



CERTIFICATE NUMBER	22-2324847-PDA
EFFECTIVE DATE	02-Dec-2022
EXPIRY DATE	01-Dec-2027
ABS TECHNICAL OFFICE	Hamburg Engineering Department

## CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

### **NORIS AUTOMATION GMBH**

located at

**MUGGENHOFER STRASSE 95, , D-90429 NUERNBERG, Germany**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

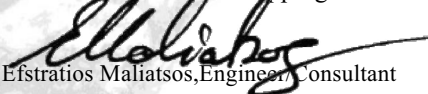
**Product:** Speed Sensor  
**Model:** FAJ1x, FAH1x, FAR1x, FARW1x, FAHx1x  
**Endorsements:**  
**Tier:** 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 01/Dec/2027 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

  
Efstratios Maliatsos, Engineer, Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

## NORIS AUTOMATION GMBH

MUGGENHOFER STRASSE 95

D-90429 NUERNBERG

Germany

Telephone: +49 911 3201-0

Fax: +49 911 3201-150

Email: QM@noris-group.com

Web: www.noris-group.com

**Tier: 2 - PDA Issued**

---

**Product:** Speed Sensor

**Model:** FAJ1x, FAH1x, FAR1x, FARW1x, FAHx1x

**Endorsements:**

### Intended Service:

Sensing device used to detect the speed of rotating/moving mechanical components.

### Description:

FAJ1x - ... Inductive system

FAH1x - ... Differential-Hall system

FAR1x - ... Quick inductive system

FARW1x - ... Quick inductive system with +/- output

FAHZ1x-... Differential-Hall system with 2 output signals

FAHD1x-... Differential-Hall system with 2 output signals, isolated

FAHQ1x-... Differential-Hall system with 4 output signals

FAHS1x-... Differential-Hall system with 2 output signals, status

### Type Code:

FA \_\_ 1(1) -(2)(2) (3)(3) - (4)(4)

(1) = special body design,

(2) = body length,

(3) = screw thread,

(4) = connector (cable)

### Rating:

Ambient temperature: -40°C ... 105°C

Degree of protection: IP67 ... IP69K

Power supply  $U_v$ : 24V/DC (Range 8 ... 32V/DC), Current 4 mA ... 15 mA,

Input: moving ferromagnetic material, minimum sizes: toothed gear module 2 (spur gear acc. DIN 867), hole Ø5mm / web 2mm, groove 4 mm/web 2mm and depth 4mm, ,

Distance: 0.2mm ... 3.0mm (recommended 1.5),

Frequency range: < 5Hz... 10kHz for Models FAJ... ; FAR... ; FARW...

and < 0.2Hz ... 20kHz for Model FAH...,

Output signal: square wave frequency signal, 50mA (sink), 20mA (load), short circuit protected,

Output levels: approximately  $U_v$  for Models FAJ..., FAH ...; FAR... and approximately +/- 0.5  $U_v$  for Model FARW...

### Service Restriction:

Unit certification is not required for this product. If you or your purchaser requests an ABS Certificate for compliance with a specification of standard; the specification or standard, including inspection standards and tolerances, you must clearly define the conformity criteria.

### Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

### Notes/Drawing/Documentation:

Drawing No. 1, Data Sheet FA11, Revision: 03

Drawing No. 10, Drawing 42.213.411.011.1 (FAHS13-0915-X07), Revision: -

Drawing No. 11, Drawing 42.211.211.010.1 (FAHD11-0223-X07), Revision: -

Drawing No. 12, Drawing 42.312.312.303.1 (FARW12-0415-XH03C), Revision: a

Drawing No. 13, Drawing 42.812.051.001.1 (FARW12-P5-001), Revision: a

**NORIS AUTOMATION GMBH**

MUGGENHOFER STRASSE 95

D-90429 NUERNBERG

Germany

Telephone: +49 911 3201-0

Fax: +49 911 3201-150

Email: QM@noris-group.com

Web: www.noris-group.com

**Tier: 2 - PDA Issued**

---

Drawing No. 2, Data Sheet FA12, Revision: 03

Drawing No. 3, Data Sheet FA13, Revision: 02

Drawing No. 4, Overview Test Plan, Revision: 01

Drawing No. 5, ECL-ENC Test Report No.: 17-067, BV (ECL), 09/10/2017, Revision: 01

Drawing No. 6, ECL-ENC Test Report No.: 17-066, BV (ECL), 12/09/2017, Revision: 01

Drawing No. 7, ECL-EMC Test Report No.: 17-181, BV (ECL) 09/10/2017, Revision: 01

Drawing No. 8, Drawing 42.113.121.003.1 (FAJ13-0523-A), Revision: -

Drawing No. 9, Drawing 42.113.251.005.1 (FAH13-0215-H1), Revision: -

----- Reval. 2022-----

Drawing No. 2022-0407-EMC-TR-22-0208-V01\_Noris\_Ergaenzungspruefung\_Dehtzalsensoren\_CE, EMC Test report (6GHz), Bureau Veritas Nuernberg,, dated 2022-10-17, Revision: 01

**Terms of Validity:**

This Product Design Assessment (PDA) Certificate remains valid until 01/Dec/2027 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

**STANDARDS**

**ABS Rules:**

2022 Marine Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.11, 4-8-3, 1.17.1, 4-9-9/13.1

**National:**

NA

**International:**

NA

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA