

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Solid State Relays

with type designation(s)
RGC 15, 20, 25, 30 RGS 50

Issued to
Carlo Gavazzi Ltd.
Zejtun, Malta

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 B*
EMC B
Enclosure A

Environmental Category 'D':
Vibrations: 25 Hz to 100 Hz, 4g (except RGC 30 slot type Heatsink)

Issued at **Hamburg** on **2018-07-09**

for **DNV GL**

This Certificate is valid until **2023-06-25**.

DNV GL local station: **Valletta**

Approval Engineer: **Marco Rinkel**

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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.



Job Id: **262.1-029111-1**
Certificate No: **TAA00001WV**
Revision No: **1**

Product description

Solid State Relays

Nomenclature breakdown: RGC/S(I) II III IV V VI VII VIII IX X

- I - Designated basic series
 - RGC – 1 Phase SSR with heatsink
 - RGS – 1 Phase SSR with no heatsink
- II - Construction Type
 - 1 – 1 Phase
- III - Switching Type
 - A – Zero Switching
 - B – Instant On
- IV - Rated Operational Voltage
 - 23 – 230 Vac (24÷240 Vrms)
 - 40 – 400 Vac (42÷400 Vrms)
 - 48 – 480 Vac (42÷480 Vrms)
 - 60 – 600 Vac (42÷600 Vrms)
- V - Control Voltage
 - D – DC control, 3÷32 Vdc, Class 2 [RGC/S1x23/40]
 - D – DC control, 4÷32 Vdc, Class 2 [RGC/S1x48/60]
 - A – AC control, 20÷275 Vac 50/60Hz (±10%), (24÷190 Vdc)
- VI - Rated Current @ 40°C Surrounding Air Temperature
 - 15 – 23.8 A (RGC)
 - 20 – 23.0 A (RGC)
 - 25 – 25.0 A (RGC)
 - 30 – 30.0 A (RGC)
 - 50 – 50.0 A (RGS)
- VII - Control connection type
 - K – Screw
 - M – Spring (Pluggable)
 - G – Screw (Pluggable)
- VIII - Power connection type
 - K – Screw
 - G – Clamp
- IX - Connection configuration
 - E – Contactor
 - U – SSR
- XI - Option:
 - Z – Transil
 - Hxx – mounted on heatsink Hxx [RGS]
 - Pxx – private label branding

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Application/Limitation

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 Ships Pt.4 Ch.9 Control and Monitoring Systems.

Equipment for installation and/ or use outside a distance of 5 m from a standard or a steering magnetic compass.

Type Approval documentation

Test reports:

No: GL_Test2_2011_6.0

No: GL_Test9_2011_2.0

No: TRA-006010-01

No: GL_Test2_2013

No: GL_Test9_2013_3.0

Part Numbers for RG Series; Schematic & Layout for RG Series
Data sheets: RGS(090311), RGC_E(170613), RGC_U(170613)

Renewal Assessment Report Malta, 2018-06-13

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:

- model name
- manufacturer name
- 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