X20(c)CP158x and X20(c)CP358x

1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 system user's manual
MAEMV	Installation / EMC guide

Additional documentation

Document name	Title
MAREDSYS	Redundancy for control systems

2 General information

Based on Intel Atom processor technology, X20 controllers cover a wide range of requirements. The range of use extends from standard applications to applications with high performance requirements.

The entry into the series is with the Intel Atom processor 333 MHz compatible models X20CP1583 and X20CP3583. With an optimum price/performance ratio, it has the same basic features as all of the larger controllers.

The basic model includes USB, Ethernet, POWERLINK V1/V2 and replaceable CompactFlash card. The standard Ethernet interface is capable of handling communication in the gigabit range. For even more real-time network performance, the onboard POWERLINK interface supports poll response chaining mode (PRC). Up to 3 more slots are available for additional interface modules to increase flexibility.

- Intel ATOM 1600/1000/600 Performance with integrated I/O processor
- Entry-level CPU is Intel ATOM 333 MHz-compatible with integrated I/O processor
- Onboard Ethernet, POWERLINK V1/V2 with poll response chaining and USB
- 1 or 3 slots for modular interface expansion
- · CompactFlash as removable application memory
- Up to 512 MB DDR2-SRAM according to performance requirements
- · Controller redundancy possible
- Fanless

3 Coated modules

Coated modules are X20 modules with a protective coating for the electronics component. This coating protects X20c modules from condensation and corrosive gases.

The modules' electronics are fully compatible with the corresponding X20 modules.

For simplification purposes, only images and module IDs of uncoated modules are used in this data sheet.

The coating has been certified according to the following standards:

- Condensation: BMW GS 95011-4, 2x 1 cycle
- Corrosive gas: EN 60068-2-60, method 4, exposure 21 days







4 Order data - X20CP158x



interface, 1 Ethernet interface 10/100/1008ASE-T, 1 POWERLINK interface, including po supply module, 1x terminal block XZDTB12, slot cover and XZ0 end cover plate XZ0ACOST (right) included, order application memory separately) X20 PLC, Alom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory compact[Flash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS323 interface Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply mule, 1x terminal block XZ0TB12, slot cover and X20 end cover plate XZ0ACOSR1 (right) included order application memory, separately) X20 PLC, coated, Atom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory. Compact[Flash, 1 insert slot for X20 interface modules, 2 USB interface, including post supply) module, 1x terminal block XZ0TB12, slot cover and X20 end cover plate X20ACOSR1 (right) included, order application memory. Separately) X20 PLC, Casted, Atom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory. Compact[Flash, 1 insert slot for X20 interface and X20 end cover plate X20ACOSR1 (right) included, order application memory separately) X20 PLC, Atom 1.0 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory experately. X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory experately. X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory experately. X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory experately. X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory experately. X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory experately. X20 PLC, Casted, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory. Separately. X20 PLC, Casted, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory. Separately. X20 PLC, Casted, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory. Separately. X20 PLC, Casted,		
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Etherinet interface 10/10/10/10/10/10/10/10/10/10/10/10/10/1	X20CP1584	X20 PLC, Atom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory:
memory. CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS interface, 1 Ethernet interface 1/100/1000BASE-T, 1 POWERLINK interface, including po supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC05 (right) included, order application memory separately! X20 PLC, Atom 1.0 6Hz, 256 MB DDR2 RAM, 1 MB SRAM, removable application mem CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface Ethernet interface 10/100/1000BASE-T, POWERLINK interface, including power supply mule, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included order application memory separately! X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application mem CompactFlash, 1 insert slot for X20 interface and x20 end cover plate X20AC0SR1 (right) included order application memory separately! X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory separately! X20 PLC, coated, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RSS interface		CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply mule, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included order application memory separately! X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application mem CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply mule, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) include order application memory separately! X20 CP1586 X20 PLC, coated, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory separately! X20 PLC, coated, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory. CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including posupply module, 1 x terminal block X20TB12, slot cover and X20 end cover plate X20AC0S (right) included, order application memory separately! Required accessories CompactFlash cards OCFCRD.016GE.02 CompactFlash 16 GB extended temp. OCFCRD.0512E.02 CompactFlash 16 GB extended temp. OCFCRD.1024E.02 CompactFlash 1024 MB extended temp. OCFCRD.1024E.02 CompactFlash 1044 MB extended temp. OCFCRD.2048E.02 CompactFlash 2045 MB extended temp. OCFCRD.8192E.02 CompactFlash 3 GB extended temp. Included in delivery Batteries X20 end cover plate, right Terminal blocks X20 end cover plate, right Terminal blocks X20 terminal blocks X20 terminal blocks X20 terminal blocks X20 terminal blocks Batteries	X20cCP1584	X20 PLC, coated, Atom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface Ethernet interface 10/10/1000BASE-T, 1 POWERLINK interface, including power supply or ule, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included order application memory separately! X20 PLC, coated, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable applicated memory. CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 REMOVER, 2 USB interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, 1 Ethernet interface 10/100/100BASE-T, 1 POWERLINK interface, 1 Ethernet inter	X20CP1585	X20 PLC, Atom 1.0 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
memory: CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including po supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0S (right) included, order application memory separately! Required accessories CompactFlash cards OCFCRD.016GE.02 CompactFlash 16 GB extended temp. OCFCRD.0512E.02 CompactFlash 512 MB extended temp. OCFCRD.1024E.02 CompactFlash 1024 MB extended temp. OCFCRD.2048E.02 CompactFlash 2048 MB extended temp. OCFCRD.4096E.02 CompactFlash 4096 MB extended temp. OCFCRD.8192E.02 CompactFlash 8 GB extended temp. Included in delivery Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20 end cover plate, right Terminal blocks X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	X20CP1586	X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
CompactFlash cards 0CFCRD.016GE.02 CompactFlash 16 GB extended temp. 0CFCRD.0512E.02 CompactFlash 512 MB extended temp. 0CFCRD.1024E.02 CompactFlash 1024 MB extended temp. 0CFCRD.2048E.02 CompactFlash 2048 MB extended temp. 0CFCRD.4096E.02 CompactFlash 4096 MB extended temp. 0CFCRD.4096E.02 CompactFlash 4096 MB extended temp. 0CFCRD.8192E.02 CompactFlash 8 GB extended temp. Included in delivery Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20ACOSR1 X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	X20cCP1586	X20 PLC, coated, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 1 insert slot for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
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OCFCRD.2048E.02 CompactFlash 2048 MB extended temp. OCFCRD.4096E.02 CompactFlash 4096 MB extended temp. OCFCRD.8192E.02 CompactFlash 8 GB extended temp. Included in delivery Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20ACOSR1 X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	0CFCRD.0512E.02	CompactFlash 512 MB extended temp.
OCFCRD.4096E.02 CompactFlash 4096 MB extended temp. CCFCRD.8192E.02 CompactFlash 8 GB extended temp. Included in delivery Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20ACOSR1 X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	0CFCRD.1024E.02	CompactFlash 1024 MB extended temp.
OCFCRD.8192E.02 CompactFlash 8 GB extended temp. Included in delivery Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20ACOSR1 X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	0CFCRD.2048E.02	CompactFlash 2048 MB extended temp.
Included in delivery Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20 end cover plate, right Terminal blocks X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	0CFCRD.4096E.02	CompactFlash 4096 MB extended temp.
Batteries 4A0006.00-000 Lithium battery, 3 V / 950 mAh, button cell Locking plate X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	0CFCRD.8192E.02	CompactFlash 8 GB extended temp.
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Locking plate X20AC0SR1 X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries		Batteries
X20 end cover plate, right Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	4A0006.00-000	Lithium battery, 3 V / 950 mAh, button cell
Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries		Locking plate
Terminal blocks X20TB12 X20 terminal block, 12-pin, 24 VDC keyed Optional accessories Batteries	X20AC0SR1	• • • • • • • • • • • • • • • • • • • •
Optional accessories Batteries		
Optional accessories Batteries	X20TB12	X20 terminal block, 12-pin, 24 VDC keyed
Batteries		7 1 7 7
		·
	0AC201.91	Lithium batteries 4 pcs., 3 V / 950 mAh button cell

Table 1: X20CP1583, X20CP1584, X20cCP1584, X20CP1585, X20CP1586, X20cCP1586 - Order data

Included in delivery

Order number	Short description
4A0006.00-000	Backup battery (see also "Battery" on page 18)
-	Interface module slot covers
X20AC0SR1	X20 end cover plate (right)
X20TB12	X20 terminal block, 12-pin, 24 V coding

5 X20CP158x - Technical data

Short description Tax RS232, 15 Elbennet, 16 POWERLINK (VITV2), 26 USB, 15 X2X LINK	Order number	X20CP1583	X20CP1584	X20cCP1584	X20CP1585	X20CP1586	X20cCP1586					
System module	Short description											
Service Serv	Interfaces	1x RS232, 1x Ethernet, 1x POWERLINK (V1/V2), 2x USB, 1x X2X Link										
BAR ID code	System module	Controller										
Sature indicators	General information											
Satus indicators	B&R ID code	0xD45B	0xE21C									
Diagnostics Battery Ves. using LED status indicator and software CPU sunction Ves. using LED status indicator and software Ves. using LED status indicator Compactifish Ves. using LED status indicator Ves. using LED status indicator Development of Ves. using LED status indicator Ves. using software register Ves. using software register Ves. using software register Ves. Using software register Ves. Ves. Ves. Ves. Ves. Ves. Ves. Ves.	Cooling											
Battery Ves, using LED status indicator and software CPU function Vest, using LED status indicator Vest, using LED status indicator Schemet Power, Using LED status indicator Vest, using LED status indicator Power, Using LED status indicator Vest, using software register Vest, using software register Vest, using software register Vest Vest Controller redundancy No No Storage health data support Vest Notato Components Support Notato Components Support Notato Notato Components Support Notato	Status indicators		CPU function, Ethernet, POWERLINK, CompactFlash, battery									
CPU function	Diagnostics											
CompactFlash	•											
Ethemet												
POWERLINK	·											
Temperature Yes_using_software register												
Support	-											
Controller redundancy	•			Yes, using sof	tware register		_					
Sibrage health data support				N.	<u> </u>		_					
ACCPOS support Yes	-						_					
Visual Components support												
Power consumption without interface module and USB												
module and USB		9.2 \\	0.6				7 \\					
er supply 31 Internal I/O	module and USB	0.2 VV	0.0									
Internal I/O	er supply ²⁾			1.4	∠ VV							
Additional power dissipation caused by actuators (resistive) [W] Certifications CE Yes	·											
by actuators (resistive) [M] Certifications CE Yes ATEX				0.6	5 W							
Cettifications		ı		•	-							
CE	, , , , , ,											
UKCA							_					
ATEX												
IP20, Ta (see X20 user's manual) FTZÜ 09 ATEX 0093X												
UL	ATEX	1		IP20, Ta (see X2	0 user's manual)							
HazLoc	UL											
Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5 DNV Temperature: B (0 - 55°C) Humidity: B (0 to 100%) Vibration: B (4 g) EMC: B (bridge and open deck) LR ENV1 KR Yes ABS Yes EAC Yes KC Yes KC Yes KC CPU and X2X Link power supply Input voltage Input voltage Integrated, cannot be replaced Reverse polarity protection X2X Link power supply output Nominal output power Parallel connection Redundant operation Yes Input Voltage Input Voltage Redundant operation Yes Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage Permissible contact load Power supply - General information Status indicators Diagnostics RS232 data transfer Yes, using LED status indicator												
DNV	HazLoc	1		Process cont for hazardo	rol equipment us locations							
Humidity: B (up to 100%) Vibration: B (4 g) EMC: B (bridge and open deck) LR	DNIV											
Vibration: B (4 g) EMC: B (bridge and open deck)	DINV	İ										
EMC: B (bridge and open deck) LR		ı										
KR ABS FAC FAC KC - Yes - Yes - Yes - Yes - Yes - CPU and X2X Link power supply Input voltage Input current Max. 1.5 A Fuse Reverse polarity protection Yes X2X Link power supply output Nominal output power Parallel connection Redundant operation Yes Input I/O power supply Input voltage Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage Permissible contact load Power supply - General information Status indicators Diagnostics RS232 data transfer Yes Yes Yes - Ye		1										
ABS EAC Yes KC Yes KC Yes Yes CPU and X2X Link power supply Input voltage Input current Max. 1.5 A Fuse Integrated, cannot be replaced Reverse polarity protection Yes X2X Link power supply output Nominal output power Parallel connection Redundant operation Yes Input I/O power supply Input voltage Reverse polarity protection Yes X2Y Link power supply Redundant operation Yes Input Voltage Reverse polarity protection Yes Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage Permissible contact load Power supply General information Status indicators Diagnostics RS232 data transfer Yes, using LED status indicator	LR			EN	IV1							
EAC KC - Yes - Yes - Yes - CPU and X2X Link power supply Input voltage Input voltage Input current Max. 1.5 A Fuse Integrated, cannot be replaced Reverse polarity protection Reverse polarity protection Yes X2X Link power supply output Nominal output power 7 W 3) Parallel connection Redundant operation Redundant operation Yes Input I/O power supply Input voltage Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage Permissible contact load Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Yes, using LED status indicator	KR			Ye	es							
KC - Yes - Yes - Yes - CPU and X2X Link power supply Input voltage 24 VDC -15% / +20% Input current Max. 1.5 A Fuse Integrated, cannot be replaced Reverse polarity protection Yes X2X Link power supply output Nominal output power 7 W 3) Parallel connection Yes 4) Redundant operation Yes 4 Input I/O power supply Input voltage 24 VDC -15% / +20% Fuse Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage 24 VDC Permissible contact load 10 A Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer	ABS			Ye	es							
CPU and X2X Link power supply				Ye	î .							
Input voltage 24 VDC -15% / +20% Input current Max. 1.5 A Fuse Integrated, cannot be replaced Reverse polarity protection Yes X2X Link power supply output Nominal output power 7 W 3) Parallel connection Yes 4) Redundant operation Yes Input I/O power supply Input voltage 24 VDC -15% / +20% Fuse Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage 24 VDC Permissible contact load 24 VDC Permissible contact load 10 A Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator		-	Yes	-)	⁄es	-					
Input current Fuse Integrated, cannot be replaced Reverse polarity protection Yes X2X Link power supply output Nominal output power Parallel connection Redundant operation Redundant operation Input I/O power supply Input voltage Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage Permissible contact load Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator												
Fuse Integrated, cannot be replaced Reverse polarity protection Yes X2X Link power supply output Nominal output power 7 W 3) Parallel connection Yes 4) Redundant operation Yes Input I/O power supply Input voltage 24 VDC -15% / +20% Fuse Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage 24 VDC Permissible contact load 10 A Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator							_					
Reverse polarity protection X2X Link power supply output Nominal output power Parallel connection Redundant operation Redundant operation Input I/O power supply Input voltage Fuse Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage Permissible contact load Power supply - General information Status indicators Diagnostics RS232 data transfer Yes 7 W 3) 7 W 3) Required line fuse: Max. 10 Required line fuse: Max. 10 A, slow-blow Overload, operating status, module status, RS232 data transfer Yes, using LED status indicator	·						_					
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Fuse Required line fuse: Max. 10 A, slow-blow Output I/O power supply Nominal output voltage 24 VDC Permissible contact load 10 A Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator				24 V/DC 4	5% / ±20%							
Output I/O power supply Nominal output voltage 24 VDC Permissible contact load 10 A Power supply - General information Status indicators Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics Yes, using LED status indicator						M/						
Nominal output voltage 24 VDC Permissible contact load 10 A Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator				rrequired little tuse. I	viax. 10 A, SIUW-DIO	vv						
Permissible contact load 10 A Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator		24 VDC										
Power supply - General information Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics Yes, using LED status indicator												
Status indicators Overload, operating status, module status, RS232 data transfer Diagnostics RS232 data transfer Yes, using LED status indicator				10								
Diagnostics RS232 data transfer Yes, using LED status indicator		Overload, operating status, module status, RS232 data transfer										
RS232 data transfer Yes, using LED status indicator		Overload, operating status, module status, module status, module translet										
, 0	9	Yes, using LED status indicator										
I MOQUIE TUDICATOL TES USINO LEO SIATUS MODICATOL SON	Module run/error	Yes, using LED status indicator Yes, using LED status indicator and software										
Overload Yes, using LED status indicator and software												

Table 2: X20CP1583, X20CP1584, X20cCP1584, X20CP1585, X20CP1586, X20cCP1586 - Technical data

X20(c)CP158x and X20(c)CP358x

No	Order number	X20CP1583	X20CP1584	X20cCP1584	X20CP1585	X20CP1586	X20cCP1586				
Centroller	Electrical isolation										
Compactified and sold											
Controller Compact* Instruction Compact* Compact* Instruction Compact* C					res						
Real-time clock	Controller										
PFU	CompactFlash slot				1						
Processor	Real-time clock		Nonvola	tile, resolution 1 s, -	10 to 10 ppm accura	cy at 25°C	_				
Type	FPU			,	⁄es		_				
Clock Requency	Processor										
1.1 sc/he	Туре										
Data code	· · · · · · · · · · · · · · · · · · ·	333 MHz	0.6	GHz	1 GHz	1.6	GHz				
Program code L2 canche S12 kB					=						
Processes I/O data points in the background											
Integrated I/O processor Processes I/O data points in the background	<u> </u>			32							
Max. 4 kB Max. 26 kB Max. 26 kB Max. 1 MB Max. 1 MB Max. 26 kB Max. 26 kB Max. 1 MB Max. 1 MB Max. 26 kB Max. 26 kB Max. 1 MB Max. 26 kB Max. 26 kB Max. 1 MB Max. 26 kB Max. 27 C ambient temperature											
Max. 64 kB Max. 256 kB Max. 1418 Max. 1518 Max. 1418 Max. 1518 M				rocesses i/O data p		ına					
Shortest task class cycle time		May 64 kR 5)		Max 256 kB 5)	!	May	1 MR 5)				
Typical Instruction cycle time Double Doub			40		200 us						
Date buffering Battery monitoring Yes		-		<u> </u>	· ·						
### Description of the property of the proper	Data buffering	0.01 ро	3.00		0.0011 po	3.00					
Min. 2 years at 23°C ambient temperature				`	/es						
128 MB DDR2 256 MB DDR2 SDRAM 512 MB DDR2 SDRAM 512 MB DDR2 SDRAM 1 MB SRAM *** Interface F1				Min. 2 years at 23°C	ambient temperatu	re					
User RAM	Standard memory			-			_				
User RAM	RAM		:	256 MB DDR2 SDRA	MA	512 MB DI	DR2 SDRAM				
Interfaces F1		SDRAM									
Interface IF1 Signal RS232 Connection via 12-pin terminal block X20TB12 Connection via 12-pin terminal block		1 MB SRAM ⁶⁾									
Signal RS232 Connection via 12-pin terminal block X20TB12 Connection of made using 12-pin terminal block X20TB12 Connection via 12-pin terminal block X20TB12 Signal State of the pink o											
Connection via 12-pin terminal block X20TB12				D	2000						
Max. distance 900 m 12-pin terminal block X20TB12		Cor	anaction via 12 nin			Connection	Connection via				
Max. distance 900 m Transfer rate Max. 115.2 kbit/s Interface IF2 Signal Ethernet Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate Physical layer 108ASE-T/100BASE-T/100BASE-T Half-duplex Yes Autonegotiation Yes Autonedotiation Yes Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4 7 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate Physical layer 108ASE-T/100BASE-T/100BASE-T Half-duplex Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4 7 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Fieldbus POWERLINK mode. No / Ethernet mode: Yes Autonegotiation Yes Interface IF4 Type USB 1.1/2.0 Variant Type A Max. output current Users Interface IF5 Type USB 1.1/2.0 Variant Type A Max. output current Interface IF6 Fieldbus X2X Link master	variant	Cor	mection via 12-pin	terminal block A201	BIZ						
Max. distance 900 m Transfer rate Max. 115.2 kbit/s Interface IF2 Interface IF2 Signal Etherer Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 10/100/1000 Mbit/s Transfer rate 108ASE-TX/1000BASE-TX/1000BASE-T Physical layer 10BASE-TX/1000BASE-TX/1000BASE-T Half-duplex Yes Auto-MDIA Yes Auto-MDIADIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Type Type 4.7 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Physical layer 100 BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Auto-MDIAMDIX Yes Interface IF4 Type A Max. output current											
Transfer rate Max. 115.2 kbit/s						block X20TB12					
Interface F2 Signal	Max. distance			90	00 m						
Signal Ethernet Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 10/100/1000 Mbit/s Transfer 10BASE-T/100BASE-TX/1000BASE-T Physical layer 10BASE-T/100BASE-TX/1000BASE-T Half-duplex Yes Full-duplex Yes Auton-MDI/MDIX Yes Interface IF3 1 Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4 7 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Physical layer 100 Mbit/s Fill-duplex Yes Full-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Auto-MDI/MDIX Yes Interface IF4 1 Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interfa	Transfer rate			Max. 1	15.2 kbit/s						
Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 10/100/1000 Mbit/s Transfer 10BASE-T/100BASE-TX/1000BASE-T Physical layer 10BASE-T/100BASE-TX/1000BASE-T Half-duplex Yes Full-duplex Yes Auto-MDI/MDIX Yes Auto-MDI/MDIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Type Type 47° Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Transfer Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Auto-MDI/MDIX Yes Interface IF4 Yes Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Max. output current 0.5 A </td <td>Interface IF2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Interface IF2										
Line length	-										
Transfer rate 10/100/1000 Mbit/s Transfer 10BASE-TX/100BASE-TX/100BASE-T Half-duplex Yes Full-duplex Yes Auton-MDI/MDIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4.7 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer 100 Mbit/s Physical layer 100 BASE-TX Half-duplex Yes Full-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 Type A Type A USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6											
Transfer 10BASE-T/100BASE-TX/1000BASE-T Physical layer 10BASE-T/100BASE-TX/1000BASE-T Half-duplex Yes Full-duplex Yes Auton-MDI/MDIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Type Type 4 70 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer Physical layer Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Auton-MDI/MDIX Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Fieldbus X2X Link master	•		Ma			ngth)					
Physical layer 10BASE-T/100BASE-T X/1000BASE-T Half-duplex Yes Full-duplex Yes Autonegoliation Yes Auto-MDI/MDIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4? Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Auto-MDI/MDIX Yes Interface IF4 POWERLINK mode: No / Ethernet mode: Yes Type USB 1.1/2.0 Variant Type A Max. output current 1nterface IF5 Type USB 1.1/2.0 Variant Type A Max. output current 1nterface IF6 Fieldbus X2X Link master				10/100/1	UUU IVIDIU'S						
Half-duplex				10BASE_T/100BA	SE_TY/1000RASE_T						
Full-duplex Yes Auto-MDI/MDIX Yes Auto-MDI/MDIX Yes Interface IF3 Interface IF3 Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4 79 Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer rate 100 Mbit/s Transfer Yes Physical layer 100 Mbit/s Full-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Auton-gotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Hinterface IF6 Fieldbus X2X Link master	-										
Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Fieldbus POWERLINK (V1/V2) managing or controlled node Type Type 4 7) Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer Physical layer Physical layer 100 BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Usb 1.1/2.0 Yes Interface IF4 Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Max. output current 0.5 A <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>											
Auto-MDI/MDIX Yes Interface IF3 POWERLINK (V1/V2) managing or controlled node Type Type 47° Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer Physical layer Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 House IF6 Fieldbus X2X Link master											
Fieldbus											
Type Type 4 */*) Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer Physical layer Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Fieldbus X2X Link master	Interface IF3						-				
Type Type 4 */*) Variant 1x RJ45 shielded Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer Physical layer Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Fieldbus X2X Link master	Fieldbus		POV	VERLINK (V1/V2) m	anaging or controlled	d node					
Line length Max. 100 m between 2 stations (segment length) Transfer rate 100 Mbit/s Transfer 100BASE-TX Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Fieldbus X2X Link master	Туре			Тур	pe 4 ⁷⁾						
Transfer rate 100 Mbit/s Transfer 100BASE-TX Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Max. output current 0.5 A Interface IF6 Type A Fieldbus X2X Link master	Variant										
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Physical layer 100BASE-TX Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Type A Fieldbus X2X Link master				100	Mbit/s						
Half-duplex Yes Full-duplex POWERLINK mode: No / Ethernet mode: Yes Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Tiple A Fieldbus X2X Link master											
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Autonegotiation Yes Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Eieldbus Fieldbus X2X Link master											
Auto-MDI/MDIX Yes Interface IF4 USB 1.1/2.0 Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Fieldbus Fieldbus X2X Link master	•										
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Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Fieldbus Fieldbus X2X Link master		Tes									
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Max. output current 0.5 A Interface IF5 USB 1.1/2.0 Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Fieldbus Fieldbus X2X Link master											
Interface IF5 USB 1.1/2.0 Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 Fieldbus Fieldbus X2X Link master											
Type USB 1.1/2.0 Variant Type A Max. output current 0.5 A Interface IF6 X2X Link master	Interface IF5										
Variant Type A Max. output current 0.5 A Interface IF6 X2X Link master		USB 1.1/2.0									
Max. output current 0.5 A Interface IF6 Fieldbus X2X Link master											
Interface IF6 Fieldbus X2X Link master		·									
Fieldbus X2X Link master	Interface IF6										
Electrical properties				X2X Liı	nk master						
	Electrical properties										

Table 2: X20CP1583, X20CP1584, X20cCP1584, X20CP1585, X20CP1586, X20cCP1586 - Technical data

Order number	X20CP1583	X20CP1584	X20cCP1584	X20CP1585	X20CP1586	X20cCP1586						
Operating conditions						•						
Mounting orientation												
Horizontal	Yes											
Vertical	Yes											
Installation elevation above sea level						_						
0 to 2000 m			No lim	nitation								
>2000 m		Reduc	ction of ambient temp	erature by 0.5°C pe	r 100 m							
Degree of protection per EN 60529			IP	20								
Ambient conditions												
Temperature												
Operation												
Horizontal mounting orientation			-25 to	60°C								
Vertical mounting orientation			-25 to	50°C								
Derating			See section	n "Derating".								
Storage			-40 to	85°C								
Transport			-40 to	85°C								
Relative humidity						-						
Operation	5 to 95%, nor	n-condensing	Up to 100%, condensing	5 to 95%, no	n-condensing	Up to 100%, condensing						
Storage			5 to 95%, no	n-condensing								
Transport			5 to 95%, no	n-condensing								
Mechanical properties												
Note	Order application memory (CompactFlash) separately Backup battery included in delivery X20 end cover plate (right) included in delivery 12-pin X20 terminal block included in delivery Interface module slot covers included in delivery											
Dimensions												
Width	150 mm											
Height	99 mm											
Depth			85	mm								
Weight			40	0 g	400 g							

Table 2: X20CP1583, X20CP1584, X20CP1584, X20CP1585, X20CP1586, X20cCP1586 - Technical data

- 1) For details about storage health data, see Automation Help.
- 2) The specified values are maximum values. For examples of the exact calculation, see section "Mechanical and electrical configuration" in the X20 system user's manual.
- 3) When operated at temperatures above 55°C, a derating of the nominal output power to 5 W for the X2X Link power supply must be taken into account.
- 4) In parallel operation, it is only permitted to expect 75% of the nominal power. It is important to make sure that all power supply units operated in parallel are switched on and off at the same time.
- 5) The memory size for remanent variables is configurable in Automation Studio.
- 6) 1 MB SRAM minus the configured remanent variables.
- 7) For additional information, see section "Communication / POWERLINK / General information / Hardware IF/LS" in Automation Help.

6 Order data - X20CP358x



Order number	Short description
	X20 PLCs
X20CP3583	X20 PLC, Atom 333 MHz (compatible), 128 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 3 insert slots for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot covers and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
X20CP3584	X20 PLC, Atom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 3 insert slots for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot covers and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
X20cCP3584	X20 PLC, coated, Atom 0.6 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 3 insert slots for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot cover and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
X20CP3585	X20 PLC, Atom 1.0 GHz, 256 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 3 insert slots for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot covers and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
X20CP3586	X20 PLC, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 3 insert slots for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot covers and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
X20cCP3586	X20 PLC, coated, Atom 1.6 GHz, 512 MB DDR2 RAM, 1 MB SRAM, removable application memory: CompactFlash, 3 insert slots for X20 interface modules, 2 USB interfaces, 1 RS232 interface, 1 Ethernet interface 10/100/1000BASE-T, 1 POWERLINK interface, including power supply module, 1x terminal block X20TB12, slot covers and X20 end cover plate X20AC0SR1 (right) included, order application memory separately!
	Required accessories
	CompactFlash cards
0CFCRD.016GE.02	CompactFlash 16 GB extended temp.
0CFCRD.0512E.02	CompactFlash 512 MB extended temp.
0CFCRD.1024E.02	CompactFlash 1024 MB extended temp.
0CFCRD.2048E.02	CompactFlash 2048 MB extended temp.
0CFCRD.4096E.02	CompactFlash 4096 MB extended temp.
0CFCRD.8192E.02	CompactFlash 8 GB extended temp.
	Included in delivery
	Batteries
4A0006.00-000	Lithium battery, 3 V / 950 mAh, button cell
	Locking plate
X20AC0SR1	X20 end cover plate, right
	Terminal blocks
X20TB12	X20 terminal block, 12-pin, 24 VDC keyed
	Optional accessories
	Batteries
0AC201.91	Lithium batteries 4 pcs., 3 V / 950 mAh button cell

Table 3: X20CP3583, X20CP3584, X20cCP3584, X20CP3585, X20CP3586, X20cCP3586 - Order data

Included in delivery

Order number	Short description
4A0006.00-000	Backup battery (see also "Battery" on page 18)
-	Interface module slot covers
X20AC0SR1	X20 end cover plate (right)
X20TB12	X20 terminal block, 12-pin, 24 V coding

7 X20CP358x - Technical data

Order number	X20CP3583	X20CP3584	X20cCP3584	X20CP3585	X20CP3586	X20cCP3586					
Short description					,						
Interfaces		1x RS232, 1x E	Ethernet, 1x POWER	LINK (V1/V2), 2x U	SB, 1x X2X Link	_					
System module			Conti	roller							
General information											
B&R ID code	0xD45C	0xC3AD	0xE21D	0xC3AF	0xBF2B	0xE21E					
Cooling		,	Fanl	ess	•						
Status indicators		CPU funct	ion, Ethernet, POWE	RLINK, CompactFla	ash, battery						
Diagnostics											
Battery		Ye	es, using LED status	indicator and softwa	are						
CPU function			Yes, using LED	status indicator		_					
CompactFlash			Yes, using LED	status indicator							
Ethernet			Yes, using LED	status indicator		_					
POWERLINK			Yes, using LED	status indicator							
Temperature			Yes, using sof	tware register							
Support											
Controller redundancy	No			Yes		_					
Storage health data support 1)			Ye	es							
ACOPOS support			Y€	es							
Visual Components support			Ye			_					
Power consumption without interface	8.2 W	8.6	5 W	8.8 W	9.	7 W					
module and USB											
Power consumption for X2X Link pow-			1.42	2 W							
er supply ²⁾						_					
Power consumption 2)				10/							
Internal I/O			0.6			_					
Additional power dissipation caused by actuators (resistive) [W]			-								
Certifications						_					
CE			Ye	20							
UKCA			Ye								
ATEX			Zone 2, II 3G Ex								
AIEX			IP20, Ta (see X2)								
			FTZÚ 09 A	,							
UL			cULus E								
			Industrial cont								
HazLoc			cCSAus	244665							
			Process contr								
			for hazardou								
			Class I, Division 2,	· · · · · · · · · · · · · · · · · · ·							
DNV			Temperature:	` ,							
			Humidity: B (Vibration								
			EMC: B (bridge								
LR			EN								
KR			Ye	 es							
ABS			Ye								
EAC			Ye								
KC		Yes	_		′es	_					
CPU and X2X Link power supply											
Input voltage			24 VDC -15	5% / +20%							
Input current			Max.								
Fuse			Integrated, can			_					
Reverse polarity protection			Ye	•		_					
X2X Link power supply output			10	·							
Nominal output power			7 V	V 3)							
Parallel connection			Yes			_					
Redundant operation			Ye			_					
Input I/O power supply			16								
Input voltage			24 VDC -15	5% / +20%							
Fuse			Required line fuse: M		N						
Output I/O power supply				1071, 01011 0101							
Nominal output voltage			24 V	/DC							
Permissible contact load			10			_					
Power supply - General information			10								
Status indicators		Overload	operating status, mod	lule status RS232 d	data transfer						
Diagnostics		Overload, (porating status, 11100	idio status, NOZSZ (Jaka (1011317)						
RS232 data transfer			Yes, using LED	status indicator							
Module run/error			es, using LED status		are						
Overload			es, using LED status								
Overioad			o, using LLD status	mulcator and softwa	uio						

Table 4: X20CP3583, X20CP3584, X20cCP3584, X20CP3585, X20CP3586, X20cCP3586 - Technical data

X20(c)CP158x and X20(c)CP358x

Order number	X20CP3583	X20CP3584	X20cCP3584	X20CP3585	X20CP3586	X20cCP3586						
Electrical isolation												
I/O supply - I/O power supply	No No											
CPU/X2X Link supply - CPU/X2X	Yes											
Link power supply												
Controller												
CompactFlash slot		Nam. alatil		1								
Real-time clock FPU		Nonvoiaui		0 to 10 ppm accurac	y at 25 C	_						
Processor	-	Yes										
		Atom E620T		Atom E640T	Atom	E680T						
Type Clock frequency	333 MHz	0.6 (`U-	1 GHz		GHz						
L1 cache	333 IVITZ	GHZ										
Data code			24	I/D								
Program code		24 kB										
L2 cache		32 kB - 512 kB										
	-	Dra	access I/O data no		nd	_						
Integrated I/O processor Modular interface slots		PI		ints in the backgrou	riu	_						
Remanent variables	Max. 64 kB ⁵⁾				May	1 MB ⁵⁾						
	+	400	Max. 256 kB ⁵⁾	200		1 MB % 0 μs						
Shortest task class cycle time	800 µs	400	•	200 µs		_ '						
Typical instruction cycle time	0.01 µs	0.007	5 μs	0.0044 µs	0.00	27 μs						
Data buffering												
Battery monitoring				es								
Lithium battery		N	ıın. 2 years at 23°C	ambient temperatur	e	_						
Standard memory	400 440 5000		O MD DDDC CDE :	N.4	540.45	ND0 000 ***						
RAM	128 MB DDR2 SDRAM	25	66 MB DDR2 SDRA	M	512 MB DL	DR2 SDRAM						
User RAM	SURAW		1 MD C	RAM 6)	<u> </u>							
Interfaces			I IVID 3	DRAINI 9								
Interfaces						_						
			DC	າວາ								
Signal Variant	RS232 Connection via 12-pin terminal block X20TB12											
		Col	<u>`</u>	eminai biock A2016) m	512							
Max. distance												
Transfer rate			Max. TI	5.2 kbit/s								
Interface IF2			Fu.	1								
Signal				ernet								
Variant				shielded								
Line length		Max.		stations (segment ler	ngth)							
Transfer rate			10/100/10	000 Mbit/s								
Transfer												
Physical layer				E-TX/1000BASE-T								
Half-duplex				es								
Full-duplex				es								
Autonegotiation				es								
Auto-MDI/MDIX			Y	es								
Interface IF3												
Fieldbus		POWE		naging or controlled	node							
Туре				e 4 ⁷⁾								
Variant				shielded								
Line length		Max.		tations (segment ler	ngth)							
Transfer rate			100 l	Mbit/s								
Transfer												
Physical layer				SE-TX								
Half-duplex				es								
Full-duplex		PO	WERLINK mode: N	o / Ethernet mode: \	/es							
Autonegotiation				es								
Auto-MDI/MDIX			Y	es								
Interface IF4												
Туре	USB 1.1/2.0											
Variant	Type A											
Max. output current	0.5 A											
Interface IF5												
Туре	USB 1.1/2.0											
Variant	Type A											
Max. output current				5 A								
Interface IF6												
Fieldbus	X2X Link master											
Electrical properties												
Electrical isolation	Ethernet (IF2), POWERLINK (IF3) and X2X (IF6) isolated from each other, from other interfaces and from PLC											
Operating conditions												
Mounting orientation												
Horizontal			Y	es								
Vertical			Y	es								
	Yes											

Table 4: X20CP3583, X20CP3584, X20cCP3584, X20CP3585, X20CP3586, X20cCP3586 - Technical data

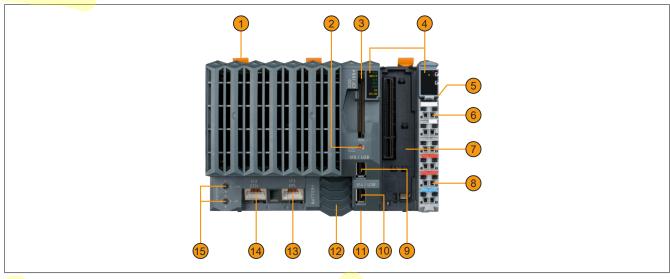
Order number	X20CP3583	X20CP3584	X20cCP3584	X20CP3585	X20CP3586	X20cCP3586		
Installation elevation above sea level	,					-		
0 to 2000 m			No lim	nitation				
>2000 m		Reduc	tion of ambient temp	erature by 0.5°C pe	r 100 m			
Degree of protection per EN 60529	-		IP	20		_		
Ambient conditions								
Temperature								
Operation								
Horizontal mounting orientation			-25 to	60°C				
Vertical mounting orientation			-25 to	50°C				
Derating			See section	n "Derating".				
Storage			-40 to	85°C				
Transport			-40 to	85°C				
Relative humidity								
Operation	5 to 95%, non	-condensing	Up to 100%, condensing	5 to 95%, no	n-condensing	Up to 100%, condensing		
Storage			5 to 95%, no	n-condensing				
Transport			5 to 95%, no	n-condensing				
Mechanical properties	-							
Note		Order a	application memory	(CompactFlash) sep	arately			
			Backup battery in					
		X20 end cover plate (right) included in delivery						
		12-pin X20 terminal block included in delivery						
Dimensions	-	Interface module slot covers included in delivery						
		200 mm						
Width		99 mm						
Height		85 mm						
Depth								
Weight	470 g							

Table 4: X20CP3583, X20CP3584, X20cCP3584, X20CP3585, X20CP3586, X20cCP3586 - Technical data

- 1) For details about storage health data, see Automation Help.
- 2) The specified values are maximum values. For examples of the exact calculation, see section "Mechanical and electrical configuration" in the X20 system user's manual.
- 3) When operated at temperatures above 55°C, a derating of the nominal output power to 5 W for the X2X Link power supply must be taken into account.
- 4) In parallel operation, it is only permitted to expect 75% of the nominal power. It is important to make sure that all power supply units operated in parallel are switched on and off at the same time.
- 5) The memory size for remanent variables is configurable in Automation Studio.
- 6) 1 MB SRAM minus the configured remanent variables.
- 7) For additional information, see section "Communication / POWERLINK / General information / Hardware IF/LS" in Automation Help.

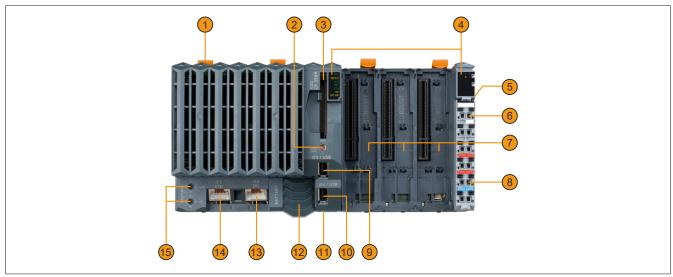
8 Operating and connection elements

X20CP158x



1	Top-hat rail latch		Selecting application memory	
3	Slot for CompactFlash	4	LED status indicators	
5	IF6 - X2X Link	6 IF1 - RS232		
7	Slot for interface modules	8	Terminal block for controller and I/O supply, RS232 connection	
9	IF5 - USB	10	IF4 - USB	
11	Reset button	12	Battery compartment	
13	IF3 - POWERLINK	14	IF2 - Ethernet	
15	Ethernet station address	-	-	

X20CP358x



1	Top-hat rail latch	2	Selecting application memory
3	Slot for CompactFlash	4	LED status indicators
5	IF6 - X2X Link	6	IF1 - RS232
7	Slots for interface modules	8	Terminal block for controller and I/O supply, RS232 connection
9	IF5 - USB	10	IF4 - USB
11	Reset button	12	Battery compartment
13	IF3 - POWERLINK	14	IF2 - Ethernet
15	Ethernet station address	-	-

8.1 LED status indicators

8.1.1 X20 controllers - LED status indicators

Figure	LED	Color	Status	Description
	R/E	Green	On	Application running
			Blinking	System startup: The controller is initializing the application, all bus systems and I/O modules. ¹⁾
R/E			Double flash	System startup during firmware update ¹⁾
RDY/F		Red	On	Mode SERVICE ²⁾ or BOOT ²⁾
S/E PLK			Blinking	If LED "R/E" blinks red and LED "RDY/F" blinks yellow, a license violation has occurred.
ETH			Double flash	System startup: Installation error ³⁾
CF	RDY/F	Yellow	On	Mode SERVICE ²⁾ or BOOT ²⁾
DC			Blinking	If LED "RDY/F" blinks yellow and LED "R/E" blinks red, a license violation has occurred.
	S/E	Green/Red		Status/Error LED. LED states are described in section "LED "S/E" (status/error LED)" on page 12.
	PLK	Green	On	The link to the POWERLINK remote station is established.
			Blinking	The link to the POWERLINK remote station is established. The LED blinks if Ethernet activity is taking place on the bus.
	ETH	Green	On	The link to the Ethernet remote station is established.
			Blinking	The link to the Ethernet remote station is established. The LED blinks if Ethernet activity is taking place on the bus.
	CF Green	Green	On	CompactFlash inserted and detected
		Yellow	On	CompactFlash read/write access
	DC	Yellow	On	Controller power supply unit OK
		Red	On	Backup battery empty

- This process can take several minutes depending on the configuration.

 The operating states are described in "Real-time operating system Method of operation Operating states" in Automation Help. AR 4.93 and later: The project installation (initial installation or update) via USB flash drive was aborted with an error.

8.1.1.1 LED "S/E" (status/error LED)

This LED is a green/red dual LED and indicates the state of the POWERLINK interface. The LED states have a different meaning depending on the operating mode of the POWERLINK interface.

8.1.1.1.1 Ethernet mode

In this mode, the interface is operated as an Ethernet interface.

LED "S/E"		
Green	Red	Description
On	Off	The interface is operated as an Ethernet interface.

Table: LED "S/E": Interface in Ethernet mode

8.1.1.1.2 **POWERLINK V1** mode

LED "S/E"						
Green	Red	Current state of the POWERLINK node				
On	Off	The POWERLINK node is running with no errors.				
Off	On	A system error occurred. The type of error can be read using the PLC logbook. An irreparable problem has occurred. The system can no longer properly carry out its tasks. This state can only be changed by resetting the module.				
Blinking alt	ternately	The POWERLINK managing node has failed. This error code can only occur when operated as a controlled node. This means that the set node number lies within the range 0x01 - 0xFD.				
Off	Blinking	System stop. The red blinking LED indicates an error code (see "System stop error codes" on page 14).				
Off	Off	The interface is either not active or one of the following states or errors is present:				
		The device is switched off.				
		The device is in the startup phase.				
		The interface or device is not configured correctly in Automation Studio.				
		The interface or device is defective.				

Table 5: LED "S/E": POWERLINK V1 mode

8.1.1.1.3 POWERLINK V2 mode

Error message

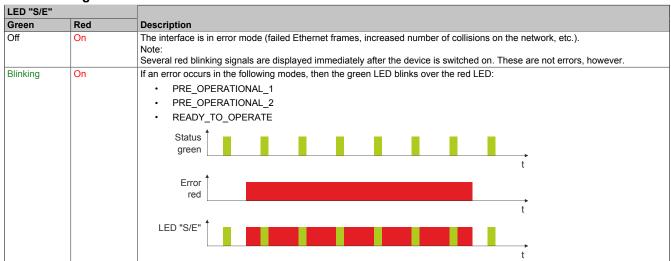


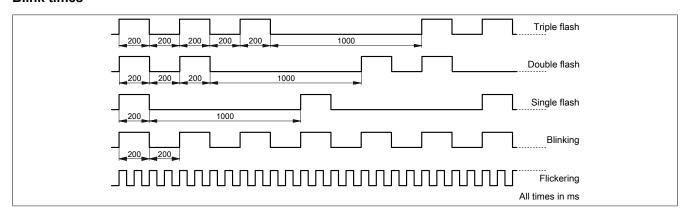
Table: LED "S/E" - Error message (interface in POWERLINK mode)

Interface status

LED "S/E"		
Green	Red	Description Description
Off	Off	Mode: NOT_ACTIVE The interface is either in mode NOT ACTIVE or one of the following modes or errors is present:
		The device is switched off.
		The device is in the startup phase.
		The interface or device is not configured correctly in Automation Studio.
		The interface or device is defective.
		Managing node (MN)
		The network is monitored for POWERLINK frames. If a frame is not received within the configured time window (timeout), the interface immediately enters mode PRE_OPERATIONAL_1.
		If POWERLINK communication is detected before the time has elapsed, however, the MN is not started.
		Controlled node (CN)
		The network is monitored for POWERLINK frames. If a frame is not received within the configured time window (timeout), the interface immediately enters mode BASIC_ETHERNET. If POWERLINK communication is detected before this time expires, however, the interface immediately enters mode PRE_OPERATIONAL_1.
Flickering	Off	Mode: BASIC_ETHERNET
(approx. 10 Hz)		The interface is in mode BASIC_ETHERNET. The interface is operated in Ethernet mode.
		Managing node (MN) This mode can only be exited by resetting the controller.
		Controlled node (CN)
O' I - G I	0"	If POWERLINK communication is detected during this mode, the interface enters mode PRE_OPERATIONAL_1.
Single flash (approx. 1 Hz)	Off	Mode: PRE_OPERATIONAL_1 The interface is in mode PRE_OPERATIONAL_1.
		Managing node (MN)
		The MN is in "reduced cycle" mode. The CNs are configured in this mode. Cyclic communication is not yet taking place.
		Controlled node (CN)
		The CN can be configured by the MN in this mode. The CN waits until it receives an SoC frame and then switches to mode
	_	PRE_OPERATIONAL_2.
	On	Controlled node (CN) If the red LED lights up in this mode, this means that the MN has failed.
Double flash	Off	Mode: PRE_OPERATIONAL_2
(approx. 1 Hz)		The interface is in mode PRE_OPERATIONAL_2.
		Managing node (MN)
		The MN starts cyclic communication (cyclic input data is not yet evaluated).
		The CNs are configured in this mode.
		Controlled node (CN)
	On	The CN can be configured by the MN in this mode. A command then switches the mode to READY_TO_OPERATE. Controlled node (CN)
	OII	If the red LED lights up in this mode, this means that the MN has failed.
Triple flash (approx. 1 Hz)	Off	Mode: READY_TO_OPERATE The interface is in mode READY_TO_OPERATE.
		Managing node (MN)
		Cyclic and asynchronous communication. Received PDO data is ignored.
		Controlled node (CN) The configuration of the CN is completed. Normal cyclic and asynchronous communication. The transmitted PDO data corre-
	05	sponds to the PDO mapping. However, cyclic data is not yet evaluated.
	On	Controlled node (CN) If the red LED lights up in this mode, this means that the MN has failed.
On	Off	Mode: OPERATIONAL The interface is in mode OPERATIONAL. PDO mapping is active and cyclic data is evaluated.
Blinking (approx.	Off	Mode: STOPPED The interface is in mode STOPPED.
2.5 Hz)		
		Managing node (MN) This mode does not occur for the MN.
		Controlled node (CN)
		Output data is not being output, and no input data is being provided. This mode can only be reached and exited by a corresponding command from the MN.

Table: LED "S/E" - Interface state (interface in POWERLINK mode)

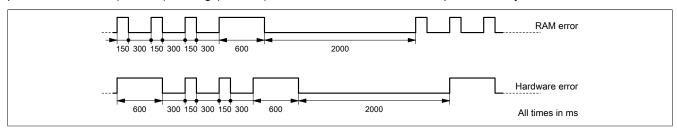
Blink times



8.1.1.2 System stop error codes

A system stop error can occur due to incorrect configuration or defective hardware.

The error code is indicated by LED "S/E" blinking red. The blinking signal of the error code consists of 4 switch-on phases with short (150 ms) or long (600 ms) duration. The error code is repeated every 2 seconds.



Error	Error description			
RAM error	The device is defective and must be replaced.			
Hardware error	The device or a system component is defective and must be replaced.			

8.1.2 LED status indicators for the integrated power supply unit

For a description of the various operating modes, see section "Additional information - Diagnostic LEDs" in the X20 system user's manual.

Figure	LED	Color	Status	Description	
	r	Green	Off	No power to module	
			Single flash	Mode RESET	
			Blinking	Mode PREOPERATIONAL	
			On	Mode RUN	
	е	Red	Off	Module not supplied with power or everything OK	
S I			Double flash	The LED indicates one of the following states:	
				The X2X Link power supply of the power supply unit is overloaded.	
				I/O power supply too low	
				The input voltage for the X2X Link power supply is too low.	
	e + r	Solid red / Sing	gle green flash	Invalid firmware	
	S	Yellow	Off	No RS232 activity	
			On	The LED lights up when data is being transmitted or received via the RS232	
				interface.	
	1	Red	Off	The X2X Link power supply is within the valid range.	
			On	The X2X Link power supply of the power supply unit is overloaded.	

8.2 Operating mode switch

The operating mode switch is used to set the operating mode.

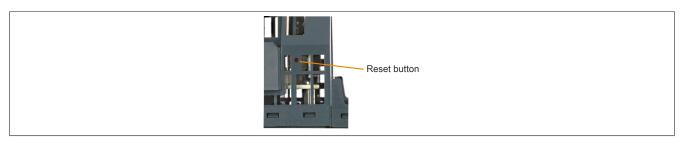


Switch position	Operating mode	Description
BOOT	BOOT	In this switch position, Boot AR is started and the runtime system can be installed via the online interface (B&R Automation Studio). User flash memory is erased only when the download begins.
RUN	RUN	Mode RUN
DIAG	DIAGNOSE	The controller is starting up in diagnostic mode. Program sections in User RAM and User Flash-PROM are not initialized. After diagnostic mode, the controller always boots with a warm restart.

Information:

A switch position other than those described here is not permitted!

8.3 Reset button



The reset button is located below the USB interfaces on the bottom of the housing. It can be pressed with any small pointed object (e.g. paper clip). Pressing the reset button triggers a hardware reset, which means:

- · All application programs are stopped.
- · All outputs are set to zero.

The controller then starts up in service mode by default. The startup mode that follows after pressing the reset button can be set in Automation Studio.

8.4 Slot for application memory

Application memory is required to operate the controllers. The application memory is provided in the form of a CompactFlash card. This is not included in delivery with the controllers; it must be ordered separately as an accessory!

Information:

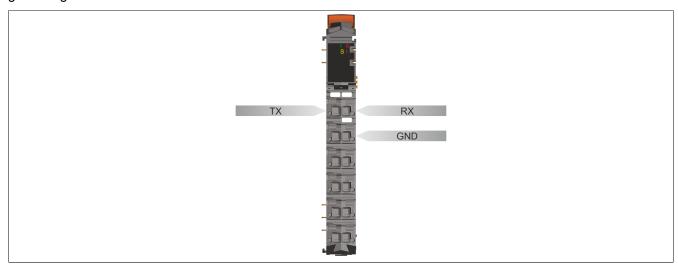
The CompactFlash card must not be removed during operation.

8.5 Project installation

Project installation is described in "Project management - Project installation" in Automation Help.

8.6 RS232 interface (IF1)

The non-electrically isolated RS232 interface is designed as an online interface for communication with the programming device.



8.7 Ethernet interface (IF2)



The IF2 is executed as the 10 BASE-T / 100 BASE-TX / 1000 BASE-T gigabit Ethernet interface.

The INA2000 station number of the Ethernet interface is set using the two hex switches.

For information about wiring X20 modules with an Ethernet interface, see section "Mechanical and electrical configuration - Wiring guidelines for X20 modules with Ethernet cables" in the X20 user's manual.

Information:

The Ethernet interface is not suitable for POWERLINK.

When using the POWERLINK interface, the Ethernet interface is not permitted to be operated with an IP address from the POWERLINK address range.

POWERLINK address range: 192.168.100.x

Pinout

Interface		Pinout	
	Pin	Ethernet	
	1	D1+	Data 1+
	2	D1-	Data 1-
	3	D2+	Data 2+
	4	D3+	Data 3+
	5	D3-	Data 3-
	6	D2-	Data 2-
Shielded RJ45 port	7	D4+	Data 4+
	8	D4-	Data 4-

8.8 POWERLINK interface (IF3)

The controllers are equipped with a POWERLINK V1/V2 interface.

POWERLINK V1

By default, the POWERLINK interface is operated as a managing node (MN). In the managing node, the node number is set to a fixed value of 0.

If the POWERLINK node is operated as a controlled node (CN), a node number from 1 to 253 can be set in the POWERLINK configuration in Automation Studio.

POWERLINK V2

Setting in Automation Studio

By default, the POWERLINK interface is operated as a managing node (MN). In the managing node, the node number is set to a fixed value of 240.

If the POWERLINK node is operated as a controlled node (CN), a node number from 1 to 239 can be set in the POWERLINK configuration in Automation Studio.

Setting with hex switches

The POWERLINK node number can also be set with the two onboard hex switches. These are normally used to set the INA2000 station number of the Ethernet interface. Switching takes place in the POWERLINK configuration in Automation Studio.

Node numbers from 0x01 to 0xF0 are permitted.

Switch position Description			
0x00 Reserved, switch position not permitted.			
0x01 - 0xEF Node number of the POWERLINK node. Operation as a controlled node (CN).			
0xF0 Operation as a managing node (MN).			
0xF1 - 0xFF Reserved, switch position not permitted.			

Ethernet mode

In this mode, the interface is operated as an Ethernet interface. The INA2000 station number is set using the Automation Studio software.

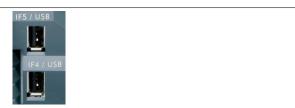
Pinout



For information about wiring X20 modules with an Ethernet interface, see section "Mechanical and electrical configuration - Wiring guidelines for X20 modules with Ethernet cables" in the X20 user's manual.

Interface	Pinout		nout
	Pin	Ethernet	
	1	RXD	Receive data
	2	RXD\	Receive data\
	3	TXD	Transmit data
	4	Termination	
	5	Termination	
	6	TXD\	Transmit data\
Shielded RJ45	7	Termination	
	8	Termination	

8.9 USB interfaces (IF4 and IF5)



IF4 and IF5 are non-galvanically isolated USB interfaces. The abbreviation USB stands for "Universal Serial Bus". Both USB interfaces support the USB 1.1 and 2.0 standards.

Information:

USB peripheral devices can be connected to the USB interfaces. Automation Runtime supports a selection of USB peripheral devices. For the supported USB classes, see the AR help documentation.

Information:

The following must be taken into account when using a USB peripheral device and grounded controller power supply (PELV):

 Only USB peripheral devices with no connection between GND and ground are permitted to be connected. This is the case, e.g. with the USB dongle from B&R.

8.10 Slots for interface modules

The controllers are equipped with 1 or 3 slots for interface modules.

Different bus or network systems can be flexibly integrated into the X20 system by selecting the appropriate interface module.

8.11 Battery

X20 controllers are equipped with a lithium battery. The lithium battery is located in a separate compartment and protected by a cover.

Backup battery data

Order number		
4A0006.00-000	1 pcs.	
0AC201.91	4 pcs.	
Short description	Lithium battery, 3 V / 950 mAh, button cell	
Storage temperature	-40 to 85°C	
Storage time	Max. 3 years at 30°C	
Relative humidity	0 to 95% (non-condensing)	

The following areas are buffered:

- · Remanent variables
- User RAM
- System RAM
- Real-time clock

Battery monitoring

The battery voltage is checked cyclically. The cyclic load test of the battery does not considerably shorten its service life; instead, it gives an early warning of weakened buffer capacity.

Status information "Battery OK" is available from system library function "BatteryInfo" and the controller's I/O mapping.

Replacement interval for battery

The battery should be replaced every 4 years. The replacement intervals recommended by B&R reflect the batteries' average service life and operating conditions. They do not correspond to the maximum buffer duration!

Important information about the battery exchange

The product design allows the battery to be changed when the controller is in a voltage-free state as well as when the controller is switched on. In some countries, however, changing is not permitted while operating voltage is applied. To prevent data loss, the battery must be changed within 1 min in a voltage-free state.

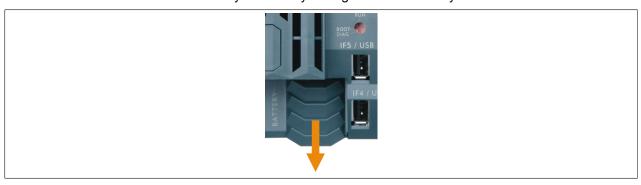
Warning!

The battery is only permitted to be replaced by a Renata CR2477N battery. The use of another battery may present a fire or explosion hazard.

The battery can explode if handled improperly. Do not recharge, disassemble or dispose of the battery in fire.

Procedure for replacing the battery

- 1. Perform electrostatic discharge at the top-hat rail or at the ground connection (do not reach into the power supply unit!)
- 2. Remove the cover for the lithium battery. Do this by sliding it down and away from the controller.



- 3. Push the empty battery out of the holder.
- 4. It is important to ensure that the new battery is not handled with moist or greasy fingers. Plastic tweezers can also be used. Do not touch the battery with pliers or metal tweezers → short circuit!
- 5. To insert the battery into the holder, place it with the "+" side up on the right part of the battery holder. Then press the battery into the battery holder.
- 6. Replace the cover.

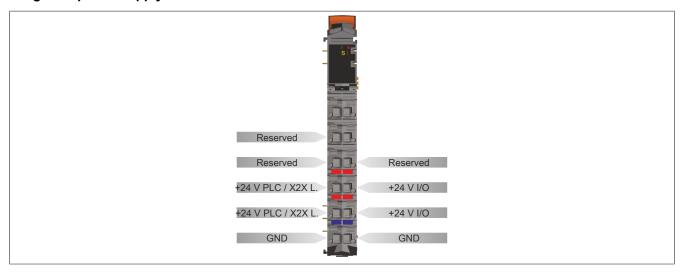
Information:

Lithium batteries are hazardous waste! Used batteries should be disposed of in accordance with applicable local regulations.

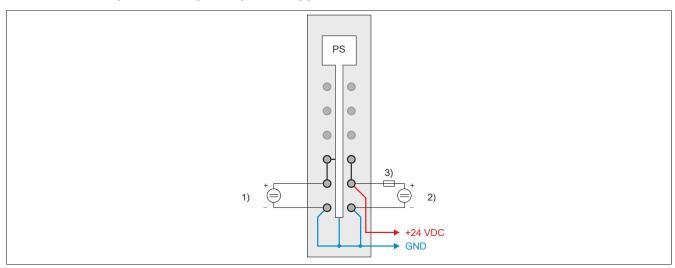
9 Controller power supply

A power supply unit is integrated in the X20 controllers. It is equipped with a supply for the controller, X2X Link and the internal I/O power supply. The bus power supply and internal I/O power supply are galvanically isolated from each other.

Integrated power supply unit - Pinout

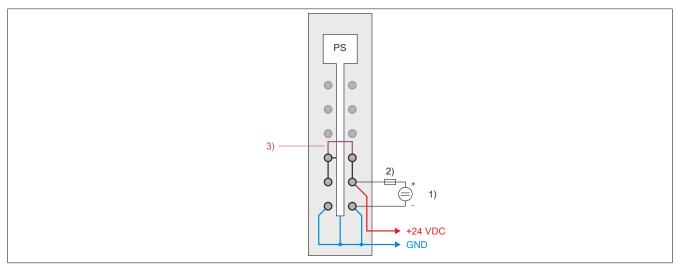


Connection example with 2 separate power supplies



- 1) Supply for the PLC or X2X Link power supply
- 2) Supply for the I/O power supply
- 3) Fuse, 10 A slow-blow

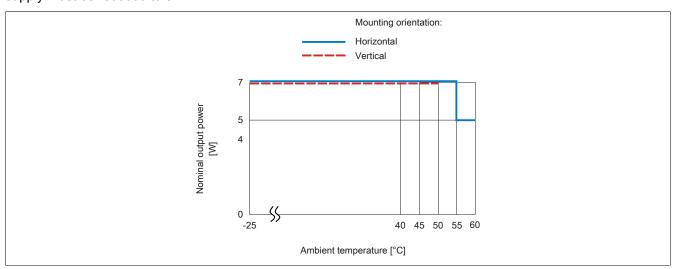
Connection example with power supply and jumper



- 1) Supply for the I/O power supply
- 2) Fuse, 10 A slow-blow
- 3) Jumper

10 Derating

There is no derating when operated below 55°C. Above 55°C, the nominal output power for the X2X Link power supply must be reduced to 5 W.



11 Overtemperature shutdown

To prevent damage, a shutdown – reset state – of the controller takes place at 110°C processor temperature or 95°C board temperature.

The following errors are entered in the logbook in the event of shutdown:

Error number	Short error text
9204	PLC restart triggered by the PLC CPU's temperature monitoring.
9210	Warning: Halt/Service after watchdog or manual reset.

12 Information about migrating from the X20CPx48x to the X20CPx58x

A hardware upgrade is required for some X20 IFxxxx interface modules. This can be installed from Automation Studio by selecting Tools / Upgrades from the menu.
 In addition, a certain hardware revision is required for some modules. The following table provides an overview:

Order number	Minimum upgrade version	Minimum hardware revision
X20IF1020	1.1.5.1	H0
X20IF1030	1.1.5.1	10
X20IF1041-1	-	-
X20IF1043-1	-	-
X20IF1051-1	-	-
X20IF1053-1	-	-
X20IF1061	-	E0
X20IF1061-1	-	-
X20IF1063	1.1.5.0	-
X20IF1063-1	-	-
X20IF1065	-	-
X20IF1072	1.0.5.1	-
X20IF1082	1.2.2.0	-
X20IF1082-2	1.2.1.0	-
X20IF1086-2	1.1.1.0	-
X20IF1091	1.0.5.1	-
X20IF10A1-1	-	-
X20IF10D1-1	-	-
X20IF10D3-1	-	-
X20IF10E1-1	-	-
X20IF10E3-1	-	-
X20IF10G3-1	-	-
X20IF2772	1.0.6.1	-
X20IF2792	1.0.5.1	-

Table 6: Minimum upgrade version and minimum hardware revision for X20 IFxxxx interface modules

- X20CPx58x controllers are supported starting with B&R Automation Studio V3.0.90.20.
- If an X20CPx48x should be replaced by an X20CPx58x in an existing Automation Studio configuration, the X20CPx58x may not be listed as one of the available options even though the upgrade for the controller has already been installed. In such a case, an upgrade of the X20CPx48x is required.
- Starting with Automation Runtime 4.x, USB devices are integrated in Automation Runtime dynamically so
 that they no longer must be configured in Automation Studio. In order to use a USB device, its internal
 device name must be obtained at runtime. For an example, see Automation Help for the library "AsUSB /
 Examples".

13 General data points

This controller is equipped with general data points. These are not controller-specific; instead, they contain general information such as system time and heat sink temperature.

General data points are described in section "Additional information - General controller data points" in the X20 system user's manual.