



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA00000BM
Revision No:
10

This is to certify:
that the DC Power Supply

with type designation(s)
TRIO Power Supply Series & TRIO UPS & QUINT4 UPS

issued to
Phoenix Contact GmbH & Co. KG
Blomberg, Nordrhein-Westfalen, Germany

is found to comply with
DNV 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.

Location classes:

Temperature	A/B/D*
Humidity	B
Vibration	A/B/C*
EMC	A/B*
Enclosure	Required protection according to the Rules shall be provided upon installation on board.

*** see Product description**

Issued at **Hamburg** on **2025-12-16**

This Certificate is valid until **2030-02-11**.

DNV local unit: **Essen**

Approval Engineer: **Heinz Scheffler**



for **DNV**

Digitally signed by: Dariusz Lesniewski
Location: DNV SE, Germany

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 USD 300 000.

Product description

Power supply unit

Primary-switched power supply	Nominal Input Voltage Range	EMC Class	Vibration Class	Temperature Class
TRIO-PS/1AC/24DC/2.5 2866268	100 VAC – 240 VAC 85 VAC – 264 VAC	A	B	D
TRIO-PS/1AC/24DC/5 2866310	100 VAC – 240 VAC 85 VAC – 264 VAC	A	B	D
TRIO3-PS/1AC/24DC/5 1159037	100 VAC – 240 VAC 100 VDC – 240 VDC	A	B	D
TRIO3-PS/1AC/24DC/10 1159038	100 VAC – 240 VAC 85 VAC – 264 VAC	A	B	D
TRIO3-PS/1AC/24DC/20 1159039	100 VAC – 240 VAC 85 VAC – 264 VAC	A	B	D
TRIO-PS-2G/1AC/24DC/3/C2LPS 2903147	100 VAC – 240 VAC 110 VDC – 250 VDC	A	B	D
TRIO-PS-2G/1AC/24DC/5 2903148	100 VAC – 240 VAC 110 VDC – 250 VDC	A	B	D
TRIO-PS-2G/1AC/24DC/5/B+D 2903144	100 VAC – 240 VAC 110 VDC – 250 VDC	B	B	D
TRIO-PS-2G/1AC/24DC/10/B+D 2903145	100 VAC – 240 VAC 110 VDC – 250 VDC	B	B	D
TRIO-PS-2G/1AC/24DC/10 2903149	100 VAC – 240 VAC 110 VDC – 250 VDC	A	B	D
TRIO-PS-2G/1AC/24DC/20 2903151	100 VAC – 240 VAC 110 VDC – 250 VDC	A	B	D
TRIO-PS-2G/3AC/24DC/5 2903153	400 VAC – 500 VAC	A	B	D
TRIO-PS-2G/3AC/24DC/10 2903154	400 VAC – 500 VAC	A	B	D
TRIO-PS-2G/3AC/24DC/20 2903155	400 VAC – 500 VAC	A	B	D

Uninterruptible power supply

Primary-switched power supply	Nominal Input Voltage Range	EMC Class	Vibration Class	Temperature Class
TRIO-UPS-2G/1AC/1AC/120V/750VA 2905908	96 VAC - 138 VAC	A	A	A
TRIO-UPS-2G/1AC/1AC/230V/750VA 2905909	184 VAC - 264 VAC	A	A	A
QUINT4-UPS/1AC/1AC/1kVA 2320283	100 VAC – 240 VAC	A	A	A
QUINT4-UPS/1AC/1AC/500VA/USB 1067327	100 VAC – 240 VAC	A	A	B
TRIO-UPS/1AC/24DC/5 2866611	100 VAC – 240 VAC	B	A	D
TRIO-UPS-2G/1AC/24DC/5 2907160	100 VAC – 240 VAC 110 VDC – 250 VDC	B	A	D
TRIO-UPS-2G/1AC/24DC/10 2907161	100 VAC – 240 VAC 110 VDC – 250 VDC	B	A	D
TRIO-UPS-2G/3AC/24DC/20 2906367	100 VAC – 240 VAC 110 VDC – 250 VDC	B	A	D
TRIO3-UPS/1AC/24DC/5 1359613	100 VAC – 240 VAC 100 VDC – 240 VDC	A	C	D
TRIO3-UPS/1AC/24DC/5/485-USB 1359612	100 VAC – 240 VAC 100 VDC – 240 VDC	A	C	D
TRIO3-UPS/1AC/24DC/10 1359610	100 VAC – 240 VAC 100 VDC – 240 VDC	A	C	D
TRIO3-UPS/1AC/24DC/10/485-USB 1359604	100 VAC – 240 VAC 100 VDC – 240 VDC	A	C	D
TRIO3-CAP/1AC/24DC/5/3KJ/USB-485 1467800	100 VAC – 240 VAC 100 VDC – 240 VDC	A	A	C
TRIO3-CAP/1AC/24DC/10/6KJ/USB-485 1467808	100 VAC – 240 VAC 100 VDC – 240 VDC	A	A	C
TRIO3-CAP/1AC/24DC/20/12KJ/USB-485 1467815	100 VAC – 240 VAC 100 VDC – 240 VDC	A	A	C

All model/catalogue number(s) may be followed by a suffix of one or more alphanumeric or special characters including " - / , . _ " or semicolon or blank, for internal references or customer identification only, not EMC or Environmental relevant.

Application/Limitation

Temperature-dependent derating: At ambient temperatures above +60 °C and +55 °C (TRIO-UPS/1AC/24DC/5), the output power must be decreased by 2.5 % per Kelvin increase in temperature.

The "Installation notes for electrically skilled persons" is to be observed before installation.

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.

Type Approval documentation

Test Reports and Documents: TAA00000BM_Overview_Documents_Rev.05

Tests carried out

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

For the bridge mounted components, the "Compass safe distance" were measured according to section 11.2 of IEC 60945, 4th edition (2002) for EMC class B.

Applicable tests according to IEC 60945:2002/COR1:2008; Section 7.1; 7.3; 7.4; 8.2; 8.3; 8.4; 8.7; 9.2; 10.3-10.9; 11.2; (only Article No. 2903144; 2903145; 2907160; 2907161; 2906367)

Marking of product

The products to be marked with:

- model name
- manufacturer name
- serial number

Place of Production

See Test Reports and Documents: TAA00000BM_Overview_Documents_Rev.05

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