



Certificate no.:  
**TAA00003DB**

# TYPE APPROVAL CERTIFICATE

**This is to certify:**  
**that the Hardware Platform**

with type designation(s)  
**Kongsberg K-Pos - Hardware Platform**

issued to  
**Kongsberg Maritime AS**  
**Kongsberg, Norway**

is found to comply with  
**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application:

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

**Location classes are listed in the certificate.**

Issued at **Høvik** on **2024-05-29**

for **DNV**

This Certificate is valid until **2026-05-28**.

DNV local unit: **Sandefjord**

Approval Engineer: **Martin Skårerverket**

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 Approval Certificate and not to the approval of equipment/systems installed.

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

This Type Approval covers hardware components for the Kongsberg Maritime K-Pos system comprising of the modules listed below. (see individual system certificate for information on required configurations)

Location classes in the table below are denoted in the following sequence:

Temperature / Humidity / Vibration / EMC / Enclosure class

Where temperature is denoted as “\*\*”, then the module is tested to low temperature -15°C.

Where enclosure class is denoted as “\*\*\*”, required enclosure protection according to the rules to be provided upon installation onboard

| Module type                       | Product Description               | Product No.           | Location Classes | Compass Safe Distance | DNV reference      |                    |
|-----------------------------------|-----------------------------------|-----------------------|------------------|-----------------------|--------------------|--------------------|
| <b>Operating Station/Terminal</b> | cJoy Operator Terminal, Mk4       | 110-0010765           | B/B/A/B/A        | 500 mm                | DNV No. 12, 4      |                    |
|                                   | cWing Mk3 Built-in                | 484758                | B/B/AB/A         | 700 mm                | DNV No. 48, 54     |                    |
|                                   | cWing Mk3 Portable                | 484760                | D/B/A/B/C        | 700 mm                |                    |                    |
| <b>Displays</b>                   | Display 15" FHD XT MK1            | 469945                | B*/B/A/B/B       | 1100 mm               | TAA000030Z         |                    |
|                                   | Display 22" FHD X MK1             | 469948                | B*/B/A/B/C       | 1850 mm               | TAA00003CT         |                    |
|                                   | Display 24" FHD XE MK1            | 469971                | B*/B/A/B/C       | 2050 mm               | TAA00003CT         |                    |
|                                   | Display 27" FHD XE MK2            | 110-0002528           | B*/B/A/B/B       | 190 mm                | MRA0000016         |                    |
|                                   | Display 32" FHD ECDIS G MK1       | 423187                | B*/B/A/B/C       | 2650 mm               | MRA000000H         |                    |
|                                   | Display 32" Full HD 16:9 ECDIS    | 469973                | B*/B/A/B/C       | 180 mm                | TAA00003CT         |                    |
|                                   | Display 55" UHD ECDIS G MK1       | 423188                | B*/B/A/B/A       | 5600 mm               | MRA000001B         |                    |
|                                   | Display 55" Ultra HD, 16:9, ECDIS | 472402                | B*/B/A/B/C       | 2400 mm               | MRA0000016         |                    |
|                                   | <b>Computers</b>                  | Computer MC340 i3 LAN | 477549           | D/B/A/B/A             | 150 mm             | TAA00002ZN         |
| Computer MC360 i3 LAN             |                                   | 110-0016256           | D/B/A/B/A        | 750 mm                | TAA000038U         |                    |
| <b>Accessories</b>                | USB Extender VL66298 Receiver     | 110-0021928           | B/B/A/B/**       | -                     | TAA00000M0         |                    |
|                                   | USB Extender VL66298 Transmitter  | 110-0021927           | B/B/A/B/**       | -                     | TAA00000M0         |                    |
|                                   | USB to 4 x RS232 DB9M             | 452181                | D/B/A/B/**       | -                     | MRA000002D         |                    |
|                                   | Adapter USB to 1 serial RS232     | 457971                | D/B/A/B/A        | 100 mm                | DNV No. 46, 42     |                    |
|                                   | Adapter USB to 1 serial RS422     | 459962                | D/B/A/B/A        | 100 mm                | DNV No. 46, 43     |                    |
|                                   | L2C module                        | 404654                | D/B/A/B/A        | 100 mm                | DNV No. 55, 96     |                    |
|                                   | Serial Splitter NPort 5232 - T    | 415713                | D/B/A/B/**       | 400 mm                | TAA000006T         |                    |
|                                   | <b>Panel Modules</b>              | Panel ALC             | 603526           | B*/B/A/B/A            | 300 mm             | DNV No. 13, 55, 90 |
|                                   |                                   | Panel BU DP           | 603530           | B*/B/A/B/A            | 250 mm             | DNV No. 14, 55, 90 |
| Panel Input Mk2 COP 05            |                                   | 330951                | B*/B/A/B/A       | 350 mm                | DNV No. 16, 55, 90 |                    |
| Panel Input Mk3 COP 05            |                                   | 110-0049940           | B*/B/A/B/A       | 200 mm                | DNV No. 16, 18     |                    |
| Heading Wheel COP05               |                                   | 603550                | B*/B/A/B/A       | 200 mm                | DNV No. 15, 55, 90 |                    |
| Joystick KC 06-K                  |                                   | 304849                | D/B/A/B/C        | 100 mm                | TAA00001WJ         |                    |
| Tracker Ball Standalone Panel     |                                   | 334092                | B*/B/A/B/A       | 470 mm                | DNV No. 20, 26, 55 |                    |
| <b>Junction Boxes</b>             | cJoy OT JB MK3 w/5m cable         | 400320                | B/B/A/B/A        | 500 mm                | DNV No. 12, 55     |                    |
|                                   | cJoy OT JB MK3 w/15m cable        | 400359                | B/B/A/B/A        | 500 mm                | DNV No. 12, 55     |                    |
|                                   | cWing Junction Box for WT         | 603206                | D/B/A/B/C        | 300 mm                | DNV No. 48, 54     |                    |
| <b>Network Modules</b>            | Switch DIN EDS - 205A             | 343608                | D/B/A/B/**       | 600 mm                | TAA000006N         |                    |
|                                   | Switch DIN EDS - 208A             | 463211                | D/B/A/B/**       | 600 mm                | TAA000006N         |                    |

| Module type               | Product Description                           | Product No. | Location Classes | Compass Safe Distance | DNV reference       |
|---------------------------|---|-------------|------------------|-----------------------|---------------------|
|                           | Switch DIN EDS - 308                          | 702485      | D/B/A/B/**       | 600 mm                | TAA000006K          |
|                           | Switch DIN EDS - 316                          | 351658      | D/B/A/B/**       | 600 mm                | TAA000006K          |
|                           | Router DIN EDR - 8010 - 2GSFP                 | 110-0061800 | D/B/A/B/**       | 400 mm                | TAA00003B9          |
|                           | Switch DIN EDS - 408A                         | 467615      | D/B/A/B/**       | 600 mm                | TAA000006K          |
|                           | Switch DIN EDS - 518E - 4GTXSFP               | 467617      | D/B/A/B/**       | 600 mm                | TAA00001BT          |
|                           | Switch Cisco C1000 - 24T - 4G - L             | 469125/B    | D/B/A/B/A        | 240 mm                | TAA000035N          |
|                           | Switch Cisco C1000 - 24T - 4X - L             | 110-0001617 | D/B/A/B/A        | 240 mm                | TAA000035N          |
|                           | Switch IKS - 6728A                            | 382427      | D/B/A/B/**       | 5000 mm               | TAA0000043          |
|                           | Switch IKS - 6726A                            | 110-0037724 | D/B/A/B/**       | 5000 mm               | TAA0000043          |
|                           | Router Cisco C1121X - 8P                      | 486643      | D/B/A/B/A        | 170 mm                | TAA000035N          |
|                           | Router Cisco C891 - 24X/K9                    | 417936      | D/B/A/B/**       | 500 mm                | TAA00002ME          |
| <b>Power Modules</b>      | Power PRO TOP1 240W 24V 10A                   | 472572      | D/B/A/B/A        | 700 mm                | TAA00002F2          |
|                           | Power PRO TOP1 120W 24V 5A                    | 472571      | D/B/A/B/A        | 700 mm                | TAA00002F2          |
|                           | Power Quint - PS/1AC/24V/5A                   | 326549      | D/B/A/B/**       | -                     | TAA000030X          |
|                           | Power Quint - PS/1AC/24V/10A                  | 326396      | D/B/A/B/**       | -                     | TAA000030X          |
|                           | Power,TRIO - PS - 2G/1AC/24DC/5/B+D           | 436708      | D/B/B/B/**       | 300 mm                | TAA00000BM          |
| <b>Remote I/O Modules</b> | RCU601 Module                                 | 477601      | B/B/A/B/A        | 300 mm                | TAA00003BA          |
|                           | RCU602 Module                                 | 383962      | B/B/A/B/A        | 300 mm                | DNV No. 28, 29, 55  |
|                           | RHUB200 - 5 Module                            | 603442      | B/B/A/B/A        | 300 mm                | DNV No. 17, 66, 55  |
|                           | RMP200 - 8 Module                             | 603443      | D/B/A/B/A        | 50 mm                 | DNV No. 21, 88, 55  |
|                           | RMP201 - 8 Module                             | 324400      | D/B/A/B/A        | 50 mm                 | DNV No. 21, 22, 55, |
|                           | RSER200 - 4 Module                            | 603444      | D/B/A/B/A        | 50 mm                 | DNV No. 21, 19, 55  |
| <b>Printers</b>           | Digital Printer                               | 110-0000324 | -                | -                     | DNV No. 3           |
|                           | A4 Lexmark CS521dn for Bridge (w/Line filter) | 110-0013801 | -                | -                     | DNV No. 10, 6       |
|                           | Printer A4 CS431dw for Bridge                 | 110-0056498 | -                | -                     | DNV No. 7, 9        |

### Place of manufacture

Final assembly of Kongsberg Maritime K-Pos system can be performed at the following locations:

- Kongsberg Maritime AS, Kongsberg, Norway
- Kongsberg Maritime AS, Horten, Norway
- Kongsberg Maritime Inc., New Orleans, USA
- Kongsberg Maritime China Ltd., No. 136 North FuTe Road, China (Shanghai) Pilot Free Trade Zone, Shanghai, China
- Kongsberg Maritime Korea Ltd., Busan, Korea
- Kongsberg Maritime Pte. Ltd., Singapore, Singapore

### Application/Limitation

Note for printers:

- Location class B for EMC, tested for radiated/conducted emission only.

## Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

### Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

### Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

## Type Approval documentation

| DNV No. | Document ID | Rev. | Description  |
|---------|-------------|------|--|
| 3       | 110-0000794 | C    | Digital Printer, Datasheet   |
| 4       | 110-0018781 | C    | cJoy OT Mk4 Datasheet  |
| 6       | 110-0024697 | A    | Printer A4 Lexmark CS521dn 230V Test Report IEC60945 EMC   |
| 7       | 110-0028959 | A1   | Printer A4 Lexmark CS431dw, Datasheet  |
| 9       | 110-0053579 | A    | Printer A4 CS431dw for Bridge Test report  |
| 10      | 110-0011084 | A    | Printer A4 Lexmark CS521dn, Datasheet  |
| 12      | 110-0039194 | A    | cJoy Mk4, Environmental Test Report  |
| 13      | 300977      | B    | COP-05 ALC Panel Hardware Module Description   |
| 14      | 300983      | B    | COP-05 BU-DP Panel Hardware Module Description   |
| 15      | 300985      | B    | COP-05 Heading Wheel Panel Hardware Module Description   |
| 16      | 300984      | E    | COP-05 Input Panel Hardware Module Description   |
| 17      | 312740      | C    | RHUB200-5 Datasheet  |
| 18      | 110-0063651 | A    | ENV Test Report Panel MK3 COP  |
| 19      | 312741      | C    | RSER200-4 Datasheet  |
| 20      | 338386      | A    | COP-05 Standalone Trackball Hardware Module Description  |
| 21      | 314243      | A    | Type approval testing RCU501, RSER200-4, RHUB200-5 and RMP200-8                                    |
| 22      | 351489      | A    | RMP201-8 Datasheet   |
| 26      | 338108      | B    | Type approval testing of Tracker Ball Stand Alone Panel. DANAK-1910612-A-B. Project no.- A506311-1 |
| 28      | 418371      | C    | RCU602 Datasheet   |
| 29      | 383971      | B    | Test for Marine Type approval of RCU602 & RMC-ST   |
| 42      | 463482      | A    | Adapter USB to 1 serial RS232 Datasheet  |
| 43      | 463483      | A    | Adapter USB to 1 serial RS422 Datasheet  |
| 46      | 464983      | C    | Serial Adapters RS232-422, Environmental Test Report   |
| 48      | 486670      | A    | cWing Mk3 Datasheet  |
| 54      | 491274      | B    | cWing Mk3, Environmental Test Report   |
| 55      | 487708      | 03   | ENV Report for KM Modules up to IACS E10 rev. 8  |
| 66      | 482733      | 03   | Environmental Test Report (101401)-ENV Test Report RHUB200-5                                       |
| 88      | 351488      | A    | Datasheet (101503)-RMP200-8  |
| 90      | 355954      | 1    | Environmental Test Report (101401)-Type approval testing of KM Common Operator Panels 2005         |
| 96      | 412374      | A    | Environmental Test Report (101401)-ENV Test Report for Marine Approval of L2C                      |

### Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

For the bridge mounted components the 'Compass safe distance' was measured according to section 11.2 of IEC 60945 4th edition (2002).

### Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

### Periodical assessment

The scope of the periodical assessment 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 approved 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 approved 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 approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE