

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
System Terminals

Issued to

Beckhoff Automation GmbH & Co. KG
Verl, Germany

is found to comply with

DNV GL 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 GL.

Location classes:

Temperature D

Humidity B

Vibration B

EMC B

Enclosure Required protection according to the Rules shall be provided upon installation on board.

Issued at **Hamburg** on **2020-04-08**

This Certificate is valid until **2025-04-07**.

for **DNV GL**

DNV GL local station: **Essen**

Approval Engineer: **Heinz Scheffler**

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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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

System Terminals

- KL9010: Bus end terminal
- KL9020: Bus end terminal 24 V DC, connection with an Ethernet cable and RJ45 plug
- KL9050: Bus coupler terminal 24 V DC and is the counterpart to KL9020
- KL9080: Bus potential groups (e.g. 230 V AC/24 V DC)
- KL/KS9100: Power feed terminal 24 V DC
- KL/KS9110: Power feed terminal 24 V DC, diagnostics
- KL/KS9150: Power supply terminal, 230 V AC
- KL/KS9160: Power supply terminal with diagnostics, 230 V AC
- KL/KS9180: Power feed terminal up to 230 V AC, PE contact, Additional power contact 2
- KL/KS9185: Power feed terminal up to 230 V AC, Additional power contact 4
- KL/KS9186: Potential distribution terminal, 8 x 24 V contact
- KL/KS9187: Potential distribution terminal, 8 x 0 V contact
- KL/KS9190: Power feed terminal rated load voltage arbitrary
- KL/KS9195: Power feed terminal up to 230 V AC, Additional power contact 1, Shielding connection 2
- KL9200: Power feed terminal 24 V DC, Integrated fine-wire fuse 6.3 A
- KL9210: Power feed terminal 24 V DC, Integrated fine-wire fuse 6.3 A, diagnostics
- KL9250: Power supply terminal with fuse, 125 V AC...230 V AC
- KL9260: Power supply terminal with fuse and diagnostics, 230 V AC
- KL9290: Power feed terminal rated load voltage arbitrary, Integrated fine-wire fuse 6.3 A
- KL/KS9400: Power supply unit terminal for the K-bus, 24 V DC, 2 A
- KL/KS9540: Surge filter terminal 24 V DC, Surge filter for field supply
- KL9540-0010: Surge filter terminal 24 V DC, Surge filter for field supply, analog terminals
- KL/KS9550: Surge filter terminal 24 V DC, Surge filter for field supply and system supply
- KL/KS9560: Power supply unit terminal 24V DC/24 V DC, Insulation voltage in-/output 500 V AC permanent load
- KL9184: Potential distribution terminal, 8 x 24 V contact, 8 x 0 V contact
- KL9188: Potential distribution terminal, 16 x 24 V contact
- KL9189: Potential distribution terminal, 16 x 0 V contact

Application/Limitation

Please observed the "Notes for operation of the Beckhoff Bus Terminal System in the Marine Sector (DNV GL), Version: 1.1, Date: 2020-02-03" regarding the required Surge filter.

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.

Type Approval documentation

Test Reports: TAA00002M2-List of Test Reports, Rev. 1.0
Documents: TAA00002M2-List of Documents, Rev. 1.0

Tests carried out

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

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

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