DNV·GL

Certificate No:
TAA000014T

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)
DCU 305 A/P R2, DCU 305 R3, RSP 305, DCU 305 R3 LT

Issued to
Auto-Maskin AS
Skjetten, Norway

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
DCU 305 A/P R2	B	B	A	B	C (Panel front only)
DCU 305 R3	B	B	A	B	
RSP 305	B	B	A	B	
DCU 305 R3 LT	B	B	A	B	

Issued at **Høvik** on **2017-03-31**
This Certificate is valid until **2019-03-30**.
DNV GL local station: **Oslo Maritime and CAP**

Approval Engineer: **Sergey Gilmiyarov**

for **DNV GL**

Odd Magne Nesvåg
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

This system is designed to be used for propulsion engines, and for engines which are auxiliary and/or emergency generator drivers. See also Application/Limitation.

Where possible, sensor inputs for the alarm system have been provided by the approved engine's Electronic Control Module (ECM) and its associated datalink signals. All other sensor inputs to the alarm system are provided by sensors, independent of the ECM. The annunciation and display of these signals will be provided by the panel display.

The requirement to have an independent safety system is met by use of independent switches and sensors that are connected directly to the panel system's safety section.

To be installed flush mounted in cabinet or desk.

System comprising:

Component	Description:	Firmware rev.:	Firmware rev. date:
DCU 305 A R2	Control Unit for Auxillary and Emergency Engines	4.47	November 2007
DCU 305 P R2	Control Unit for Propulsion Engines	4.47	November 2007
DCU 305 R3	Control Unit for Auxillary, Emergency and Propulsion Engines	6.59	September 2011
DCU 305 R3 LT	Control Unit for Auxillary, Emergency and Propulsion Engines	6.59	September 2011
---	Backup Controller inside DCU 305 unit	Backup 9	November 2002
RSP 305	Remote Panel	5.09	January 2006
RK-66	Terminal card	---	Terminal card
MK-6/14	Relay card	---	Relay card
AK-6	Analogue card	---	Analogue card
Rudolf R2	Configuration tool	2.15.10	Configuration tool
Rudolf R3	Configuration tool	3.5.10	Configuration tool

When the type approved software is revised (affecting all future deliveries) DNV GL 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.

Minor revisions of the firmware, as they defined by QA-system (minor revisions - provided that no core fit, form, function or visual effects are changed as described in the approved Product Specifications) to be recorded in the following documents:
DCU 305 R2 Doc. No. 5001
DCU 305 R3 Doc. No. 5002
RSP 305 Doc. No. 5003

Application/Limitation

- For single engine propulsion plant arrangement separately powered safety system is required.
- For engines used in multi-engines propulsion plants and engines used as auxiliary generator drivers it is required that the engine stops if / when the main and back-up CPU's in DCU305 system will lose power (fail to stop principle).
- Engines used as emergency generator driver must not stop in the event if the main and back-up CPU's in DCU305 system will lose power.
- The Type Approval covers hardware and firmware listed under Product description. Firmware revision numbers can differ onward from the ones listed in the table under Product description due to the minor changes, registered in documents No. 5001, 5002 and 5003.

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:
- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- I/O list (project specific alarms and shutdowns list)
- Test program for testing at the manufacturer

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system, preferably at the engine/system application maker integrating control, monitoring and safety system, before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Clause for application software control
All changes in software are to be recorded as long as the system is in use on board. The records of all major changes are to be forwarded to DNV GL for evaluation and approval.
Major changes in the software are to be approved before being installed in the computer.
A Certification of Application Functions may be required for the particular vessel.

Type Approval documentation

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE