



Type Approval Certificate

[Transmitter]

Initial Approval 12th February, 2019
Manufacturer JUMO GmbH & Co. KG
 Moritz-Juchheim-Strasse 1, 36039 Fulda, Germany
Product Description Type : JUMO CTI-500
 (Basic type : 202755/10 and 202755/15)

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification of Steel Ships.

This Certificate is valid until 11th February, 2024

Reissued at Busan, Korea on 2nd September, 2021



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME21021991966) and certificate No.(HMB39666-AE001).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 2nd September, 2021

A. Product Description

1. Product Specification

Inductive Conductivity/Concentration and Temperature Transmitter with switch contacts.

- 1) Power supply : 24V DC
- 2) Rating : $U < 50V$ AC/DC, $I \leq 200mA$ (solid state relays)
- 3) Sensor connection : Head-mounted (attached sensor)
- 4) Degree of protection : IP67 (Transmitter)
- 5) Output signal for conductivity/concentration/temperature (freely scalable) :
0 to 10V/10 to 0V, 2 to 10V/10 to 2V, 0 to 20mA/20 to 0mA, 4mA to 20mA/20 to 4mA
- 6) Measurement range
 - Concentration :
NaOH (caustic soda) : 0 ~ 15 % by weight or 25 ~ 50 % by weight
HNO₃ (nitric acid) : 0 ~ 25 % by weight or 36 ~ 82 % by weight
customer-specific concentration curve, freely programmable through the setup program
 - Conductivity :
0 to 500, 0 to 1000, 0 to 2000, 0 to 5000 $\mu S/cm$
0 to 10, 0 to 20, 0 to 50, 0 to 100, 0 to 200, 0 to 500, 0 to 1000mS/cm
0 to 2000mS/cm(not compensated for temperature)
 - Temperature : -20 to 150°C, linear
- 7) Display (option) : Graphics LCD with background lighting

2. Approved Drawings and Documents

- 1) Drawings (Incl. Circuit, Mechanicals, Part lists)
 - Overview diagram for CTI-500(202755), Version 03 dated 16.11.2018
 - Overview diagram for CTI-500(202755), Version 04 dated 20.05.2021

3. Test Reports, etc.

- 1) Test Reports
 - Overview test records for CTI-500(202755), Version 02 dated 18.10.2018
 - Test report No. EW-3344.61000-4-3.A.1.1 dated 25.03.2021
- 2) Operating instructions No. 20275500T90Z001K000, V7.0
- 3) Data sheet No. 20275500T10Z001K000, V5.0

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.
- 2) The manufacturer should inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 3) Degree of protection shall be complied with Rule Pt.6 Ch.1 Sec.2 201.2. (5).
- 4) The product shall not be installed in the bridge or on open decks.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual product certification is not required.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition (IACS UR E10 Rev.8 basis)

Test	Condition	Remark
EMC	All locations excluding the bridge and deck zone	a)
Temperature	+5 ~ +55°C	-
Vibration	Acceleration 1.0g	-
Ingress protection	IP67	-

a) Radiated emission test was conducted up to 2 GHz as the manufacturer declared that the maximum internal frequency of the product is 8 MHz.

< End of Certificate >