# DET NORSKE VERITAS

# TYPE APPROVAL CERTIFICATE

**CERTIFICATE NO. A-10019**
This Certificate consists of 3 pages

*This is to certify that the*

**Peripheral Equipment**

*with type designations*

**MT 217 nautic Monitor,**
**MT 219 nautic Monitor,**
**MT 221 nautic Monitor**

*Manufactured by*

**Elektronik Systeme Lauer GmbH & Co.KG**
Unterensingen, Germany

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

*Application*

| | |
|---|---|
| Temperature | A |
| Humidity | B |
| Vibration | A |
| EMC | B |
| Enclosure | A |

*Place and date*
Høvik, 2006-07-04
*for* DET NORSKE VERITAS AS

Knut Svein Ording
*Head of Section*

*Local Office*
DNV Essen

*This Certificate is valid until*
2008-12-31

Andrzej Gdaniec
*Surveyor*

**Notice: 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

Industrial TFT-Display:

| Elektronik Systeme Lauer GmbH&Co.KG<br>Type Designation | SAM Electronics GmbH<br>Type Designation |
|---|---|
| MT 217 nautic Monitor 24V DC | Display TFM17L-24 |
| MT 217 nautic Monitor 230V AC | Display TFM17L-230 |
| MT 219 nautic Monitor 24V DC | Display TFM19L-24 |
| MT 219 nautic Monitor 230V AC | Display TFM19L-230 |
| MT 221 nautic Monitor 24V DC | Display TFM21L-24 |
| MT 221 nautic Monitor 230V AC | Display TFM21L-230 |

## 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.

For installation on the bridge the 'Compass safe distance' shall be ensured according to IEC60945 section 11.2.

## Type Approval documentation

Data sheets: LAUER data sheet MT 217 nautic Monitor 230V AC
LAUER data sheet MT 217 nautic Monitor 24V DC
LAUER data sheet MT 219 nautic Monitor 230V AC
LAUER data sheet MT 219 nautic Monitor 24V DC
LAUER data sheet MT 221 nautic Monitor 230V AC
LAUER data sheet MT 2100 nautic Monitor 24V DC

SAM Electronic data sheet Display TFM17L-230
SAM Electronic data sheet Display TFM17L-24
SAM Electronic data sheet Display TFM19L-230
SAM Electronic data sheet Display TFM19L-24
SAM Electronic data sheet Display TFM21L-230
SAM Electronic data sheet Display TFM21L-24

Test Reports: Regelungs- und Messtechnik (RMS) Test Report
No. 03 - 04 / 2005, dated 2005-04-23
MeβTechnik Nord GmbH Test Report; EMC- Tests
No. 04991.047.05, dated 2005-04-12
MeβTechnik Nord GmbH Test Report; EMC- Tests
No. 04991.048.05, dated 2005-04-12
Sound Level/Compass safe distance measurement
No. 05094.121.05, dated 2005-09-06
Regelungs- und Messtechnik (RMS) Test Report
No. 01 - 05 / 2006, dated 2006-05-16
MeβTechnik Nord GmbH Test Report; EMC- Tests
No. 05198.064.06, dated 2006-04-20

**Tests carried out**

According to Standard for Certification No. 2.4, April 2001.
The 'Compass safe distance' was measured according to IEC60945 section 11.2.

**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 no affect the type approval given.
- Ensuring traceability between manufacturer's product type marking and the type approval certificate.

END OF CERTIFICATE