

1 **EU - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa18ATEX0060X**

4 Product: **P2000 Analyser**

5 Manufacturer: **Protea Limited**

6 Address: **Unit 2, Venture Park, Stirling Way, Bretton, Peterborough, PE3 8YD**

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

8 SGS Baseefa, Notified Body number 1180, 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 product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR18.0131/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 + A11: 2013

EN 60079-1: 2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the 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 product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

Ⓔ II 2 G Ex db IIB T* Gb T6 Ta -20°C to +40°C or T4 Ta -20°C to +60°C

SGS Baseefa Customer Reference No. **7765**

Project File No. **18/0273**

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R S SINCLAIR
TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

13

Schedule

14

Certificate Number Baseefa18ATEX0060X

15 Description of Product

Type P2000 Analyser, rated at 24V d.c. 1A, comprises a cast aluminium body and cover of a rectangular section.

The cover is secured to the body by fourteen M6, 16mm long socket head cap screws, grade A2-70.

The enclosure is provided with a welded assembly, the reflector tube weld-assembly, which is fitted into the front wall of the body and secured by four M8, 20mm long socket head cap screws, grade A2-70.

The welded assembly comprises a flange into which is cemented a lens. The lens is further retained by the gasket and a threaded clamp ring. Welded into the external face of the flange is a tubular pocket of up to 600mm in length into which is inserted a temperature sensing device. Three tie rods are used to secure the sintered process shroud, which encloses the thermopocket tube, to the welded reflector tube assembly.

The flange has threaded ports, in four positions around its periphery, two of which may be used for the purging of a void in the welded assembly with an inert gas at a maximum pressure of up to 7 psig, the third is used for the introduction of calibration gases at the remote end of the assembly. The 4th is used to monitor the internal pressure of the sample.

The welded assembly is completed by a stainless steel over-tube welded to the flange. This, together with the stainless steel shroud, encloses the tubular pocket for the temperature sensing device. This is an alternative high pressure weld-assembly option.

The enclosure is fitted with two threaded steel bushing flame trap assemblies. Each bushing incorporates a cylindrical spool forming a flameproof joint with the internal bore, and is provided with a ¼ inch BSP male thread for the fitment of external pipework to allow the passage of inert gas at maximum pressure of 10kPa through the enclosure.

The interior of the apparatus comprises a component board secured to the base of the enclosure onto which are mounted up to the following: -

- a) A printed circuit board having a maximum dissipation of 6W, or alternatively a two printed circuit boards arrangement may be used, plus a transition PCB
- b) An I.R. detector assembly having a maximum dissipation of 0.1W, with the option of a second detector assembly
- c) A stepper motor driver rotaspan assembly having a maximum dissipation of 2W.
- d) A d.c. motor driven filter wheel assembly having a maximum dissipation of 1W.
- e) A near I.R. lamp assembly having a maximum dissipation of 20W.
- f) Two optical mirrors
- g) Two light beam splitting devices.

The filter wheel and rotaspan assemblies may be fitted with a maximum of eight and four sealed gas correlation cells respectively.

The equipment described above, and in the variants below, is designed to analyse samples of gas or liquid as appropriate.

To obviate any risk from energy storage devices, the enclosure must not be opened when the unit is energised or an explosive environment is present. A label stating this information is fitted externally to each and every enclosure.

Cable entry holes are provided as specified on the certified drawings for the accommodation of flameproof cable entry devices, with or without the interposition of a flameproof thread adapter. Unused entries are to be fitted with suitable certified flameproof stopping plugs.

There is an alternative liquid/gas in-line process cell consisting of a stainless steel flanged tube, with a cemented lens, extending from the analyser optical enclosure. The tube assembly includes a purged void. This element has various sample cell lengths. The detector has a near IR or IR light source is rated at 24V d.c. 1.5A maximum. The unit so formed is designated as the type P300 Analyser

16 Report Number

SGS Baseefa report No GB/BAS/ExTR18.0131/00

17 Specific Conditions of Use

Type P2000 Analyser:

1. It is the responsibility of the user to ensure that the gas passed through the enclosure is instrument air or an inert gas, and that the inlet pressure does not exceed 0.1 bar (10kPa).
2. It is the responsibility of the user to ensure that the gas passed through the void of the on-line cell is instrument air or an inert gas, and that the inlet pressure does not exceed 0.48 bar (7 psig).

Type P300 Analyser:

1. It is the responsibility of the user to ensure that the gas passed through the enclosure is instrument air or an inert gas, and that the inlet pressure does not exceed 0.1 bar (10kPa).
2. It is the responsibility of the user to ensure that the gas passed through the void of the on-line cell is instrument air or an inert gas, and that the inlet pressure does not exceed 0.48 bar (7 psig).
3. It is the responsibility of the user to ensure that the pressure of the sample passed through the sample cell does not exceed 12 bar

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD requirements
1.2.8	Overloading of equipment (protection relays, etc)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
1-0006A	1	02	12-03-2018	REFLECTOR TUBE WELD ASSEMBLY – HOT ACCESS PORT
1-0168A	1	01	27-02-2018	REFLECTOR TUBE WELD ASSY (MOUNTING RING FOR FLOW CELL)
1-0187A	1	01	12-03-2018	REFLECTOR TUBE ASSEMBLY HIGH PRESSURE
3-0005	1	01	13-11-2017	LENS Bi-CONVEX CAF2 F/L =80.4
3-0009	1	01	14-11-2017	TUBE FOR THERMOPOCKET
3-0015	1	01	14-11-2017	CLAMP RING FOR LENS
3-0028	1	01	14-11-2017	FLANGE FOR REFLECTOR TUBE ASSEMBLY
3-0033	1	01	15-11-2017	GASKET LENS (INNER) GRAPHITE
3-0035	1	01	15-11-2017	GASKET LENS (OUTER) GRAPHITE
3-0043	1	01	15-11-2017	CLAMP RING – THIN LENS SS

Number	Sheet	Issue	Date	Description
3-0126	1	01	14-11-2017	Bi-CONVEX LENS ZINC SELENIDE
3-0131	1	01	14-11-2017	Bi-CONVEX LENS (UV GRADE) FUSED SILICA
3-0245	1	01	15-11-2017	CLAMP RING WITH SPACER
3-0251	1	01	03-01-2018	LABEL PURGED - WARNING SOURCE OF IGNITION
3-0351	1	01	02-01-2018	CASTING LID (14 BOLT VERSION)
3-0352	1 - 2	01	02-01-2018	OPTICAL PLATE HOUSING (14 BOLT VERSION)
3-0353	1	01	02-01-2018	ARRESTOR BODY (ATEX)
3-0354	1	01	02-01-2018	ARRESTOR SLUG (ATEX)
3-0355	1	02	14-05-2018	LABEL – ATEX CERTIFICATION
3-0356	1	01	03-01-2018	LABEL – WARNING SOURCE OF IGNITION
3-0359	1	01	02-01-2018	GASKET FOR CLAMP RING (ATEX)
12-00921	1	01	04-01-2018	SLUG SECURING DEVICE
19-0009	1 - 5	02	14-02-2018	CERTIFICATION DRAWING P2000
3-0368	1	01	19-02-2018	CALCIUM FLUORIDE BI CONVEX LENS
3-0369	1-2	01	19-02-2018	SAMPLE CELL P300
3-0370	1	01	19-02-2018	RETAINING PLATE
3-0371	1	01	19-02-2018	SAPPHIRE WINDOW – P300 CELL
3-0372	1	01	19-02-2018	CaF ₂ WINDOW (12 BAR) – P300 CELL
3-0373	1	01	27-02-2018	CELL P300 CLAMPING RING – EXTENDED.
3-0374	1 - 2	01	19-02-2018	CELL BODY – P300
3-0378	1	01	27-02-2018	CELL P300 CLAMPING RING
3-0379	1	01	27-02-2018	CELL P300 MIRROR MOUNT
3-0380	1	01	27-02-2018	WINDOW CLAMPING RING
19-0010	1 - 4	02	14-02-2018	CERTIFICATION DRAWING P300
19-0015	1 - 2	02	26-02-2018	GENERAL ARRANGEMENT OF P300 CELL

These drawings are common to, and held with, IECEx BAS 18.0040X