

TYPE APPROVAL CERTIFICATE

This is to certify:**That the UPS**with type designation(s)
EATON 93PS Marine

Issued to

Eaton Power Quality Oy
ESPOO, Finland

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.**Issued at **Høvik** on **2018-04-10**for **DNV GL**This Certificate is valid until **2023-04-09**.DNV GL local station: **Helsinki**Approval Engineer: **Nicolay Horn**

Andreas Kristoffersen
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

UPS for various marine applications. Including batteries of 12 V vented lead acid type. Equipped with battery test facility and automatic by-pass. Protection degree: IP23

9xPS-A-B(C)-D-E-F-G-H-I-J-K-L/M-N

Digit	explanation	options
x	Number of output phases	3
A	Denotes marine model	M
B	Rated power (kW)	8, 10, 15, 20, 30, 40, 8+8, 10+10, 15+15, 20+20
(C)	Static switch rating (kW)	20, 40
D	Max power rating (kW)	20, 40
E	Internal batteries (not used)	0
F	Separate battery	(blank), SB
G	Internal maintenance bypass switch	(blank), MBS
H	Energy saving options	(blank), ESS, VMMS (Variable Module Management System)
I	Extension cards	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G
J	Denotes Plywood packaging	W
K	Custom color	(blank), CLR
L	Input transformer, T denotes isolation TX, Ta denotes auto TX, "xxx" denotes input voltage between 100 V – 690 V	(blank), Txxx, Taxxx
M	Output transformer, T denotes isolation TX, Ta denotes auto TX, "xxx" denotes output voltage between 100 V – 690 V	(blank), Txxx, Taxxx
N	Type approval	TA

Battery

Battery type	VRLA
Charging method	ABM (Advanced Battery Management) technology or Float
Battery nominal voltage (VRLA)	384 V (32 x 12 V, 192 cells)
Charging current maximum	8-20 kW: Default 5 A, configurable Maximum 25 A 8-40 kW: Default 10 A, configurable Maximum 50 A

Classification according to DNV GL CG-0339

Temperature class	A
Vibration class	A
Humidity class	A
Enclosure class	A
EMC Class	≤20 kW: B, 40 kW: A

Dimension (mm)

	93PS 8-20kW UPS	93PS 8-40kW UPS	93PS EBC-I	93PS EBC-J
Width	356	503	356	537
Depth	875	975	875	971
Height	1370	1810	1370	1745

Job Id: **262.1-026208-1**
Certificate No: **TAE00002RW**

Application/Limitation

End user responsible for correct IP protection according to location and use.

Type Approval documentation

Technical info:

Eaton 93PS UPS Technical Specification dated 2018?

Test reports:

- Eaton Factory test report 93PS 20-40kW, dated 2017-12-20
- SGS Test Report EMC, no. 289993-1 dated 2017-11-16
- Santak Electronic (Shenzen) Co. Ltd. EMI Test reports, dated 2017-11-7 & 9
- VTT Climatic Tests doc. No. VTT-S-0688-17 dated 2017-12-21
- VTT test report doc. no. VTT-S-06832-17, dated 2018-01-17
- VTT test report doc. no. VTT-S-00196-18, dated 2018-01-17
- Eaton Vibration Test Result and Corrective actions dated 2017-12-21
- Eaton Vibration Test Result and Corrective actions dated 2018-01-12
- Eaton Thermal Test Report 20 (XL-sheet, undated)
- Eaton Thermal Test Report 20 (XL-sheet, undated)

Tests carried out

Type Tests in accordance with IEC 62040-3, Low temperature in accordance with IEC 60068-2-1, Dry heat in accordance with IEC 60068-2-2, Vibration in accordance with CG-0339 Class A/60068-2-6, Humidity/ Damp heat in accordance with IEC 60068-2-78, EMC in accordance with CG-0339 Class A (40kW), Class B (20kW),, Electrical Power Supply failure test and Power Supply Variation Test in accordance with DNVGL-CG-0339.

Marking of product

Eaton 93PS Marine – UPS input – UPS output.

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