

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
SIMATIC ET 200AL

Issued to

Siemens AG DF FA AS SIMATIC Type Test

is 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	B
EMC	B*
Enclosure	Required protection according to the Rules to be provided upon installation on board.

*** See Application/Limitation**

This Certificate is valid until **2021-07-24**.

Issued at **Hamburg** on **2016-07-25**

DNV GL local station: **Augsburg**

Approval Engineer: **Andrea Grün**

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

SIMATIC ET 200AL distributed I/O System:

SIMATIC ET 200AL	6ES7 157-
	6ES7 141-
	6ES7 142-
	6ES7 143-
	6ES7 144-
	6ES7 194-

Application/Limitation

Surge Immunity: External Protective circuits required for DC systems. See the current System Manual (A5E03461486) for recommendations.

System for use on bridge and deck zone, the power supply lines are to be protected by filter type B84113C (manufactured by Epcos) or equivalent. Tested with: $I=3A$, $C=2 \times 0,47 \mu F + 2 \times 4700 pF$, $L=4 \times 4,7 mH$

Installation of the units, as per manufacturer's instructions.

Degree of Protection IP65 / IP67

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 Ships Pt.4 Ch.9 Control and Monitoring Systems.

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The Certification of Application Functions is to be performed at the manufacturer of the application system before the system is shipped to the yard. 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

Test Report: SIMATIC Type Test-2016-01 dated 22-03-2016

System Manual SIMATIC ET 200AL distributed I/O System A5E31861578-AB dated 02/2015

Tests carried out

Applicable tests according to DNVGL-CG-0339, November 2015.

Job Id: **262.1-021479-2**
Certificate No: **TAA00000M1**

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 every 2.5 year and at renewal of this certificate.

END OF CERTIFICATE