



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13449**

This is to certify that the
Peripheral Equipment

with type designation(s)
**SL150-01.MON.03, SL190-02.MON.03,
SL213-01.MON.03, SL231-02.MON.03**

Manufactured by
**North Invent A/S
Hedensted, 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:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
SL150-01.MON.03	A	B	A	B	C (*2)
SL190-02.MON.03	A	B	A (*1)	B	C (*2)
SL213-01.MON.03	A	B	A (*1)	B	C (*2)
SL231-02.MON.03	A	B	A (*1)	B	C (*2)

*1) To be installed with dual strength monitor stand (2 screws over each other)

*2) Front side, when mounted in console with a special sealing kit

This Certificate is valid until **2017-06-30**.

Issued at **Høvik** on **2013-09-26**

DNV local station: **Fredericia**

Approval Engineer: **Nils Jarem**

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 Sea Line MKIII Monitors 15", 19", 21.3" and 23.1" comprising the following units:

Product	Type designation	Module/Unit	Type designation
Sea Line MKIII 15"	SL150-01.MON.03	TFT panel	T-51863D150J-FW-A-AE 15"
		Backlight inverter	DMD43153
		Controller board	10011000F
		HMI PCB	10050001B
		Power supply	N015-001W
Sea Line MKIII 19"	SL190-02.MON.03	TFT panel	G190EG02V1
		Controller board	10011000F
		HMI PCB	10050001B
		Power supply	N015-001W
		Dual brackets	SL190-01STA.02-0001
Sea Line MKIII 21.3"	SL213-01.MON.03	TFT panel	LTM213U6-L01
		Backlight inverter	DMD 63359
		Controller board	10011000F
		HMI PCB	10050001B
		Power supply	N015-001W
		Dual brackets	SL213-01STA.02-0001
Sea Line MKIII 23.1"	SL231-02.MON.03	TFT panel	LQ231U1LW32
		Controller board	10011000F
		HMI PCB	10050001B
		Power supply	N015-001W
		Dual brackets	SL231-01STA.01-0001

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Test results of the "Compass safe distance":

Model	Compass; standard	Compass; steering / standby / emergency
SL150-01.MON.03	100 cm	65 cm
SL190-02.MON.03	200 cm	160 cm
SL213-01.MON.03	160 cm	160 cm
SL231-01.MON.03	210 cm	130 cm

Type Approval documentation

NUMBER	TITLE
sl15-mk3-ds.gb-rev2.2-09.2008	Technical Data Sheet Sea Line 15.0" MK3 Monitor
SL19-MK3-DS.-Rev3.0-06.2013	Technical Data Sheet Sea Line 19.0" MK3 Monitor
sl21-mk3-ds.gb-rev2.2-09.2008	Technical Data Sheet Sea Line 21.3" MK3 Monitor
SL23-MK3-DS.GB-Rev3.3-11.2010	Technical Data Sheet Sea Line 23.1" MK3 Monitor
SL-MK3-UM-Rev2.1-08.2013	User Manual Sea Line MK3 Monitors
DANAK-1910139, 19.06.2008	Delta Test Report, Project A505354
DANAK-1910412, 13.02.2009	Delta Test Report, Project A506053-1
DANAK-1911044, 08.09.2010	Delta Test Report, Project A506792-01
DANAK-19/12130, 01.06.2012	Delta Test Report, Project T201901
DANAK-19/12367, 22.08.2012	Delta Test Report, Project T203412
DNV Fredericia periodical assessment report for A-11097, dated 2013-06-25.	

Tests carried out

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

The 'Acoustic noise and signals' and the 'Compass safe distance' were measured according to sections 11.1 and 11.2 of IEC 60945, 4th edition (2002).

Marking of product

See Product description above.

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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE