

# TYPE APPROVAL CERTIFICATE

## This is to certify:

That the **Peripheral Equipment**

with type designation(s)  
**HP E23 / E24i / E27 G4 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.**

**Approved only with Mariner Kits shown on page 2.**

## 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 relevant rules shall be provided upon installation on board</b>

Issued at **Høvik** on **2021-06-01**

for **DNV**

This Certificate is valid until **2026-05-31**.

DNV local station: **Newcastle-upon-Tyne**

Approval Engineer: **Ståle Sneen**

**Marta Alonso Pontes**  
**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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

HP E23 G4 FHD 23-inch 1920x1080, 16:9 LED Backlit IPS Monitor

HP E24i G4 WUXGA 24-inch 1920 x 1200, 16:10 LED Backlit IPS Monitor

HP E27 G4 FHD 27-inch 1920x1080, 16:9 LED Backlit IPS Monitor

Verified for nominal voltage: 100 – 240 Vac

## Approval conditions

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

## Application/Limitation

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

### Monitor Mariner kit:

HP E23 G4 FHD 23-inch Monitor when installed with Mariner Kit MS1610, MS1615 or MS1620.

HP E24i G4 WUXGA 24-inch Monitor when installed with Mariner Kit MS1630, MS1635 or MS1640

HP E27 G4 FHD 27-inch Monitor when installed with Mariner Kit MS1650, MS1655 or MS1660

HP E27 G4 FHD is only to be installed together with in-line power filter RF 1004-MST-C.

HP E23 G4 FHD & HP E27 G4 FHD:

Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 500 mm

Standard Compass Safe Distance 0.3 Degree deflection: 700 mm

HP E24i G4 WUXGA:

Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 700 mm

Standard Compass Safe Distance 0.3 Degree deflection: 900 mm

## Type Approval documentation

Report TL21010 HP E23 G4 FHD 23 inch monitor dated 2021-04-13

Report TL21014 HP E24i G4 WUXGA 24 inch monitor dated 2021-04-13

Report TL21023 HP E27 G4 FHD 27 inch monitor dated 2021-04-13

HP E23 G4 FHD QuickSpec v.3, ref.: c06922715 version 3/2021-02-28

HP E24i G4 WUXGA QuickSpec v.4, ref.: c06922716 version 4/2021-04-09

HP E27 G4 FHD QuickSpec v.3, ref.: c06922718 version 3/2021-02-28

MS Testing, Marine Type Approval Test Requirements – Issue 15, 2021-02

MS1610 ASSEMBLY, dwg.no MS1610\_A version 1/2021-02-18

MS1615 ASSEMBLY, dwg.no MS1615\_A version 1/2021-02-18

MS1620 ASSEMBLY, dwg.no MS1620\_A version 1/2021-02-04

MS1630 ASSEMBLY, dwg.no MS1630\_A version 1/2021-02-18

MS1635 ASSEMBLY, dwg.no MS1635\_A version 1/2021-02-18

MS1640 ASSEMBLY, dwg.no MS1640\_A version 1/2021-02-09

MS1650 ASSEMBLY, dwg.no MS1650\_A version 2/2021-03-15

MS1655 ASSEMBLY, dwg.no MS1655\_A version 2/2021-03-15

MS1660 ASSEMBLY, dwg.no MS1660\_A version 2/2021-03-15

Type approval initial assessment report, DNV United Kingdom 2021-05-24.

## Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

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, 4th 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