



TYPE APPROVAL CERTIFICATE

Certificate No. : HMB27973-AE004 **Initial Approval** : 8th August, 2018
Product : Rotary position sensor
Manufacturer : NORIS Automation GmbH
Friedrich-Barnewitz Strasse 10, D-18119 Rostock, Germany

Product Description : Rotary position sensor with ohmic signal output or voltage output
- Model : DWA, DWA-Q

" See Appendix 1 "

Approval Condition : " See Appendix 2 "

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 and entered in the "List of Approved Manufacturers and Type Approved Equipment".

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

This Certificate is valid until 7th August, 2023

Issued at Busan, Korea on 8th August, 2018



KOREAN REGISTER OF SHIPPING

Jung Eun Kim

*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.*

Appendix 1

Product Description and/or Approval Condition

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A. Product Description

1. Product Specification

- 1) Model : DWA
 - Design Code : DWA-xxx-y-zz
 - a) xxx : Rotation Angle : 50°, 70°, 90°, 180°, 240°, 320°, 360° (-U2 and -I2 Only), or customised
 - b) y : 1 - Diameter 80mm with terminals and 40mm connector pin
y : 2 - Diameter 60mm with cable and 30mm connector pin
 - c) zz : If not marked : Type -R with Dual Potentionmeter 2k0hm
zz : U2 : 2 x 2-10VDC Voltage Outputs
zz : I2 : 1 x 4-20mA Current Output
- 2) Model : DWA-Q
 - Design Code : DWA-xxx-yy-zz
 - a) xxx : Rotation Angle : 50°, 70°, 90°, 180°, 240°, 320° or customised
 - b) y : Q1 - 62x62x115mm Design with terminals and 40mm connector pin
y : Q2 - 62x62x66mm Design with cable and 30mm connector pin
 - c) zz : R1 : Dual Potentionmeter 2k0hm
zz : U2 : 2 x 2-10VDC Voltage Outputs, Crossed Characteristic Curves

2. Approved Drawings and documents

- 1) Approved Drawings for DWA
 - Datasheet DB-DWA-EN V01.03 dated 2016-06-15
 - Rotary Position Sensor (DWAxx-1) : 43.100.010 dated 2015-10-21
 - Rotary Position Sensor (DWAxx-2) : 43.100.020 dated 2015-10-21
- 2) Approved Drawings for DWA-Q
 - Datasheet DB-DWA-Q-EN V01.01 dated 2017-12-15
 - Rotary Position Sensor (DWA70-Q1-U2) : 092.002.03.101.A
 - Rotary Position Sensor (DWA70-Q2-R1) : 092.002.03.102.A

3. Test Reports, etc.

- 1) Test Reports for DWA
 - No. KE1151 Rev.01 dated 2016-03-08
 - No. ECL-EMC-TR-16-133 Rev.01 dated 2016-06-10
 - No. ECL-ENV-16-009 Rev.01 dated 2016-05-23
 - No. ECL-ENV-16-010 Rev.02 dated 2016-04-27
 - No. IT16-001 Rev.01 dated 2016-02-18
 - No. IP06-001 dated 2016-07-26
 - No. 4393 dated 2011-04-06
- 2) Test Reports for DWA-Q
 - No. NAR-PB-0116-1-en Rev.1.01 dated 2018-06-27
 - No. 346-17 Rev.01 dated 2018-06-25
 - No. 237-17 Rev.01 dated 2017-11-20

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.

< To be continued >

Appendix 2

Product Description and/or Approval Condition

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- 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.

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

Test	Condition	Remark
EMC	All locations including the bridge and deck zone	-
Temperature	-25 ~ +70°C	-
Vibration	Acceleration $\pm 4.0g$	-
Degree of protection	IP66 IP68	DWA DWA-Q
Salt mist	Applied	-

< The End >

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