DNV·GL

Certificate No:
TAA000017Y

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
KMGB-.., KCGB-.., AMGB-.., KM/T, KC/T Marine Glass Bridge Displays

Issued to
Sparton Aydin, LLC d/b/a Aydin Displays
Birdsboro PA, United States

is found to comply with
IEC 60945 Ed. 4 (2002-08) Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results
DNV GL 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 GL.

Temperature	**D**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**B / IPx6 (panel front only)**

Issued at **Hamburg** on **2017-06-14**
This Certificate is valid until **2022-06-13**.
DNV GL local station: **New York**

for **DNV GL**

Approval Engineer: **Andrea Grün**

Joannis Papanuskas
Head of Section

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.

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Product description

KEP Marine Glass Bridge Displays for panel mounting:

Sunlight Readable Glass Bridge Display
- KMGB-15/T, KMGB-17/T, KMGB-19/T, KMGB-21/T, KMGB-22/T, KMGB-24/T, KMGB-26/T
- AMGB-15/T, AMGB-17/T, AMGB-19/T, AMGB-21 and AMGB-21.5T, AMGB-22, AMGB-24/T
- KM-15/T, KM-17/T, KM-19/T, KM-21/T, KM-22/T, KM-24/T
- KC-15/T, KC-17/T, KC-19/T, KC-21/T, KC-22/T, KC-24/T, KC-26

SIMRAD OEM
- MO-15L, MO-17L, MO-19L, MO-21L, MO-22L, MO-24L

Nauticomp OEM
- CGB44-1510, CGB44-1910, CGB44-2210, CGB44-2410, CGB44-2610
- 43-1510, 43-1910, 43-2210, 43-2410, 43-2610

Pilot House Glass Bridge Display
- KCGB-15/T, KCGB-17/T, KCGB-19/T, KCGB-21/T, KCGB-22/T, KCGB-24/T, KCGB-26/T

Input power: 12 / 24 Vdc universal input

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

The power supply has been tested down to 10.8 Vdc and up to 31.2 Vdc, which, according to DNV GL Rules, allows connection to distribution boards with nominal voltage between 14.4 Vdc and 24 Vdc.

Standard compass safe distance: 15 cm (all models)
Steering compass safe distance: 10 cm (all models)

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.
Applicable tests for protected equipment according to IEC 60945, 4th edition (2002).

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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE