

TYPE APPROVAL CERTIFICATE

This is to certify:**That the DC Power Supply**

with type designation(s)
QUINT-UPS

Issued to

PHOENIX TESTLAB GmbH
Blomberg, Nordrhein-Westfalen, Germany

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/D*

Humidity B

Vibration A/C*

EMC A/B*

Enclosure Required protection according to the Rules shall be provided upon installation on board.

*** see Application/Limitation**

Issued at **Hamburg** on **2019-01-14**

This Certificate is valid until **2024-01-13**.

DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Heinz Scheffler**

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Joannis Papanuskas
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

Uninterruptible Power Supply QUINT-UPS/24DC/24DC/X:

- X = Nominal output current permanent 5 A, 10 A, 20 A, 40 A
- Nominal input voltage: 24 V DC
- Nominal output voltage: 24 V DC

Buffer Module QUINT-BUFFER/24DC/24DC/40:

- Nominal input voltage: 24 V DC, Buffer period 0.2 s(40 A) - 8 s(1 A)
- Nominal output voltage 24 V DC (depending on the input voltage)
- Output current 40 A

Capacity Module UPS-CAP/24DC/10A/10KJ ; UPS-CAP/24DC/20A/20KJ

- Nominal input voltage: 24 V DC
- Buffer period 10KJ = 6 min (1A) - 33 s(10 A), 20KJ = 12 min (1A) - 33 s(20 A)
- Nominal output voltage 24 V DC (depending on the input voltage)
- Output current 10 A, 20 A

Rechargeable battery module VRLA technology UPS-BAT/VRLA-WTR/24DC/X:

- X= Nominal capacity 13 AH, 26 AH
- Nominal input voltage: 24 V DC

Rechargeable battery module VRLA technology UPS-BAT/VRLA/24DC/X:

- X= Nominal capacity 3.4 AH, 7.2 AH, 12 AH, 38 AH
- Nominal input voltage: 24 V DC

Battery Mounting Case, Battery Mounting Kit

For mounting battery modules and for the electronic control unit Supported battery modules:

- UPS-BAT/VRLA/24DC/38Ah
- UPS-BAT/VRLA-WTR/24DC/13AH
- UPS-BAT/VRLA-WTR/24DC/26AH

Communicating Pc to Phoenix Contact devices

IFS-USB-DATACABLE

Used for communicating between industrial PCs (USB 2.0) and Phoenix Contact devices with the 12-pos. IFS data port.

Application/Limitation

Location classes:

- EMC B: QUINT-UPS/24DC/24DC/40A and UPS-BAT/VRLA/24DC/38Ah
- Vibration C: QUINT-UPS/24DC/24DC/X
- Temperature D: QUINT-UPS/24DC/24DC/X

A suitable battery VRLA/-WTR to be used. Manufacturer's instruction shall be observed. Ambient temperature (operation) battery module must be observed.

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.

Type Approval documentation

Test reports: U134527E1 2nd version, E133439E2, S135138E1, S122336E1, U135700E1, U134528E1, U120736E1, E134527E1, E134528E1, E134528E2, U147077E1, E111084E2, U147077E4, E120539E2, U147077E5, E120299E2, U147077E3, E134527E1, U153594E1; Documents: Part lists/BOM's, drawings and circuit diagrams according to submitted files and document list 157077, dated 2015-09-18.

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

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