1200 MS2, GPR-2000, GPR-7100) is for mobile measurements of either Oxygen or H<sub>2</sub>S.

The Portable Gas Analyzer is battery powered by a lead acid battery. It has a connection for a suitable SD card which is changed in the safe area. It has a recharging port for the battery, to be used in the safe area only. There is a 0-1V Analogue connection port which can be supplied via a safety barrier which has the following parameters:

0 – 1V Analogue Port J5

$U_i = U_m^* = 28\text{ V}$

$U_o = 4.6\text{V}$

$I_o = 2\text{mA}$

$P_o = 2\text{mW}$

$C_i = 12\text{ nF}$

$C_o = 71\text{nF}$

The Battery Charger connection

$U_m = 9.45\text{ V}$

Note \* when connected to the Analogue port in the safe area, refer to the Special condition of use. One of the following sensors can be connected to the Portable Gas analyzer:

The key difference between the models is that they can have a single sensor connected from the table below, there are also different sensitivity setting of sensor which will not affect the certification.

Oxygen Sensor	H2S Sensors
GRP-11-32-4	OSV-72-7H
GRP-11-60-4	OSV-72-7HH
GPR-12-100-M	
GRP-12-333	
GRP-12-333-H	
GRP-12-2000-MS2	
XLT-11-24-4	
XLT-12-100-M	
XLT-12-333	

### Online Gas Analyzer

The Online Gas Analyzer type circuitry is housed within an aluminium enclosure and suitably certified flameproof enclosures. The Online Gas Analyzer (Models GPR-1500, GPR-1800, GPR-2500, GPR-2800 and GPR-7500 followed by AIS or IS, may be followed by -LD) is for stationary measurements. The Online Gas Analyzers are used for a fixed installation.

The Online Gas Analyzer is powered from a safety interface housed in a flameproof enclosure, with the following parameters.

$U_m = 250\text{ V}$



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The key difference between the models is that they can have a single sensor connected from the table below, there are also different sensitivity settings of sensor which will not affect the certification. There are also different variations of power below that of the Um of 250 V.

Oxygen Sensor	H2S Sensors
GRP-11-32	OSV-72-7H
GRP-11-60	OSV-72-7H-LD
GRP-12-333	OSV-72-7HH
GRP-12-333-H	OSV-72-7HH-LD
XLT-11-24	
XLT-12-333	
XLT-12-333-LD	

Component	Certificate Numbers	Standards Applied	Differences Considered
Enclosure Adalet	DEMKO 07 ATEX 0622294 U IECEX UL 08.0005 U	IEC 60079-0:2017 EN 60079-0:2012+A11:2013 IEC 60079-1:2014-06 EN 60079-1:2014 IEC 60079-31:2013 EN 60079-31:2014	None
Reducer Eaton	ITS 16ATEX 101339 X IECEX ITS 16.0013X	IEC 60079-0:2011 EN 60079-0:2012+A11:2013 IEC 60079-1:2014-06 EN 60079-1:2014 IEC 60079-31:2013 EN 60079-31:2014 IEC 60079-7:2015 EN 60079-7:2015 +A1:2018	Non applicable
Sealing Fitting Cortem	CESI 03 ATEX085 X IECEX CES 14.0019X	IEC 60079-0:2011 EN 60079-0:2012+A11:2013 IEC 60079-1:2007-04 EN 60079-1:2014 IEC 60079-31:2008 EN 60079-31:2014	Non applicable



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Component	Certificate Numbers	Standards Applied	Differences Considered
Adaptor Eaton	ITS 16ATEX101336X IECEX ITS 16.0011X	IEC 60079-0:2011 EN 60079-0:2012+A11:2013 IEC 60079-1:2014-06 EN 60079-1:2014 IEC 60079-31:2013 EN 60079-31:2014 IEC 60079-7:2015 EN 60079-7:2015	Non applicable
Flame Arrestor Michell Instruments	CML 20ATEX1302U IECEX CML 20.0168U	IEC 60079-0:2017 EN IEC 60079-0:2018 IEC 60079-1:2014-06 EN 60079-1:2014 IEC 60079-31:2013 EN 60079-31:2014	None

### Loop Gas Analyzers

The Loop-powered Gas Analyzer (GPR-1500, GPR-2500) circuitry is housed within an aluminium enclosure. Loop-powered Gas Analyzer are used for a fixed installation.

The Loop-powered Gas Analyzer is powered from an intrinsically safe barrier with the following parameters:

$U_i = 28\text{ V}$

$I_i = 93\text{ mA}$

The key difference between the models is that they can have a single sensor connected from the table below, there are also different sensitivity settings of the sensor which will not affect the certification.

Oxygen Sensor
GRP-11-32-4
GRP-11-60-4
GRP-12-333
GRP-12-333-H
XLT-12-333
XLT-11-24-4



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## 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	19 May 2023	R15791A/00 R15791B/00 R15791C/00 R15791D/00	Prime Release Portable Gas Analyzer Prime Release Online Gas Analyzer Prime Release Loop Gas Analyzer Prime Release Online Gas Analyzer

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.

## 14 Specific Conditions of Use

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

### Portable Gas Analyzer

- i. All versions of the enclosure are manufactured from Aluminium. 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.
- ii. When located in a hazardous area, the Portable Gas Analyzer 0-1 V analogue port shall only be connected to a suitably certified intrinsically safe connection with  $U_0$  equal to or less than the  $U_i$  of the port (28VDC). For example, this can be achieved by connecting to a diode safety barrier located in the non-hazardous area
- iii. When located in a non-hazardous area, the Portable Gas Analyzer 0-1 V analogue port shall either be connected to a suitably certified intrinsically safe connection as per ii above, or to non-intrinsically safe equipment that has a maximum output voltage less than or equal to the  $U_m$  of the port (28VDC) and which complies with one of the following:
  - Is a SELV or PELV system
  - A safety isolating transformer complying with the requirements of IEC 61558-2-6 or technically equivalent standard
  - Apparatus complying with the IEC60950 series, IEC61010-1, or a technically equivalent standardFed directly from cells or batteries



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### **Online Gas Analyzer**

- i. All versions of the enclosure are manufactured from Aluminium. 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.
- ii. The Online Gas Analyzers have non-metallic parts incorporated in the enclosure of this equipment which may generate an ignition-capable level of electrostatic charge, under certain extreme circumstances. 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.
- iii. The Online Gas Analyzer is not capable of withstanding the 500V insulation test required by Clause 6.3.12 of IEC 60079-11. This shall be taken into account when installing the equipment.

### **Loop Gas Analyzer**

- i. All versions of the enclosure are manufactured from Aluminium. 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.
- ii. The Loop-powered Gas Analyzers have non-metallic parts incorporated in the enclosure of this equipment which may generate an ignition-capable level of electrostatic charge, under certain extreme circumstances. 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.
- iii. The Online Gas Analyzer is not capable of withstanding the 500V insulation test required by Clause 6.3.12 of IEC 60079-11. This shall be taken into account when installing the equipment.

## Certificate Annex

**Certificate Number** CML 22UKEX2594X  
**Equipment** Portable Gas Analyzer, Online Gas Analyzer and Loop Powered Gas Analyzer  
**Manufacturer** Analytical Industries Inc



The following documents describe the equipment defined in this certificate:

### Issue 0 – Portable Gas Analyzer

Drawing No	Sheets	Rev	Approved date	Title
GPR-1000-EX	1 to 2	0	19 May 2023	GPR-1000 ATEX
GPR-1100-EX	1 to 2	0	19 May 2023	GPR-1100 ATEX
GPR-1200-EX	1 to 2	0	19 May 2023	GPR-1200 ATEX
GPR-1200MS2-EX	1 to 2	0	19 May 2023	GPR-1200 MS2 ATEX
GPR-2000-EX	1 to 2	0	19 May 2023	GPR-2000 ATEX
GPR-7100-EX	1 to 2	0	19 May 2023	GPR-7100 ATEX
A-5480-EX	1 of 1	0	19 May 2023	Portable Wiring Diagram
A-1400 Schematic	1 to 4	A02	19 May 2023	A-1400: ATEX Main Board
A-1400 Drawing	1 to 3	A02	19 May 2023	A-1400: ATEX Main Board
A-1402 Drawing	1 to 2	A01	19 May 2023	A-1402: ATEX Battery Power
A-1402 Schematic	1 of 1	A01	19 May 2023	A-1402: ATEX Battery Power
A-1403 Drawing	1 to 2	A02	19 May 2023	A-1403: ATEX H2S Board
A-1403 Schematic	1 of 1	A02	19 May 2023	A-1403: ATEX H2S Board
A-1405 Drawing	1 to 2	A01	19 May 2023	A-1405: ATEX Datakey Adapter
A-1405 Schematic	1 of 1	A01	19 May 2023	A-1405: ATEX Datakey Adapter
A-4770-EX	1 of 1	0	19 May 2023	ATEX Intrinsically safe battery (With Pump)
A-4771-EX	1 of 1	0	19 May 2023	ATEX Intrinsically safe battery (without Pump)
A-3583-EX	1 of 1	0	19 May 2023	ATEX Battery potting bracket
A-2166-EX	1 of 1	0	19 May 2023	GPR-1000/1200/2000/7100 Pump Assembly
A-2762-EX	1 of 1	0	19 May 2023	Upper Sensor Housing Wiring Assembly
A-3321-EX	1 of 1	0	19 May 2023	GPR-1000/1100/1200/2000/7100 Output Jack Assembly
A-4215-EX	1 of 1	0	19 May 2023	GPR-1000/1100/1200/2000/7100 Charge Jack Assembly

## Certificate Annex

**Certificate Number** CML 22UKEX2594X

**Equipment** Portable Gas Analyzer, Online Gas Analyzer and Loop Powered Gas Analyzer

**Manufacturer** Analytical Industries Inc



Drawing No	Sheets	Rev	Approved date	Title
A-4665-EX	1 of 1	0	19 May 2023	GPR-1000/1200/2000/7100 Pump Switch Assembly
A-5483-EX	1 of 1	0	19 May 2023	Sensor Cable Assembly
A-5530-EX	1 of 1	0	19 May 2023	Certification Marking Specification
A-5531-EX	1 of 1	0	19 May 2023	Safety Information for User Manual
A-3167-1-EX	1 to 2	0	19 May 2023	GPR-1000/1100/2000 Overlay
A-3272-1-EX	1 to 2	0	19 May 2023	GPR-1200/GPR-1200 MS2 Overlay
A-4093-Ex	1 to 2	0	19 May 2023	GPR-7100 Overlay

### Issue 0 – Online Gas Analyzer

Drawing No	Sheets	Rev	Approved date	Title
GPR-1500/1800/2500/2800 LD-EX	1 to 3	0	19 May 2023	GPR-1500/1800/2500/2800 LD Series ATEX
GPR-1500/1800/2500/2800-EX	1 to 3	0	19 May 2023	GPR-1500/1800/2500/2800 Series ATEX
GPR-7500 LD-EX	1 to 4	0	19 May 2023	GPR-7500 LD Series ATEX
GPR-7500-EX	1 to 4	0	19 May 2023	GPR-7500 Series ATEX
A-3327-1-EX	1 to 2	0	19 May 2023	GPR-1500/1800/2500/2800/7500 Series Overlay
A-5481-EX	1 to 2	0	19 May 2023	GPR-1500/1800/2500/2800/7500 Series Wiring Diagram
A-5498-EX	1 to 2	0	19 May 2023	GPR-7500 Series Wiring Diagram
A-1400 Drawing	1 to 4	A02	19 May 2023	A-1400: ATEX Main Board
A-1400 Schematic	1 to 3	A02	19 May 2023	A-1400: ATEX Main Board
A-1401 Schematic	1 to 3	A01	19 May 2023	A-1401: ATEX AC/DC/Loop Power Board
A-1401 Drawing	1 to 3	A01	19 May 2023	A-1401: ATEX AC/DC/Loop Power Board
A-1403 Schematic	1 of 1	A02	19 May 2023	A-1403: ATEX H2S Board
A-1403 Drawing	1 to 2	A02	19 May 2023	A-1403: ATEX H2S Board



## Certificate Annex

**Certificate Number** CML 22UKEX2594X

**Equipment** Portable Gas Analyzer, Online Gas Analyzer and Loop Powered Gas Analyzer

**Manufacturer** Analytical Industries Inc



Drawing No	Sheets	Rev	Approved date	Title
A-2762-EX	1 of 1	0	19 May 2023	Upper Sensor Housing Wiring Assembly
A-3372-EX	1 of 1	0	19 May 2023	GPR-AIS/IS Series Enclosure Assy
A-5536-EX	1 to 3	0	19 May 2023	Adalet Enclosure Cross-Sectional Diagram
A-5502-EX	1 of 1	0	19 May 2023	GPR-7500 Pump Potentiometer Wiring Assembly
A-5503-EX	1 of 1	0	19 May 2023	GPR-7500 Pump Switch Assembly
A-5504-EX	1 of 1	0	19 May 2023	GPR-7500 A-1206 PCB to terminal block Wiring Assembly
A-5530-EX	1 of 1	0	19 May 2023	Certification Marking Specification
A-5531-EX	1 of 1	0	19 May 2023	Safety Information for User Manual

### Issue 0 – Loop Gas Analyzer

Drawing No	Sheets	Rev	Approved date	Title
GPR-1500/2500 LOOP-EX	1 to 3	0	19 May 2023	GPR-1500/2500 Loop Series ATEX
A-5482-EX	1 of 1	0	19 May 2023	GPR-1500/2500 Loop Series Wiring Diagram
A-1400 Drawing	1 to 4	A02	19 May 2023	A-1400: ATEX Main Board
A-1400 Schematic	1 to 3	A02	19 May 2023	A-1400: ATEX Main Board
A-1404 Drawing	1 to 2	A01	19 May 2023	A-1404: Atex Simple Loop Power
A-1404 Schematic	1 of 1	A01	19 May 2023	A-1404: Atex Simple Loop Power
A-5534-EX	1 of 1	0	19 May 2023	A-1404 PCB Potted Enclosure
A-5508-EX	1 of 1	0	19 May 2023	A-1404 PCB Potted Wiring Assembly
A-2762-EX	1 of 1	0	19 May 2023	Upper Sensor Housing Wiring Assembly

## Certificate Annex

**Certificate Number** CML 22UKEX2594X  
**Equipment** Portable Gas Analyzer, Online Gas Analyzer and Loop  
Powered Gas Analyzer  
**Manufacturer** Analytical Industries Inc



Drawing No	Sheets	Rev	Approved date	Title
A-4383-EX	1 of 1	0	19 May 2023	Sensor Cable Wiring Assembly
A-5483-EX	1 of 1	0	19 May 2023	Sensor Cable Assembly
A-5530-EX	1 of 1	0	19 May 2023	Certification Marking Specification
A-5531-EX	1 of 1	0	19 May 2023	Safety Information for User Manual