

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Peripheral Equipment**

with type designation(s)

**HP EliteDisplay E233/E243i/E273 Monitors**

Issued to

**Mariner Systems (UK) Ltd.  
WOKINGHAM, BERKSHIRE, 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:**

|                    |   |
|--------------------|---|
| <b>Temperature</b> | <b>D</b>  |
| <b>Humidity</b>    | <b>B</b>  |
| <b>Vibration</b>   | <b>A</b>  |
| <b>EMC</b>         | <b>B</b>  |
| <b>Enclosure</b>   | <b>Required protection according to DNV GL Rules shall be provided upon installation on board</b> |

Issued at **Høvik** on **2018-03-20**for **DNV GL**This Certificate is valid until **2023-03-19**.DNV GL local station: **Newcastle-upon-Tyne**Approval Engineer: **Nils Jarem****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: **262.1-028397-1**  
Certificate No: **TAA00001SA**

## Product description

| Model                             | Unique Identifier                                    |
|-----------------------------------|--|
| HP EliteDisplay E233 23" Monitor  | 1FH46A8, 1FH46AA, 1FH46AT                            |
| HP EliteDisplay E243i 24" Monitor | 1FH49AA, 1FH49A8, 1FH49AC, 1FH49AS, 1FH49AT          |
| HP EliteDisplay E273 27" Monitor  | 1FH50AA, 1FH50AC, 1FH50AS, 1FH50AT, 1FH50A8, 1FH50U9 |

Verified for nominal voltage: 230V

## Application/Limitation

Approval **ONLY** applies when used in conjunction with Mariner Systems (UK) Ltd Kit:

| Model                             | Mariner Kit  |
|-----------------------------------|--|
| HP EliteDisplay E233 23" Monitor  | MS1530 - HP EliteDisplay E233 23" Monitor Kit (Desk Mount)<br>MS1535 - HP EliteDisplay E233 23" Monitor Kit (Wall Mount)<br>MS1540 - HP EliteDisplay E233 23" Monitor Kit (Console Mount)    |
| HP EliteDisplay E243i 24" Monitor | MS1550 - HP EliteDisplay E243i 24" Monitor Kit (Desk mount)<br>MS1555 - HP EliteDisplay E243i 24" Monitor Kit (Wall mount)<br>MS1560 - HP EliteDisplay E243i 24" Monitor Kit (Console mount) |
| HP EliteDisplay E273 27" Monitor  | MS1570 - HP EliteDisplay E273 27" Monitor Kit (Desk Mount)<br>MS1575 - HP EliteDisplay E273 27" Monitor Kit (Wall Mount)<br>MS1580 - HP EliteDisplay E273 27" Monitor Kit (Console Mount)    |

Compass safe distance:

Standard compass: 70 cm  
Steering compass: 60 cm

## Approval conditions

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.

### Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

### Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

## Type Approval documentation

| Name  | Number             | Rev./Date     |
|---|--------------------|---------------|
| <b>Datasheets:</b>                                |                    |               |
| HP EliteDisplay E273 27-inch Monitor (datasheet)  | c05689354-DA 16078 | V2 2017-11-30 |
| HP EliteDisplay E243i 24-inch Monitor (datasheet) | c05616570-DA 16037 | V3 2017-09-08 |
| HP EliteDisplay E233 23-inch Monitor (datasheet)  | c05616317-DA 16035 | V4 2017-10-18 |
| <b>Drawings:</b>                                  |                    |               |
| MS1530 Assembly                                   | MS1530_A           | 1             |

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| <b>Name</b>                           | <b>Number</b> | <b>Rev./Date</b> |
|---------------------------------------|---------------|------------------|
| MS1535 Assembly                       | MS1535_A      | 1                |
| MS1540 Assembly                       | MS1540_A      | 1                |
| MS1540 Drilling Detail                | MS1540_DD     | 1                |
| MS1550 Assembly                       | MS1550_A      | 1                |
| MS1555 Assembly                       | MS1555_A      | 1                |
| MS1560 Assembly                       | MS1560_A      | 1                |
| MS1560 Drilling detail                | MS1560_DD     | 1                |
| MS1570 Assembly                       | MS1570_A      | 1                |
| MS1575 Assembly                       | MS1575_A      | 1                |
| MS1580 Assembly                       | MS1580_A      | 1                |
| MS1580 Drilling detail                | MS1580_DD     | 1                |
| <b>Reports:</b>                       |               |                  |
| Test report HP E243i 24 inch monitor  | TL17145       | 1 / 2018-02-05   |
| Test report HP E233 23 inch monitor   | TL17146       | 1 / 2018-02-05   |
| Test report HP E273 27 inch monitor   | TL17150       | 1 / 2018-02-05   |
| Mariner TA Test Requirements Issue 13 | Issue 13      | 2017-11          |

### Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.  
For the bridge mounted components the 'Acoustic noise and signals' and the 'Compass safe distance' were measured according to sections 11.1 and 11.2 of IEC 60945, 4<sup>th</sup> edition (2002).

### Marking of product

Mariner Kit Number + HP product label, as listed under Application/Limitation

### 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