Certificate No:
TAA000038E

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Personal Computer

with type designation(s)
Marine PC, Optiplex XE4

Issued to
Tetradyne Co., Ltd.
Seoul, **Korea, Republic of**

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.

Temperature	**B**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**Required protection according to relevant rules shall be provided upon installation on board**

Issued at **Busan** on **2023-01-11**
This Certificate is valid until **2028-01-10**.
DNV local unit: **Seoul**

Approval Engineer: **Dong Ho Park**

for **DNV**

Hanwee Low
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

Marine PC, Optiplex XE4 series:

	Optiplex XE4 SFF	Optiplex XE4 Tower	
CPU	Core i9/ i7/i5/i3		
RAM	4GB/8GB/16GB/32GB/64GB/128GB DDR4/3200MHz	8GB/16GB/32GB/ 64GB/128GB DDR5/3600MHz	
Storage	M.2 256GB/512GB/1TB/2TB HDD 500GB/1TB/2TB/4TB SATA 5400RPM/7200RPM		
Network I/O Port	GIGABIT ETHERNET		
Operating System	WINDOWS 10/11 PRO (64bit)		
AC/DC Power Supply	90~264VAC 47~63Hz, 300W	90~264VAC 47~63Hz, 500W	
Graphic	UHD 770		
TD kit	TVK-XE4-SH	TVK-XE4-TH	TVK-XE4-TV
Type	horizontal	horizontal	vertical
Dimension (mm) (H x W x D)	150 x 299 x 296	223 x 377 x 303	406 x 179 x 303
Weight (kg)	6.06	7.98	7.81

Compass safe distance:

	Standard compass	Steering compass
PC, Optiplex XE4 SFF	145 cm	95 cm
PC, Optiplex XE4 Tower	265 cm	170 cm

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

This certificate is only applicable when XE4 is used in conjunction with Tetradyne kit, TVK-XE4-SH/TH/TV.

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 for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

For the bridge mounted components, the "Acoustic noise and signals test" and the "Compass safe distance test" were measured according to sec. 11.1 and 11.2 of IEC60945 (2002) Ed. 4.0.

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

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