DNV·GL

Certificate No:
TAA00002A7

TYPE APPROVAL CERTIFICATE

This is to certify:

That the DC Power Supply

with type designation(s)
PISA11, DIMENSION CPS20, DIMENSION CP, MiniLine2 ML120, DIMENSION YR-Series

Issued to
PULS GmbH
München, Bayern, 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**
Humidity	**B**
Vibration	**A**
EMC	**A (*B)**
Enclosure	**A**

Issued at **Hamburg** on **2019-04-05**
This Certificate is valid until **2024-01-08**.
DNV GL local station: **Augsburg**

Approval Engineer: **Jens Dietrich**

for **DNV GL**

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

DIMENSION PISA Protection Modules (for power distribution and limitation):
PISA11.206212, In: 24-28VDC, Out 2 x 6A, 2 x 12A
PISA11.203206, In: 24-28VDC, Out 2 x 3A, 2 x 6A
PISA11.401, In: 24-28VDC, Out 4 x 1A
PISA11.402, In: 24-28VDC, Out 4 x 2A
PISA11.403, In: 24-28VDC, Out 4 x 3A
PISA11.404, In: 24-28VDC, Out 4 x 4A
PISA11.406, In: 24-28VDC, Out 4 x 6A
PISA11.410, In: 24-28VDC, Out 4 x 10A
PISA11.CLASS2: In: 24-28VDC, Out: 4 x 3.7A at 24V and 3.2A at 28V.
Protection Modules to be supplied by regulated PULS power supplies only.

DIMENSION CPS-Series Power Supplies:
CPS20.121, In: 100-240VAC, Out: 12-15VDC, 30A, 360W
CPS20.241, In: 100-240VAC, Out: 24-28VDC, 20A, 480W
CPS20.361, In: 100-240VAC, Out: 36-42VDC, 13.3A, 480W
CPS20.481, In: 100-240VAC, Out: 48-56VDC, 10A, 480W

DIMENSION CP-Series Redundancy Power Supplies, 1-phase :
CP20.241-R1-77, In: 100-240VAC or 110-150VDC, Out: 24VDC, 20A

Power supplies, brand label: Wärtsilä DCM-10, DCM-20:
DCM-10, In 100-240VAC or 110VDC, Out: 24-28VDC, 20A, 480W
DCM-20, In 100-240VAC or 110VDC, Out: 48-56VDC, 10A, 480W

MiniLine2 Power Supplies
ML120.241, In: 100-120VAC / 220-240VAC, Out: 24-28VDC, 5A, 120W
ML120.244, In: 200V-240VAC, Out: 24VDC, 5A, 120W
ML120.CLASS2, In: 100-120VAC / 220-240VAC, Out: 24VDC, 3.8A, 91.2W

DIMENSION YR-Series MOSFET Redundancy Modules for Input Decoupling (*EMC class B)
YR40.242 Dual Redundancy Module, In: 2 x 12-28VDC, Out: 40A,
YR40.245 Single Redundancy Module, In: 12-28VDC, Out: 40A,
YR40.482 Dual Redundancy Module, In: 2 x 24-56VDC, Out: 40A,
YR80.242 Dual Redundancy Module, In: 2 x 12-28VDC, Out: 80A.
Redundancy Module inputs to be supplied from sources with negligible harmonics

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

Approval conditions

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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

Conditions and de-ratings in respective Instruction and Installation Manuals are to be observed.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program.

Tests carried out

Applicable tests according to DNV GL CG-0339, November 2016.

Marking of product

Maker, type designation, power rating, 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