

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Level Switches**

with type designation(s)
LS-240-3E, LS-270, LS-280

Issued to

Gems Sensors Ltd.
Basingstoke, HA, United Kingdom

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.

Location classes:

Temperature	B
Humidity	B
Vibration	A
EMC	Not relevant
Enclosure	B / IP67

Issued at **Høvik** on **2017-05-12**

This Certificate is valid until **2018-04-06**.

DNV GL local station: **Southampton**

for **DNV GL**

Approval Engineer: **Ståle Sneen**

.....
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.



Job Id: **262.1-025884-1**
Certificate No: **TAA0000174**

Product description

Float level switches LS-240-3E, LS270, LS-280 with fixed cable type LMGSGO or TML T-RD (EPR basis).

Float:	Buna N
Interface float:	Buna N weighted according to media
Switching differential:	10 mm
Installation:	vertical
Media temperature:	max. 80°C
Media:	seawater, fuel oil, lubrication oil and hydraulic oil
Output signal:	1 hermetically encapsulated switch, n/o or n/c - function
Contact rating:	250V/3A AC/DC
LS-240-3E:	sloshshield steel 1.4571 or SS 316
LS-270:	sloshshield Lucite / Makrolon
LS-280:	sloshshield Lucite / Makrolon

Place of manufacture

Gems Sensors and Controls
TGA Industries Limited
Lennox Road
Basingstoke
RG22 4AW
United Kingdom

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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

Tests carried out

Guidelines for the Performance of Type Approvals, Chapter 2, Edition 2003

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Job Id: **262.1-025884-1**
Certificate No: **TAA0000174**

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