



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13092**

This is to certify that the  
**Power Management System**

with type designation(s)  
**SIGMA S6610 PM Module, SIGMA S6500 UI Module, SIGMA S6100 S/LS Module**

Manufactured by  
**Littelfuse Selco A/S**  
**ROSKILDE, Denmark**

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

Application  
Location classes:

Temperature	A*/C
Humidity	B
Vibration	B
EMC	A
Enclosure	B

\*S6100 S/LS Module

This Certificate is valid until **2014-12-31**.

Issued at **Høvik** on **2013-01-15**

DNV local station: **Copenhagen**

Approval Engineer: **Poul Tranborg**

for **Det Norske Veritas AS**

.....  
**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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

## Product description

The SIGMA S6610 PM Module provides prioritised load depending start and stop of generators, on/off duty selection of individual generators, dismissal of failed/manually controlled generators, large consumers pre-warning and presentation of electrical parameters.

In addition to the above the SIGMA S6610 Module may handle start permission for 5 large consumers with optional load feedback and trip of non-essential load.

The SIGMA S6500 UI Module provides configuration of the SIGMA IO/P and S/LS modules and presentation of electrical parameters.

The SIGMA S6100 S/LS Module provides frequency and voltage stabilization, voltage matching, automatic synchronization and active and reactive load sharing.

Software versions:

SIGMA 6610: date & 1-v-x, At time of issue: 120329 version 1-0-41

SIGMA 6500: date & 1-v-x, At time of issue: 101228 version 1-4-17

SIGMA 6100: date & 3-v-x, At time of issue: 111101 version 3-5-69

The SIGMA S6610/S6500/S6100 Firmware Release Documents are used for software version control. Major changes should affect first digit. Minor changes causing change in second or third digit of the software version will not require any update in the type approval certificate. Reference is made to clause for application software control for follow up.

## Application/Limitation

The type approval cover hardware and software listed under product description.

The following documentation for the actual application shall be submitted for approval in each case (normally as part of the documentation for the switchboard):

- Reference to this type approval certificate
- System functional description, including configuration set up for the actual application.
- System block diagram
- Power supply arrangement (may be part of the system block diagram).

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 A 202 will not be required. Correct configuration and set up for each delivery to be tested as part of switchboard functional testing and during commissioning after installation. The installed SW (identified by date and preferably also by version number) will be listed in the product certificate of the switchboard.

Clause for application software control.

All changes in software are to be recorded in the SIGMA S6600/S6500/S6100 Firmware Release Document. The records of all changes are to be forwarded to DNV for evaluation and approval on request. Major changes in the software are to be approved before being installed in an application

## Type Approval documentation

[SIGMA S6500 UI Module User Manual rev. 031127](#)

[SIGMA S6100 S/LS Module User Manual rev. 031127](#)

[SIGMA DNV Approval Technical Documentation Revision 040824](#)

[Functional test SIGMA Power Management System Rev. 01.11.2005](#)

[SIGMA S6100 S/LS Module Function test rev. 26.10.2005](#)

[SIGMA S6610 Firmware Release History up to 120329 version 1-0-41](#)

[SIGMA S6500 Firmware Release History up to 101228 version 1-4-17](#)

[SIGMA S6100 Firmware Release History up to 111101 version 3-5-69](#)

[Test Report DANAK-197219 DELTA- E501273-1](#)

[SIGMA Data Sheet Q1005-61E](#)

[SIGMA S6610 PM Module Connections](#)

[SIGMA S6610 PM Module User's Manual dated 13.09.2006](#)

[SIGMA S6610 PM Module Function Test dated 13.3.2007](#)

[Test Report DANAK-198449 dated 28 July 2006](#)

[DNV Copenhagen Certificate retention survey report for A-12000, dated 2012-08-15](#)

### Tests carried out

Applicable test according to Standard for certification 2.4 April 2001  
SIGMA S6600/6610 PM Module and SIGMA S6100 S/LS Module function tests 2007-03-13

### Certificate Retention Survey

Applicable test according to Standard for certification 2.4 April 2001  
SIGMA S6600/6610 PM Module and SIGMA S6100 S/LS Module function tests 2007-03-13

### Certificate retention survey

The scope of the retention/renewal survey 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 survey 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.

Survey is to be performed at renewal of this certificate.

END OF CERTIFICATE