

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Power supply unit**

with type designation(s)
ELCC_nXpB

Issued to

eta plus electronic gmbh
Nürtingen, Germany

is found to comply with

USCG Federal Register 46 CFR part 162, subpart 162.060-30

Resolution MEPC.279(70) – Annex Part 3

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.

Voltage output 400-3000 V

Power 4-36 kW

Temperature class B

Vibration class A

Humidity class B

EMC class A

Degree of protection B / IP44

Issued at **Høvik** on **2019-05-15**

This Certificate is valid until **2024-05-14**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Siri Tag**

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Jan Tore Grimsrud
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.



Product description

The UV Power Cabinet ELCC nXpB is an electrical unit intended to be installed within a ballast water treatment system on board of ships. The ELCC nXpB is designated for the operation of UV lamps with an electrical power consumption up to 36 kW. Each lamp is powered by a ballast (ELC x-series). The UV lamp is located in a reactor designed for treatment of ballast water and is connected to the UV Power Cabinet via electrical cables. The main functions of the cabinet (lamp power setting, switching lamp on and off, reading of lamp voltage value) are controlled by a profibus connection. In the type designation the n is indicating the number of ballast modules and p is indicating the type of ballast modules (P=4, 6, 8, 12, 24 or 36)

no.	ELC						
	X4B	X6B	X8B	X12B	X16B	X24B	X36B
1	ELCC_1X4B	ELCC_1X6B	ELCC_1X8B	ELCC_1X12B	ELCC_1X16B	ELCC_1X24B	ELCC_1X36B
2	ELCC_2X4B	ELCC_2X6B	ELCC_2X8B	ELCC_2X12B	ELCC_2X16B	ELCC_2X24B	ELCC_2X36B
3	ELCC_3X4B	ELCC_3X6B	ELCC_3X8B	ELCC_3X12B	ELCC_3X16B	ELCC_3X24B	ELCC_3X36B
4	ELCC_4X4B	ELCC_4X6B	ELCC_4X8B	ELCC_4X12B	ELCC_4X16B	ELCC_4X24B	ELCC_4X36B
5	ELCC_5X4B	ELCC_5X6B	ELCC_5X8B	ELCC_5X12B	ELCC_5X16B	ELCC_5X24B	
6	ELCC_6X4B	ELCC_6X6B	ELCC_6X8B	ELCC_6X12B	ELCC_6X16B	ELCC_6X24B	
7	ELCC_7X4B	ELCC_7X6B	ELCC_7X8B	ELCC_7X12B			
8	ELCC_8X4B	ELCC_8X6B	ELCC_8X8B	ELCC_8X12B			
9	ELCC_9X4B	ELCC_9X6B	ELCC_9X8B	ELCC_9X12B			=ELCC_6xXB
10	ELCC_10X4B	ELCC_10X6B	ELCC_10X8B	ELCC_10X12B			=ELCC_9xXB
11	ELCC_11X4B	ELCC_11X6B	ELCC_11X8B	ELCC_11X12B			=ELCC_12xXB
12	ELCC_12X4B	ELCC_12X6B	ELCC_12X8B	ELCC_12X12B			

The eta plus power cabinet consists of the following components:

Module/Unit	Type Designation	Manufacturer
electronic ballast	X4B: 1 to 12 units X6B: 1 to 12 units X8B: 1 to 12 units X12B: 1 to 12 units X16B: 1 to 6 units X24B: 1 to 6 units X36B: 1 to 4 units	eta plus electronic gmbh
cabinet, custom made	ELCC_6xXB, ELCC_9xXB or ELCC_12xXB	eta plus electronic gmbh
heater	LH3002-AL 440VAC/400W	Lm-therm
fan-and-filter unit	LV600, GV600/700, GV250	Elmeko, Rüksamen & Herr
main switch	3VA	Siemens
thermostat	SK3110.000	Rittal
thermostat	SK3118.000	Rittal
circuit breaker	FAZ	Eaton
line filter	NFD-110 / B 1406149	Block
indicator lamp, white	3SU1102-6AA60-3AA0	Siemens
indicator lamp, blue	3SU1102-6AA50-3AA0	Siemens
contactor	3RT2015-2BB41	Siemens
surge suppressor	3RT2916-1DG00-ZX90	Siemens
primary-switched power supply 400AC-24DC	QUINT-PS/3AC/24DC/20 QUINT-PS/3AC/24DC/40	Phoenix Contact

Job Id: **262.1-026386-1**
Certificate No: **TAE00003AK**

Module/Unit	Type Designation	Manufacturer
vibration dampers	ELCC_6XpB: GV2G 74-08 DG V02 ELCC_9XpB: GV3 210-08 DG ELCC_12XpB: GV4 192-08 DG	Sebert Schwingungstechnik

Application/Limitation

For use with intended applications, i.e. ballast water treatment system.

The UV Power Cabinet ELCC nXpB shall be installed with vibration dampers, as listed above. Ref. drawing number: (3)GV2G 74 00S 01 - 08 DG V02 K, (3)GV3 210 00S 01 - 08 DG K, (3)GV4 192 00S 01 - 08 DG K.

Type Approval documentation

Tests carried out

Applicable tests according to:

Class guideline, DNVGL-CG-0339, November 2016. EMC class A for all models.

USCG Federal Register 46 CFR part 162, subpart 162.060-30.

Marking of product

Name of maker: "eta plus electronic gmbh"

Unit type: ELCC nXpB

Serial number

Supply voltage: 3 x 440 V AC

Supply frequency: 50 / 60 Hz

Supply current: Up to 252 A

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and 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