

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000008G
Revision No:
9

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)
K-Pos Heading Control System

Issued to
Kongsberg Maritime AS
Kongsberg, Norway

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

Regulation (EU) 2022/1157,

**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)**

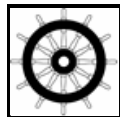
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-07-01**.

Issued at **Høvik** on **2023-07-17**

DNV local unit:
East & South Norway CMC

Approval Engineer:
Tommi Juhani Rifaat



Notified Body
No.: **0575**

for **DNV AS**

Sverre Olav Bergli
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 1/2019 dated February 22nd, 2019.



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

K-Pos Heading Control System consisting of the following components:

- Main processing unit (one of the following):
 - DPC Dynamic Positioning Controller with process unit(s) RCU602.
 - cC Compact Controller with process unit RCU602.
- Operating Station/Terminal (at least one of the following):
 - K-Pos OS Operator Station for K-Pos DP/DPM/PM (including built-in versions)
 - K-Thrust OS Operator Station as part of Thruster Control (including built-in versions)
 - K-Master Operator station for DP

TCP Computer	MC330 i3 LAN or MC340 i3 LAN
Application server for DP	MC330 i3 LAN or MC340 i3 LAN
Main Display Server(s)	MC330 i3 GPU or MC340 i3 GPU, incl USB 3.1-4xGb Ethernet or
Network units	Moxa Ethernet Switch EDS-316 or Moxa Switch EDS-308 Switch Cisco C1000
USB extender	Veinland USB Extender VL-66199-T/R Veinland VL-66298 USB 1x2.0-Extender via CAT
Power unit	Phoenix Contact QUINT-PS/1AC/24DC/10 Power Supply, PRO TOP1 24V 10A
Operator interface	Display 13.3" TCP or Display 15" FHD XT MK1, K-Master units (Heading Wheel, Joystick, Alarm Panel, I/O Controller), COP-05 Standalone Trackball
Main display	Display 27" HD 27T40 KMD-AA4-FAAx or Display 27" FHD ECDIS S MK4 or Display 27" FHD ECDIS KM05 MK4 or Display 27" FHD ECDIS G MK2 or Display 32" FHD ECDIS G MK1 or Display 55" UHD ECDIS G MK1
Additional display (option)	MD24 16:9 ECDIS Glass

- cJoy OT Operator Terminal for cJoy MK3 or cJoy MK4
- cJoy DP-OT Remote DP Operator cJoy MK3 or cJoy MK4 Terminal (additional operating terminal)

Note: For details regarding approved HW see HW list, DNV ID 10553

- Software versions:
 - DP basis release 8.4, update 8 onwards
 - K-Master release 2.1, update 9 onwards

Applications/Limitations

- The Operating system is MS Windows 10.
- The equipment is tested according to requirements for environmental category “protected” as defined in IEC 60945.
- MC330 or MC340 with MS Windows 10 are to be used with DP basis 8.4.x.
- The K-Pos Heading Control System are to be installed according to manufacturer’s installation manuals.
- This certification is limited to Autopilot - Heading mode.

Type Examination documentation

DNV No	Document No.	Rev	Title
10556	110-0044149	A	Report: KM Test Report HCS Compliance Tests cJoy Mk4
10555	110-0041444	A	Drawing: Independent Joystick System - IJS - topology
10554	110-0041441	A	Drawing: K-Pos DP-2 system Topology
10553	448540	F	Hardware List: K-Pos system
10552	110-0019172	A	Manual: KM cJoy Operator Terminal MK4 Installation manual
10551	110-0013799	A	Manual: KM cJoy Operator Terminal MK4 Hardware module description
10550	427893	G	Manual: KM K-Master Operator manual
10549	TAA00002F2	Revision 6	Certificate: IEC 60945 PRO TOP1, PRO TOP3, PRO TOPDC power supplies
10548	22-17667 / 110-0043600A		Report: IEC 60945 VL-66298 /VL-66299 USB CAT extender
10547	110-0024927	A	Report: CAL-TECH IEC 60945, HD27T40 KMD-AA4-FABP-ES
10546	110-0024927/A		Report: Hatteland IEC62288 - Monitor 27" HD 27T40 KMD-AA4-FABP
10545	489200	A	Report: NEMKO IEC 60945, Network Switch HN C1000-24T-4G-L and HN C1000-24T-4X-L
10544	481546	A	Reports: EKTOS IEC 60945, DuraMON 101 SL, DuraMON 156 SL, Exteral Power Supply
10543	110-0037824	A	Report: MS TESTING IEC 60945, Moxa managed ethernet switch IKS-6728A-4GTXSFP-HV-HV-T with IM-6700A-8SFP, IKS-6728A-4GTXSFP-24-24-T with IM-6700A-8SFP, IKS-6728A-4GTXSFP-48-48-T with IM-6700A-8SFP
10542	110-0038633	A	Report: LABTEST IEC 600945, Thinkstation P360 Tiny
10534	453100	A	Manual: KM Printer OKI ML 280 ECO 230VAC Instruction manual
10528	489198	B	Manual: KM Switch Cisco C1000 INM - Instruction manual Part no. 69125 and 100-0001617
10523	178001	E	Manual: KM Moxa Switch EDS-308 Series Hardware module description. Part no. 702485, 02631, 703659 and 436806
10522	489196	B	Manual: KM Switch Cisco C1000 Hardware Module Description part no. 69125 and 100-0001617
10520	477363	B	Manual: KM 555 OS Built-in MK4 Maintenance manual

DNV No	Document No.	Rev	Title
10519	467344	B	Manual: KM 555 OS Desktop MK4 Installation manual
10515	467343	A	Manual: KM Power distribution, OS Desktop Maintenance manual
10514	450347	A	Manual: KM cJoy Operator Terminal MK4 Maintenance manual
10511	110-0035093	A	Manual: Veinland VL-66298 USB 1x2.0-Extender via CAT Instruction Manual
10510	450173	C	Manual: Display 24"/27"/32"/55" KM inch ECDIS - Maintenance manual
10509	110-044149	A	Manual: Display 15 inch XT MK1 instruction Manual
10508	110-0013084	A	Manual: Hatteland, FHD XT MK1 (itemTBD) - Instruction manual HD 27T40 KMD-AA4-FAAx - 27.0 inch Common Display
10495	110-0037584	A	Description: KM, Update Notes DP 8.4.8
10494	110-0002960	A	Description: KM, Update Notes K-Master 2.1.9
10493	482684	D	Report: KM, TA BAM compliance tests K-Pos Autopilot (HCS)
10488	REP006135	2023-05-15	Report: NEKMO, IEC/EN 60945:2002 + Cor1:2008, cJoy Operator Terminal Mk4
10486	110-0036301	A	Operator Manual: IJS Operator manual
10478	464011	A	Installation manual: 555 OS Built-in MK4
10477	399515	B	Installation manual: cJoy Operator Terminal MK3
10476	400361	B	Installation manual: cJoy Operator Terminal Junction Box
10475	486666	B	Installation manual: cWing Mk3
10474	177957	D	Installation manual: cWing Junction Box for Wing Terminal
10473	475356	B	Installation manual: cC-1 Controller
10472	302188	H	Installation manual: DPC-1 and DPC-2 Cabinets
10471	302196	H	Installation manual: DPC-3 Cabinet
10470	TAE00003WA		Certificate: DNVGL, TA certicate for enclosure
10469	300966	F	Interface Manual: K-Pos Serial lines, Interface specification
10468	300970	B	Interface Manual: Standard RIO200, Loop Typicals
10467	300968	C	Interface Manual: RIO200 Based Systems, Interface Requirements
10462	496227	01	Report: NEMKO, Environmental test RHUB200-5 Rev.1 and RMC-ST. Report No. E22067.01
10459	481740	A	Report: MEERL, Environmental test of ThinkStation P340 Tiny
10457	TAA000030X	1	Certificate: DNV, TAA000030X Rev.1, QUINT-PS Series, AC/DC, DC/DC converters, MINI-PS DC/DC
10456	479386	B	Maintenance Manual: MC340 Computer [ThinkStation P340 Tiny]
10455	481031	A	Manual: MC340 System Config Manual
10446	482733	A	Report: Nemko, RHUB200-5 rev 2. Report No E21059.02
10443	475430	A	Maintenance Manual: cC-1 Controller
10440	462729	A	Maintenance Manual: KM, K-Master Server Cabinet MK2 (using MC330)
10440	462729	B	Maintenance Manual: KM, K-Master Server Cabinet MK2 (using MC340)
10435	459234	B	Manual: MC330 System Config Manual
10432	MRA000002D	2	Certificate: DNV, MRA certificate for Hatteland Series E MMC Standard and Compact computers, KM Doc. No. 463254/C

DNV No	Document No.	Rev	Title
10424	E20096.02	02	Report: Nemko, IEC 60945 and IACS E10 test report for USB-232-IND-HF and USB-422-IND-HF Computer Adapters, KM Doc. No 464983/C
10420	450174	B	Maintenance Manual: KM, MC330 Computer [ThinkStation P330 Tiny]
10419	TAA00002R1		Certificate: DNVGL, TA certificate for Cisco 892FSP
10418	TAA00002ME		Certificate: DNVGL, TA certificate for Cisco 891-24X
10417	TAA00000BM	5	Certificate: DNV, TA certificate for TRIO-PS-2G Series DC Power supply. KM Doc. No. 452545/B
10408	S327A(1)(2)(3)(4)(5)-2020	2020-06-16	Report: CSIC, Power supply (Excessive/Extreme/Short term variations) tests for ThinkStation P330 Tiny
10405	E17254.00	00	Report: Nemko, EMC emission tests for KM18, KM Doc. No 428578/A
10402	TAA000006N	4	Certificate: DNV, TA certificate for Moxa Ethernet Switches and video servers, KM Doc No. 427138/F
10396	436095	G	Operator Manual: KM, K-Pos DPM (Release 8.4)
10395	435576	A	Description: KM, Release Notes DP Basis (8.4)
10394	MRA000000H	5	Certificate: DNV, MRA certificate for DuraMON 19/24/26/27/32 GLASS, KM Doc. No. 429106/E
10393	MRA000001B	1	Certificate: DNV, MRA certificate for DuraMON 55 GLASS, KM Doc. No. 426136/B
10388	TAA0000043	1	Certificate: DNVGL, TA certificate for Moxa IKS-6700A Series Ethernet Switches, KM Doc. No. 439028/B
10386	436101	B	Operator Manual: KM, K-Pos Autopilot Mode (Release 8.4)
10385	436099	E	Operator Manual: KM, cJoy OT (Release 8.4)
10384	436098	E	Operator Manual: KM, cJoy DP-OT (Release 8.4)
10373	427893	G	Operator Manual: KM, K-Master (Release 2.1)
10364	MRA000000S	3	Certificate: DNV, MRA certificate for ISIC Monitors, KM Doc. No. 421626/C
10360	423726	C	Maintenance Manual: KM, K-Master FWD Bridge Workstation MK2, Built-in
10360	423726	D	Maintenance Manual: KM, K-Master FWD Bridge Workstation MK2, Built-in
10359	423725	A	Maintenance Manual: KM, K-Master Workstation MK2
10344	TAA000006K	3	Certificate: DNVGL, TA certificate for Moxa EtherDevice(TM) Switches
10343	TAA000021N	1	Certificate: DNVGL, TA certificate for Moxa Ethernet Switches, KM Doc No. 355982/E
10336	416665	A	Report: KM, MOXA NPort 5232-T (related to IEC 61162-1)
10335	416664	A	Report: KM, BAM interface (SW, BAM interface support)
10323	408744	A	Description: KM, Release Notes K-Master Basis (2.1)
10317	E15165.01	01	Report: Nemko, EMC and environmental testing of RCU602 & RMC-ST, KM Doc. No. 383971/B
10316	TAA000006T	4	Certificate: DNV, TA certificate for MOXA NPort 5232-T. KM Doc. No. 415730/D
10311	408644	C	Hardware Module Description: KM, RCU602
10276	100984-1	18	Statement: Hatteland, IEC 60945 compliance for K-Master 13,3" and 8" TCP's, KM Doc no 368641/D
10275	300967	H	Interface Manual: KM, K-Pos
10264	3000-14-018241	2015-03-23	Report: TI, Environmental test report of cJoy OT MK3 WIN7, KM Doc. No. 401595/A

DNV No	Document No.	Rev	Title
10259	350434	B	Product Description: KM, Kongsberg K-Master Work Station
10243	DANAK-1910979	2010-07-13	Report: DELTA, EMC and environmental test report for COP-05 Input Panel
10239	391978	B_FTR	Report: KM, K-Pos HCS with K-Master Chair/Workstation, Test Report
10238	391976	B_FTR	Report: KM, K-Master FWD Bridge Fallback Modes and Effects, Test Report
10235	394658	A	Statement: KM, K-Master joystick test statement (K-Master 1 and 3 button joystick)
10234	391778	A	Statement: KM, K-Master console test statement (KMX FWD Centre Console)
10233	391995	B	Statement: KM, K-Master Pilot Chair test statement (K-Master Pilot Chairs)
10228	349793	D	Hardware Module Description: KM, K-Master Touch Control Panel 13.3" HD 13T21 KMD-DR1-CORx
10227	348032	C	Hardware Module Description: KM, K-Master DP Joystick
10226	348031	A	Hardware Module Description: KM, K-Master DP and IJS Joystick
10225	348029	C	Hardware Module Description: KM, K-Master I/O Controller
10224	348024	A	Hardware Module Description: KM, K-Master Heading Wheel
10223	348019	B	Hardware Module Description: KM, K-Master Alarm Panel
10222	391204	A	Hardware Module Description: KM, USB Extender VL-66199-T/R
10218	387155	C	Maintenance Manual: KM, K-Master Pilot Chair
10216	368822	B	Statement: KM, K-Master Workstation, Vibration Test Statement
10211	E11024.03	03	Report: Nemko, EMC and environmental test report for K-Master Panel System, KM Doc. No 357261/B
10209	E12059.00	00	Report: Nemko no. E12059.00 (K-Master Bridge Chair), KM Doc. No 370398/A
10208	2011-3416	01	Report: DNV, EMC and environmental test report of HD13T21 KMD-DR1-CORP, KM Doc. No 368647/A
10204	TAA00000M0	3	Certificate: DNVGL, TA certificate for Veinland USB extender via CAT Type VL66199-T/R
10196	3010-09-0221	2010-01-21	Report: TI, Vibration test of K-Master Chair, KM Doc. No 368683/A
10154	3000-14-016067	2014-03-12	Report: TI, Environmental test report for KMX Pedestall 300, KM Doc. No. 391796/A
10153	3000-14-016343	2014-03-20	Report: TI, Environmental tes report for KMX Medium-800 Console, KM Doc. No. 391795/A
10152	3000-14-015548	2014-03-12	Report: TI, Environmental test report for K-Master Pilot Chair, KM Doc. No. 391780/A
10088	302152	E	Drawing: KM, General Arrangement DPC-3 Cabinet
10081	177332	F	Product Description: KM, Kongsberg cJoy and cPos, Compact Joystick and DP Control Systems
10058	9501 029 033XX 001	2006-11-22	Report: Thales, Environmental test report for Joystick KC 06
10054	DANAK-198637	2007-01-30	Report: DELTA, IP22 test report for KM-05
10053	DANAK-198307	1	Report: DELTA, Vibration and IP testing of DPC-3 cabinet

DNV No	Document No.	Rev	Title
10051	DANAK-198508	2006-10-17	Report: DELTA, EMC and environmental testing of RCU501, RSER200-4, RHUB200-5 and RMP200-8
10050	DANAK-198195	1	Report: DELTA, EMC and environmental testing of COP-05
10046	DANAK-198632	2007-01-26	Report: DELTA, EMC and environmental test report for CAN2DP converter, KM Doc. No. 309493/A
10045	DANAK-198577	2006-12-04	Report: DELTA, Vibration test report for KM-05 DL, MP7600, rubber isolators. KM Doc. No 308039/A
10043	DANAK-198575	2006-12-04	Report: DELTA, Vibration test report for KM-05 DL, MP7600, wire-isolators, KM Doc. No 307741/A
10042	302199	E	Drawing: KM, General Arrangement DPC-1 / 2 Cabinet
10041	301093	B	Product Description: KM, Kongsberg K-Pos DP, Dynamic Positioning System
10032	174026	D_FTR	Report: KM, DP Autopilot, I/O Test report
10030	171557	H_FTR	Report: KM, Functional Test Report, DP Autopilot
10027	69187	2006-08-31	Report: Nemko, IP22 test of COP-05 units: ALC, BU-NAV, Utility
10026	41813	1.0	Report: Nemko, Radiated and conducted immunity tests for test cWing, cJoy, cPos
10024	3010-05-0121	2005-04-13	Report: TI, Environmental Verification Test, Additional test cWing, cJoy, cPos
10023	2006-3460	01	Report: DNV, IP22 test of COP-05 unit: Input Panel with Tracker Ball
10022	2006-3459	01	Report: DNV, IP22 test of COP-05 unit Heading Wheel
10020	2005-3115	01	Report: DNV, Compass Safe Distance test of Joystick and DP Equipment
10018	310-04-0125	A	Report: TI, Environmental Verification Test, cWing and cJoy

Tests carried out

- Performance testing: ISO 11674 (2019)
- Environmental testing: IEC 60945 (2002) Inc. Corr.1(2008)
- Serial interface testing: IEC 61162-1 (2016)
- Presentation of navigation information: IEC 62288 (2014)
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)

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.