



UNITED KINGDOM CONFORMITY ASSESSMENT

1 **UK TYPE EXAMINATION CERTIFICATE**

2 Equipment Intended for use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Certificate Number: **CSAE 21UKEX1203X** Issue: **1**

4 Product: **EnCal 3000 proChain GC**

5 Manufacturer: **Elster GmbH**

6 Address: Steinern Strasse 19-21
55252 Mainz-Kastel
Germany

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

8 CSA Group Testing UK Limited, Approved Body number 0518, 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 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 Schedule 1 of the Regulations. 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 has been assured by compliance with:

EN IEC 60079-0:2018/AC:2020-02 EN 60079-1:2014/COR1:2018 EN 60079-11:2012

Except in respect of those requirements listed at Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall be in accordance with Regulation 41 and include the following:



II 2(1)G
Ex db [ia Ga] IIC T6 Gb
Ta = -40°C to +60°C

Name: Michelle Halliwell
Title: Director of Operations



0011

Certificate No. CSAE 21UKEX1203X
CSA Group Testing UK Ltd., Unit 6 Hawarden Industrial Park, Hawarden, CH5 3US, UK

This certificate and its schedules may only be reproduced in its entirety and without change

QD-1599 Issue 4 (2022-08-22)

Page 1 of 4

SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

**CSAE 21UKEX1203X
Issue 1**

13 DESCRIPTION OF PRODUCT

The following relevant Product Description was extracted from Sira 18ATEX1025X, issue 3 without any modification. The product description includes the following applicable amendments as detailed in the supporting documents as referenced in section 2 of this report. Only amendments directly applicable to UKCA certification have been included in this list. The amendments are numbered to include a reference to the variation at which these were introduced.

The EnCal 3000 proChain gas chromatograph is a measurement device for determining the composition and calorific value of natural gases.

The equipment is powered from a 24V d.c. supply and has a maximum rating of 5A, 120W. In addition to the PCB mounted control electronics, the equipment contains a Lithium-thionyl Chloride primary battery which provides back up for the real-time clock and status parameters in the event of a power loss.

The sample gases are analysed in a limited release containment system rated at 3 bar maximum, with the equipment internal ambient being maintained by up to three heating plates which operate between a temperature range of $\geq 0^{\circ}\text{C}$ and $\leq 40^{\circ}\text{C}$.

The equipment is housed in an Ex d enclosure with a cylindrical lid and base machined from an aluminium alloy casting. The lid is attached to the base with a M275 x 2 mm threaded joint that is secured against loosening by two M4 hexagon socket head cap screws.

The base comprises a sinter breather housing mounted in an M32 x 1.5 mm threaded entry in addition to, two M20 x 1.5 mm and two M25 x 1.5 mm threaded gland entries and ten 1/8" -27 NPT threaded entries which provide the external sample and carrier gas connection to and from the limited release containment system via ten flame arrestors.

Amendment 1 - This variation introduced the following changes, to permit:

- i. To permit the introduction of an intrinsically safe PCB in the equipment's flameproof enclosure. Resulting in the marking being amended and the introduction of a Condition of Manufacture.
- ii. The recognition of minor drawing modification on Intrinsic Safety General Assembly drawing no. 73024216-9.

Amendment 2 - This variation introduced the following changes, to permit:

- i. Update of drawings PSB 30.066 and PSB 30.067 (chromatising replaced with zirconising).
- ii. Update of drawings 1-875-131 and 1-875-131-1 to show enlarged space for O-ring.
- iii. Update PSB 36.064 to reflect revised test pressure.
- iv. Updated drawings 73024221 and 73024227 with minor changes.
- v. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012/A11:2013 was replaced by EN IEC 60079-0:2018/AC: 2020-02, EN 60079-1:2014 was replaced by EN 60079-1:2014/COR1:2018.

Variation 1 - This variation introduced the following changes:

- i. Add alternate PSU source located at Terminal Board.
- ii. Add alternate version of Baseboard.
- iii. Modified Module connection board layout and component changes/alternate source.

SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

**CSAE 21UKEX1203X
Issue 1**

- iv. New version of GCM1000-Board (layout and component changes).
- v. Modification on IS-Display Board to add components and alternate source for the critical components.
- vi. Change of drawing reference numbers from "730-24-216-3" to "73024216", from "73024216-2" to "73024216", and from "73024216-v1.01" to "73024216".

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	27 September 2021	R80077783A	The release of the prime certificate.
1	12 September 2023	R80163676A	The introduction of Variation 1.

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

- 15.1 When the equipment is coated with a paint finish the enclosure is non-conducting and may generate an ignition capable level of electrostatic charge under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it might be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- 15.2 The equipment has flamepaths which differ from those in EN 60079-1 and are not intended for repair.
- 15.3 The equipment shall not be used with process gases which contain oxygen or any other oxidizer in concentrations greater than found in normal air.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.

17 PRODUCTION CONTROL

- 17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders
- 17.2 Each enclosure and welded capillary shall be subjected to a routine overpressure test of 16.5 bar for at least 10 seconds as required by clause 16.1 of EN60079-1. There shall be no permanent deformation or damage to the enclosure.
- 17.3 A routine overpressure test of 4.5 bar shall be applied to the internal containment system of the equipment for a period of at least 2 minutes, in accordance with IEC 60079-1:2014 clause G.4.1. There shall be no permanent deformation and the containment system shall pass a leakage test in accordance with EN 60079-1:2014 clause G.4.3, with a maximum helium leakage rate less than 10⁻² Pa x l/s (10⁻⁴ mbar x l/s).
- 17.4 The manufacturer shall ensure that the internal heaters are set to operate within the temperature range of ≥0°C and ≤+40°C.



SCHEDULE

UK TYPE EXAMINATION CERTIFICATE

**CSAE 21UKEX1203X
Issue 1**

- 17.5 In accordance with EN60079-11:2012 clause 11.2, each manufactured transformer of the equipment shall be subjected to an electric strength test using the following test voltage(s) for at least 60s: 1500 Vrms applied between the input and output windings. Alternatively, a voltage of 20% higher may be applied for at least 1s. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5mA.



CSA Group Testing UK Ltd., Unit 6 Hawarden Industrial Park, Hawarden, CH5 3US, UK

This certificate and its schedules may only be reproduced in its entirety and without change

QD-1599 Issue 4 (2022-08-22)

Page **4** of **4**

Certificate Annexe

Certificate Number: CSAE 21UKEX1203X
Product: EnCal 3000 proChain GC
Manufacturer: Elster GmbH

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
1-875-131	1 of 1	6	02 Aug 18	Base Ex-d Box EnCal 3000 Machining dwg.
1-875-131-1	1 of 1	2	02 Aug 18	Base Ex-d Box EnCal 3000
1-875-132	1 of 1	5	02 Aug 18	Cover Ex-d Box EnCal 3000
3-875-414	1 of 1	3	02 Aug 18	Breather Sintered
3-875-415	1 of 1	5	02 Aug 18	Breather Housing
3-875-498	1 of 1	2	02 Aug 18	Flame Arresting Feedthrough EnCal 3000
73024227	1 of 1	C	02 Aug 18	Base plate. (Montageplatte)
73024228	1 of 1	B	02 Aug 18	Support frame. (Montagewinkel)
73024311	1 of 1	A	02 Aug 18	Label. (Hauptschild)
83460010	1 to 6	A	02 Aug 18	Assembly EnCal 3000proChain GC. (Baugruppe)
PSB 30.066	1 of 1	2	02 Aug 18	Base EnCal 3000
PSB 30.067	1 of 1	2	02 Aug 18	Cover EnCal 3000
PSB 33.002	1 of 1	2	02 Aug 18	3M Label material
PSB 36.064	1 of 1	0	02 Aug 18	Pressure test EnCal 3000 housing
73024221	1 of 1	A	04 Jan 19	Cover IS Display Board (Abdeckkappe)
73024311	1 of 1	B	13 Dec 18	Label. (Hauptschild)
83460010	1 to 6	C	08 Jan 19	Assembly EnCal 3000proChain GC. (Baugruppe)
730-24-216-3	1 to 2	V1.01/h	06 Dec 18	BOM
730-24-216-4	1 to 5	B	06 Dec 18	PCB Fabrication
73024216-2	1 to 2	V1.01	06 Dec 18	Circuit Diagram
73024216-9	1 to 2	E	06 Dec 18	IS GA Drawing
73024554	1 of 1	a	06 Dec 18	Transformer Drawing
73024216-v1.01	1 to 11	V1.01	06 Dec 18	PCB Layout
1-875-131	1 of 1	07	15 Oct 20	BASE EXD BOX ENCAL 3000
1-875-131-1	1 of 1	07	15 Oct 20	BASE EXD BOX ENCAL 3000
73024227	1 of 1	D	15 Oct 20	Montageplatte (Mounting Plate)
73024221	1 of 1	b	15 Oct 20	Cover IS display board
PSB 36.064	1 of 1	1	15 Oct 20	Pressure test EnCal 3000 housing
PSB 30.066	1 of 1	3	27 Oct 20	Base EnCal 3000
PSB 30.067	1 of 1	3	15 Oct 20	Cover EnCal 3000
73025515	1 of 1	A	04 Aug 21	Hauptschild UKCA EnCal3000 pro Chain GC

Issue 1

Drawing	Sheets	Rev.	Date (Stamp)	Title
73024216	1 to 2	V1.02d	04 Sep 23	Circuit Diagram
73024216	1 to 2	V1.02/f	28 Jul 23	BOM
73024216	1 to 10	V1.02d	28 Jul 23	PCB Layout