



Certificate No:
TAA000037A

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
BEx1 IO module

Issued to

BEx-Solution GmbH
Karlsruhe, Baden-Württemberg, 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	D*
Humidity	B
Vibration	B
EMC	A
Enclosure	IP67

* see Application/Limitation

Issued at **Hamburg** on **2022-11-15**

for **DNV**

This Certificate is valid until **2027-11-14**.

DNV local station: **Augsburg**

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 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

Compact Remote IO module for Ex Zone

BEx1 Remote IO Modul IP67 Ex e (Typ: 15310*04)

Compact Remote IO module for Ex Zone 1/21 and connects sensors and actuators from Zone 1/21

Interface:

- Profinet (Typ: 15310104)
- Modbus TCP/IP (Typ: 15310304)
- IO Module: 24 digital IO channels with IO variations 8AI 8AO(DIO) 8DIO.

BEx1 Remote IO Modul IP67 Ex i (Typ: 14310*01)

Compact Remote IO module for Ex Zone 1/21 and connects sensors and actuators from Zone 0/20.

Interface:

- Profinet (Typ: 14310101)
- Modbus TCP/IP (Typ: 14310301)
- IO Module: 32 digital IO channels with IO variations 16DI 8DO 8DO(AIO)

Application/Limitation

Location class Temperature D: At ambient temperatures above +60 °C if number of simultaneously usable channels. The Manual is to be observed.

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.

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.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-Certificate issued by a notified / recognized Certification Body.

Type Approval documentation

Test Report:

- ENV210475-AU01+BMT01, Revision 01.01
- 2104179-AU01+UMS01, Revision 01.00
- 210475-AU01+UMS01 (Revision 01.01)
- 210474-01-01-A-01-e*01
- STR_Systemtest_2022-10-03_A01
- STR_Software_2022-11-11_A01

Document:

- Manuals: 9101_Manual_BEx-Exe_2022-08_18_EN; 9001_Manual_BEx-Exi_2022-08-18_EN
- Data Sheets: 9150_datasheet_BEx1-IP67-Exe_2022-08-16-EN; 9100_datasheet_BEx1-IP67-Exi_2022-08-16-EN
- Installation notes: 9104_Beipack_BEx1-Exi-IP67_2022-09-01; 9154_Beipack_BEx1-Exe-IP67_2022-09-01
- Part List: 14310101_BOM_BEx1-PN-16DI-Exi-IP67_2022-10-14; 14310301_BOM_BEx1-MB-16DI-Exi-IP67_2022-10-14; 15310104_BOM_BEx1-PN-16DI-Exe-IP67_2021-12-10; 15310304_BOM_BEx1-MB-16DI-Exe-IP67_2021-12-10
- Ex Certificates: IECEx EPS 19.0093, Issue 1; EPS 19 ATEX 1 219 X

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

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 CERTIFICAT