

TYPE APPROVAL CERTIFICATE

This is to certify:**That the DC Power Supply**with type designation(s)
KHEA

Issued to

Cosel Co., Ltd.
Toyama, Japan

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.****Temperature B****Humidity B****Vibration A****EMC A (see Application / limitation)****Enclosure Required protection according to the Rules shall be provided upon installation on board.**Issued at **Høvik** on **2019-05-09**This Certificate is valid until **2024-05-21**.DNV GL local station: **Yokohama**for **DNV GL**Approval Engineer: **Nicolay Horn**

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Trond Sjøvåg
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.



Name and place of manufacturer

Wuxi Cosel Electronics CO. Ltd,
Liyuan Development Zone, Jiangsu,
China

Product description

Regulated AC-DC power supply for DIN rail or fix mounted (N2). Conformal type (-C)
I/O connectors: KHEA Euro Type / KHNA Barrier Blocks Type.

Type	Input Voltage	Input frequency	Output voltage	Output Current	Output Power
KHEA 120/F / KHNA120F	100 V-240 VAC	50-60 Hz	24 V \pm 1 %	5 A (peak 7.5 A)	120 W
KHEA 240/F / KHNA240F	100 V-240 VAC	50-60 Hz	24 V \pm 1 %	10 A (peak 15 A)	240 W
KHEA 480/F / KHNA480F	100 V-240 VAC	50-60 Hz	24 V \pm 1 %	20 A (peak 30 A)	480 W

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.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Environmental classes: Vibration A, Temperature B, Humidity B, EMC B (KHEA 120), EMC A (KHEA 240 & 480).

Type Approval documentation

Test reports: G0510004, G0510008, G0510009, G05100010, G05100011, G3BE0001, G3BE0004 & G3BE0006.

Tests carried out

Applicable tests according to Guidelines for the Performance of Type Approval Chapter 2, Edition 2012.

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

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)

Job Id: **262.1-031133-1**
Certificate No: **TAA00002B5**

- 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