DNV·GL

Certificate No:
MRA000001H

EU RO MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

This Certificate is issued to
JUMO GmbH & Co. KG
Fulda Hessen, Germany

for
Sensors

with type designation(s)
RTD Type 902050

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Sensors

Intended service
Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.
Sensors intended for a wide range of process and electrical connections

This Certificate is valid until **2022-12-07**.

Issued at **Høvik** on **2017-12-08**
DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Marco Rinkel**

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

RTD temperature probe

Operating temperature range:	Socket:	-40°C ... +125°C
	Cable:	-40°C ... +125°C
	Protection tube:	-40°C ... +150°C
Responce time:	Water 0.4m/s t0.5 < 2.1s, t0.9 < 3.9s	
Measuring resistance:	1x Pt1000 DIN EN 60751 Kl.B	
Cable :	Radox MFH-S B	
Plug :	TE Serie FDBA 73H 12-03 PN-K	
Protection tube:	Stainless steel 1.4571	

Manufactured by

Jumo GmbH & Co. KG, Germany, Fulda

Application/Limitation

The Type Approval covers hardware listed under type designation.

1. Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organizations
2. Not applicable for a mobile offshore drilling unit(MODU)
3. Not applicable for a fishing vessel

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to class requirements and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Marking of product

The products to be marked with:
- Manufacturer name
- Model name
- Serial no.

Other Conditions

The sensors have been verified for compliance with EU Mutual Recognition Technical Requirements version 0.3, dated 2016-10-01.

Environmental test parameters		DNV GL location classes
Temperature :	-40°C ~ +125°C	D
Vibration:	±1.6mm/4.0g	B
Humidity:	100%RH @ 55°C	B
EMC:	All locations including bridge and open deck	B *)
Enclosure:	IP69 (according to IEC 60529)	B

*) Due to the nature of the equipment (passive resistors) EMC testing has not been performed.

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 annually and at renewal of this certificate.

END OF CERTIFICATE