

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electrical Control System

with type designation(s)
GC600Neptune, MC200Neptune

Issued to

S.I.C.E.S. Società Italiana Costruzioni Elettriche Sumirago S.r.l.
Jerago Con Orago VA, Italy

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.

Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to relevant rules shall be provided upon installation on board

Issued at **Hamburg** on **2022-01-24**

for **DNV**

This Certificate is valid until **2027-01-06**.

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

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.

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.



Product description

GC600Neptune Power Management Generator Control Panel

MC200Neptune Power Management Shore Connection Control Panel

Technical data:

- Supply voltage: 8...32 VDC
- 4.3" TFT color display with backlight
- Measurement inputs for Mains/Busbar voltage 100/400VAC, Generator voltage 100/400VAC, Generator current 5A/1A
- Digital inputs, digital outputs, analogue inputs

Communication:

- 1 USB port (Modbus RTU)
- 1 RS232 serial port (Modbus RTU)
- 1 Isolated RS485 serial port (Modbus RTU)
- 1 Ethernet port with RJ45 connector (Modbus TCP)
- 2 Insulated CANBUS interfaces
- 1 USB port (for configuration only)

Power management functions:

- Automatic start and synchronization of a genset
- Load-dependent start & synchronization of gensets.
- Load dependent unloading & stop of gensets.
- Automatic or manual change of gensets' priorities.
- Support of multiple shore connections by multiple MC200Neptune within the power management system.

Software Versions:

System Controller software GC600Neptune (Main Controller): 01.32 (EB0250251)

System Controller software MC200Neptune (Main Controller): 01.16 (EB0250270)

System Controller software GC600Neptune and MC200Neptune (Measurement Controller): 01.09 (EB0250252).

Application/Limitation

The Type Approval covers hardware and software listed under Product description. When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

For the actual application the requirements in Pt.4 Ch.8 (Electrical Installations) are to be observed. Generator protection functions are not in scope of this type approval. System must be configured so that blackout detection does not solely depend on CAN communication.

For each delivery where the product is included (typically a switchboard) the following information related to the application system is to be submitted for approval:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of hardware and software modules as identified in this Type Approval Certificate
- Functional description
- Test program for the certification test

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Product certificate

Each delivery of the application system is to be certified according to DNV GL Pt.4 Ch.9 Sec.1.

The certification test is to be performed before the system is shipped to the yard, that is, at the manufacturer of the application system or at the switchboard manufacturer if agreed and adequate system competence and test facilities are available here. If certified together with the switchboard a combined control system and switchboard certificate may be issued. The certificate must identify this Type Approval Certificate plus the firmware/software by versions and date. After the certification the clause for application software control will be in force.

Clause for application software control

All changes in software and parameter settings are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the control unit

Type Approval documentation

Test Reports: PRSLAB EMCTR_180073-2, dated 2021-12-15; Qualilab 1519-QL21-R01 ver.1 2021-12-30; Qualilab 1089-QL21-R01, ver.1, dated 2021-10-5; TÜV Rheinland IT21W864002, dated 2021-10-12; Safety Tests: PRSLAB SAFTR_163105-1, dated 2017-12-05. Performance Test Report EAAV073303EN, rev.02, dated 2021-09-28.

Data sheets: GC600Neptune Datasheet_EN, MC200Neptune Datasheet_EN.

TA assessment report, issued by DNV Milano, 2021-09-16.

Tests carried out

-Applicable tests according to DNV CG-0339, August 2021

-Functional Performance Test on a generator/grid-simulator

Marking of product

Name and address of Manufacturer, serial number (S/N), FW version, part number (P/N), MAC address, type designation, power supply ratings.

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