TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001W9
Revision No:
4

This is to certify:

That the Miscellaneous Transmitter

with type designation(s)
JUMO CTI-500 (Type 202755/10 and 202755/15), JUMO digiLINE Ci (Type 202761)

Issued to
JUMO GmbH & Co. KG
Fulda, Hessen, Germany

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:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
JUMO CTI-500 (Type 202755/10 and 202755/15)	A	B	A	A	B (IP67)
JUMO digiLINE Ci (Type 202761)	A	B	A	B	B (IP66)

Issued at **Hamburg** on **2024-02-06**

This Certificate is valid until **2028-06-05**.
DNV local station: **Hamburg**

Approval Engineer: **Holger Jansen**

for **DNV**

Digitally Signed By: Papanuskas, Joannis
Location: DNV SE Hamburg, Germany

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.

Product description

JUMO CTI-500 (Type 202755/10 and 202755/15)
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

JUMO digiLINE Ci (Type 202761)
Electronic components for inductive conductivity sensors for automation systems with JUMO digiLine

Device version:
- Operating panel with display and membrane keyboard
- Status LED without display and membrane keyboard

Interface types:
- RS485 interface for JUMO digiLine or Modbus
- IO-Link interface
- Analog outputs 4 to 20 mA
- Binary outputs

Sensor connections:
- Input for temperature sensor
- Input for Ci conductivity sensor
- Binary input (only for device version with analog or binary output)

Application/Limitation

The Type Approval covers hardware 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 RU SHIP Pt.4 Ch.9 Sec.1.

Type Approval documentation

According to “Dokumentenübersicht Prüfprotokolle CTI500 (202755)”, Vers.04, dated 2023-04-25.
Data sheet 20275500T10Z001K000, V6.00/EN/00440505. Drawing 27.057.00.00-2, vers. 12
Overview diagrams and drawings for DNV approval JUMO digiLine, Vers. 01, dated 2023-10-31
Overview test records for DNV approval of digiLINE, Vers.01, dated 2023-10-23
Operation manual JUMO digiLine Ci no. 20276110T90Z001K000, V2.00/EN/00691388
Data sheet 202761 no. 2027100T10Z001K000, V4.00/EN/00691227/2020-03-23
Type Approval Assessment Report dated 2023-03-23

Tests carried out

Applicable tests according to DNV Class Guideline CG-0339, August 2021

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