

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00002UB
Revision No:
1

This is to certify:**That the Position Transmitter**

with type designation(s)
LMR70-A

Issued to

TR Electronic GmbH
Trossingen, Baden-Württemberg, Germany

is found to comply with

DNV GL 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 GL.

Temperature	B
Humidity	B
Vibration	B
EMC	A
Enclosure	Required protection according to DNV GL Rules shall be provided upon installation on board

Issued at **Hamburg** on **2020-08-05**

for **DNV GL**

This Certificate is valid until **2025-07-29**.

DNV GL local station: **Augsburg**

Approval Engineer: **Didier Girardin**

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Joannis Papanuskas
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Job Id: **262.1-028368-1**
Certificate No: **TAA00002UB**
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Product description

LMR70 Analog, double- and triple-redundant linear absolute position measuring systems:

Main features / characteristics:

- 2 or 3 galvanic isolated (measuring) channels
- power supply: 2x or 3x 24 VDC \pm 10 %
- Output: 2x or 3x 4...20mA (count direction programmable)
- Measuring length, standard 50...1250mm, in steps
- Resolution 16 Bits D/A converter
- Material – Measuring body Cr/Ni – alloy

The system is available in double-redundant and triple-redundant version

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Any Ex-equipment (equipment to be used in areas with explosive atmosphere) listed in this certificate or provided optionally are subject to separate Ex- approvals.

Equipment above intended to be installed on ships contracted for construction on or after 1 January 2022 is to comply with Rev.7 of UR IACS E10. Documented evidence demonstrating compliancy shall be provided for our approval by test report(s) from an accredited laboratory for such related project.

Type Approval documentation

Hidden

Reports

[19PBI033015-01_LMR 70](#)

[19PBU056711-02_LMR70](#)

[20PBI048108-00_LMR70](#)

Datasheets

Ref.: K-LMR70-A-1

Drawing

[04-K335-V0002](#)

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016

Marking of product

The products to be marked with:

- manufacturer name
- model name / type
- Article number / serial number
- power supply ratings

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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

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE