DNV·GL

Certificate No:
TAA00001ST

TYPE APPROVAL CERTIFICATE

This is to certify:

That the DC Power Supply

with type designation(s)
Dimension C Series, CD Series, Q-Series, U-Series. Mini Line (ML)

Issued to
PULS GmbH
München, 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.

Temperature	**B (A*)**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**A**

Issued at **Hamburg** on **2018-08-16**
This Certificate is valid until **2023-05-30**.
DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Jens Dietrich**

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.

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Product description

Power supply with single phase AC input 100..240V, adjustable DC output:
CS3.241 Out: 24..28V DC, 80W;
CS5.241 Out: 24..28V DC, 120W;
CS10.241 Out: 24..28V DC, 240W;
CS10.242 Out: 24..28V DC, 240W, with PFC filter;
CS10.481 Out: 28..52V DC, 240W;
ML15.051 Out: 5..5.5V DC, 15W;
ML15.121 Out: 12..15V DC, 15W;
ML15.241 Out: 24..28V DC, 15W;
QS20.241 Out: 24..28V DC, 480W, active PFC;
QS20.361 Out: 36..42V DC, 480W, active PFC;
QS20.481 Out: 48..55V DC, 480W, active PFC.

Power Supply with single phase AC input 100..120V, adjustable DC output:
CS5.243 Out: 24..28V DC, 120W;
CS10.243 Out: 24..28V DC, 240W.

Power Supply with single phase AC input 200-240V, adjustable DC output:
CS5.244 Out: 24..28VDC, 120W;
CS10.244 Out: 24..28VDC, 240W;
QS20.244 Out: 24..28VDC, 480W.

Power supplies with 2 phase AC input 380-480V, adjustable DC output:
ML100.200 Out: 24..28V DC, 100W;
ML90.200 Out: 24..28V DC, 90W.

DC/DC Converter with adjustable output:
CD5.121 In: 18..32.4VDC, Out: 12..15VDC, 8..6.4A;
CD5.241 In: 18..32.4VDC, Out: 23..28VDC, 5..4.3A;
CD5.242 In: 36..60 VDC, Out: 23..28VDC, 5..4.3A.

DC-UPS Control Units (Only suitable for applications where rectified DC voltage with +/-10% is available):
UB10.241 Input range: 22.5..30VDC; Output: 0.23V lower than input voltage, Buffer mode 22.25V DC.
Accessories,*Temperature location class A:
UZK 12.071 Battery Module 12V, 7Ah
UZO12.07 Mounting kit
UZK12.261 Battery Module 12V, 26Ah
UZO12.26 Mounting kit
ZM1.WALL Panel/Wall Mounting kit

DC-UPS with integrated battery. Only suitable for applications where rectified DC voltage with +/-10% is available, *Temperature location class A:
UBC10.241
UBC10.241-N1 (battery not assembled). Accesories: UZB12.051 Battery 12, 5Ah.

Variants with suffix: -S1: with Quick-connect spring clamp terminals
-C1: with conformal coated PCBs

Redundancy Module
YRM2.DIODE Dual input, single output 20A output current, input voltage drop 0.85V @ 20A.

Places of manufacture

Puls Investični s.r.o., Pražská 5639, 43001 Chomutov, Czech Republic;
Puls Electronics Co., Ltd., No.1 Rui'en Lane, Xingpu Road, Suzhou Industrial Park, 215126 Suzhou, PRC

Application/Limitation

The Type Approval covers hardware listed under Product description with regard to above listed places of manufacture. 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 RU Pt.4, Ch.9 Sec.1.

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2016.

Marking of product

Maker, type designation, serial number, place of production.

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 this certificate.

END OF CERTIFICATE