



1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 14ATEX2056X** Issue: **4**

4 Equipment: **Radar Tank Gauge GLA-300 and Radar Tank Gauge GLA-310**

5 Applicant: **Kongsberg Maritime AS**

6 Address: **Trondheim
Skonnertvegen 1
NO-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 +80°C/70°C*

*Ambient temperature 80°C when single radar and 70°C when dual radar.

Signed: M Halliwell

Title: Director of Operations



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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

The GLA-300 and GLA-310 Radar Tank Gauges are intrinsically safe level gauging sensors comprising an integral inert pressure transmitter, enclosed in a stainless steel housing. They have digital communication (RS-485 and HART) to processing equipment in the non-hazardous area.

The pressure transmitter electronics is completely separated from the level gauging sensor electronics.

The GLA-310 Radar Tank Gauge is identical to the GLA-300 unit, except that it does not include the pressure transmitter or the HART output.

A dual option is available where, for redundancy a second Radar Tank Gauge electronic unit is paired with its dedicated signal processing unit.

The GLA-300 and GLA-310 can be supplied with a variety of different stainless steel enclosures. The GLA-300 and GLA-310 can be fitted with one of the following antenna arrangements: parabola antenna, horn antenna open measurement, horn antenna standpipe measurement or planar antenna.

The equipment has the following entity parameters:

X1 from associated apparatus (typically GLK-300)			X3, X4 (GLH-320) to cargo temperature unit (typically GC-300)/Pressure
POWER (GLH-320 – X1 Pins 1 and 2)	HART (GLH-320 – X2 Pins 1 and 2)	RS-485 (GLH-320 – X1 Pins 3 and 4)	
$U_i = 14.3 \text{ V}$ $I_i = 360 \text{ mA}$ $P_i = 2.1 \text{ W}$ $C_i = 75 \text{ nF}$ $L_i = \text{Negligible}$	$U_i = 28 \text{ V}$ $I_i = 160 \text{ mA}$ $P_i = 850 \text{ mW}$ $C_i = \text{Negligible}$ $L_i = \text{Negligible}$	$U_i = 7.0 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 120 \text{ mW}$ $C_i = 1.1 \text{ nF}$ $L_i = \text{Negligible}$	$U_o = 28 \text{ V}$ $I_o = 160 \text{ mA}$ $P_o = 850 \text{ mW}$ $C_i = 0$ $C_o = \text{Negligible}$ $L_i = \text{Negligible}$ $L_o = 1388 \text{ } \mu\text{H}$

The GLA-300 and GLA-310 is designed for use in the GL-300 Tank Monitoring system, but the list of safety parameters allows connection to other equipment.

The maximum ambient temperature for the GLA-300 and GLA-310 incorporating GLH-320 modules is 80 °C.

Variation 1 - This variation introduced the following changes:

- i. Introduction of a new alternative type GLH-320 Module in the Radar Tank Gauges GLA-300 and GLA-310 the description was modified accordingly. As a result, Specific Conditions of Use were added. The ambient temperature was amended when the GLH – 320 is fitted.
- ii. Change of manufacturer's address:

From
 Haakon VII's gt. 4
 N-7005 Trondheim
 Norway

To
 Trondheim
 Skonnertvegen 1
 NO-7053 Ranheim
 Norway

- iii. Removal of EN 60079-26 from the list of standards.

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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.
- iii. Removal of GLB-300/GLH-300, GLB-310/GLH-310 and GT450. As a result, the product description and the marking information changed.

Variation 3 - This variation introduced the following changes:

- i. Introduction of a new variant GLA-310 with up to two GLH-320 modules with associated drawing changes including updated marking and product description.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	17 December 2014	R70004826A	The release of the prime certificate.
1	05 July 2019	R70141602A	This Issue covers the following changes: <ul style="list-style-type: none">• EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. <i>(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.)</i>• The introduction of Variation 1.
2	15 October 2019	1742	Transfer of certificate Sira 14ATEX2056X from Sira Certification Service to CSA Group Netherlands B.V..
3	15 December 2021	R80103731A	The introduction of Variation 2.
4	01 October 2024	R80201303A	The introduction of Variation 3.

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

- 15.1 Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. This is particularly important if the equipment is installed in a zone 0 location. In addition, the equipment shall only be cleaned with a damp cloth.
- 15.2 The circuit ground is connected to the enclosure of the equipment, so the equipment does not meet the 500 Vac circuit-to-enclosure isolation requirements. This shall be considered during installation. Refer to instructions in the safety manual.

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- 15.3 The Radar Tank Gauge GLA-300 and Radar Tank Gauge GLA-310 shall only be connected to associated apparatus that has a trapezoidal output characteristic.
- 15.4 The GLH-320 through HART connectors X2 to X4 provide interconnection facilities for intrinsically safe circuits and devices, at the Entity parameters listed in the Certification documents.
- 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.

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Certificate Annexe



Certificate Number: Sira 14ATEX2056X
 Equipment: Radar Tank Gauge GLA-300 &
 Radar Tank Gauge GLA-310
 Applicant: Kongsberg Maritime AS

Issue 0

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Title
341106	1 to 3	B	1 Dec 14	PCB Specification and Build-up (GLB-310)
341108	1 to 4	B	1 Dec 14	Bill of Material (GLB-310)
386250	1 of 1	A	1 Dec 14	Lens for GLA-310/5
386381	1 of 1	B	1 Dec 14	GLA-310/5 Assembly
399512	1 to 4	A	1 Dec 14	GLA-300/GLA-310. Radar variant overview
399801	1 to 3	A	1 Dec 14	GT450 design criteria
7212-462.000	1 to 6	B	8 Dec 14	GLB-300 PCB artwork
7212-462.900	1 of 2	B	8 Dec 14	GLB-300 PCB specification and layer stack-up
7212-462.901	1 to 6	A	8 Dec 14	GLB-300 Bill of Materials
7212-463.000	1 to 6	B	8 Dec 14	GLB-310 PCB artwork
DLT6109	1 of 1	E	1 Dec 14	FMCW Radar Module Dimensional
DLT6118	1 of 1	D	1 Dec 14	FMCW Radar Module Dimensional
DLT6143	1 of 1	PB1	1 Dec 14	FMCW Radar Module Dimensional
E-2691	1 of 1	D	1 Dec 14	Laser tagging GLA-300
E-2697	1 of 1	A	1 Dec 14	Serial no. Sticker GLH-300
E-2699	1 of 1	C	1 Dec 14	Type Plate for GLA-310
E-2700	1 of 1	A	1 Dec 14	Serial number sticker for GLH-310
GL-2026	1 of 1	A	1 Dec 14	Protection plate GL-100 (PTFE with carbon grid)
GL-2110	1 of 1	C	1 Dec 14	Cover for feed detail
GL-2146	1 of 1	C	1 Dec 14	Offset parabol feed
GL-2189	1 of 1	A	1 Dec 14	PTFE TFM Bolt detail
GL-2458	1 of 1	C	1 Dec 14	GLA-300/P Assembly
GL-2462	1 of 1	C	1 Dec 14	GLB-300, Schematics Radar Block
GL-2513	1 of 1	C	1 Dec 14	Safety Control Drawing (GLK-300 - GLH-300)
GL-2539	1 of 1	A	1 Dec 14	GLH-300 Tank Electronic Unit
GL-2548	1 of 1	B	1 Dec 14	Radar Sensor Modem & Control Unit GLB-310
GL-2550	1 to 4	A	1 Dec 14	Lens GL-2550 Detail
GL-2567	1 of 1	A	1 Dec 14	Safety Control (GLK-300 - GLH-310)
GL-2575	1 of 1	A	1 Dec 14	GLH-310 Tank Electronic Unit
GT-1468	1 to 3	C	1 Dec 14	GLB-300, Schematics Pressure Block
KSLT6109	1 to 4	E	1 Dec 14	10 GHz Microwave unit (Marit) Schematic
KSLT6118	1 to 4	D	1 Dec 14	24 GHz Microwave unit (Viktoria) Schematic
KSLT6143 RS3400S*	1 to 4	PB1	1 Dec 14	5 GHz FMCW radar front end

* This drawing has no drawing number; the number shown is the description

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
425399	1 of 1	A	03 Jul 19	Protection cover
7212-507.000	1 to 5	A	03 Jul 19	PCB layout GLB-320
7212-507.900	1 of 1	A	03 Jul 19	PCB specification and build-up GLB-320
7212-507.9x1	1 to 4	A	03 Jul 19	BOM GLB-320
GL-2733	1 of 1	A	03 Jul 19	GLB-320 Schematics
GL-2734	1 of 1	A	03 Jul 19	GLM-24 Schematics
GL-2736	1 of 1	A	03 Jul 19	GLH-320 Tank Electronic Unit
E-2770	1 of 1	B	03 Jul 19	Laser tagging radar product with GLH-320
7212-514.901	1 to 2	A	03 Jul 19	BOM GLM-24

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Drawing	Sheets	Rev.	Date (Sira stamp)	Title
7212-514.000	1 to 5	A	03 Jul 19	PCB Layout GLM-24
7212-514.900	1 of 1	A	03 Jul 19	PCB spec and build GLM-24
GL-2742	1 of 1	A	03 Jul 19	RTG Unit GLA 300 Radar Tank Gauging System

Issue 2 – No new drawings were introduced.

Issue 3

Drawing	Sheets	Rev.	Date (Stamp)	Title
386381	1 of 1	F	16 Nov 21	GLA-310/5 Assembly
399512	1 to 4	B	16 Nov 21	GLA-300/GLA-310 Radar Variant Overview
D-GL-2146	1 of 1	D	16 Nov 21	Offset parabola feed
7212-507.9x1	1 to 4	B	16 Nov 21	BOM GLB-320
GL-2733	1 of 1	B	16 Nov 21	GLB-320 Schematics
7212-514.900	1 of 1	B	16 Nov 21	PCB spec and build GLM-24
7212-514.901	1 to 2	B	16 Nov 21	BOM GLM-24

Due to GLB-300/GLH-300, GLB-310/GLH-310 and GT450 being obsolete, the following drawings no longer form part of the certification documentation:

Drawing	Sheets	Rev.	Date (Stamp)	Title
341106	1 to 3	B	1 Dec 14	PCB Specification and Build up (GLB-310)
341108	1 to 4	B	1 Dec 14	Bill of Material (GLB-310)
399801	1 to 3	A	1 Dec 14	GT450 design criteria
7212-462.000	1 to 6	B	8 Dec 14	GLB-300 PCB artwork
7212-462.900	1 to 2	B	8 Dec 14	GLB-300 PCB specification and layer stack-up
7212-462.901	1 to 6	A	8 Dec 14	GLB-300 Bill of Materials
7212-463.000	1 to 6	B	8 Dec 14	GLB-310 PCB artwork
DLT6118	1 of 1	D	1 Dec 14	FMCW Radar Module Dimensional
E-2697	1 of 1	A	1 Dec 14	Serial no. Sticker GLH-300
E-2700	1 of 1	A	1 Dec 14	Serial number sticker for GLH-310
E-2691	1 of 1	D	1 Dec 14	Laser tagging GLA-300
E-2699	1 of 1	C	1 Dec 14	Type Plate for GLA-310
GL-2458	1 of 1	C	1 Dec 14	GLA-300/P Assembly
GL-2462	1 of 1	C	1 Dec 14	GLB-300, Schematics Radar Block
GL-2513	1 of 1	C	1 Dec 14	Safety Control Drawing (GLK-300, GLH-300)
GL-2539	1 of 1	A	1 Dec 14	GLH-300 Tank Electronic Unit
GL-2548	1 of 1	B	1 Dec 14	Radar Sensor Modem & Control Unit GLB-310
GL-2567	1 of 1	A	1 Dec 14	Safety Control (GLK-300, GLH-310)
GL-2575	1 of 1	A	1 Dec 14	GLH-310 Tank Electronic Unit
GT-1468	1 to 3	C	1 Dec 14	GLB-300, Schematics Pressure Block
KSLT6118	1 to 4	D	1 Dec 14	24 GHz Microwave unit (Viktorija) Schematic

Issue 4

Drawing	Sheets	Rev.	Date (Stamp)	Title
437032	1 of 1	G	12 Mar 24	Radar Tank Gauge type RTG GLA-310/5DUAL-- with GLH-320 electronic units
7212-507.9x1	1 to 3	C	13 Mar 24	BOM GLB-320
7212-514.000	1 to 5	B	13 Mar 24	PCB Layout GLM-24
7212-514.900	1 to 2	C	13 Mar 24	PCB Specification and Build-up GLM-24

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Applicant: Kongsberg Maritime AS

Drawing	Sheets	Rev.	Date (Stamp)	Title
E-2770	1 of 1	D	02 Jul 24	Laser tagging for RTG unit GLA-3xx/x
386381	1 of 1	G	13 Mar 24	GLA-310/5 Assembly dwg
399512	1 to 4	D	02 Jul 24	GLA-300/GLA-310. Radar variant overview
GL-2735	1 of 1	E	02 Jul 24	Safety Control Drawing and Electrical Connections of GL-300, GLK-300 - GLH-320 connection drawing

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