TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000BJ
Revision No:
10

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
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/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 **2022-11-04**

This Certificate is valid until **2026-05-17**.
DNV local station: **Augsburg**

Approval Engineer: **Heinz Scheffler**

for **DNV**

Digitally Signed By: Papanuskas, Joannis
Location: DNV GL 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

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, X20HB2885,X20HB8815, X20HB8880, X20HB8884

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"

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 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.

Type Approval documentation

Test reports: 220566-AU01+E01_R1; 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; No. 20210928-01_EE_(V00) Immission; No. 20210928-02_EE (V00) Emission; No. 20210927-02_EE (V00) Emission; No. 20210927-03_EE_(V00) Immission
Documents: User's Manual X20 version V4.10; Installation-EMC Guide_V1.42
Marking X20RT8001_2153931_29092015.

Tests carried out

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