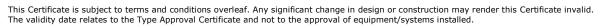
DNV-GL

Certificate No: **TAA00002BU**

TYPE APPROVAL CERTIFICATE

This is to certify:		
That the Perso	nal Computer	
with type designation(s) HP Z4 G4 Workstation		
	ystems (UK) Ltd. , Berkshire, United Kingdom	
is found to comply with DNV GL rules for classification – Ships, offshore units, and high speed and light craft		
Application	:	
Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.		
Approved only with Mariner Kit shown on page 2.		
Location classe	es:	
Temperature Humidity Vibration EMC Enclosure	D B A B Required protection according to DN'shall be provided upon installation of	
Issued at Høvik on 2019-05-16 for DNV GL		
This Certificate is valid until 2024-05-15 . DNV GL local station: Newcastle-upon-Tyne		TOT DIEF GE
Approval Engineer: Ståle Sneen		Trond Sjåvåg Head of Section





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Job Id: **262.1-031013-1** Certificate No: **TAA00002BU**

Product description

HP Z4 G4 Workstation.

Verified for nominal supply voltage: 230 V \sim 50/60 Hz and 115 V \sim 60 Hz

Application/Limitation

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

Mariner Kit:

MS3070 HP Z4 G4 Workstation (Desktop configuration) MS3080 HP Z4 G4 Workstation (Tower configuration)

Only to be installed together with in-line power filter RF 1007-MST-A.

Shielded cable is required for connection to Ethernet port.

Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 600 mm Standard Compass Safe Distance 0.3 Degree deflection: 700 mm

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

```
Report TL18111 Issue 1, HP Z4 G4 Worstation Test Unit A, dated 2019-01-22
Report TL18112 Issue 1, HP Z4 G4 Worstation Test Unit B, dated 2019-01-22
Report TL18113 Issue 1, HP Z4 G4 Worstation Test Unit C, dated 2019-01-22
QuickSpecs HP Z4 G4 Workstation, doc. c05527757 – DA 15954 – Worldwide – Version 9, dated 2018-09-21
Mariner Type Approval Test Requirements – Issue 13, dated 2017-11-10
Mariner Systems (UK) Ltd, HP Z4 G4 Workstation – Component Options, doc. HP Z4 G4 Components Feb 19, dated 2019-02-04
Filter type RF 1007-MST-A, Dwg. No. DS 105-MST, Issue No. 0.1
MS3070 Assembly, Dwg. No. MS3070_A, Issue No.1, dated 2018-11-12
MS3080 Assembly, Dwg. No. MS3080_A, Issue No.1, dated 2018-11-12
```

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016. 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'.

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Job Id: **262.1-031013-1** Certificate No: **TAA00002BU**

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

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