DNV·GL

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
Bus Terminals Digital Input, Digital Output

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**.

DNV GL local station: **Essen**

Approval Engineer: **Heinz Scheffler**

for **DNV GL**

Joannis Papanuskas
Head of Section

Product description
Bus Terminals Digital Input
- KL1804: 4-channel digital input 24 V DC, 3-wire connection, Input filter 3ms
- KL1814: 4-channel digital input 24 V DC, 3-wire connection, Input filter 0.2ms
- KL1808: 8-channel digital input 24 V DC, 2-wire connection, Input filter 3ms
- KL1809: 16-channel digital input 24 V DC, 1-wire connection, Input filter 3ms
- KL1819: 16-channel digital input 24 V DC, 1-wire connection, Input filter 0.2ms
- KL1859: 8-channel digital input & output 24 V DC, 1-wire connection, Input filter 3ms
- KL1889: 6-channel digital input 24 V DC, 0 V (ground), 1-wire connection, Input filter 3ms

Bus Terminals Digital Output
- KL2424: 4-channel digital output 24 V DC, max. 2 A per channel, 2-wire connection
- KL2808: 8-channel digital output 24 V DC, max 0.5 A per channel, 2-wire connection
- KL2809: 16-channel digital output 24 V DC, max. 0.5 A per channel, 1-wire connection
- KL 2889. 16-channel digital output 24 V DC, 0 V (ground) switching, max. 0.5 A per channel, 1-wire connection

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.

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

Type Approval documentation
Test Reports: TAA00002D5-List of Test Reports, Rev. 1.0
Documents: TAA00002D5-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