

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 sensor with HALL principle
Trade Name	FA54
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 as defined in Lloyd's Register Type Approval System, Test Specification Number 1 - March 2019.
Specified Standard	Manufacturer's specification IACS unified requirements E10 (Rev.7 Oct 2018)
Ratings	Measuring principle: Hall principle Nominal Voltage: 24 VDC Frequency range: 0 ... 20000Hz Type FAH54 Measuring channel: 1 Output signal: 1 square wave signal Type FAHZ54 Measuring channel: 2 (90° phase shifted)

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Output signal:	2 square wave signals
Type FAHS54	
Measuring channel:	2 (90° phase shifted)
Outputs:	1 rotation direction signal ; 1 SP "standstill"
Output signal:	2 square wave signals and 2 binary signals
Type FAHD54	
Measuring channel:	2 (90° phase shifted), galvanically isolated
Output signal:	2 square wave signals
Type FAHQ54	
Measuring channel:	2 (90° phase shifted) with 2 inverted signals
Output signal:	4 square wave signals
Type FAHY54	
Measuring channel:	1 with 1 inverted signal
Output signal:	2 square wave signal

Additional Tests Low temperature (-25°C/16h)

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 40452-20/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.