



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13093**

This is to certify that the
Electrical Measuring and Protection Relay

with type designation(s)
SIGMA S6000 IO/P Protection 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
Humidity	B
Vibration	B
EMC	A
Enclosure	B

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 S6000 IO/P Module provides integrated protection, load shedding and programmable analogue outputs. The following functions are included: Short circuit protection, overcurrent protection, overload protection, reverse power protection, excitation loss protection, over/under voltage protection, over/under frequency protection and non essential load tripping in two steps.

Software versions:

SIGMA 6000: 3-v-x, Present 3-2-52 dated 100210.

The SIGMA S6000 Firmware Release Documents are used for software version control. Major changes should affect first digit. Minor software changes causing change in second digit 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
- Protection settings 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.

Clause for application software control.

All changes in software are to be recorded in the SIGMA S6000 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 S6000 IO/P Module User Manual rev. 031127.](#)

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

[SIGMA S6000 IO/P Module Function test rev. 01.11.2005.](#)

[SIGMA S6000 IO/P Module Protection test rev. 07.11.2005.](#)

[SIGMA S6000 Firmware Release History up to 100210 Version 3-2-52.](#)

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

[DNV Copenhagen Certificate retention survey report for A-12001, dated 2012-08-15](#)

Tests carried out

Applicable test according to Standard for certification 2.4 April 2001

SIGMA S6000 IO/P Module function and protection tests.

Marking of product

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.

Certificate No.: A-13093
File No.: 896.60
Job Id.: 262.1-005320-6

- 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