DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000BE
Revision No:
1

This is to certify:

That the Personal Computer

with type designation(s)
KEI-3240 Computer System

Issued to
KEI System Co., Ltd.
Osaka, Osaka Pref, Japan

is found to comply with
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.

Location classes:

Temperature	**A/B***
Humidity	**A**
Vibration	**A**
EMC	**B**
Enclosure	**Required protection according to relevant rules shall be provided upon installation on board.**

***** **Temperature class B is applicable for the KEI-ILS power supply, MBW-12R5-22 power line noise filter, KEI-EXT1xxx bus extension alarm panels, and for the ILS local units.**

Issued at **Høvik** on **2020-11-13**

This Certificate is valid until **2025-12-31**.
DNV GL local station: **Kobe**

Approval Engineer: **Ståle Sneen**

for **DNV GL**
Digitally Signed By: Alonso Pontes, Marta
Location: DNV GL Høvik, Norway

Marta Alonso Pontes
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.

Job Id: **262.1-003977-6**
Certificate No: **TAA00000BE**
Revision No: **1**

Product description

KEI 3240-Computer system consisting of:

Name	Type	Description
AGU IV Host & Graphic computer	KEI-3240A KEI-3240D	Computer for AC100V Computer for DC24V
Keyboard	ENTRY-KEY32	32-key compact keyboard
ILS System I/F Module	PC4-ILS	ILS CENTER Module
ARCNET I/F Module	PC4-ARC	ARCNET I/F Module
ILS System Local	SVA24SA SVA24SC24 MBW-12R5-22	Power supply AC100V Power supply DC24V Noise filter for power line
ILS Local I/O Units	ILS-DI ILS-DV ILS-DO1 ILS-DO2 ILS-AII ILS-AVI ILS-PT ILS-VR4 ILS-BIO ILS-BVO ILS-REP	16 channel binary input 16 channel AC voltage input, 110..220VAC 16 channel relay output 16 channel transistor output 8 channel current input, 4..20mA 8 channel voltage input, 0..5V, 0..10V, -10..+10V 8 channel 3 wire RTD input, PT100 8 channel rheostat input, 1kΩ Current output unit Voltage output unit ILS line repeater unit
Bus Extension Alarm Panels	KEI-EXT1WH0 KEI-EXT1WM0 KEI-EXT1FM0	Wheelhouse Type with dimmer Wall Mount Type Flush Mount Type

Application/Limitation

ILS Local I/O Units:
ILS components to be mounted in a self-contained steel cabinet.

Bus Extension Alarm Panels:
Power supply 24 VDC shall be used with noise filter MBW12R5-22.
Automatic back-up engineer call to all panels to be provided additionally.

Approval conditions

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 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 GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

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Type Approval documentation

Environmental test procedure for DNV Type approval test, Doc.No. DNV-TYP3240-501
Test report for LR type approval system, KEI-3240 system, Doc.No. LRS-TYP3240AGU-533
Test report for LR type approval system, KEI-3240 system, Doc.No. LRS-TYP3240ILS-533
Test report for LR type approval system, KEI graphic unit, Doc.No. LRS-TYP3240-515
Test report for NK type approval system, KEI-3240 computer system, Doc.No. NK-TYP3240ILS-505
Test report for DNV/GL type approval system, ENTRY-KEY32/KEI-EXT, Doc.No. DNV/GL-TYP2015-501
KEI graphic unit (AGU IV), Test report, Doc.No. NK-TYP3240-510
Test report for Revalidation 2020, KEI-3240 computer system, Doc.No. ABS-KEI-3240-2020502
Specification KEI-3240 Computer system, Doc.No. LRS-TYP3240-532
Inspection and Test Procedure for Type Approval Test Software, dated 2012-10-04
Rev.2 Software Questionnaire RC3
Type approval renewal assessment report for TAA00000BE, DNV GL Kobe 2020-10-14.

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019
(including EMC according to IACS Unified Requirements E10 Rev.7, October 2018).

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