![DNV logo]

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Peripheral Equipment

with type designation(s)
HP E22 / E24 / E27 G5 FHD Monitors

issued to
Mariner Systems (UK) Ltd.
Wokingham, Berkshire, United Kingdom

is found to comply with
DNV 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:

Temperature	**C**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**A / IP20**

Issued at **Høvik** on **2023-12-12**

This Certificate is valid until **2028-12-11**.
DNV local unit: **UK & Ireland CMC & VMC**

Approval Engineer: **Martin Skårerverket**

for **DNV**

Digitally Signed By: Sneen, Ståle
Location: DNV Høvik, Norway

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.

Product description

HP E22 G5 FHD 21.5" monitor

HP E24 G5 FHD 23.8" monitor

HP E27 G5 FHD 27" monitor

Verified for nominal voltage: 230 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 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 E22 G5 FHD 21.5" Monitor
- MS1710 (Desk mount)
- MS1715 (Wall mount)
- MS1720 (Console mount)

HP E24 G5 FHD 23.8" Monitor
- MS1730 (Desk mount)
- MS1735 (Wall mount)
- MS1740 (Console mount)

HP E27 G5 FHD 27" Monitor
- MS1750 (Desk mount)
- MS1755 (Wall mount)
- MS1760 (Console mount)

Compass safe distances:
HP E22 G5 FHD 21.5" Monitor:
Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 800 mm
Standard Compass Safe Distance 0.3 Degree deflection: 1200 mm

HP E24 G5 FHD 23.8" Monitor:
Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 1100 mm
Standard Compass Safe Distance 0.3 Degree deflection: 1600 mm

HP E27 G5 FHD 27" Monitor:
Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 900 mm
Standard Compass Safe Distance 0.3 Degree deflection: 1100 mm

Type Approval documentation

Test Reports:	Number:	Rev. / Date
Test Report - Marine Type Approval testing - HP E22 G5 FHD 21.5" monitor	TL23061	1 / 2023-07-31
Test Report - Marine Type Approval testing - HP E24 G5 FHD 23.8" monitor	TL23062	1 / 2023-07-31
Test Report - Marine Type Approval testing - HP E27 G5 FHD 27" monitor	TL23063	1 / 2023-07-31
Datasheets:		
Datasheet - QuickSpecs HP E22 G5 FHD	c08392792	2 / 2023-04-12
Datasheet - QuickSpecs HP E24 G5 FHD	c08392793	3 / 2023-04-12
Datasheet - QuickSpecs HP E27 G5 FHD	c08392796	3 / 2023-04-12
Drawings:		
Drawing - MS1710 Assembly	MS1710_A	1 / 2023-09-26
Drawing - MS1720 Assembly	MS1720_A	1 / 2023-09-04
Drawing - MS1730 Assembly	MS1730_A	1 / 2023-09-26
Drawing - MS1735 Assembly	MS1735_A	1 / 2023-09-26
Drawing - MS1740 Assembly	MS1740_A	1 / 2023-09-04
Drawing - MS1755 Assembly	MS1755_A	1 / 2023-09-26
Drawing - MS1760 Assembly	MS1760_A	1 / 2023-08-21
Drawing - MS1715 Assembly	MS1715_A	1 / 2023-09-26
Drawing - MS1750 Assembly	MS1750_A	1 / 2023-09-26

Type approval initial assessment report, DNV UK 2023-11-16.

Tests carried out
Applicable tests according to class guideline DNV-CG-0339, August 2021.
Shock test (15g, 11ms, repeated 20 times for each axis) according to EN 60068-2-27:2009.
Applicable tests for protected equipment according to IEC 60945, 4th edition (2002), except section 8.12 'Corrosion'.

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