

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.

Manufacturer	NORIS Automation GmbH
Address	Muggenhofer Strasse 95, Nuernberg, 90429, Germany
Type	Control Systems - Speed And S.H.P.S
Description	Non-contacting speed pick-up sensors refer to the Appendix for details
Trade Name	FAH, FAJ, FAR, FARW, FAHZ, FAHD, FAHQ, FAHS
Application	Marine applications for use in environmental categories ENV 1, ENV 2, ENV 3 and ENV 4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – July 2015.
Specified Standard	Manufacturer's specification
Ratings	refer to the Appendix for details

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.

The Design Appraisal Document No. HTS/ETS 39535-20/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

TYPES

FA①②-③④-⑤

①: Measuring principle:

- H one channel differential-Hall system
- J one channel inductive system
- R one channel quick inductive system
- RW one channel quick inductive system with +/- output
- HZ two channel differential-Hall system, Q2 to Q1 is 90° phase shifted
- HD two channel differential-Hall system, galvanically isolated
- HQ two channel differential-Hall system, 4 outputs (Q1/2_N is inverted to Q1/2)
- HS two channel differential-Hall system, Q2 to Q1 is 90° phase shifted, Q3 status signal

②: Special body design:

- 11 Sensor tube: Brass
- 12 Sensor tube: Stainless steel with LED
- 13 Sensor tube: Stainless steel

③: Nominal length of the sensor (60mm to 200mm)

xx (two numbers)

④: Thread type:

xx (two numbers)

⑤: Cable connector type:

- A DIN 43650-A Pin connector
- C MIL 14-5PN VG95234 pin connector
- E Euro M12x1 pin connector
- H DIN 72585 Bajonett
- X Cable up to 10m length

RATINGS

Power supply: 24VDC

Measuring principle	Measuring Range	Output signal	Output amplifier	Output current
H	< 0.2Hz - 20kHz	Rectangular pulse	Push-pull output	Sink (NPN) max. 50mA Source (PNP) max. 20mA
J	<5Hz - 10kHz	Rectangular pulse	Push-pull output	Sink (NPN) max. 50mA Source (PNP) max. 20mA
R	<1Hz - 10kHz	Rectangular pulse	Push-pull output	Sink (NPN) max. 50mA Source (PNP) max. 20mA
RW	<1Hz - 10kHz	Rectangular pulse	Push-pull output	Sink (NPN) max. 50mA Source (PNP) max. 20mA
HZ	0.2Hz - 20kHz			NPN (Sink): Per output: max. -50 mA PNP (Load): Per output: max. 50 mA
HD	0.2Hz - 20kHz			NPN (Sink): Per output: max. -50 mA PNP (Load): Per output: max. 50 mA
HQ	0.2Hz - 20kHz			NPN (Sink): Per output: max. -50 mA PNP (Load) Per output: max. 50 mA
HS	0.2Hz - 20kHz			NPN (Sink): Per output: max. -50 mA PNP (Load): Per output: max. 50 mA