



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000BJ
Revision No:
8

This is to certify:

That the **Peripheral Equipment**

with type designation(s)
X20-IO Module System Series

Issued to

B&R Industrial Automation GmbH
Eggelsberg, Oberösterreich, Austria

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by **DNV GL**.

Location classes:

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

* see Application/Limitation

Issued at **Hamburg** on **2021-05-18**

for **DNV**

This Certificate is valid until **2026-05-17**.

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

Power Supply Modules

0AC524.9, X20PS2100, X20PS3300, X20PS4951, X20PS9400*, X20PS9500*, X20PS8002*, X20PS9402*, X20PS9502*, X20PS9600*, X20PS9602*

Terminal Blocks

0TBxx*, X20TBxx*

Analog Input Modules

X20AI2632, X20AI2636, X20AI4632, X20AI4636, X20AI2222, X20AI2322, X20AI2437, X20AI2438, X20AI2622, X20AI4222, X20AI4322, X20AI4622, X20AI4632-1, X20AI8221, X20AI8321, X20AI2632-1,

Analog Output Modules

X20AO2622, X20AO2632, X20AO2632-1, X20AO4622, X20AO4632, X20AO4635, X20AO2437, X20AO2438, X20AO4632-1

Temperature Modules

X20AT4222, X20AT2402, X20AT2222, X20AT6402, X20AT2311*, X20ATA312*, X20ATA492*, X20ATB312*, X20ATC402*, X20AT2321*

Bus Base Modules

X20BB22, X20BB27, X20BB42, X20BB47, X20BB80*, X20BB81*, X20BB82*, X20BB57*, X20BB52*, X20BB62*, X20BB67*, X20BB72*, X20BB77*

Bus Controller Modules

X20BC0043, X20BC0043-10, X20BC0053, X20BC0083, X20BC0087, X20BC0143-10, X20BC1083, X20BC8083, X20BC8084

Bus Modules

X20BM01, X20BM05, X20BM11*, X20BM12, X20BM15, X20BM33, X20BM21, X20BM23, X20BM31*, X20BM32

Universal Mixed Module

X20CM8281, X20CM0985-1, X20CM2821, X20CM4800X*, X20CMR100*, X20CMR111*

Compact CPU's

X20CP0292, X20CP0201, X20CP0291, X20XC0201, X20XC0202, X20XC0292, X20CP0410*, X20CP0411*, X20CP0482*, X20CP0483*, X20CP0484*, X20CP0484-1*

CPU Modules

X20CP1483, X20CP1483-1, X20CP1484, X20CP1484-1, X20CP1485, X20CP1485-1, X20CP1486, X20CP3484, X20CP3484-1, X20CP3485, X20CP3485-1, X20CP3486, X20CP1583*, X20CP1584*, X20CP1585*, X20CP1586*, X20CP3583*, X20CP3584*, X20CP3585*, X20CP3586*, X20CP1382-RT, X20CP1301, X20CP1381, X20CP1382, X20CP1381-RT

Communication Modules

X20CS1020*, X20CS1030*, X20CS1070*

Counter Modules

X20DC1176, X20DC1178, X20DC1196, X20DC1198, X20DC11A6, X20DC1376, X20DC137A, X20DC1396, X20DC1398, X20DC1976, X20DC2395, X20DC2396, X20DC2398, X20DC4395

Digital Input Modules

X20DI2371*, X20DI2372*, X20DI2377*, X20DI2653*, X20DI4653*, X20DI4371*, X20DI4372*, X20DI4375, X20DI4760, X20DI6371, X20DI6372, X20DI6373, X20DI8371, X20DI9371*, X20DI9372*, X20DID371, X20DIF371,

Digital Output Modules

X20DO2322, X20DO2649, X20DO4322, X20DO4332-1*, X20DO4529, X20DO6322, X20DO6529, X20DO8232, X20DO8322, X20DO8332, X20DO9322, X20DOF322, X20DOD322, X20DO4649, X20DO6639, X20DO6325, X20DO9321, X20DO4F49*

Counter and Positioning Modules

X20DS1119, X20DS1319, X20DS4389

Hub System Modules

X20HB1881*, X20HB1882*, X20HB2880, X20HB2881*, X20HB8880, X20HB8884, X20HB8815*

Dummy Modules

X20IF0000*, X20ZF0000*

Interface Modules

X20IF1020, X20IF1030, X20IF1041-1, X20IF1043-1, X20IF1051-1, X20IF1053-1, X20IF1072, X20IF1074, X20IF1082, X20IF1082-2*, X20IF2181-2*, X20IF2772, X20IF1061-1, X20IF1063-1; X20IF10A1-1; X20IF10E1-1; X20IF10E3-1; X20IF10D1-1; X20IF10D3-1; X20IF10G3-1; X20IF10H3-1; X20IF10X0*

Motor Bridge Modules

X20MM2436

Modules for measure active, reactive and apparent power

X20AP3111; X20AP3121; X20AP3131; X20AP3161

Memory Keys

X20MKxxxx

Safety CPU Modules (*1, *2)

X20SL8000, X20SL8001, X20SL8010, X20SL8011

Safety CPU Modules (*1, *2)

X20SL8100, X20SL8101

Safety Digital Input Modules (*1, *2)

X20SI4100, X20SI2100, X20SI9100

Safety Digital Output Modules (*1, *2)

X20SO2110, X20SO2120, X20SO4110, X20SO4120

Safety Analog Input Modules (*1, *2)

X20SA4430, X20ST4492

Safety Intelligently Programmable Modules (*1, *2)

X20SLX210, X20SLX410, X20SLX910

Safety Counter and Positioning Module (*1, *2)

X20SD1207

Safety Digital Mixed Modules (*1, *2)

X20SC2212, X20SC2432

Power Distribution Modules

X20PD0011, X20PD0012, X20PD0016, X20PD2113

CPU Accessory

0CFCRD.0xxxE.01, 5CFCRD.xxxx-0x

reACTION module

X20RT8001*, X20RT8201*, X20RT8202*, X20RT8381*, X20RT8401*

Application/Limitation

Location Classes:

- *1 mentioned in title: Environmental category "A" to be cooled inside cabinet.
- *2 mentioned in title: Vibration category "A"

Article with * after Type Name listed under the Product description fulfill the DNVGL-CG-0339, December 2019 and IACS E10, Rev.7 Oct 2018. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

Derating

- X20CM4800X: Depending on the maximum ambient temperature, additional dummy modules may need to be installed next to the module. Please observe the data sheet.
- X20RT8001, X20RT8201, X20RT8202, X20RT8381, X20RT8401: To ensure proper operation, observe the derating of the encoder current and the number of operable digital outputs. Please observe the data sheet.

To avoid damages through electrostatic discharge the components have to be mounted inside a control cabinet. All instructions in the User's Manual must be observed and followed in all cases.

At variations of the power supply voltage the User's 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 DNVGL, 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.

Type Approval documentation

Test reports: C43857-02-00FT; E43951-00-01JA;; S34471-00-03AV , S34471-00-04AV, S34471-00-05AV, S34470-00-02AV, S4982-00-00JK, E34466-00-01HP, E34467-00-01HP, E34468-00-01HP, E34469-00-01HP, E37149-00-00MU, S37154-00-00AV, E37640-00-01MH, S37155-00-01AV, E38921-01-00HM, C37156-00-00MV, E40222-00-00VK, C40223-00-00MV; C42785-00FT, E42783-00-00JA, BSH Certificate No. 879; BSH Certificate No. 1017; BSH Certificate No. 1078; UL QMFZ8.E148878; UL QMFZ2; C43195-02-00FT; E43194-00-00JA; C44611-00-00FT; E44621-00-00JA; C44612-00-00FT; E44620-00-01JA; C44975-00-00LT; E44971-00-00LC; C46046-00-03LT; E45594-01-03LC; C46045-00-03LT; E46026-00-03LC; BSH Certificate No. 879; E47237-00-02LC; C47238-00-01LT; EMS_2021-03-26_11_cr_0,08-6GHz_1s_0°_V01

Documents: User's Manual X20 version V3.60; Installation-EMC Guide_V1.36
Marking X20RT8001_2153931_29092015.

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.
Applicable tests according to class guideline DNVGL-CG-0339, December 2019.
IACS E10, Rev.6 Oct 2014
IACS E10, Rev.7 Oct 2018
IEC 60945 (2008), Section 11.2.

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

Coated modules are marking start with the first letter with X20C...

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