DNV·GL

Certificate No:
TAA00002BE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Misc. detector

with type designation(s)
LRG 16-9, LRS 1-7

Issued to
Gestra AG
Bremen, 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	**A**
EMC	**A**
Enclosure	**Required protection according to the DNV GL rules shall be provided upon installation on board**

Issued at **Hamburg** on **2019-06-21**
This Certificate is valid until **2024-05-09**.
DNV GL local station: **Hamburg CMC**

Approval Engineer: **Holger Jansen**

for **DNV GL**

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.

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Product description

Conductivity electrode in conjunction with conductivity switch

Type: LRG16-9, LRS 1-7

Measuring and monitoring of electrical conductivity of condensate, boiler feedwater, cooling and cleaning water and boiler water.

LRG 16-9

Service pressure: PN 40, max. 32 bar at 238 °C
Mechanical connection: Screwed ½, to ISO 228-1

LRS 1-7

Supply voltage: 230 V, 50-60 Hz / 115 V, 50-60 Hz (option)
Measuring range: 0.5 to 10000 µS/cm at 25°C or 0.25 to 5000 ppm at 25 °C
Cable length: Max. 30 m, max. 10 m for conductivities from 0.5 – 10 µS/cm
Output: 3 potential-free relay contacts, max. contact rating for switching voltages 115 V AC and 230 V AC: resistive/inductive 4 A
1 Current output 4-20 mA as actual value output, max. load 500 Ω (option)

Application/Limitation

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.

Type Approval documentation

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2016.

Marking of product

The products to be marked with:

- Manufacturer name
- Model name
- 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

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