

# Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>NORIS Automation GmbH</b>
<b>Address</b>	Friedrich-Barnewitz-Strasse 10, Rostock, 18109, Germany
<b>Type</b>	Transmitters/Transducers
<b>Description</b>	Measurement Transducer for Converting Potentiometer Signal into Electrical Norm Signals/ R-U-I Converter
<b>Trade Name</b>	SA502-3G
<b>Application</b>	Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2002.
<b>Specified Standard</b>	Manufacturer's specification
<b>Ratings</b>	Power Supply: $U_{Nom} = 24 \text{ VDC}, 18 \dots 32 \text{ VDC}$ , galvanic isolated Input: Potentiometer ( $R = 2 \dots 10 \text{ k}\Omega$ ; max. $\pm 10\%$ ) Digital Outputs: 1x Relay (wire break indication) Analogue Outputs: 1x 0...10 VDC, 1x 0...20 mA, galvanic isolated from power supply

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<b>Additional Tests</b>	Low temperature test: -25°C/ 16 hours Mechanical shock test: half sine, 15g, 11ms Number of load planes: 6 ( $\pm X$ , $\pm Y$ and $\pm Z$ ) Number of shocks per load plane: 3 (in total 18)
<b>Other Conditions</b>	Final functional arrangements are to comply with appropriate Lloyd's Register Rules and will be subject of the Plan Approval process, if applicable. Equipment has to comply with IACS E10 Rev.7 when intended to be installed on ships contracted for construction on or after 1 January 2022.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** 12/20013 (E1)

The Design Appraisal Document HTS/ETS 40941-21/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.