



Certificate No:
TAE00004T7

TYPE APPROVAL CERTIFICATE

This is to certify:

That the UPS

with type designation(s)

Sentryum Rack Marine UPS SMM 20 and UPS SMT 20

Issued to

RPS S.p.A.

Legnago VR, Italy

is found to comply with

DNV 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.

Issued at **Høvik** on **2023-10-04**

This Certificate is valid until **2028-10-03**.

for **DNV**

DNV local station: **Italy/Malta CMC**

Approval Engineer: **Nicolay Horn**

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Frederik Tore Elter
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.

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 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Page 1 of 3

Product description

Sentryum Rack Marine: Modular UPS for general emergency equipment.

Model	UPS SMM20	UPS SMT20
Rating	20 kVA / 20 kW	20 kVA / 20 kW
Input		
Rated voltage [V]	220 - 240 single-phase + N and 380 - 415 three-phase + N	
Voltage tolerance [V]	230 / 400 $\pm 10\%$ @ full load	
Frequency tolerance [Hz]	40 - 72	
Power factor @ full load	0.99	
Bypass		
Rated voltages [V]	220 / 230 / 240 single-phase +N	380 / 400 / 415 three-phase + N
Number of phases	1 + N	3 + N
Voltage tolerance (ph-N) [V]	from 180 (adjust 180-200) to 264 (adjust 250-264) referring to neutral	
Rated frequency [Hz]	50 / 60 (selectable)	
Frequency tolerance	$\pm 5\%$ (selectable)	
Bypass overload	110% infinite, 125% for 60 min, 150% for 10 min	
Output		
Nominal power [kVA]	20	
Active power [kW]	20	
Power factor	1 up to 45 °C	
Rated voltage [V]	220 / 230 / 240 single-phase + N (selectable)	380 / 400 / 415 three-phase + N (selectable)
Number of phases	1 + N	3 + N
Frequency [Hz]	50 / 60	
Frequency stability on battery operation	0.01%	
Voltage stability	$\pm 1\%$	
Voltage distortion	<1% with resistive linear load / $\leq 1.5\%$ with non-linear load	
Batteries		
Type	VRLA AGM/GEL/NiCd/Li-ion/SuperCaps	
Recharging method	One level, Two level, Cyclic recharge (selectable)	
Environmental conditions		
Ambient temperature for the Power Module	0 °C - +45 °C	
Range of relative humidity	5-95% non-condensing	
IP rating	IP20	
Dimensions		
Dimensions of the power module (WxDxH)	445(19")x664x397(9U)	
Dimensions of the power cabinet (WxDxH)	615x830x2100 (if provided by Riello UPS)	

Classification according to DNV-CG-0339	
Temperature class	A
Vibration class	A
Humidity class	A
Enclosure class	IP20
EMC class	A

Application/Limitation

End user is responsible for correct enclosure protection (IP) with respect to location.

To be installed in climatically controlled areas.

Type Approval documentation

Tests carried out

Type tests in accordance with IEC 62040-1 and 3, EMC (Class A), Vibration, Damp heat (Class A no condensation) and Dry heat (Class A) in accordance with DNV-CG-0339 August 2021.

Marking of product

Riello UPS –UPS SMM 20 or UPS SMT 20 – technical data

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routines (RT) checked (if not available tests, 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 shall be performed at 2 and 3.5 year and at renewal.

END OF CERTIFICATE