



1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 14ATEX2054X** Issue: **3**

4 Equipment: **Cargo Temperature Unit, models GC-300 and GC-306**

5 Applicant: **Kongsberg Maritime AS**

6 Address: **Skonnertvegen 1  
7053 Ranheim  
Norway**

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 1 G  
Ex ia IIC T4 Ga  
Ta = -45°C to +85°C

Project Number 80103738

Signed: J A May

Title: Director of Operations

CSA Group Netherlands B.V.  
Utrechtseweg 310, Building B42,  
6812AR Arnhem, The Netherlands





SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

The GC-300/GC-306 Cargo Temperature Unit is a temperature transmitter and signal converter with HART output, primarily intended for use in cargo tanks for liquid gas. The GC-300 can connect up to three Pt-sensors, and GC-306 can connect up to six Pt-sensors. The transmitter is enclosed in a stainless steel housing.

The only difference between GC-300 and GC-306 is the shape of the PCB, and some minor changes to the circuitry. The GC-300 is circular in shape intended for a deck-mounted enclosure. The GC-306 is rectangular in shape intended for cabinet-mounting.

The equipment has the following entity parameters:

GC-300		
X4 from associated apparatus (typically GLK-300)	X1 to X3 (Pt-sensor)	
U <sub>i</sub> = 28 V	U <sub>o</sub> = 28 V	
I <sub>i</sub> = 160 mA	I <sub>o</sub> = 30 mA	
P <sub>i</sub> = 850 mW	P <sub>o</sub> = 206 mW	
C <sub>i</sub> = negligible	C <sub>o</sub> = 83 nF	
L <sub>i</sub> = negligible	L <sub>o</sub> = 41 mH	

  

GC-306		
X8 from associated apparatus (typically GLK-300)	X1 to X6 (Pt-sensor)	X7 to optional sensor
U <sub>i</sub> = 28 V	U <sub>o</sub> = 28 V	U <sub>o</sub> = U <sub>i</sub>
I <sub>i</sub> = 160 mA	I <sub>o</sub> = 30 mA	I <sub>o</sub> = I <sub>i</sub>
P <sub>i</sub> = 850 mW	P <sub>o</sub> = 206 mW	P <sub>o</sub> = P <sub>i</sub>
C <sub>i</sub> = negligible	C <sub>o</sub> = 83 nF	C <sub>i</sub> = negligible
L <sub>i</sub> = negligible	L <sub>o</sub> = 41 mH	L <sub>i</sub> = negligible

Variation 1 - This variation introduced the following change:

- i. The applicant's address was changed:

From:	To:
Kongsberg Maritime AS	Kongsberg Maritime AS
Haakon VII's gt. 4	Skonnertvegen 1
N-7005 Trondheim	7053 Ranheim
Norway	Norway

Variation 2 - This variation introduced the following changes:

- i. Following appropriate assessment to the latest technical knowledge, EN 60079-0:2012 was replaced by EN IEC 60079-0:2018.
- ii. Minor drawing updates.

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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	13 January 2015	R70004825A	The release of the prime certificate.
1	03 August 2017	R70142089A	This Issue covers the following changes: <ul style="list-style-type: none"><li>• EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. (In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</li><li>• The introduction of Variation 1.</li></ul>
2	15 October 2019	0832	Transfer of certificate Sira 14ATEX2054X from Sira Certification Service to CSA Group Netherlands B.V.
3	09 December 2021	R80103737A	The introduction of Variation 2

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

- 15.1 The supply to the GC-300 or GC-306 shall be resistive, such that  $R_{source} \geq U_o/I_o$ .
- 15.2 The GC-306 shall be installed in an enclosure that complies with the requirements of IEC/EN 60079-14 for the zone of use, with a degree of protection of IP54 minimum.
- 15.3 The Pt-sensors connected to the GC-300/GC-306 shall have their circuits isolated from earth; this shall be proved by applying a test voltage of 500 Vac between the circuit and the enclosure of the probe for 60 s. Alternatively, a voltage of 20% higher may be applied for 1 s. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.

#### 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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#### 17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA 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: Sira 14ATEX2054X

Equipment: Cargo Temperature Unit, models GC-300 and GC-306

Applicant: Kongsberg Maritime AS

## Issue 0

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Title
7212-475.000	1 to 6	C	09 Jan 14	PCB artwork
7212-475.900	1 of 1	A	09 Jan 14	PCB specification
7212-475.901	1 to 3	C	09 Jan 14	Bill of material
E-2692	1 of 1	C	09 Jan 14	Marking
GC-217	1 of 1	E	09 Jan 14	General assembly
GC-225	1 of 1	B	09 Jan 14	Encapsulation
GC-228	1 of 1	B	09 Jan 14	Schematic
GL-2513	1 of 1	C	09 Jan 14	Control drawing
368251	1 of 1	A	09 Jan 14	General assembly
380109	1 of 1	A	09 Jan 14	Control drawing
7212-474.000	1 to 7	B	09 Jan 14	PCB artwork
7212-474.900	1 of 1	A	09 Jan 14	PCB specification
7212-474.901	1 to 4	B	09 Jan 14	Bill of material
E-2719	1 of 1	B	09 Jan 14	Marking
GC-227	1 of 1	B	09 Jan 14	Schematic

## Issue 1

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
E-2692	1 of 1	D	09 Jun 17	Label for Temperature Transmitter type GC-300
E-2719	1 of 1	C	09 Jun 17	Label for Temperature Transmitter type GC-306

Issue 2. No new drawings were introduced.

## Issue 3

Drawing	Sheets	Rev.	Date (Stamp)	Title
7212-475.000	1 to 6	D	29 Nov 21	GCB-303 PCB artwork
7212-475.900	1 of 1	B	29 Nov 21	GCB-303 PCB specification
GC-217	1 of 1	G	29 Nov 21	General Assembly
GL-2735	1 of 1	C	29 Nov 21	Safety Control drawing
380109	1 of 1	B	29 Nov 21	Safety Control drawing
7212-474.000	1 to 6	D	29 Nov 21	GCB-306 PCB artwork
7212-474.901	1 to 4	C	29 Nov 21	GCB-306 Bill of materials
GC-227	1 of 1	C	29 Nov 21	GCB-306 Schematic

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