Certificate No:
TAA00003B0

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
AXIOLINE Smart Elements Series

Issued to
Phoenix Contact GmbH & Co. KG
Blomberg, Nordrhein-Westfalen, Germany

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.

Location classes:

Temperature	**B**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**Required protection according to the Rules shall be provided upon installation on board.**

Issued at **Hamburg** on **2024-02-01**

This Certificate is valid until **2029-01-31**.
DNV local unit: **Essen**

Approval Engineer: **Heinz Scheffler**

for **DNV**

Digitally Signed By: Papanuskas, Joannis
Location: DNV SE Hamburg, Germany

Joannis Papanuskas
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
Axioline Smart Element

Article	Type	Description
1079231	Digital output safety module AXL SE PSDO4/2 2A	Safe digital outputs: 2 (2-channel assignment), 4 (1-channel assignment), 24 V DC, 2 A, connection technology: 2-conductor
1079241	Digital input safety module AXL SE PSDI8/3	Safe digital inputs: 4 (2-channel assignment), 8 (1-channel assignment), 24 V DC, connection technology: 3-conductor
1088062	Analog input module AXL SE AI4 I 4-20	Analog inputs: 4, 4 mA ... 20 mA, connection technology: 2-conductor
1088106	Temperature recording module AXL SE RTD4 PT100	Analog RTD inputs: 4 (Pt 100), connection technology: 3-conductor
1088123	Analog output module AXL SE AO4 I 4-20	Analog outputs: 4, 4 mA ... 20 mA, connection technology: 2-conductor
1088127	Digital input module AXL SE DI16/1	Digital inputs: 16, 24 V DC, connection technology: 1-conductor
1088128	Communication module AXL SE RS485	Interface RS-485: 1
1088129	Digital output module AXL SE DO16/1	Digital outputs: 16, 24 V DC, 500 mA, connection technology: 1-conductor
1588884	Module carrier AXL SE BP SE4-M	4 slots for Axioline Smart Elements, transmission speed in the local bus: 100 Mbps
1588887	Module carrier AXL SE BP SE6-M	6 slots for Axioline Smart Elements, transmission speed in the local bus: 100 Mbps
1167159	Cover AXL SE SC	slot cover without diagnostic function
1088134	Cover AXL SE SC-A	slot cover with diagnostic function

Application/Limitation
Location class Temperature: Cold Test -15°C

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 Ships Pt.4 Ch.9 Control and Monitoring Systems. If the control system is intended for remote software maintenance the functionality shall be part of the system documentation as required in DNV Rules for 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 for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation
Test Reports and Documents: TAA00003B0 Overview Documents Rev.00

Tests carried out
Applicable tests according to class guideline DNV-CG-0339, August 2021

Marking of product
The products to be marked with:
- Model name
- Manufacturer name
- Serial number
- Hardware/ Software version

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