



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 18ATEX1025X** Issue: **4**

4 Equipment: **EnCal 3000 proChain GC**

5 Applicant: **Elster GmbH**

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

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 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 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

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

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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



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



Signed: Michelle Halliwell

Title: Director of Operations

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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

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.

Variation 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.

Variation 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, IEC 60079-0:2011 Ed.6 was replaced by IEC 60079-0:2017 Ed.7, EN 60079-1:2014 was replaced by EN 60079-1:2014/COR1:2018, IEC 60079-1:2014 Ed.7 was replaced by IEC 60079-1:2014 Ed.7/ISH1.

Variation 3 - This variation introduced the following changes, to permit:

- 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.
- 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".

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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	18 September 2018	R70163956A	The release of the prime certificate.
1	25 January 2019	R70199241A	The introduction of Variation 1.
2	15 October 2019	0334	Transfer of certificate Sira 18ATEX1025X from Sira Certification Service to CSA Group Netherlands B.V..
3	30 October 2020	R80056176A	The introduction of Variation 2.
4	12 September 2023	R80163676A	The introduction of Variation 3.

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

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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 OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.

17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

17.1 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 IEC 60079-1. There shall be no permanent deformation or damage to the enclosure.

17.2 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

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accordance with IEC 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).

- 17.3 The manufacturer shall ensure that the internal heaters are set to operate within the temperature range of $\geq 0^{\circ}\text{C}$ and $\leq +40^{\circ}\text{C}$.
- 17.4 In accordance with IEC 60079-11:2011 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.

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Certificate Annexe



Certificate Number: Sira 18ATEX1025X
Equipment: EnCal 3000 proChain GC
Applicant: Elster GmbH

Issue 0

Drawing	Sheets	Rev	Date (Sira 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

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
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

Issue 2 – No new drawings were introduced.

Issue 3

Drawing	Sheets	Rev.	Date (Stamp)	Title
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

Issue 4

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

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