



Marine & Offshore

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This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

B&R Industrial Automation GmbH

Eggelsberg - AUSTRIA

for the type of product

PROGRAMMABLE LOGIC CONTROL UNITS

X20 distributed I/O system

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

Bureau Veritas Rules for the Classification of Offshore Units

Bureau Veritas Rules for the Classification and the Certification of Yachts

EC Code: 21B / 33B (see item 4.3)

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 01 Nov 2027

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 01 Nov 2022,

Dirk Hoepfner

This certificate was created electronically and is valid without signature



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This certificate consists of 11 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **X20 I/O** system is a modular, distributed automation system. Modules consisting of bus modules into which electronic modules are inserted and push-in terminal blocks for the peripheral wiring. CPU's are available in various performance classes with the reACTION modules being able to handle tasks independently from the CPU with a own library, thus reducing cycle time. The X20 types are available with conformal coating (marked with letter 'c' behind the X20 designation) for increased protection from environmental factors and corrosion.

1.1 - Types:

Standard CPU models (EC Code: 33B)

Designation	Description	Rev.
X20CP1301	Vortex86EX processor, 128MB DDR3 RAM, 16kB FRAM, 1GB eMMC Flash. Integrated I/O's: 14xsinking DI's, 4xsinking DI's 2μs, 4xsourcing DO's 0.5A, 4x sourcing DO's 0.2A 2μs, 4x DI/DO's 0.5A, 2xAI ±10V or 0~20mA or 1xAI and 1xPT1000 RTD input. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xUSB	C3
X20CP1381	Vortex86EX processor, 128MB DDR3 RAM, 16kB FRAM, 1GB eMMC flash. Integrated I/O's: 14xsinking DI's, 4xsinking DI's 2μs, 4xsourcing DO's 0.5A, 4x sourcing DO's 0.2A 2μs, 4x DI/DO's 0.5A, 2xAI ±10V or 0~20mA or 1xAI and 1xPT1000 RTD input. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 2xUSB, 1xPOWERLINK	C3
X20CP1382	Vortex86EX processor, 256MB DDR3 RAM, 32kB FRAM, 2GB eMMC flash. Integrated I/O's: 14xsinking DI's, 4xsinking DI's 2μs, 4xsourcing DO's 0.5A, 4x sourcing DO's 0.2A 2μs, 4x DI/DO's 0.5A, 2xAI ±10V or 0~20mA or 1xAI and 1xPT1000 RTD input. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xCAN, 2xUSB, 1xPOWERLINK	C6
X20CP1483	AMD Élan SC520 μ-controller, 32MB DRAM, 128KB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 2xUSB	D0
X20CP1483-1	AMD Élan SC520 μ-controller, 64MB DRAM, 128KB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 2xUSB	D0
X20CP1484	Intel Celeron ULV400 processor, 32MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	I0
X20CP1484-1	Intel Celeron ULV400 processor, 64MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	F0
X20CP3484	Intel Celeron ULV400 processor, 32MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	J0
X20CP3484-1	Intel Celeron ULV400 processor, 64MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	F0
X20CP1485	Intel Celeron ULV400 processor, 32MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	J0
X20CP1485-1	Intel Celeron ULV400 processor, 64MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	G0
X20CP3485	Intel Celeron ULV400 processor, 32MB SDRAM, 1MB SRAM, Compact Flash slot. 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	J0
X20CP3485-1	Intel Celeron ULV400 processor, 64MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	H0
X20CP1486	Intel Celeron ULV650 processor, 64MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	K0
X20CP3486	Intel Celeron ULV650 processor, 64MB SDRAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	K0
X20CP1583	Intel Atom E620T processor, 128MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1xPOWERLINK	D0
X20CP1584	Intel Atom E620T processor, 256MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1xPOWERLINK	D0
X20CP1585	Intel Atom E640T processor, 256MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1xPOWERLINK	D0
X20CP1586	Intel Atom E680T processor, 512MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1xPOWERLINK	D0
X20CP3583	Intel Atom E620T processor, 128MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 1xPOWERLINK, 1xX2X, 2xUSB	D0
X20CP3584	Intel Atom E620T processor, 256MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1x POWERLINK	D0

X20CP3585	Intel Atom E640T processor, 256MB DDR2 RAM, 1MB SRAM, Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1x POWERLINK	D0
X20CP3586	Intel Atom E680T processor, 512MB DDR2 RAM. 1MB SRAM. Compact Flash slot. Interfaces: 1xRS232, 1x10/100/1000BASE-T Ethernet, 2xUSB, 1x POWERLINK	D0

Compact CPU models (EC Code: 33B)

X20CP0201	NXP MC68332ACP16 μ -controller, 100kB SRAM, 1MB FlashPROM Interfaces: 1xRS232 with base module X20BB22 / 1xRS232, 1xCAN with base module X20BB27	H0
X20CP0291	NXP MC68332ACP16 μ -controller, 100kB SRAM, 1MB FlashPROM Interfaces: 1x100BASE-TX Ethernet, 1xRS232 with base module X20BB22 / 1xRS232, 1xCAN with base module X20BB27	H0
X20CP0292	NXP MC68332ACP25 μ -controller, 750kB SRAM. 3MB FlashPROM Interfaces: 1x100BASE-TX Ethernet, 1xRS232 with base module X20BB22 / 1xRS232, 1xCAN with base module X20BB27	F0

Compact-S CPU models (EC Code: 33B)

X20CP0410	Zynq-7000 All Programmable SoC, 128MB DDR3 RAM, 256MB eMMC Flash Interfaces: 1x10/100BASE-TX Ethernet, 1xX2X, 2xUSB	D0
X20CP0411	Zynq-7000 All Programmable SoC, 128MB DDR3 RAM, 512MB eMMC Flash Interfaces: 1x10/100BASE-TX Ethernet, 1xX2X, 2xUSB	D0
X20CP0482	Zynq-7000 All Programmable SoC, 128MB DDR3 RAM, 1GB eMMC Flash Interfaces: 1x10/100BASE-TX Ethernet, 1xX2X, 1x POWERLINK V2, 2xUSB	D0
X20CP0483	Zynq-7000 All Programmable SoC, 256MB DDR3 RAM, 1GB eMMC Flash Interfaces: 1x10/100BASE-TX Ethernet, 1xX2X, 1x POWERLINK V2, 2xUSB	C0
X20CP0484	Zynq-7000 All Programmable SoC, 256MB DDR3 RAM, 2GB eMMC Flash Interfaces: 1x10/100BASE-TX Ethernet, 1xX2X, 1x POWERLINK V2, 2xUSB	D0
X20CP0484-1	ARM Cortex-A9-667, 512 MB DDR3 RAM, 64 kB FRAM, 2 GB onboard flash drive, 2 USB interfaces, 1 RS232 interface, 1 POWERLINK interface, 1 Ethernet interface 10/100BASE-T	D0

Fieldbus CPU models (EC Code: 33B)

X20XC0201	NXP MC68332ACP16 μ -controller, 100kB SRAM, 1MB FlashPROM Interfaces: 1xRS232 with base modules X20BB32, X20BB42 / 1xRS232, 1xCAN with base modules X20BB37, X20BB47	I0
X20XC0202	NXP MC68332ACP25 μ -controller, 750kB SRAM, 3MB FlashPROM Interfaces: 1xRS232 with base modules X20BB32, X20BB42 / 1xRS232, 1xCAN with base modules X20BB37, X20BB47	I0
X20XC0292	NXP MC68332ACP25 μ -controller, 750kB SRAM, 3MB FlashPROM Interfaces: 1x 100BASE-TX Ethernet, 1xRS232 with base modules X20BB32, X20BB42 / 1xRS232, 1xCAN with base modules X20BB37, X20BB47	G0

reACTION Technology modules (EC Code: 33B)

X20CP1381-RT	Vortex86EX processor, 128MB DDR3 RAM, 16kB FRAM, 1GB eMMC flash. Integrated I/O's: 14xsinking DI's, 4xsinking DI's 2 μ s, 4xsourcing DO's 0.5A, 4x sourcing DO's 0.2A 2 μ s, 4x DI/DO's 0.5A, 2xAI \pm 10V or 0~20mA or 1xAI and 1xPT1000 RTD input. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 2xUSB, 1xPOWERLINK, 1xCAN	C0
X20CP1382-RT	Vortex86EX processor, 256MB DDR3 RAM, 32kB FRAM, 2GB eMMC flash. Integrated I/O's: 14xsinking DI's, 4xsinking DI's 2 μ s, 4xsourcing DO's 0.5A, 4x sourcing DO's 0.2A 2 μ s, 4x DI/DO's 0.5A, 2xAI \pm 10V or 0~20mA or 1xAI and 1xPT1000 RTD input. Interfaces: 1xRS232, 1x10/100BASE-T Ethernet, 1xCAN, 2xUSB, 1xPOWERLINK	C6
X20RT8001	4 digital input channels, 4 digital channels configurable as inputs or outputs	D0
X20RT8201	4 digital input channels, 4 digital channels configurable as in- or outputs, 2 analog inputs \pm 10V	C6
X20RT8202	4 digital input channels, 4 digital channels configurable as in- or outputs, 2 analog outputs \pm 10V	C6
X20RT8381	4 digital input channels, 4 digital channels configurable as in- or outputs, 2 analog inputs \pm 10V, 1 analog output \pm 10V	C0
X20RT8401	4 digital input channels, 4 digital channels configurable as in- or outputs, 1 analog input \pm 10V, 1 analog output \pm 10V	C6

SafeLOGIC controllers (EC Code: 21B)

X20SL8000	Safety PLC, supports up to 20 safety nodes, exchangeable application memory: memory key, 1 POWERLINK V2 interface, controlled node, integrated 2x hub, incl. power supply module	E0
X20SL8001	Safety PLC plus, supports up to 100 safety nodes, 32 machine options, POWERLINK safety gateway, exchangeable application memory: memory key, 1 POWERLINK V2 interface, controlled node, integrated 2x hub, incl. power supply module	E0
X20SL8010	Safety PLC standard, SafeMC supports up to 20 safety nodes incl. SafeMC nodes, exchangeable application memory: memory key, 1 POWERLINK V2 interface, controlled node, integrated 2x hub, incl. power supply module	E0
X20SL8011	Safety PLC plus, SafeMC supports up to 100 safety nodes incl. SafeMC nodes, 32 machine options, POWERLINK safety gateway, exchangeable application memory: memory key, 1 POWERLINK V2 interface, controlled node, integrated 2x hub, incl. power supply module	E0
X20SL8100	Safety controller, openSAFETY gateway, removable application memory: SafeKEY, 1 POWERLINK interface, controlled node, integrated 2-port hub, including power supply module	D0
X20SL8101	Safety controller with X20 bus controller, openSAFETY gateway, removable application memory: SafeKEY, 1 POWERLINK interface, controlled node, integrated 2-port hub, including power supply module for internal I/O power supply and X2X Link power supply	C7

SafeKEY modules (EC Code: 33B)

X20MK0201	X20 SafeKEY, 2 MB, for the X20SL80xx series	C0
X20MK0203	X20 SafeKEY, 8 MB, for the X20SL80xx series	C0
X20MK0211	X20 SafeKEY, 2 MB, for X20SL81xx series	C0
X20MK0213	X20 SafeKEY, 8 MB, for X20SL81xx series	C0
X20MK0223	X20 SafeKEY, 8 MB, for the X20SL81xx series, exclusively for mapp Safety	C0

Bus controller modules (EC Code: 33B)

X20BC0043	CANopen interface; 5-pin multipoint connection	I0
X20BC0043-10	CANopen slave controller; 5-pin multipoint connection, configurable I/O cycle	D0
X20BC0053	DeviceNet slave controller	E0
X20BC0083	POWERLINK (V1/V2) node controller; 2xRJ45 port hub	F0
X20BC0087	Modbus TCP/UDP slave controller; 2xRJ45 port switch	K0
X20BC0143-10	CANopen slave controller; DSUB connection	D0

Expandable bus controller modules (EC Code: 33B)

X20BC1083	POWERLINK (V1/V2) node controller; 2xRJ45 port hub; 2 slots for interface modules	G0
X20BC8083	POWERLINK (V1/V2) node controller; 2xRJ45 port hub; 2 slots for hub expansion modules	F0
X20BC8084	POWERLINK (V1/V2) node controller w/compact link selector; 2xRJ45 port hub; 2 slots for hub expansion modules	F0

CPU Base modules (EC Code: 33B)

X20BB22	Bus base for Compact CPU and Compact CPU power supply module, RS232 interface	C0
X20BB27	Bus base for Compact CPU and Compact CPU power supply module, RS232 and CAN bus interface	C0
X20BB42	Bus base for fieldbus CPU and compact CPU power supply module, RS232 interface, 2 interface module slots	C0
X20BB47	Bus base for fieldbus CPU and compact CPU power supply module, RS232 and CAN bus interface, 2 interface module slots	C0
X20BB52	Bus base for Compact-S CPU and Compact-S CPU power supply module, RS232 interface	C0
X20BB57	Bus base for Compact-S CPU and Compact-S CPU power supply module, RS232 and CAN bus interface	C0
X20BB62	Bus base for Compact-S CPU and Compact-S CPU power supply module, RS232 interface	C0
X20BB67	Bus base for Compact-S CPU and Compact-S CPU power supply module, RS232 and CAN bus interface	C0
X20BB72	Bus base for Compact-S CPU and Compact-S CPU power supply module, RS232 interface, 2 interface module slots	C0
X20BB77	Bus base for Compact-S CPU and Compact-S CPU power supply module, RS232 and CAN bus interface, 2 interface module slots	C0
X20BB80	Bus base for X20 base modules and power supply modules	E0
X20BB81	Bus base for X20 base modules and power supply modules; 1 expansion slot for a X20 addon module (IF, HB, etc.)	E0
X20BB82	Bus base for X20 base modules and power supply modules; 2 expansion slots for X20 addon modules (IF, HB, etc.)	D0

Bus modules (EC Code: 33B)

X20BM01	Power supply bus module; internal I/O supply interrupted to the left	F0
X20BM05	Power supply bus module w/node number switch; internal I/O supply interrupted to the left	D0
X20BM11	Power supply bus module; internal I/O supply continued	G0
X20BM12	Power supply bus module for 240VAC I/O modules; internal I/O supply continued	D0
X20BM15	Power supply bus module with node number switch; internal I/O supply continued	D0
X20BM21	Power supply bus module for double-width modules; internal I/O supply interrupted to the left	C0
X20BM23	Power supply bus module for SafeIO modules; internal I/O supply interrupted to the left	C0
X20BM31	Power supply bus module for double-width modules; internal I/O supply continued	C0
X20BM32	Power supply bus module for 240VAC double-width modules; internal I/O supply continued	D0
X20BM33	Power supply bus module for SafeIO modules; internal I/O supply continued	C0

Power supply & distribution modules (EC Code: 33B)

X20PS2100	Power supply module for internal I/O supply; I/O supply not isolated from I/O power supply	F0
X20PS3300	Power supply module, for X2X link and internal I/O power supply; I/O supply not isolated from I/O power supply; X2X link supply isolated from X2X link supply	E0
X20PS4951	Power supply module, for potentiometers, 4x ± 10 V for potentiometer supply	E0
X20PS8002	Power supply module for standalone hub and compact link selector; I/O supply not isolated from device power supply	C0
X20PS9400	Power supply module, for bus controller and internal I/O power supply, X2X link power supply; I/O supply not isolated from I/O power supply; X2X link supply isolated from X2X supply	D0
X20PS9402	Power supply module, for bus controller and internal I/O power supply, I/O supply and X2X link power supply not electrically isolated from their supply	C0
X20PS9500	Power supply module for Compact and Fieldbus CPUs and internal I/O power supply, X2X link power supply; I/O supply not isolated from I/O power supply; X2X link supply isolated from X2X supply; 1xRS232 interface	C0
X20PS9502	Power supply module, for Compact and Fieldbus CPUs and internal I/O power supply, X2X link power supply, I/O supply and X2X link power supply not electrically isolated from their supply; 1xRS232 interface	C0
X20PS9600	Power supply module, for Compact-S CPU and internal I/O power supply, X2X Link power supply; I/O supply not isolated from I/O power supply; X2X link supply isolated from X2X supply; 1xRS232 interface	C0
X20PS9602	Power supply module, for Compact-S CPU and internal I/O power supply, X2X Link power supply; I/O supply and X2X link power supply not electrically isolated from their supply; 1xRS232 interface	C0
X20PD0011	Potential distributor module, 12xGND, integrated microfuse	F0
X20PD0012	Potential distributor module, 12x24 VDC, integrated microfuse	F0
X20PD0016	Potential distributor module, 5xGND, 5x24VDC, each with 1x floating feed, integrated microfuse	F0
X20PD2113	Potential distributor module, 6xGND, 6x24VDC, with feed option, integrated microfuse	F0

Interface modules (EC Code: 33B)

X20CS1020	1xRS232 interface, max. 115.2 kbit/s	F0
X20CS1030	1xRS422/485 interface, max. 115.2 kbit/s	F0
X20CS1070	1xCAN bus interface, max. 1 Mbit/s, send/receive buffer	E0
X20IF0000	dummy interface module (non-functional)	C0
X20IF1020	1 RS232 interface, max. 115.2 kbit/s, electrically isolated	G0
X20IF1030	1 RS422/485 interface, max. 115.2 kbit/s, electrically isolated	H0
X20IF1041-1	with DTM configuration, 1 CANopen master interface, electrically isolated	C0
X20IF1043-1	with DTM configuration, 1 CANopen slave interface, electrically isolated	C0
X20IF1051-1	with DTM configuration, 1 DeviceNet scanner (master) interface, electrically isolated	C0
X20IF1053-1	with DTM configuration, 1 DeviceNet adapter (slave) interface, electrically isolated	C0
X20IF1061-1	with DTM configuration, 1 PROFIBUS DP V0/V1 master interface, electrically isolated	D0
X20IF1063-1	with DTM configuration, 1 PROFIBUS DP V1 slave interface, electrically isolated	D0
X20IF1072	1 CAN bus interface, max. 1 Mbit/s, electrically isolated	D0
X20IF1074	for SGC, 1 CAN bus interface, max. 1 Mbit/s, electrically isolated	D0
X20IF1082	1 POWERLINK interface, managing or controlled node, integrated 2-port hub, ring redundancy function	D0
X20IF1082-2	1 POWERLINK interface, managing or controlled node, integrated 2-port hub, ring redundancy function PRC function	B0

X20IF10A1-1	with DTM configuration, 1 ASi master interface, electrically isolated	C0
X20IF10D1-1	with DTM configuration, 1 EtherNet/IP scanner (master) interface, electrically isolated	C0
X20IF10D3-1	with DTM configuration, 1 EtherNet/IP adapter (slave) interface, electrically isolated	C0
X20IF10E1-1	with DTM configuration, 1 PROFINET IO controller (master) interface, electrically isolated	C0
X20IF10E3-1	with DTM configuration, 1 PROFINET IO device (slave) interface module, electrically isolated	D0
X20IF10G3-1	with DTM configuration, 1 EtherCAT slave interface, electrically isolated	D0
X20IF10H3-1	with DTM configuration, 1 Sercos III slave interface, electrically isolated	C0
X20IF10X0	1 redundancy link interface 1000BASE-SX, CPU-CPU data synchronization module for controller redundancy	C3
X20IF2181-2	1x link selector for POWERLINK cable redundancy, POWERLINK functions: Managing node; Controlled node for iCN operation; Redundant managing node for controller redundancy; Ring redundancy; 2x hub; Multi ASend; PRC function 2xRJ45	C0
X20IF2772	2 CAN bus interfaces, max. 1 Mbit/s, electrically isolated	E0

Hub expansion modules (EC Code: 33B)

X20HB1881	1x 100BASE-FX Ethernet interface for multimode fiber optic cable	E3
X20HB1882	1x 100BASE-FX Ethernet interface for single-mode fiber optic cables	C0
X20HB2880	2x 100BASE-TX Ethernet interfaces	E0
X20HB2881	2x 100BASE-FX Ethernet interface for multimode fiber optic cable	F0
X20HB8815	POWERLINK gateway interface, 100BASE-TX Ethernet	D0
X20HB8880	2x 100BASE-TX Ethernet	H0
X20HB8884	POWERLINK compact link selector for connection to a redundant POWERLINK network	F0

Digital input modules (EC Code: 33B)

X20DI2371	2 sinking DI 24VDC for 3-wire connection	F0
X20DI2372	2 sourcing DI 24VDC for 3-wire connection	D0
X20DI2377	2 sinking DI 24VDC for 3-wire connection; 2 pulse counter max.50kHz	H0
X20DI2653	2 DI 100~240VAC for 3-wire connection	E0
X20DI4371	4 sinking DI 24VDC for 3-wire connection; 4 pulse counter max. 1kHz	F0
X20DI4372	4 sourcing DI 24VDC for 3-wire connection	D0
X20DI4375	4 sinking DI 24VDC for 3-wire detection; configurable open/short circuit channel detection	C0
X20DI4653	4 DI 100~240VAC for 2-wire connection	E3
X20DI4760	4 NAMUR inputs; configurable open/short circuit channel detection; 4 pulse counter max.1.6kHz	F0
X20DI6371	6 sinking DI 24VDC for 1- or 2-wire connection	F0
X20DI6372	6 sourcing DI 24VDC for 1- or 2-wire connection	G0
X20DI6373	6 sinking/sourcing DI 24VDC for 2-wire connection	C0
X20DI8371	8 sinking DI 24VDC for 1-wire connection	C0
X20DI9371	12 sinking DI 24VDC for 1-wire connection	G0
X20DI9372	12 sourcing DI 24VDC for 1-wire connection	F0
X20DID371	8 sinking DI 24VDC for 1- or 2-wire connection	C0
X20DIF371	16 sinking DI 24VDC for 1-wire connection	C0
X20DS1119	3 configurable DI/DO 5VDC differential with either SSI absolute encoder/universal counter pair or linear motion generator functionality; 2 sinking DI 24VDC	F0
X20DS1319	4 configurable DI/DO 24VDC with either SSI absolute encoder/universal counter pair or linear motion generator; 4 sinking DI 24VDC	E0
X20DS4389	4 configurable DI/DO 24VDC, DI sinking 24 VDC with 4 pulse counter 40kHz function , time triggered I/O functions, oversampling, NetTime function	D0
X20CM8281	4 sinking DI 24VDC for 1-wire connection with 2 pulse counter max.20kHz and 1 gate measurement functionality; 2 sourcing DO 24VDC for 1-wire connection; 1 AI either $\pm 10V$ or 0/4~20mA; 1AO 12-bit $\pm 10V$ or 0~20mA	F0
X20CM4800X	4-channel analogue input for IEPE sensors for vibration measurement	B7

Digital output modules (EC Code: 33B)

X20CM2821	2-channel condition monitoring module for speed & vibration measurement and calculation of vibration monitoring parameters; 2 DI configurable as sink,source or NAMUR	F0
X20CM0985-1	5 sourcing DO 24VDC for 1-wire connection; 1 relay CO contact 30VDC/240VAC 1A; 8 voltage AI 120/480VAC ± 15 -bit resolution; 3 current AI 1A/5A AC, ± 15 -bit resolution	C0
X20DO2322	2 sourcing DO 24VDC for 3-wire connection	G0

X20DO2649	2 relay CO contacts 30VDC/240VAC 5A	D0
X20DO4322	4 sourcing DO 24VDC for 3-wire connection	G0
X20DO4332-1	4 sourcing DO 24VDC for 3-wire connection with PWM functionality	C0
X20DO4529	4 relay CO contacts 30VDC/115VAC, 1A/0.5A	D0
X20DO4649	4 relay NO contacts 30VDC/240VAC, 5A	E0
X20DO4F49	4 relay, 2 NO contacts, 2 CO contacts 250VDC/0.28A, 240V/2A	B1
X20DO6322	6 sourcing DO 24VDC for 1- or 2-wire connection	G0
X20DO6325	6 sourcing DO 24VDC for 1- or 2-wire connection w/ channel diagnostics	C0
X20DO6529	6 relay NO contacts 30VDC/115VAC, 1A/0.5A	D0
X20DO6639	6 relay NO contacts 30VDC/240VAC, 2A	C0
X20DO8232	8 sourcing DO 12VDC for 1-wire connection	E0
X20DO8322	8 sourcing DO 24VDC for 1-wire connection, 0.5A nominal output current	E0
X20DO8332	8 sourcing DO 24VDC for 1-wire connection, 2A nominal output current	G0
X20DO9321	12 sinking DO 24VDC for 1-wire connection, 0.5A nominal output current	H0
X20DO9322	12 sourcing DO 24VDC for 1-wire connection	I0
X20DOD322	8 sourcing DO 24VDC for 1- or 2-wire connection	D0
X20DOF322	16 sourcing DO 24VDC for 1-wire connection	C0

Analogue input modules (EC Code: 33B)

X20AI2222	2 AI $\pm 10V$ differential, ± 12 -bit resolution	C0
X20AI2322	2 AI 0/4~20mA differential, ± 12 -bit resolution	C0
X20AI2437	2 AI 4~20mA or 0~25mA differential. 15-bit resolution	C0
X20AI2438	2 AI 4~20mA or 0~25mA differential. 15-bit resolution, HART protocol	D0
X20AI2622	2 AI $\pm 10V$ or 4~20mA or 0~20mA differential, ± 12 -bit voltage, 12-bit current resolution	I0
X20AI2632	2 AI $\pm 10V$ or 0~20mA differential, ± 15 -bit voltage, 15-bit current resolution	G0
X20AI2632-1	2 AI $\pm 11V$ or 0~22mA differential, ± 15 -bit voltage, 15-bit current resolution	F0
X20AI2636	2 AI $\pm 10V$ or 0~20mA differential, ± 15 -bit voltage, 15-bit current resolution, oversampling function	C0
X20AI4222	4 AI $\pm 10V$ differential, ± 12 -bit resolution	C0
X20AI4322	4 AI 0/4~20mA differential, 12-bit resolution	C0
X20AI4622	4 AI $\pm 10V$ or 4~20mA or 0~20mA differential, ± 12 -bit voltage, 12-bit current resolution	J0
X20AI4632	4 AI $\pm 10V$ or 0~20mA differential, ± 15 -bit voltage, 15-bit current resolution	G0
X20AI4632-1	4 AI $\pm 11V$ or 0~22mA differential, ± 15 -bit voltage, 15-bit current resolution	F0
X20AI4636	4 AI $\pm 10V$ or 0~20mA differential, ± 15 -bit voltage, 15-bit current resolution, oversampling function	C0
X20AI8221	8 AI $\pm 10V$ differential, ± 12 -bit resolution	C0
X20AI8321	8 AI 0/4~20mA differential, 12-bit resolution	C0
X20AP3111	3-phase energy metering module, 3 AI, 480 VAC, 50/60Hz, 4 AI, 20 mA AC, calculates effective, reactive and apparent power/energy, calculates RMS values, NetTime function	C0
X20AP3121	3-phase energy metering module, 3 AI, 480 VAC, 50/60Hz, 4 AI, 1 A AC, calculates effective, reactive and apparent power/energy, calculates RMS values, NetTime function	C0
X20AP3131	3-phase energy metering module, 3 AI, 480 VAC, 50/60Hz, 4 AI, 5 A AC, calculates effective, reactive and apparent power/energy, calculates RMS values, NetTime function	C0
X20AP3161	3-phase energy metering module, 3 AI, 480 VAC, 50/60Hz, 4 AI, 333 mV AC, calculates effective, reactive and apparent power/energy, calculates RMS values, NetTime function	C0

Analogue output modules (EC Code: 33B)

X20AO2437	2 AO 0~20mA, 4~20mA or 0~24mA, 16-bit resolution	C0
X20AO2438	2 AO 0~20mA, 4~20mA or 0~24mA, 16-bit resolution, HART protocol	C0
X20AO2622	2 AO $\pm 10V$ or 0/4~20mA, ± 12 -bit voltage, 12-bit current resolution	I0
X20AO2632	2 AO $\pm 10V$ or 0~20mA, ± 15 -bit voltage, 15-bit current resolution	I0
X20AO2632-1	2 AO $\pm 11V$ or 0~22mA, ± 15 -bit voltage, 15-bit current resolution	C0
X20AO4622	4 AO $\pm 10V$ or 0/4~20mA, ± 12 -bit voltage, 12-bit current resolution	I0
X20AO4632	4 AO $\pm 10V$ or 0~20mA, ± 15 -bit voltage, 15-bit current resolution	I0
X20AO4632-1	4 AO $\pm 11V$ or 0~22mA, ± 15 -bit voltage, 15-bit current resolution	C0
X20AO4635	4 AO $\pm 10V$ or 0~20mA, ± 15 -bit voltage, 15-bit current resolution, low temperature drift	C0
X20MM2436	PWM motor module, 24~39 VDC, 2xPWM motor bridges, 3A continuous current, 4 DI sinking 24VDC, configurable as incremental encoder	E6

Functional safety modules (EC Code: 21B)

X20SA4430	2x 2 safe AI 4~20mA, channels individually galvanically isolated, configurable input filter and switching thresholds	F0
X20SC2212	6 safe DI, configurable input filter, 6 pulse outputs, 24 VDC, 2 safe type B DO 24VDC, 0.5 A, OSSD <500 µs	C7
X20SC2432	2 safe DI, configurable input filter, 2 pulse outputs, 24 VDC, 2 relays, each with 1 NO contact, 48 VAC/6A, 24 VDC / 6 A	G7
X20SD1207	Safe digital counter module, 1 safe digital counter channel, 7kHz, 24 VDC	C5
X20SI2100	2 safe DI, configurable input filter, 2 pulse outputs, 24VDC	F0
X20SI4100	4 safe DI, configurable input filter, 4 pulse outputs, 24VDC	F0
X20SI9100	20 safe DI, configurable input filter, 4 pulse outputs, 24VDC	I0
X20SLX210	Safe DI module, safety controller, openSAFETY, 11 openSAFETY nodes, 4 SafeMOTION axes, 2 safe DI, configurable input filter, 2 pulse outputs, 24 VDC	D5
X20SLX410	Safe DI module, safety controller, openSAFETY, 11 openSAFETY nodes, 4 SafeMOTION axes, 4 safe DI, configurable input filter, 4 pulse outputs, 24 VDC	D5
X20SLX910	Safe DI module, safety controller, openSAFETY, 11 openSAFETY nodes, 4 SafeMOTION axes, 20 safe DI, configurable input filter, 4 pulse outputs, 24 VDC	D7
X20SO2110	2 safe type A DO, with current monitoring, 24 VDC, 0.5 A, OSSD <500 µs	F0
X20SO2120	2 safe type A DO, with current monitoring, 24 VDC, 2 A, OSSD <500 µs	F0
X20SO4110	4 safe type A DO, with current monitoring, 24 VDC, 0.5 A, OSSD <500 µs	F0
X20SO4120	4 safe type A DO, with current monitoring, 24 VDC, 2 A, OSSD <500 µs	F0
X20ST4492	Safe temperature input module, 2x 2 safe AI for thermocouples, Type: J, K, N, S, R, C, T, resolution 0.1°C, 1x 2safe AI for PT100/PT1000 sensors, channel pairs galvanically isolated, integrated compensation of terminal temperature, integrated temperature sensor in terminal block, configurable input filter and switching thresholds	D0

Temperature measurement modules (EC Code: 33B)

X20AT2222	2 resistance measurement inputs, PT100, PT1000, resolution 0.1°C, 3-wire connection	K0
X20AT2311	2 resistance measurement inputs, PT100, resolution 0.001°C, 4-wire connection	C0
X20AT2321	2 resistance measurement inputs, PT1000, resolution 0.001°C, 4-wire connection	B0
X20AT2402	2 thermocouple inputs, Type J, K, N, S, B, R, resolution 0.1°C	H0
X20AT4222	4 resistance measurement inputs, PT100, PT1000, resolution 0.1°C, 3-wire connection	M0
X20AT6402	6 thermocouple inputs, Type J, K, N, S, B, R, resolution 0.1°C	H0
X20ATA312	2 resistance measurement inputs, PT100, resolution 0.01°C, 4-wire connection, NetTime function	D0
X20ATA492	2 thermocouple inputs, type J, K, N, S, B, R, E, C, T, single-channel isolation, NetTime function	C0
X20ATB312	4 resistance measurement inputs, PT100, resolution 0.01°C, 4-wire connection, NetTime function	D0
X20ATC402	6 thermocouple inputs, type J, K, N, S, B, R, E, C, T, NetTime function	D0
X20CMR100	Module internal temperature / humidity sensor for cabinet ambient conditions, power-on cycles and operating hours	C0
X20CMR111	Module internal temperature / humidity sensor, acceleration / angle sensor for cabinet ambient conditions, power-on cycles and operating hours; 2 sinking DI 24VDC; 2 resistance measurement inputs; 1 sourcing DO 24VDC	C0

Digital counter modules (EC Code: 33B)

X20DC1176	1 ABR incremental encoder, 5V, 600 kHz input frequency, 4xevaluation, encoder monitoring, Net-Time function	C0
X20DC1178	1 SSI absolute encoder, 5V, 1 Mbit/s, 32-bit, encoder monitoring, NetTime function	D0
X20DC1196	1 ABR incremental encoder, 5V, 600 kHz input frequency, 4xresolution	J0
X20DC1198	1 SSI absolute encoder, 5V, 1 Mbit/s, 32-bit	J0
X20DC11A6	1 ABR incremental encoder, 5V, 5MHz input frequency, 4x evaluation, encoder monitoring, Net-Time function	D0
X20DC1376	1 ABR incremental encoder, 24V, 100 kHz input frequency, 4x evaluation, encoder monitoring, NetTime function	C0
X20DC137A	1 ABR incremental encoder, 24V differential, 300 kHz input frequency, 4x evaluation, encoder monitoring, NetTime function	C0
X20DC1396	1 ABR incremental encoder, 24V, 100 kHz input frequency, 4xevaluation	H0
X20DC1398	1 SSI absolute encoder, 24V, 125 kbit/s, 32-bit	H0
X20DC1976	1 ABR incremental encoder, 5V (single-ended), 250 kHz input frequency, 4xevaluation, encoder monitoring, NetTime function	D0

X20DC2395	1 SSI absolute encoder, 24V, 1 ABR incremental encoder, 24V, 2 AB incremental encoders, 24V, 4 event counters or 2 PWM, local time measurement function	H0
X20DC2396	2 ABR incremental encoders, 24V, 100 kHz input frequency, 4xevaluation	H0
X20DC2398	2 SSI absolute encoder, 24 V, 125 kbit/s, 32-bit	H0
X20DC4395	2 SSI absolute encoders, 24V, 2 ABR incremental encoders, 24V, 4 AB incremental encoders, 24V, 8 event counters or 4 PWM, local time measurement functions	I0

Accessories

X20TBxx	Terminal blocks (push-in connection)	-
0TBxx	Terminal blocks (screw clamp connection)	-
X20ZF0000	Non-functional dummy module	D0
0CFCRD.0xxE.0x	CompactFlash cards capacity 512MB ~ 16GB	

Power supply: 24VDC nominal voltage

Degree of protection: IP20

Pollution Degree 2

2. DOCUMENTS AND DRAWINGS:

System manuals:

- X20 system User's Manual version 4.10 dated 09/2022; Integrated safety technology User's Manual version 1.141 dated 04/2019; Redundancy for control systems version 1.19 dated 09/2020; Installation / EMC Guide version 1.42 dated 08/2022

Schematics / PCB assembly plans:

- V_X20AI2222 rev 3.0 dated 13/10/11; V_X20AI2322 rev 3.0 dated 14/10/11; V_AI2437 rev. 3.1 dated 20/04/13; V_Standard rev 3.0 dated 13/08/12; V_X20AI2622 rev 3.1 dated 21/09/11; V_X20AI2632 rev 2.2.1 dated 15/07/08; V_AI2632-1 rev.3.2 dated 05/03/13; V_X20AI4222 rev 3.0 dated 13/10/11; V_X20AI4322 rev 3.0 dated 13/10/11; V_X20AI4622 rev 3.1 dated 21/09/11; V_X20AI4632 rev 2.2.1 dated 15/07/08; V_AI4632-1 rev 3.2 dated 05/03/13; V_X20AI4632 rev 3.2 dated 05/03/13; V_X20AI8221 rev 2.0 dated 05/10/12; V_X20AI8321 rev 2.0 dated 05/10/12; V_AO2437 rev 4.2 dated 05/03/13; V_Standard rev 4.1 dated 03/05/12; V_X20AO2622 rev 4.0.1 dated 14/05/08; V_X20AO2632 rev 4.3 dated 04/03/13; V_AO2632-1 rev 2.1 dated 06/03/13; V_X20AO4622 rev 4.0.1 dated 14/05/08; V_X20AO4632 rev 4.3 dated 04/03/13; V_AO4632-1 rev 2.1 dated 06/03/13; V_X20AO4632 rev 4.2 dated 25/05/11; V_X20AP3111 rev 3.1 dated 11/10/13; V_X20AP3121 rev 3.1 dated 11/10/13; V_X20AP3131 dated 11/10/13; V_X20AP3161 rev 3.2 dated 11/10/13; V_X20AT2222 rev 5.1 dated 22/07/09; V_PT100 rev 2.5 dated 13/10/17; V_X20AT2402 rev 5.1 dated 21/12/06; V_X20AT4222 rev 5.2 dated 18/08/10; V_X20AT6402 rev 5.1 dated 21/12/06; V_2_Kanal rev 3.3 dated 09/01/20; V_Standard rev 3.2 dated 03/08/15; V_Standard rev 3.2 dated 10/01/19; V_X20ATC402 rev 4.1 dated 21/07/14; V_BB22 rev 2.1 dated 18/04/07; V_BB27 rev 2.1 dated 18/04/07; V_BB42 rev 4.1 dated 19/10/11; V_BB47 rev 4.1 dated 19/10/11; X20BB57_2_V_BB52 rev 2.1 dated 01/03/17; X20BB57_2_V_BB57 rev 2.1 dated 01/03/17; X20BB67_2_V_BB62 rev 2.1 dated 22/02/17; X20BB67_2_V_BB67 rev 2.1 dated 22/02/17; X20BB77_5_V_BB72 rev 5.2 dated 20/03/18; X20BB77_5_V_BB77 rev 5.2 dated 20/03/18; V_BB80 rev 2.1 dated 03/06/08; V_BB81 rev 5.0 dated 26/09/11; V_BB82 rev 2.1 dated 17/08/10; V_X20BC0043 rev 3.1 dated 16/10/12; V_X20BC0043_10 rev 3.2 dated 16/10/12; V_X20BC0053 rev 3.1 dated 16/10/12; V_Standard rev 5.1 dated 07/10/14; V_Standard rev 5.0 dated 29/08/11; V_X20BC0143-10 rev 2.1 dated 25/08/10; V_BC1083 rev 1.0 dated 23/01/09; V_Standard rev 2.3 dated 24/05/07; V_BC8084 rev 5.0 dated 04/08/11; V_BM01 rev 1.2 dated 17/04/07; V_BM05 rev 4.0 dated 18/08/08; V_BM11_TOS_NEC rev 1.0 dated 13/02/17; V_BM12 rev 4.0 dated 18/08/08; V_BM15 rev 4.0 dated 18/08/08; V_BM21 rev 1.1 dated 12/04/07; V_Standard rev 1.1 dated 12/04/07; V_BM23 rev 1.1 dated 12/04/07; V_Standard rev 1.1 dated 12/04/07; V_BM31 rev 5.0 dated 25/10/16; V_Standard rev 1.2 dated 09/04/14; V_BM32 rev 1.0 dated 07/09/09; V_BM33 rev 1.1 dated 12/04/07; V_CODE1 rev 5.0 dated 17/08/12; V_CODE2 rev 5.0 dated 17/08/12; V_Standard rev 3.0 dated 16/05/12; V_Standard rev 5.0 dated 14/04/09; V_Standard rev 5.0 dated 29/05/12; V_Standard rev 5.7 dated 24/06/14; V_Standard rev 7.0 dated 12/06/15; V_CM8281 rev 1.3 dated 14/10/09; V_CP0201 rev 4.0 dated 28/09/07; V_CP0291 rev 4.0 dated 28/09/07; V_CP0292 rev 4.0 dated 28/09/07; V_X20PS_SG3 rev 6.1 dated 15/06/09; X20-EC-CP/4_V_CP_410_411 rev 4.5 dated 07/03/18; X20-EC-CP/4_V_CP_484 rev 4.0 dated 06/03/18; X20-EC-CP/4_V_CP_482 rev 4.5 dated 06/03/18; X20-EC-CP/4_V_CP_483 rev 4.0 dated 06/03/18; X20-EC-CP/4_V_CP_484 rev 4.0 dated 06/03/18; V_Standard rev 2.1 dated 25/02/14; V_Standard rev 2.0 dated 03/03/14; V_Standard rev 2.0 dated 03/03/14; V03_CP1301 rev 2.1 dated 13/08/14; V04_CP1381 rev 2.2 dated 13/10/14; V_Standard rev 2.2 dated 07/10/14; V05_CP1381RT rev 2.2 dated 13/10/14; V01_CP1382 rev 2.3 dated 13/10/14; V02_CP1382RT rev 2.3 dated 13/10/14; V_Standard rev 1.0 dated 11/10/09; V_Standard rev 2.0 dated 17/10/08; V_Standard rev 3.1 dated 04/05/10; V_X20PS9500 rev 6.1 dated 15/06/09; V_CP1483-1 rev 3.0 dated 18/08/09; V_Standard rev 4.0 dated 25/03/10; V_400MHZ rev 3.3 dated 25/01/11; V_Standard rev 3.3 dated 06/08/10; V_650MHZ rev 3.3 dated 25/01/11; V_Standard rev 2.4 dated 26/11/12; V04_1583 rev 5.0 dated 21/11/12; V_Standard rev 2.1 dated 24/10/12; V01_1584 rev 5.0 dated 21/11/12; V02_1585 rev 5.0 dated 21/11/12; V_Standard rev 4.1 dated 06/08/10; V_400M-1 rev 3.3 dated 25/01/11; V_Standard rev 4.1 dated 24/10/12; V03_1586 rev 5.0 dated 21/11/12; X20CS10XY/5_V_X20CS1020 rev 5.1 dated 15/02/19; V_X20CS1030 rev 2.2 dated 01/02/11; V_X20CS1070 rev 2.1 dated 15/02/08; V_DC1176 rev 4.0 dated 12/08/09; V_DC1178 rev 5.0 dated 01/03/12; V_DC1196 rev 5.0 dated 01/03/12; V_DC11A6 rev 5.0 dated 01/03/12; V_DC1198 rev 5.0 dated 01/03/12; V_DC137A rev 5.0 dated 28/08/12; V_DC1376 rev 4.0

dated 12/08/09; V_DC1396 rev 6.0 dated 01/03/12; V_DC1398 rev 6.0 dated 01/03/12; V_DC1976 rev 5.0 dated 01/03/12; V_DC2395 rev 6.0 dated 01/03/12; V_DC2396 rev 6.0 dated 01/03/12; V_DC2398 rev 6.0 dated 01/03/12; V_DC4395 rev 6.0 dated 01/03/12; V_X20DI2371 rev 6.1 dated 09/03/11; V_X20DI2372 rev 6.1 dated 09/03/11; V_X20DI2377 rev 6.0 dated 26/11/07; V_X20DI2653 rev 4.3 dated 14/06/18; V_X20DI4371 rev 6.1 dated 09/03/11; V_X20DI4372 rev 6.1 dated 09/03/11; V_DI4375 rev 1.3 dated 05/03/13; V_X20DI4653 rev 4.3 dated 05/08/15; V_X20DI4760 rev 4.0 dated 07/05/08; V_X20_DI6371 rev 5.0 dated 25/08/06; V_X20_DI6372 rev 7.0 dated 26/06/12; V_Standard rev 1.0 dated 17/10/08; V_X20_DI8371 rev 3.0 dated 21/12/07; V_X20_DI9371 rev 3.1 dated 27/07/10; V_X20_DI9372 rev 4.1 dated 09/03/11; V_DID371 rev 1.1 dated 09/11/11; V_Standard rev 1.2 dated 02/11/11; V_X20DO2322 rev 6.1 dated 14/10/09; V_X20DO2649 rev 3.0 dated 19/01/11; V_X20DO4322 rev 6.1 dated 14/10/09; X20DO4332/4_V_PWM rev 4.1 dated 08/02/19; V_X20DO4529 rev 2.0 dated 02/02/06; V_Standard rev 3.0 dated 27/11/12; V_X20_DO6322 rev 5.1 dated 14/10/09; V_Standard rev 2.1 dated 04/07/16; V_X20DO6529 rev 4.0 dated 11/02/11; V_Standard rev 2.0 dated 29/05/13; X20_DO8232 rev 5.2 dated 08/10/12; X20_DO8322 rev 5.2 dated 08/10/12; X20_DO8332 rev 5.1 dated 14/10/09; X20_DO9322 rev 5.0 dated 11/03/09; V_Standard rev 1.2 dated 25/11/11; V_DS1119 rev 4.0 dated 13/08/09; X20AT2311/3 rev 3.0 dated 27/10/20; X20CM4800X/3 rev 3 dated 15/03/2019; X20CMR119/1 rev 1.0 dated 25/09/2017; X20-EC-CP/4 rev 4.0 dated 04/06/2019; X20DO4F49/2 rev 2.1 dated 14/02/2020; X20DO12-SINK/5 rev 5.3 dated 30/04/2015; X20RT8001/3 rev 3.0 dated 30/03/2015; X20RT8X0X/3 rev 3.1 dated 27/11/2015; X20RT8X0X/3 rev 3.0 dated 29/05/2017;

Part lists:

- X20AI2222_STKL dated 21/08/2013; X20AI2322_STKL dated 15/07/2013; X20AI2437_STKL dated 30/07/2013; X20AI2438_STKL dated 30/07/2013; X20AI2622_STKL dated 30/07/2013; X20AI2632 dated 28/04/2011; X20AI2632-1_STKL dated 30/07/2013; X20AI2636 dated 15/07/2013; X20AI4222_STKL dated 15/07/2013; X20AI4322_STKL dated 15/07/2013; X20AI4622_STKL dated 15/07/2013; X20AI4632 dated 28/04/2011; X20AI4632-1_STKL dated 15/07/2013; X20AI4636 dated 15/07/2013; X20AI8221_STKL dated 21/08/2013; X20AI8321_STKL dated 21/08/2013; X20AO2437_STKL dated 30/07/2013; X20AO2438_STKL dated 30/07/2013; X20AO2622 dated 28/04/2011; X20AO2632 dated 15/07/2013; X20AO2632-1 dated 15/07/2013; X20AO4622 dated 27/04/2011; X20AO4632 dated 15/07/2013; X20AO4632-1_STKL dated 30/07/2013; X20AO4635 dated 15/07/2013; X20AP3111 dated 06/10/2014; X20AP3121 dated 06/10/2014; X20AP3131 dated 06/10/2014; X20AP3161 dated 06/10/2014; X20AT2222 dated 28/04/2011; X20AT2311 dated 24/01/2018; X20AT2402 dated 28/04/2011; X20AT4222 dated 28/04/2011; X20AT6402 dated 28/04/2011; X20ATA312 dated 06/02/2020; X20ATA492 dated 06/02/20; X20ATB312 dated 06/02/2020; X20ATC402 dated 06/02/2020; X20BB22 dated 27/04/2011; X20BB27 dated 15/07/2013; X20BB42 dated 15/07/2013; X20BB47 dated 15/07/2013; X20BB52 dated 15/01/2019; X20BB57 dated 15/01/2019; X20BB62 dated 07/03/2019; X20BB67 dated 07/03/2019; X20BB72 dated 06/02/2020; X20BB77 dated 06/02/2020; X20BB80 dated 27/04/2011; X20BB81 dated 15/05/2018; X20BB82 dated 27/04/2011; X20BC0043 dated 15/07/2013; X20BC0043-10 dated 15/07/2013; X20BC0053 dated 15/07/2013; X20BC0083 dated 17/02/2017; X20BC0087 dated 15/07/2013; X20BC0143-10 dated 15/07/2013; X20BC1083 dated 15/07/2013; X20BC8083 dated 28/04/2011; X20BC8084 dated 15/07/2013; X20BM01 dated 27/04/2011; X20BM05 dated 15/07/2013; X20BM11 dated 21/09/2017; X20BM15 dated 15/07/2013; X20BM21 dated 15/07/2013; X20BM23 dated 15/07/2013; X20BM31 dated 21/09/2017; X20BM32 dated 15/07/2013; X20BM33 dated 27/04/2011; X20CM0985-1 dated 06/10/2014; X20CM2821 dated 27/11/2017; X20CM8281 dated 28/04/2011; X20CP0201 dated 16/07/13; X20CP0291 dated 16/07/2013; X20CP0292 dated 27/04/2011; X20CP0410 dated 15/01/2019; X20CP0411 dated 15/01/2019; X20CP0482 dated 15/01/2019; X20CP0483 dated 15/01/2019; X20CP0484 dated 15/01/2019; X20CP1301 dated 09/02/2017; X20CP1381 dated 09/02/2017; X20CP1381-RT dated 09/02/2017; X20CP1382 dated 09/02/2017; X20CP1382-RT dated 27/11/2017; X20CP1483 rev 27/04/2011; X20CP1483-1 dated 27/04/2011; X20CP1484 dated 27/04/2011; X20CP1484-1 dated 27/04/2011; X20CP1485 dated 27/04/2011; X20CP1485-1 dated 27/04/2011; X20CP1486 dated 27/04/2011; X20CP1583_STKL dated 31/07/2013; X20CP1584_STKL dated 31/07/2013; X20CP1585_STKL dated 31/07/2013; X20CP1586_STKL dated 31/07/2013; X20CP3484 dated 27/04/2011; X20CP3484-1 dated 27/04/2011; X20CP3485 dated 27/04/2011; X20CP3485-1 dated 27/04/2011; X20CP3486 dated 27/04/2011; X20CP3583 dated 06/10/2014; X20CP3584 dated 06/10/2014; X20CP3585 dated 06/10/2014; X20CP3586 dated 06/10/2014; X20CS1020 dated 28/04/2011; X20CS1030 dated 03/05/2011; X20CS1070 dated 28/04/2011; X20DC1176 dated 28/04/2011; X20DC1178 dated 16/07/2013; X20DC1196 dated 16/07/2013; X20DC11A6_STKL dated 31/07/2013; X20DC1198 dated 16/07/2013; X20DC137A_STKL dated 31/07/2013; X20DC1376 dated 28/04/2011; X20DC1396_STKL dated 31/07/2013; X20DC1398 dated 16/07/2013; X20DC1976 dated 16/07/2013; DC2395 dated 16/07/2013; X20DC2396 dated 16/07/2013; X20DC2398 dated 16/07/2013; X20DC4395 dated 16/07/2013; X20DI2371 dated 28/04/2011; X20DI2372 dated 16/07/2013; X20DI2377 dated 16/07/2013; X20DI2653 dated 07/03/2019; X20DI4371 dated 28/04/2011; X20DI4372 dated 16/07/2013; X20DI4375 dated 16/07/2013; X20DI4653 dated 07/03/2019; X20DI4760 dated 28/04/2011; X20DI6371 dated 28/04/2011; X20DI6372 dated 16/07/2013; X20DI6373 dated 16/07/2013; X20DI8371 dated 28/04/2011; X20DI9371 dated 27/04/2011; X20DI9372 dated 16/07/2013; X20DID371 dated 16/07/2013; X20DIF371 dated 16/07/2013; X20DO2322 dated 28/04/2011; X20DO2649 dated 16/07/2013; X20DO4322 dated 28/04/2011; X20DO4332-1 dated 07/03/2019; X20DO4529 dated 27/04/2011; X20DO4649 dated 06/10/2014; X20DO6322 dated 27/04/2011; Part List_X20DO6325 dated 27/11/2017; X20DO6529 dated 27/04/11; X20DO6639 dated 06/10/2014; X20DO8232 dated 16/07/2013; X20DO8322 dated 16/07/2013; X20DO8332 dated 27/04/2011; X20DO9322 dated 27/04/2011; X20DOF322 dated 16/07/2013; X20DS1119 dated 28/04/2011; X20AT2321 dated 22/04/2021; X20CM4800X dated 06/10/2020; X20CMR100 dated 06/10/2020; X20CMR111 dated 06/10/2020; X20CP0484-1 dated 16/04/2020; X20DO4F49 dated 06/10/2020; X20DO9321 dated 22/04/2021; X20RT8001 dated 16/04/2020; X20RT8201 dated 16/04/2020; X20RT8202 dated 16/04/2020; X20RT8381 dated 16/04/2020; X20RT8401 dated 16/04/2020;

Functional safety EC-Type Examination Certificate: M6A 041745 0010 Rev.02 dated 24/11/2021

3. TEST REPORTS:

- mikes-testingpartners gmbH: E34466-00-01HP dated 23/08/2010; E34467-00-01HP dated 23/08/2010; E34468-00-01HP dated 23/08/2010; E34469-00-01HP dated 23/08/2010; E37149-00-00MU dated 22/08/2013; S34470-00-02AV dated 06/06/2011; S34471-00-03AV dated 06/06/2011; S34471-00-04AV dated 06/06/2011; S34471-00-05AV dated 06/06/2011; S34982-00-00JK dated 25/05/2011; S37154-00-00AV dated 25/09/2013

- CSA Group Bayern GmbH: E37640-00-01MH dated 27/01/2014; E38921-01-00HM dated 17/12/2014; E40222-00-00VK dated 05/11/2015; E42783-00-00JA dated 27/07/2017; E43194-00-00JA dated 16/11/2017; E43951-00-01JA dated 18/04/2018; E44620-00-01JA dated 17/12/2018; E44621-00-00JA dated 10/12/2018; E44971-00-00LC dated 19/09/2019; E45594-01-03LC dated 08/10/2020; E46026-00-03LC dated 08/10/2020; E47237-00-02LC dated 22/04/2021; S37155-00-01AV dated 06/02/2014; C37156-00-00MV dated 12/01/2015; C40223-00-00MV dated 17/12/2015; C42785-00-00FT dated 13/11/2017; C43195-02-00FT dated 23/02/2018; C43857-02-00FT dated 26/06/2018; C44611-00-00FT dated 21/03/2019; C44612-00-00FT dated 22/03/2019; C44975-00-01LT dated 12/02/2020; C46045-00-03LT dated 09/10/2020; C46046-00-03LT dated 09/10/2020; C47238-00-01LT dated 12/05/2021

4. APPLICATION/LIMITATION:

4.1 - Bureau Veritas Rules for the Classification of Steel Ships, Rules for the Classification of Offshore Units and Rules for the Classification and the Certification of Yachts.

4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS**, **AUT-CCS**, **AUT-PORT** and **AUT-IMS**.

4.3 - Bureau Veritas Environmental Category, **EC Code: 33B** for 'Safe Logic Controllers' and 'Functional safety modules' listed in 1.1. above, Bureau Veritas Environmental Category, **EC Code: 21B** for other modules.

4.4 - Suppliers/system integrators using the equipment in safety related applications shall comply with the latest version of the safety manual of the equipment and shall follow the implementation conditions and restrictions as found in the latest reports to the functional safety certificate.

4.5 - Suppliers using the equipment are to consider Bureau Veritas requirements for data communication links for system categories II or III in the application.

4.6 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:

- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.

- Inspection and testing before installation onboard is to be performed under the surveillance of the Society.

4.7 - Only Hardware and Firmware successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer is covered by this certificate.

4.8 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev. 8.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above mentioned products are to be supplied by **B&R Industrial Automation GmbH** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - B&R Industrial Automation GmbH has to make the necessary arrangements to have its works recognized by Bureau Veritas in compliance with the requirements of NR320 for HBV products:

B&R Industrial Automation GmbH
B&R Strasse 1
5142 Eggelsberg
AUSTRIA

6. MARKING OF PRODUCT:

- Maker's name or trademark.

- Equipment type or model identification.

- Date of manufacture and/or serial number.

- The title and version of each software element included in the installed software system shall be traceable by appropriate marking on the equipment.

7. OTHERS:

It is **B&R Industrial Automation GmbH**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***