DNV·GL

Certificate No:
TAA00001W9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Miscellaneous Transmitter

with type designation(s)
JUMO CTI-500 (Type 202755/10 and 202755/15)

Issued to
JUMO GmbH & Co. KG
Fulda, Hessen, 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	**A**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**B (IP67)**

Issued at **Hamburg** on **2018-06-06**
This Certificate is valid until **2023-06-05**.
DNV GL local station: **Hamburg**

Approval Engineer: **Jens Dietrich**

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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Job Id: **262.1-027525-1**
Certificate No: **TAA00001W9**

Product description

Inductive Conductivity/Concentration and Temperature Transmitter with switching contacts:

Sensor connection:
-Head transmitter (attached sensor)

Concentration measurement:
– NaOH (caustic soda)
  0 to15 % by weight or 25 to 50 % by weight
– HNO3 (nitric acid)
  0 to25 % by weight or 36 to 82 % by weight
– customer-specific concentration curve, freely programmable through the setup program

Conductivity measurement:
Measuring Ranges Sensor: 0 to 500 µS/cm, 0 to 1000 µS/cm, 0 to 2000 µS/cm, 0 to 5000 µS/cm, 0 to 10 mS/cm, 0 to 20 mS/cm, 0 to 50 mS/cm, 0 to 100 mS/cm, 0 to 200 mS/cm, 0 to 500 mS/cm 0 to 1000 mS/cm, 0 to 2000 mS/cm (the latter not compensated for temperature).
Measurement tolerance: ⩽0.5…1%, depending on range.

Temperature transmitter:
Measuring range: -20 to 150°C, linear
Response time with exposed temperature sensor: t09 ⩽ 6 sec
Response time with internal temperature sensor: t09 ⩽ 2 min

Temperature compensation range: -20…+150°C

Output signal for conductivity/concentration/temperature
0 to 10 V / 10 to 0 V, 2 to 10 V / 10 to 2 V, 0 to 20 mA / 20 to 0 mA, 4 to 20 mA / 20 to 4 mA
The output signal is freely scalable.

Display (option): graphics LCD with background lighting; adjustable contrast

Electric connection: plug-in screw terminals 2.5 mm2 or M12 plug/socket connectors

Power supply: 19…31 V DC (24 V DC nominal)
Rating for solid state relays: U < 50 V AC/DC, I ⩽ 200 mA

Housing material: Polyamide (PA)
Sensor material: Polypropylene (PP)
Enclosure protection (transmitter): IP67.

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 RU SHIP Pt.4 Ch.9 Sec.1.

Tests carried out

Applicable tests according to DNV GL Class Guideline CG-0339, Nov.2016

Marking of product

Manufacturer name, type designation, serial number.

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 this certificate.

END OF CERTIFICATE