



Type Approval Certificate

[Components for Dynamic Positioning Control System]

Initial Approval	19th February, 2021
Manufacturer	Navis Engineering Oy Tuupakantie, 3A, FI-01740, Vantaa, Finland
Product Description	Type : tBOX-324-894-FL-i3-DIO-24VDC (Control computer), DuraVision FDU2603WT, FDS1904T (LCD & Touchscreen), MCP-7, MCP-B (Main control panel), JP-ZC06B-03 (3-axis Joystick), VRS (Vertical reference sensor) * Intended for : Dynamic Positioning System " See Appendix 1 "
Approval Condition	" See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships

This Certificate is valid until 18th February, 2026

Issued at Busan, Korea on 19th February, 2021



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME21005611308) and certificate No.(HMB43868-AC001).



KOREAN REGISTER

**General Manager of
Marine & Ocean Equipment Team**

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 19th February, 2021

A. Product Description

1. Product Specification

- 1) Control computer (Type : tBOX-324-894-FL-i3-D10-24VDC)
 - Power supply : DC 24V
 - CPU : Intel Core i3-6100U 2C
 - RAM : 2xDDR4-1866/2133 SO-DIMM, 4GB
- 2) LCD & Touchscreen (Type : DuraVision FDU2603WT, FDS1904T)
 - Power supply : 100-240V AC, 50/60 Hz, 24V DC
 - Size : 25.5" (DuraVision FDU2603WT), 19" (DuraVision FDS1904T)
 - ingress protection : IP65 (front), IP22 (rear)
- 3) Main control panel (Type : MCP-7, MCP-B)
 - Power supply : DC 24V
 - MCP-B consists of rotary knob, pushbuttons and indicators.
 - MCP-7 consists of 7" color LCD, rotary knob, pushbuttons and indicators.
- 4) Vertical reference sensor (Type : VRS)
 - Power supply : DC 24V
 - For measuring roll & pitch
- 5) 3-axis joystick (Type : JP-ZC06B-03)

2. Approved Drawings and Documents

- 1) Technical description Ver.01 dated Oct. 2020 (Page 14~19, 33)
- 2) Drawing No. JDP-29541-OVE Rev. A (28.06.19), JDP-29536-OVE Rev. A (05.08.19), JDP-29533-OVE Rev. B (30.05.19), JDP-26151-OVE Rev. A (10.01.18), JDP-26141-OVE Rev. B (22.01.19), JP-29211-OVE Rev. A (08.12.16), JDP-26603-OVE Rev. C (16.07.20)

3. Test Reports, etc.

- 1) Test reports
 - For control computer : 1860052R-ITCEP16V00 V1.0 (2018-07-30), UT107063 (2018-07-18), 21413 Rev.0 (2018-08-21), VT-180809-1 (2018-08-27)
 - For LCD & Touchscreen : 14-263(E) (2014-09-22), 14-264(E) (2014-09-22), FLI12-14-038 Rev.1 (2014-08-08), FLI12-14-053 (2014-07-03), DPS-16-00030 (2016-07-06), DPS-16-00034 (2016-07-15), DPS-16-00035 (2016-07-15), DPS-16-00055 (2018-12-26), DPS-16-00057 (2019-01-18)
 - For Main control panel : 288184-1 (2017-04-10), 298074-1 (2019-11-29), VTT-S-02004-17 (2017-04-12), VTT-S-02241-18 (2018-05-11)
 - For Joystick and VRS : 281090-1 (2015-09-24), VTT-S-00796-14 (2014-02-07), VTT-S-04209-15 (2015-11-03)

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the approved documentation and the test reports.
- 2) The manufacturer should inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 3) Degree of protection shall be complied with Rule Pt.6 Ch.1 Sec.2 201.2. (5).
- 4) The products except DuraVision FDS1904T and FDU2603WT shall not be installed on ships contracted for construction on or after 1 January 2022 as IACS UR E10 Rev.7 is not applied to the products.
- 5) The products shall not be installed on open decks.
- 6) When VRS or 3-axis joystick is to be installed in the vicinity of a standard or a steering magnetic compass, it should have the minimum safe distance 5 m or more at which it may be mounted from such compasses.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual product certification for the Dynamic Positioning System is required.

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- 2) In case where the DP system is installed on board, the system drawings for individual vessel are to be approved by this Society.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition

Test	Condition	Remark
EMC	All locations including the bridge and deck zone All locations including the bridge and deck zone	Up to 2 GHz Up to 6 GHz (1)
Temperature	-15°C ~ +55°C -20°C ~ +55°C -25°C ~ +55°C -25°C ~ +70°C	(4) (1) (2) (3)
Vibration	Acceleration $\pm 0.7g$	-
IP	IP65 (front), IP22 (rear)	(1)

- (1) : DuraVision FDS1904T and FDU2603WT
 (2) : MCP-7 and MCP-B
 (3) : tBOX-324-894-FL-i3-DIO-24VDC
 (4) : JP-ZC06B-03 and VRS

- 2) Compass Safe Distance

Type	Standard Compass	Steering Compass
DuraVision FDS1904T	95 cm	60 cm
DuraVision FDU2603WT	150 cm	100 cm
tBOX-324-894-FL-i3-DIO-24VDC	120 cm	80 cm
MCP-B	215 cm	105 cm
MCP-7	105 cm	65 cm

< End of Certificate >