



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	Kongsberg Maritime AS																														
Address	Skonnertvegen 1, Ranheim, 7053, Norway																														
Place of Production	Kongsberg Maritime AS Skonnertvegen 1, Ranheim, 7053, Norway																														
Type	Monitoring System																														
Description	<p>The Tank Gauging System GL-300 is a radar-based tank gauging system for tank monitoring in oil, product and chemical tankers.</p> <p>GL-300 consists of:</p> <table><tr><td>GLA-300/P</td><td>Radar Tank Gauge for Oil, Product and Chemical Tankers</td></tr><tr><td>GLA-300/H</td><td>Radar Tank Gauge Chemical Asphalt & Bitumen Tankers</td></tr><tr><td>GLA-300/HS</td><td>Radar Tank Gauge for Guided Wave Applications</td></tr><tr><td>GLA-300/HSD</td><td>Radar Tank Gauge for Draft Applications</td></tr><tr><td>GLA-300/5-TOP</td><td>Radar Tank Gauge for Tank Overfill Protection</td></tr><tr><td>GLA-310/5-G</td><td>Radar Tank Gauge for Gas Carrier</td></tr><tr><td>GLA-310/5-Dual</td><td>Radar Tank Gauge for Gas Carrier</td></tr><tr><td>GLA-310/5-Fuel</td><td>Radar Tank Gauge for LNG Fuel Tank</td></tr><tr><td>GLA-310/5-NH3</td><td>Radar Tank Gauge for liquified ammonia (NH3)</td></tr><tr><td>GLA-310/5-LH2</td><td>Radar Tank Gauge for liquified hydrogen (H2)</td></tr><tr><td>GLH-320</td><td>Radar Tank Gauge Electronic Unit (integrated in GLA-300)</td></tr><tr><td>GLK-300/xxx</td><td>Signal Processing Unit (x = CLS, LPG, LNG)</td></tr><tr><td>GC-300</td><td>Cargo Temperature Unit (integrated in GLA-300)</td></tr><tr><td>GC-306</td><td>Cargo Temperature Unit</td></tr><tr><td>GT-406</td><td>Pressure Sensor (integrated in GLA-300)</td></tr></table>	GLA-300/P	Radar Tank Gauge for Oil, Product and Chemical Tankers	GLA-300/H	Radar Tank Gauge Chemical Asphalt & Bitumen Tankers	GLA-300/HS	Radar Tank Gauge for Guided Wave Applications	GLA-300/HSD	Radar Tank Gauge for Draft Applications	GLA-300/5-TOP	Radar Tank Gauge for Tank Overfill Protection	GLA-310/5-G	Radar Tank Gauge for Gas Carrier	GLA-310/5-Dual	Radar Tank Gauge for Gas Carrier	GLA-310/5-Fuel	Radar Tank Gauge for LNG Fuel Tank	GLA-310/5-NH3	Radar Tank Gauge for liquified ammonia (NH3)	GLA-310/5-LH2	Radar Tank Gauge for liquified hydrogen (H2)	GLH-320	Radar Tank Gauge Electronic Unit (integrated in GLA-300)	GLK-300/xxx	Signal Processing Unit (x = CLS, LPG, LNG)	GC-300	Cargo Temperature Unit (integrated in GLA-300)	GC-306	Cargo Temperature Unit	GT-406	Pressure Sensor (integrated in GLA-300)
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Thorsten Wolff
Electrical & Control - Senior Specialist to
Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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	HCM-300 RCM-300 TCU-300	HART Communication Module Radar Communication Module Tank Controller Unit
Trade Name	GL-300	
Application	Marine and Offshore applications for use in environmental categories ENV1, ENV2, ENV3 and ENV5 ^(*) as defined in Lloyd's Register Type Approval System, LR Test Specification No.1, 2021 in general power distribution zones. (*) only GLA-300/-310	
Specified Standard	IACS UR E10 Rev. 8: 2021	
Ratings	Maximum measuring range: 50 m Operating temperature range: -45 °C to +85 °C Protection: IP 66/67 Software versions covered by the certificate: GLK-300 DSP Signal processing software vers. 1.1.x GLB-320 Microwavesoftware vers. 2.0.x GC-300 temperature software vers. 1.0.x GC-306 temperature software vers. 1.0.x GT-406 inert pressure sensor software vers. 1.0.x	
Additional Tests	Low temperature test (-45 °C / 16 h) for GC-300, GLA-300 and GLA-310 Low temperature test (-15 °C / 16 h) for GLK-300 Dry heat test (85 °C / 16 h) for GC-300, GLA-300 and GLA-310 Dry heat test (70 °C / 16 h) for GLK-300 Ingress protection test (IP66 & IP67) for GC-300 and GLA-300	
Other Conditions	For systems consisting of the listed components the final functional arrangement and application software are to comply with appropriate Lloyd's	

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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Register Rules and Regulations and shall be subject to project related Plan Approval Process, when installed on LR classed vessels. Documents and drawings for the actual application are to be provided according relevant LR Rules and Regulations.

The Power Supply Units are to be as per manufacturer recommendation (drawing no. 110-0068746)

Specific Conditions of Use as stated in applicable Ex-certificates and the conditions of the LR Rules & Regulations for the Classification of Ships, Part 6, Chapter 2 shall be observed when installed in hazardous areas. The Ex-certification does not form part of this certificate.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: LR2002080TA-02

The Design Appraisal Document TSO-24-022575-HRZ-TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.