



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA00002B5
Revision No:
1

This is to certify:
that the DC Power Supply

with type designation(s)
KHEA, KHNA

issued to
Cosel Co., Ltd.
Toyama, Japan

is found to comply with
DNV 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.

Location classes:

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 **2024-05-30**

This Certificate is valid until **2029-05-21**.

DNV local unit: **Yokohama**

Approval Engineer: **Ståle Sneen**

for **DNV**



Digitally signed by
Elter, Frederik Tore
Location: DNV
Høvik, Norway

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.





Job ID: **262.1-031133-2**
 Certificate no.: **TAA00002B5**
 Revision No: **1**

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
KHEA120F / KHNA120F	100 V-240 VAC	50-60 Hz	24 V \pm 1%	5 A (peak 7.5 A)	120 W
KHEA240F / KHNA240F	100 V-240 VAC	50-60 Hz	24 V \pm 1%	10 A (peak 15 A)	240 W
KHEA480F / KHNA480F	100 V-240 VAC	50-60 Hz	24 V \pm 1%	20 A (peak 30 A)	480 W

Place of manufacture

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

Application/Limitation

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.

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, 400-230118-1, 400-230118-2, 400-230118-3.

TA renewal assessment reports for TAA00002B5 from Japan CMC 2024-04-29 and Jiangyin NB & CMC 2024-05-21.

Tests carried out

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

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)
- 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



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE FOR AUTOMATIC DEVICES AND EQUIPMENT

Certificate No. TA24211M

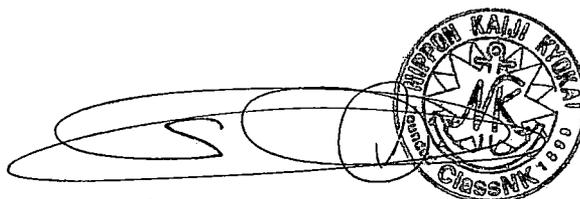
This is to certify that the undernoted products have been approved in accordance with the requirements specified in Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules.

This certificate is issued to

Applicant:	COSEL CO., LTD.
Manufacturer:	WUXI COSEL ELECTRICS CO., LTD.
Place of Manufacturing:	5/F, BuildingA3, No. 866, Yin Xiu Road, Liyuan Development Zone, Wuxi, Jiangsu, China
Product description:	Switching Power Supply
Model:	KHEA ***F-**, KHNA***F-**
Approval No.:	24A012
Valid until:	9 April 2029

The details are described in the attached sheet(s).

Issued at Tokyo on 10 April 2024.



S. Oishi
General Manager
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.

NIPPON KAIJI KYOKAI

Attached sheet -1/2 to the Certificate No. TA24211M

Specification & documents:

1. Particulars: Power supply: AC100/240V

2. Components and reference drawings:

Type	Drawings
KHEA 120F-24	AA-12847, DA-15433, DA-15434, DA-15435, DA-15436, AE-10897A
KHNA 120F-24	AA-12848, DA-15437, DA-15438, DA-15439, DA-15440, AE-10898A
KHEA 240F-24	AA-12849, DA-15441, DA-15442, DA-15443, DA-15444, AE-10899A
KHNA 240F-24	AA-12850, DA-15445, DA-15446, DA-15447, DA-15448, AE-10900A
KHEA 480F-24	AA-13864, DA-15449, DA-15450, DA-15451, DA-15452, DA-15457, DA-15458, AE-11186A
KHNA 480F-24	AA-13865, DA-15453, DA-15454, DA-15455, DA-15456, DA-15457, DA-15458, AE-11180A

3. Documentation and Test Reports:

(1) Documents: GD-11619 (2012/9/18) , GD-11620 (2012/9/18) , GD-11621 (2012/9/20) ,
GD-11622 (2012/9/20) , GD-12164 (2015/5/24) , GD-12165 (2015/5/24)

(2) Test reports: G3BE0001 (2014/3/13) , G3BE0006 (2014/3/8) , G3BE0007 (2014/3/21) ,
G0510004 (2013/3/26) , G0510008 (2013/3/14) , G0510009 (2013/3/14) ,
G0510010 (2013/3/14) , G0510011 (2013/3/14) , G3BE0004 (2014/4/14) ,
Class NK Test Report (2017/4/19) , Class NK Test Report (2017/4/20) ,
400-230118-1(2023/12/19)

- To be continued -

NIPPON KAIJI KYOKAI

Attached sheet -2/2 to the Certificate No. TA24211M

Test items & approval conditions:

1. Test items:

(Applied testing items are marked with X.)

ENVIRONMENTAL TESTS (IACS UR E10 Rev.8 basis)		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		X
Power supply fluctuation test	Electric	X
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		--
Dry heat test (Temperature 70°C × 16 hours)		X
Damp heat test (55°C ± 2°C 95% (12+12 hours) 2cycles)		X
Vibration test (Acceleration ±0.7g × 1.5 hours)		X
Inclination test		X
Cold test (Temperature -25°C × 2 hours)		X
Salt mist test		--
Electrostatic discharge immunity test		X
Radiated radio frequency immunity test		X
Conducted low frequency immunity test		X
Conducted high frequency immunity test		X
Burst / Fast transient immunity test		X
Surge immunity test		X
Radiated emission test		X
Conducted emission test		X
Flame retardant test		X

2. Approved condition:

The product is not allowed to be installed in the bridge and open decks.

- The End -