

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000023X
Revision No:
2

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Rudder angle indicator

with type designation(s)
HLD-RAIS100

Issued to

Jiangsu Highland Integration Technology Co.,Ltd.
Nantong, Jiangsu, China

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2022/1157,**

item No. MED/4.20. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)

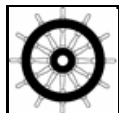
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2027-01-26**.

Issued at **Hamburg** on **2022-12-12**

DNV local unit:
Nantong

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

for DNV SE

Christine Mydlak-Roeder
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

The rudder angle indicator system HLD-RAIS100 consists of the following equipment necessary for functioning:

<i>Designation</i>	<i>Type designation</i>	<i>Software version</i>
Indicators:		
Rudder angle indicators, panel mounted	HLD-PRU100-72 or	V2.x
Rudder angle indicators, panel mounted	HLD-PRU100-96 or	V2.x
Rudder angle indicators, panel mounted	HLD-PRU100-144 or	V2.x
Rudder angle indicators, panel mounted	HLD-PRU100-192 or	V2.x
Rudder angle indicators, wall mounted	HLD-WRU100-144 or	V2.x
Rudder angle indicators, wall mounted	HLD-WRU100-192 or	V2.x
Three face rudder angle indicator unit	HLD-TRU100	V2.x

The rudder angle indicators are available for rudder angle up to 45 and 70 degree.

Degree of protection against foreign bodies and water: panel mounted IP22, wall mounted IP 56

And

Rudder angle transmission (feedback) unit	HLD-RTU100	V2.x
Connection and distribution unit	HLD-CDU100	V1.x
Failure indication unit	HLD-AD200	V1.x
Dimming unit	HLD-DMU100	

Interfaces:	CDU – PRU, WRU, TRU, VDR (for bridge)	7 x RS422 bus (cable length < 500 m) according to IEC 61162-1/-2 (configurable)
	CDU – DMU	1 x 1.5 - 6.5 V DC (for max. 3 x DMU)
	CDU – RTU	1 x CAN bus (cable length < 1000 m)
	RTU – PRU (for engine control room)	2 x RS422 bus (cable length < 500 m)

Power supply:	110/220 V AC (±10 %)
	24 V DC (emergency power)

Application/Limitation

- Installation according to manufacturer's instructions
- Interfaces used for connections on bridge to be installed acc. to IEC 61162-1/-2

Type Examination documentation

Test reports: A11-073-ZC, 2011-10-15; GL-11-2011-BH; DNV-01-22-HLD-RAIS100, 2022-01-27.

Documentation: Installation Manual HLD1000AZ, V2.0, 2022-01-25;
 Operation Manual HLD1000SS2, V2.0, 2022-01-24.

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Presentation testing: IEC 62288 (2021)
- Performance testing: ISO 20673 (2007)

Note: The rudder angle indicator system HLD-RAIS100 does not issue alerts, hence, testing according to IEC 62923-1/-2 is deemed as not being applicable.

Marking of product

According to IEC 60945, Sect.4.9:

The product to be marked with following information, where practicable:

- Identification of the manufacturer,
- Equipment type number or model identification under which it was type tested,
- Serial number of the unit,
- Compass safe distance.

Alternatively, the marking may be presented on a display at equipment start-up, and in case of fixed equipment compass safe distance may be given in the equipment manual.

END OF CERTIFICATE