



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA000010Z
Revision No:
4

This is to certify:

That the Level Transmitter

with type designation(s)
GL-300

Issued to

Kongsberg Maritime AS Avd Skonnertvegen
Ranheim, Norway

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	C

Issued at Høvik on 2023-06-27

This Certificate is valid until 2025-06-30.

DNV local unit: Trondheim

Approval Engineer: Martin Skårerverket



for DNV

Digitally Signed By: Elter, Frederik Tore
Location: DNV Høvik, Norway

Frederik Tore Elter
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2022-12

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Product description

Tank Monitoring Modules, GL-300, consisting of:

Signal Processing Unit	GLK-300
Radar Tank Gauge including Radar Modem and Control Unit	GLA-300/x GLH-320
Radar Tank Gauge including Radar Modem and Control Unit	GLA-310-xx GLH-320
Radar Tank Gauge Including Radar Electronic Unit	GLA-310/5-xx GLH-320
Radar Tank Gauge Including Radar Electronic Unit	GLA-310/5TOP GLH-320
Radar Tank Gauge Including Radar Electronic Unit	GLA-310/5DUAL GLH-320
Cargo Temperature Unit	GC-300, GC-306
Zener Barrier	Z972, DZ-110/U, DZ-120

The following versions for the embedded software are covered by the certificate:

GLK-300 DSP Signal processing software ver.1.1.x

GLB-300, GLB-310 Microwave software ver.1.0.x and GLB-320 Microwave software ver. 2.00

GLB-300 Inert pressure software ver.1.0.x

GCB-303 temperature software ver.1.0.x

The term GLA-300/x is referring to the different designs of housing and antenna for different applications where used, and includes radar tank gauge unit of type GLA-300/P, GLA-300/H, GLA-300/HS

The term GLA-310-xx is referring to the retrofit solution where a GLH-320 card is mounted in an existing tank gauge unit of type GLA90, GLA100 or GLA120

The term GLA-310/5-xx is referring to the different applications where used, indicated in datasheets for radar tank gauge unit GLA-310/5-LH2, GLA-310/5-NH3 and GLA-310/5-G

Places of manufacture

Kongsberg Maritime AS Trondheim,
 Skonnertvegen 1,
 7053 Ranheim,
 NORWAY

Approval conditions

The Type Approval covers hardware (with firmware) as listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)

As long as the GL-300 transmitter modules are used in a configuration together with the K-Chief system, (K-Gauge, K-Chief 600 or K-Chief 700), and the interface is tested during the K-Chief test, the equipment will be considered as covered by the K-Chief systems product certificate. The above documentation requirements may be covered by the K-Chief documentation.

The revision history for each software application is listed in document:

386310 SW revision history for GL-300, issue J, dated 2018-10-25

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Application/Limitation

Ex installations to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Ex-certification is not covered by this certificate and the following paragraph, which is for information only, is based on information received from the manufacturer, but not verified by DNV.

Information on Ex-Certification received from manufacturer – Not verified by DNV		
Equipment	Marking	Certificate No.
GLK-300	⊕ II (1)G [Ex ia Ga] IIC, Ta = -15°C to 70°C	Presafe 14ATEX5412X, Issue 3
	[Ex ia Ga] IIC, Ta = -15°C to 70°C	IECEX PRE 14.0053X, Issue 2
GLA-300, GLA-310	⊕ II 1G Ex ia IIC T4 Ga, Ta = -45°C to 85°C	Sira 14ATEX2056X, Issue 3
	Ex ia IIC T4 Ga, Ta = -45°C to 85°C	IECEX SIR 14.0025X, Issue 2
GC-300, GC-306	⊕ II 1G Ex ia IIC T4 Ga, Ta = -45°C to 85°C	Sira 14ATEX2054X, Issue 3
	Ex ia IIC T4 Ga, Ta = -45°C to 85°C	IECEX SIR 14.0024X, Issue 3
DZ-110, DZ-110/U	⊕ II (1)G [Ex ia Ga] IIC, Ta = -20°C to 55°C	Presafe 14 ATEX 4368, Issue 3
	[Ex ia Ga] IIC, Ta = -20°C to 70°C	IECEX PRE 14.0005, Issue 2
DZ-120	⊕ II (1)G [Ex ia Ga] IIC, Ta = -20°C to 70°C	Presafe 16 ATEX 7965, Issue 1
	[Ex ia Ga] IIC, Ta = -20°C to 70°C	IECEX PRE 16.0020, Issue 1
Z972	⊕ II 3G Ex nA II T4, Ta = -20°C to 60°C	TUV 99 ATEX 1484 X
	[Ex ia Ga] IIC, Ta = -20°C to 60°C	IECEX BAS 09.0142, Issue 6

Type Approval documentation

Environmental and EMC test reports:

- Nemko E09680.00 issued 2009-06-24
- Nemko E10017.00 issued 2010-01-19
- Nemko 209536 rev.02 issued 2012-08-21
- Nemko E17118.00 issued 2017-09-22
- Nemko E16236.00 issued 2016-11-14
- Nemko E13277.00 issued 2013-10-02
- Nemko E15308.02 issued 2016-07-25
- Nemko E21214.00 issued 2021-11-01
- 443392 rev. A, K-Gauge CTS Statement vibration GLA-310/5 Dual
- 443414 rev. A, Vibration report GLA-310/5 Dual

386310 SW revision history for GL-300, issue J, dated 2018-10-25

CD with complete type approval documentation:

"TA documentation for certificate application of GL-300", issue F, dated 2011-11-09

Product data sheets:

- P-GC300/CE Rev. J
- P-GLA300/CE Rev. F
- P-GLA300H/CE Rev. F
- 436580 Rev. B, GLH-320 RADAR ELECTRONIC UNIT.
- P-GLK300/CE Rev. I
- 376020 Rev. B, 2020-11-23
- 371645 Rev. D (GC306)
- P-GLA300HS/CE Rev. E
- 383758 Rev. F GLA-310/5
- 394663 Rev. E GLA-310/5-G
- 386773 Rev. B, K-Gauge TOP
- 411509 Rev. B, GLA-310/5 NH3
- 435445 Rev. B, GLA-310/5 LH2
- 442205 Rev. F, GLA-310/5 DUAL
- 394855 Rev. B, dated 2020-04-2020
- Datasheet - DZ-110/U, Drw No. P-DZ110U/CE Rev C, dated 2021-01-06
- Datasheet - DZ-120, Drw No. P-DZ120/CE Rev C, dated 2021-04-06
- Datasheet - Z972, Drw No. 071861, dated 2020-10-21

TA renewal assessment report for TAA000010Z, DNV Trondheim, dated 2023-05-11



Job Id: 262.1-007726-8
Certificate No: TAA000010Z
Revision No: 4

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Functional test according to Type Approval Test Procedure, GL-300 Tank Monitoring, rev.D, dated 2009-06-08, GLA-300, GLA-310, GLH-320, GC-300 and GC-306:

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE