



1 EU-TYPE EXAMINATION CERTIFICATE

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

3 Certificate Number: CSANe 22ATEX1057X Issue: 1

4 Equipment: Ultrasonic Transducers Models: SE16A-z, SE16B-y, SE16C, and SE4x-A series

5 Applicant: Greyline Instruments Canada Inc.

6 Address: 16456 Sixsmith Drive
Long Sault,
ON K0C 1P0
Canada

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 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 1G

Ex ia IIB T4 Ga

Signed: Michelle Halliwell

Title: Director of Operations

Project Number 80149215

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

CSA Ne 22ATEX1057X
Issue 1

13 DESCRIPTION OF EQUIPMENT

Ultrasonic Transducers Models: SE16A-z, SE16B-y, SE16C, and SE4x-A series

The models listed are variations on clamp-on Transit Time and/or Doppler ultrasonic transducers for measuring flow in any pipe material that conducts ultrasound including PVC, carbon steel, stainless steel, cast iron, fiberglass, and lined pipes. These clamp-on sensor are designed to fit on the outside of any pipe diameter from 0.5 to 84 inches.

These transducers operate by means of a piezo electric crystal that is energized from the source i.e. the associated apparatus. The sensor assembly consists of stainless steel housing with a small PCB and the piezo crystal. The assembly is encapsulated. The opening on the mating plane with the process connection is plugged with an acoustic medium.

The SE4x-A model is a doppler type clamp-on transducer containing two piezo electric circuits in a single sensor body. The SE16A, SE16B and SE16C models are transit time type clamp-on transducers each containing a single piezo electric circuit. The SE16A is the smallest sensor in the series, with frequency 2.56MHz. The SE16B is the medium size with frequency of 1.28MHz. The SE16C is the largest size with frequency 640kHz.

The connection types are as follows:

Connection Type	Part No.	SE4x-A	SE16A	SE16A-XXFT	SE16B	SE16C
Twin axial Bulkhead	10-06569,		X		X	X
Cable Gland M12 (integral cable)	A1100.12.065			X		
Strain Relief P9 (Integral cable)	CF09AA-GY	X				

Model	Entity Parameters	P _i (W)	Ambient temp. (Ta °C)	Process temp. (Tp °C)	T-Code
SE16A	Ui = 10 V Ii = 680 mA Ci = 8 nF, Li = 15 µH	1.0	-40 to +60	-40 to +80	T4
		1.3	-40 to +40	-40 to +40	T4
SE16A-z	Ui = 10 V Ii = 680 mA *Ci = 37.5 nF *Li = 106.44 µH	1.0	-40 to +60	-40 to +80	T4
		1.3	-40 to +40	-40 to +40	T4
SE16B-y	Ui = 10 V Ii = 680 mA Ci = 8 nF, Li = 15 µH	1.0	-40 to +60	-40 to +80	T4
		1.3	-40 to +40	-40 to +40	T4
SE16C	Ui = 10 V Ii = 680 mA Ci = 11nF, Li = 22 µH	1.0	-40 to +60	-40 to +80	T4
		1.3	-40 to +40	-40 to +40	T4

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Model	Entity Parameters	P _i (W)	Ambient temp. (Ta °C)	Process temp. (Tp °C)	T-Code
SE4x-A-z	Ui = 10 V Ii = 500 mA *Ci = 49.04 nF *Li = 128.4 µH	1.0	-40 to +60	-40 to +80	T4
		1.3	-40 to +40	-40 to +40	T4

Variation 1 - This variation introduced the following changes:

- i. Minor revisions to label drawings L-0161.01, L-0162.01, L-0163.01, and L-0043.01.
- ii. Triaxial cable connector part number 31-2-RFX is replaced with PL75-7 in drawings C-0161.01, C-0162.01, and C-0163.01.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	20 October 2022	R80074533A	The release of the prime certificate.
1	13 January 2023	R80149216A	The introduction of Variation 1.

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

- 15.1 All models of the assessed equipment are required to be connected to a properly rated I.S. barrier. The Ui & Ii parameters are the worst-case voltage and current from the combination of the barrier, but they cannot appear at the same time. It is the end-users' responsibility to ensure that the combined voltage and current of the connected barrier does not exceed the values of Table A.1 of IEC 60079-11:2011 Ed 6 (and EN IEC 60079-0:2018).
- 15.2 Maximum Cable lengths are specified, and these maximum values shall not be exceeded as per the following list. No changes are permitted to the cable.

Models With Integral Cables	Maximum Integral Cable Length
SE16A	152.4 m
SE16B	152.4 m
SE16C	152.4 m
SE4x-A	152.4 m

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.

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SCHEDULE

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Issue 1

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.

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Certificate Annexe



Certificate Number: CSANe 22ATEX1057X

Equipment: Ultrasonic Transducers Models: SE16A-z,
SE16B-y, SE16C, and SE4x-A series

Applicant: Greyline Instruments Canada Inc.

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
L-0161.01	1 of 1	A7	26 Sep 22	Label Drawing: SE16A
L-0162.01	1 of 1	A7	26 Sep 22	Label Drawing: SE16B
L-0163.01	1 of 1	A8	26 Sep 22	Label Drawing: SE16C
L-0043.01	1 of 1	A7	26 Sep 22	Label Drawing: SE4-A
C-0161.01	1 of 1	A8	26 Sep 22	Construction Drawing: SE16A
C-0161.02	1 of 1	A8	26 Sep 22	Construction Drawing: SE16A with potted integral cable.
C-0162.01	1 of 1	A8	26 Sep 22	Construction Drawing: SE16B
C-0163.01	1 of 1	A8	26 Sep 22	Construction Drawing: SE16C
C-0043.01	1 of 1	A8	26 Sep 22	Construction Drawing: SE4-A
I-0161.01	1 of 1	A6	26 Sep 22	Installation Drawing: SE16A
I-0162.01	1 of 1	A6	26 Sep 22	Installation Drawing: SE16B
I-0163.01	1 of 1	A6	26 Sep 22	Installation Drawing: SE16C
I-0043.01	1 of 1	A6	26 Sep 22	Installation Drawing: SE4-A
BLD.0199	1 to 26	1.00	26 Sep 22	Build document- potting instructions

Issue 1

Drawing	Sheets	Rev.	Date (Stamp)	Title
L-0161.01	1 of 1	B2	12 Dec 22	Label Drawing: SE16A
L-0162.01	1 of 1	B2	12 Dec 22	Label Drawing: SE16B
L-0163.01	1 of 1	B2	12 Dec 22	Label Drawing: SE16C
L-0043.01	1 of 1	B2	12 Dec 22	Label Drawing: SE4-A
C-0161.01	1 of 1	B1	12 Dec 22	SE16A Construction with Connector
C-0162.01	1 of 1	B1	12 Dec 22	SE16B Construction Illustration
C-0163.01	1 of 1	B1	12 Dec 22	SE16C Construction Illustration

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