

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00007UR
Revision No:
2

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

that the **Heading control system (HCS)**

with type designation(s)
Kongsberg Autopilot M100

issued to

Kongsberg Maritime AS
Kongsberg, Norway

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

Regulation (EU) 2023/1667,

**item No. MED/4.16. SOLAS 74 as amended, Regulations V/18 & V/19, IMO Res. A.342(IX), IMO Res. A.694(17),
IMO Res. MSC.191(79), IMO Res. MSC.64(67) Annex 3, IMO Res. MSC.302(87)**

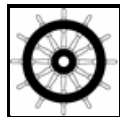
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2028-01-19**.

Issued at **Høvik** on **2024-07-17**

DNV local unit:
East & South Norway CMC

Approval Engineer:
Steinar Kristensen



Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
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), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005, and amended by Decision No 1/2023 dated August 21st, 2023.

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 AS 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

Kongsberg Autopilot M100 Heading Control System consists of the following components:

Unit	Description	Model name	Article no	Comments
Controller	Control unit with sensor and thruster/rudder interfaces	H6059 or H1170	000110313 477531	4 x RS422 in/out 1 x CAN interface
Operator Station	Operator Panel, 12" Panel PC	DR12 or PPC-120T-AL-0X	000124787 RRM000526735	Touch screen
	Heading Wheel (Multipurpose input device)	MPID	RRM000455093	
	Alarm and Buzzer panel (Buzzer, Silence and Ack. alert panel)	COP05ALC	RRM000464627	
Network Switch	Lynx Managed Ethernet switch with routing functionality	L210-F2G-RR-V2	RRM000376790	
	Lynx Managed Ethernet switch with routing functionality	L210-F2G-MM-RR-V2	RRM000376886	
Power Supply ¹⁾	AC/ DC power supply, 240W	Pro Top 1	RRM000471072	In: 230VAC Out: 24VDC
	DC/DC Power supply 240 W	Pro Top DC	RRM00468339	In: 24VDC Out: 24VDC
Interfaces units ¹⁾	B&R Terminal block	X20TB12	000108217	
	B&R Terminal block	X20TB2105	000108230	
	B&R Bus controller	X20BC0043-10	000108227	Steering mode selector interface
	B&R Bus controller power supply	X20PS9400	000108228	
	B&R Base module for bus controller	X20BB80	000108229	
	B&R Bus module	X20BM11	000108211	
	B&R Power feed, +/-10V	X20PS4951	000114704	Power feed +/-10V
	B&R Potential distributor	X20PD0012	000113192	
	B&R Digital interface unit	X20DI6371	000111443	24VDC, 6 inputs, 2-wire, sink
	B&R Digital Interface unit	X20DI9371	000110707	24VDC, 12 inputs, 1- wire
	B&R Analogue input	X20AI4632	000110702	4 inputs, +/- 10V, 0-20 mA
	B&R Analogue input	X20AI4632-1	000117804	4 inputs, +/- 11V, 0-22 mA
	B&R Relay module	X20DO4529	000110710	4 relay outputs, 4 change over contacts 115VAC, 0.5A
	B&R Relay module	X20DO6529	000113193	6 Relay outputs
	B&R Analogue output module	X20AO4622	000108226	4 outputs, +/-10V, 0-20 mA
	B&R Analogue and Digital I/O	X20CM8281	000110712	4 DI, 2 DO, 1 AI, 1 AO
	B&R Serial interface (sensor input)	X20CS1030	000110698	2 RS422 I/O
	B&R Pulse counter	X20DC2395	RRM000247245	2 channels
External NMEA COM Module	HT 00262 OPT-Ax USB	RRM000644018	4 x NMEA RS-422 / RS-485	

All units listed above are to be installed in a protected environment, i.e. indoor.

¹⁾ Actual configuration may vary based on requirements for individual installations. Only modules listed in certificate are approved for installation.

Versions (SW/FW)

- Control SW: 2.1.x
- HMI SW: 2.1.x

Application/Limitation

- The installation shall be accordance with manufacturers installation and operation manual.
- Kongsberg Autopilot M100 supports optional Course Control or Speed Control modes.

Tests carried out

- Performance testing: ISO 11674 (2019)
- Environmental testing: IEC 60945 (2002) incl. Corr.1 (2008)
- Presentation of information: IEC 62288 (2021)
- Serial interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)

Type Examination documentation

DNV No	Document ID	Rev.	Description
73	110-0070111	A	Manual: Kongsberg Maritime, Autopilot M100 Installation Manual
72	110-0070007	A	Manual: Kongsberg Maritime, Autopilot M100 Operator Manual
71	110-0070113	A	Manual: Kongsberg Maritime, Autopilot M100 Maintenance Manual
62	E21172.02	02	Report: Nemko, EMC and environmental test report for Panel Computer PPC-120T-AL-0X
61	463754-01r00	00	Report: Nemko, IEC 62288 (2021) test report for PPC-120T-AL-0X
57	MRA000002D	2	Certificate: DNV, EU RO MAR certificate for Hatteland Series E MMC Standard and ARM CPU, Series X MMC Compact computers incl. HT 00262 OPT-Ax USB ext. module
55	E21194.01	01	Report: Nemko, EMC and environmental test report for marine computer H1170 (KM art.no. 488531)
52	110-0019858	A	Report: Kongsberg Maritime, Autopilot M100 - Course mode tests and speed pilot demo
49	110-0010072	A	Report: Kongsberg Maritime, Test specification and report - Command control approval for Autopilot M100
46	480326	C	Report: Kongsberg Maritime, Autopilot TA Test Report HCS - Rev C
45	110-0008716	B	Report: Kongsberg Maritime, Autopilot BAM Test Report
44	110-0001359	C	Report: Kongsberg Maritime, Autopilot Interface tests report- HCS
26	E22111.00	00	Report: Nemko, EMC and environmental test report for Autopilot B&R Units, KM doc no. 110-0008433A
20	463754-02	00	Report: Nemko, Display performance test report for PPC-120T-BT-01
19	463754-01	00	Report: Nemko, Display performance test report for PPC-120T-AL-0X
15	TAA00000BJ	8	Certificate: DNV, TA certificate for B&R IO modules
12	IVR-433022-1	2021-06-21	Report: Nemko, IEC 61162-1 and -2 test report for H1151 Marine Controller for HCS and TCS
8	E15269.00	00	Report: Nemko, EMC and environmental test report for 8" and 12" Maritime Panel PC
7	TAA00002F2	6	Certificate: DNVGL, Type Approval Certificate for PRO TOP-series power supplies
6	E18116.00	00	Report: Nemko, EMC and environmental test report for Multi Purpose Input Device (MPID)
5	20216	1	Report: Applica, EMC and environmental test report for Marine Controller H1151 and Ethernet Breaker
4	REC-E702792	2011-04-08	Report: Delta, EMC and environmental test report for Lynx+
3	DANAK-198195	1	Report: Delta, EMC and environmental test report for KM Common Operator Panels

Marking of product

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to the product. In addition the product shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.