DNV·GL

Certificate No:
TAA000025E

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Burner Management System

with type designation(s)
LMV50… / LMV51… / LMV52…

Issued to
Siemens AG
Rastatt, 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	**A**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**A**

Issued at **Hamburg** on **2019-03-15**
This Certificate is valid until **2024-03-14**.
DNV GL local station: **Augsburg**

Approval Engineer: **Didier Girardin**

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.

Product description

Burner management system for forced draft burners with the main functions:
Burner control, Electronic fuel-air ratio control for a maximum of 4 actuators for LMV51…and a maximum of 6 actuators for LMV52…
Optional PID temperature or pressure controller (boiler controller / load controller)
Optional VSD module.

The system components (e.g. AZL5..., actuators) are interconnected via a bus system. Communication between the bus users takes place via a safety-related, system-bound data bus. All safety-related digital outputs of the system are permanently monitored via a contact feedback network.

LMV5-System consists of:
Basic unit (different parameter sets)
Microprocessor based burner control system for the use in oil- or gas fried combustions plants.
LMV51.000C2, LMV51.100C1, LMV51.100C2, LMV51.300B1, LMV51.300B2, LMV52.200B1, LMV52.200B2, LMV52.400B2, LMV50.320B2
LMV51.0... / LMV51.1… / LMV51.3… / LMV52.2… software version V 05.x0
LMV50.3… / LMV52.4… software version V 10.x0 with additional O2 trim control
Load controller: LMV51.1… optional, LMV51.3… and LMV52… load controller integrated
Load controller software version V 02.x0
Degree of protection IP 40 (Mounted)
Power supply AC 120V / 230V / 50…60Hz

O2-Modul PLL52
Software version V 01.x0
Degree of protection IP 54

Display and operating unit AZL52… software version V 05x.0
Degree of protection IP54 (Mounted)

Flame detectors
QRI... infrared flame doctors for continuous operation, degree of protection IP54
QRB… photo diode for intermitted operation, degree of protection IP40
QRA7… UV cell sensor for continuous operation, degree of protection IP65

Actuators
Actuator SQM45…/ SQM48… software version V 01.x0 for air dampers and control valves of oil and gas burners
Torques SQM45... up to 3 Nm, SQM48... up to 20 Nm, SQM48.6... up to 35 Nm
Running times SQM45... 10 ... 120 s, SQM48... 30 ... 120 s, SQM48.6... 60 ... 120 s
Degree of protection IP54

Application/Limitation

Degree of protection achieved by mounting and per DIN EN 60 529 for burner controls to be ensured through adequate mounting by the burner or boiler manufacturer according Siemens mounting notes.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- Functional description
- System block diagram
- Power supply arrangement (may be part of the system block diagram)
- List of control and monitored points

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.

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. After certification the clause for software control will be put into force.

Software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

The requirements in accordance to EN 298:2003 (DIN EN 298:2004) and EN 230:2005 (DIN EN 230:2005) are not covered by this certificate. Requirements mentoned as before are confirmed by TüV report GA 09 2012 E16

Type Approval documentation
Hidden

Tests carried out
Applicable tests according to class guideline DNVGL-CG-0339, November 2016

Marking of product
The products to be marked with:
- manufacturer name
- model name
- serial number
- 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