

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Personal Computer**with type designation(s)
tBOX810-838-FL

Issued to

Axiomtek Co., Ltd.
New Taipei City, Taiwanis found to comply with
DNV GL rules for classification – Ships**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	A

This Certificate is valid until **2021-07-31**.Issued at **Hamburg** on **2016-08-01**DNV GL local station: **Kaohsiung**Approval Engineer: **Dariusz Lesniewski**for **DNV GL**

Duy Nam Le
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.

Product description

The tBOX810-838-FL is an fanless embedded system with onboard Intel® Atom™ E3845 (1.91 GHz) processor.

Main Features:

CPU: Intel® Atom™ processor E3845 (4C@1.91 GHz)
System Memory: DDR3L-1333, 4 GB memory onboard
HDD: Seagate, ST9320423AS_32GB
Graphic Integrated in the Intel® HD Graphics for VGA
2 x PCI Express mini card slot, 1 x SIM card socket
BIOS AMI Ver. 2.16.1242

System I/O

2x GbE LAN (M12 D-coded)
1x power input (M12 A-coded)
4x antenna opening
2x RS-232/422/485
1x 8bit programmable DIO
1x VGA
2x USB 2.0
1x reset button
1x remote power switch

Power Supply: 24 VDC

Mounting: wall mount or DIN rail

Compass safe distances: Standard compass: 75 cm; Steering compass: 55 cm

Application/Limitation

Shielded signal cables to be used

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 the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015
Applicable tests according to IEC 60945, 4th Edition (2002)
Applicable tests according to IACS UR E10, Rev.6 October 2014

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

The products to be marked with:

- Manufacturer Name: AXIOMTEK
- Model No.: tBOX810-838-FL
- Serial Number: xxxxx
- Power Rating: 24Vdc, 1A
- Compass Safe Distance 75 cm

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 at least once during the validity period and at renewal of this certificate.

END OF CERTIFICATE