DNV·GL

Certificate No:
TAA0000110

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Remote Control System Steering Gear

with type designation(s)
NAUTOSTEER Advanced Steering Gear Control AS

Issued to
Raytheon Anschütz GmbH
Kiel, Germany

is found to comply with
IEC 60945 Ed. 4 (2002-08) Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results

Application :

Product(s) approved by this certificate fulfill(s) minimum performance requirements for electronic shipborne navigational aids and all other bridge-mounted equipment as given in IMO Resolution A.694(17).

Issued at **Hamburg** on **2017-01-20**
This Certificate is valid until **2019-01-19**.
DNV GL local station: **Hamburg**

Approval Engineer: **Jörg Rebel**

for **DNV GL**

Duy Nam Le
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Examination Certificate and not to the approval of equipment/systems installed.

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Job Id: 262.1-023428-1
Certificate No: **TAA0000110**

Product description

The CAN-Bus based steering gear control and alert system NAUTOSTEER AS may consist of the following equipment:

Type	*Description*	*Software*
Follow Up Handwheel AS		
105-400.NG001	35°, single CAN	105-400.P0001 E00.xx
105-400.NG002	35°, dual CAN	105-400.P0001 E00.xx
105-400.NG003	45°, single CAN	105-400.P0001 E00.xx
105-400.NG004	45°, dual CAN	105-400.P0001 E00.xx
105-400.NG005	35°, dual CAN	105-400.P0001 E00.xx
105-400.NG006	45°, dual CAN	105-400.P0001 E00.xx
105-400.SAxxx *		
Tiller Follow Up AS:		
105-307.NG001	35°, single CAN	105-307.P0001 E00.xx
105-307.NG002	35°, dual CAN	105-307.P0001 E00.xx
105-307.NG003	45°, single CAN	105-307.P0001 E00.xx
105-307.NG004	45°, dual CAN	105-307.P0001 E00.xx
105-307.NG005	35°, single CAN	105-307.P0001 E00.xx
105-307.NG006	45°, single CAN	105-307.P0001 E00.xx
105-307 SAxxx *		
Tiller Non Follow Up:		
105-107.NG010		
105-107.SAxxx *		
Tiller Non Follow Up AS:		
105 -308.NG001	single CAN	105-307.P0001 E00.xx
105 -308.NG002	dual CAN	105-307.P0001 E00.xx
105 -308.NG003	single CAN	105-307.P0001 E00.xx
105 -308.SAxxx *		
Rudder Mode Operator Unit AS:		
105 -311.NG001		105-313.P0001 E00.xx
105 -311.SAxxx *		
Override Signal Unit AS:		
105 -313.NG001	for bus tiller	105-313.P0001 E00.xx
105 -313.NG002	for tiller	105-313.P0001 E00.xx
105 -313.SAxxx *		
General Override Signal Unit AS:		
105-314.NG001	for bus tiller	105-313.P0001 E00.xx
105-314.NG002	for tiller	105-313.P0001 E00.xx
CAN Bus Distribution Unit AS:		
138 -128.NG001		138-128.P0001 E00.xx
Alarm Status Interface Unit AS:		
138 -130.NG001		138-130.P0001 E01.xx
Steering Mode Operator Unit AS:		
130-617.NG001		130-617 P0002 E00.xx
Alarm Signal Unit AS:		
135-111.NG001		130-617.P0001 E00.xx
135-111.NG002		130-617.P0002 E00.xx

Type	*Description*	*Software*
Main Steering Switch AS:		
124-190.NG001		
124-190.SAxxx *		
Main Steering Relay Module AS:		
148-624.NG001		
148-624.NG002		
Take Over Operator Unit AS:		
105-312.NG002		105-313.P0001 E00.xx
CAN-Repeater:		
138-137.NG001		
Relays:		
NB60-363		
NB60-364		
Gateway AS:		
138-129.NG001		138-129.P0001 E00.xx
Amplifier Proportional AS:		
139-159.NG001		139-159.P0001 E00.xx
139-159.NG002		139-159.P0001 E00.xx
139-159.NG003		139-159.P0001 E00.xx
Alarm Status Manager AS:		
138-131.NG001		138-131.P0001 E00.xx
Rudder Feedback Unit AS:		
101-532.NG001	single analog	
101-532.NG002	single CAN	101-532.P0001 E01.xx
101-532.NG003	dual CAN	101-532.P0001 E01.xx
101-532.NG004	dual analog	
101-532.SAxxx *		
External Steering Interface AS:		
138-134.NG001		138-134.P0001 E00.xx
Rudder Limit Unit AS:		
105-108.NG010		105-108.P0002 E00.xx
105-108.SAxxx *		
Feedback Signal Converter AS:		
101-533		
FU Amplifier AS:		
139-158.NG001		139-158.P0001 E02.xx
139-158.NG002		139-158.P0002 E02.xx
139-158.SAxxx *		
Dimming Interface AS:		
138-133.NG001		138-133.P0001 E01.xx
Course to Steer Indicator:		
130-625.NG001		130-617.P0003 E00.xx

* SAxxx are variants of the listed NGs and contain only minor modifications.

Documentation

Description	*Type*	*Document*
Override Signal Unit AS	105-313	4062.DOC010002
CANBUS Gateway AS	138-129	4071.DOC010302
Alarm Signal Unit AS	135-111	4076.DOC010002
CAN Bus Distribution Unit AS	138-128	3957.DOC010002
Tiller Follow Up AS	105-307	4060.DOC010002
Tiller Non Follow Up AS	105-308	4061.DOC010002
Rudder Mode Operator Unit AS	105-311	4064.DOC010002
Steering Mode Operator Unit AS	130-617	4080.DOC010002
Configuration Tool AS	NB42-232	3963.DOC030102
Rudder Feedback Unit AS	101-532	3928.DOC010002
Follow-Up Amplifier AS	139-158	3927.DOC010002
Alarm Status Manager AS	138-131	4073.DOC010302
Alarm Status Interface AS	138-130	4072.DOC010302
FU Handwheel AS	105-400	4054.DOC010002
Autopilot NP5000 series		
Operator Manual		4002.DOC010102
Service Manual		4002.DOC010302
External Steering Interface AS	138-134	4211.DOC010002
Take Over Operator Unit AS	105-312	4227.DOC010002
General Override Signal Unit AS	105-314	4228.DOC010002
FU Amplifier Proportional AS	139-159	
Operator Manual		4199.DOC010102
Service Manual		4199.DOC010302

Application/Limitation

The Type Examination covers hardware and software listed under Product description. No further application software is necessary for delivery of an application system.

138-134.NG001 may be used for integration of DP-/Joystick Systems only.

Type Examination documentation

Tests carried out

Applicable tests according to IEC 60945 (2002) including Corrigendum 1 (2008) and IACS UR E10 (2014).

Marking of product

- Components are marked with product name and product number as listed under Product description.
- Software version is displayed in the system graphical user interface and/or in the configuration tool NB42-232 (see Product description).
- Each project application configuration is documented in a dedicated version configuration file which is specific for each vessel.

Certificate Retention Survey

The scope of the retention survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type examination documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type examined documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type examination given
- Ensuring traceability between manufacturer's product type marking and the type examination certificate

Retention survey is to be performed at least at renewal of this certificate.

END OF CERTIFICATE