



# X20 PLC and communication System overview

PERFECTION IN AUTOMATION  
A MEMBER OF THE ABB GROUP





## B&R X20 system - Slice-based I/O and control

High-speed precision of open and closed loop control for machines and systems – at an attractive price. B&R eliminates this seeming contradiction with the high degree of scalability of their control systems. This makes it possible for B&R to cover all requirements with a single platform – from the smallest controllers all the way up to CNC, robotics and process control applications. What's more, this platform can be programmed and configured – regardless of the hardware being used – with Automation Studio. This compatibility reduces development costs while at the same time protecting investments made throughout the entire life cycle of the machine.

### Programmable logic controllers

With a performance range reaching all the way to Intel® Atom™ CPUs, the X20 system can handle all tasks large or small. This system is extremely compact and highly modular as a result of its unique "slice" system. Perfectly integrated fieldbus connections provide the highest degree of freedom for decentralized machine and system concepts.

### Slice-based I/O and control system

There are many different slice-based I/O and control systems available on the market, but the X20 system from B&R is the only one that lives up to the motto "Perfection in Automation". With the aim for more simple, economical and secure

usage, the X20 system is an universal solution for any automated task in machine and system manufacturing.

### 3 x 1 = One and ultrafast

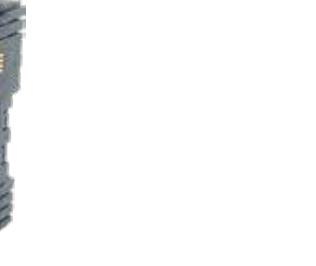
With reACTION technology, time-critical subprocesses are executed with down to 1 µs directly on the I/O module. Three subcomponents – terminal block, electronics module and bus module – come together to form this module. This modularity results in a system that combines the advantages of both rack and I/O slice systems:

- Prewiring without the module
- Hot pluggable electronics
- Extra bus slots for added options

### Highlights

- Intel® Atom™ performance
- Fanless and maintenance-free
- Onboard POWERLINK
- Onboard Ethernet and USB
- Removable terminal blocks
- Hot-pluggable electronics
- 16 channels with total width of only 12.5 mm
- Open for all fieldbus systems
- Ultrafast I/O responses
- X20c

# X20



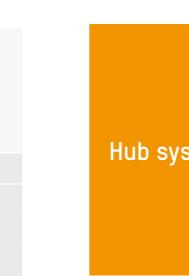
PLC →

	X20CP1382 X20CP1382-RT	X20CP1381 X20CP1381-RT	X20CP1301	X20CP0484	X20CP0483	X20CP0482	X20CP0411	X20CP0410	X20CP3586 X20CP1586	X20CP3585 X20CP1585	X20CP3584 X20CP1584	X20CP3583 X20CP1583	X20CP1483-1 X20CP1483	X20CP0292	X20CP0291	X20CP0201
Processor	x86 400 MHz	x86 200 MHz	x86 200 MHz	ARM 667 MHz	ARM 500 MHz	ARM 300 MHz	ARM 240 MHz	ARM 166 MHz	Atom™ 1.6 GHz	Atom™ 0.6 GHz	Atom™ 0.333 MHz comp.	x86 100 MHz comp.	Embedded µP 25	Embedded µP 16	Embedded µP 16	
Cache	L1 cache: Data code 16 kB Program code 16 kB 128 kB L2 cache	L1 cache: Data code 16 kB Program code 16 kB 128 kB L2 cache	L1 cache: Data code 16 kB Program code 16 kB 128 kB L2 cache	L1 cache: Data code 32 kB Program code 32 kB 512 kB L2 cache	L1 cache: Data code 32 kB Program code 32 kB 512 kB L2 cache	L1 cache: Data code 32 kB Program code 32 kB 512 kB L2 cache	L1 cache: Data code 32 kB Program code 32 kB 512 kB L2 cache	L1 cache: Data code 24 kB Program code 32 kB 512 kB L2 cache	L1 cache: Data code 24 kB Program code 32 kB 512 kB L2 cache	L1 cache: Data code 24 kB Program code 32 kB 512 kB L2 cache	16 kB L1 cache	-	-	-	-	
Standard memory	256 MB DDR3 SDRAM	128 MB DDR3 SDRAM	128 MB DDR3 SDRAM	256 MB DDR3 SDRAM	256 MB DDR3 SDRAM	128 MB DDR3 SDRAM	128 MB DDR3 SDRAM	512 MB DDR2-SDRAM 1 MB SRAM	256 MB SDRAM 1 MB SRAM	128 MB SDRAM 1 MB SRAM	64/32 MB SDRAM 128 kB SRAM	750 kB SRAM 3 MB FlashPROM	100 kB SRAM 1 MB FlashPROM	100 kB SRAM 1 MB FlashPROM	100 kB SRAM 1 MB FlashPROM	
Remanent variables	32 kB	16 kB	16 kB	64 kB	32 kB	16 kB	16 kB	8 kB	1 MB	256 kB	64 kB	32 kB	2.75 kB FRAM	2.75 kB FRAM	2.75 kB FRAM	
RTC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shortest cycle time	1 ms	2 ms	2 ms	400 µs	800 µs	1 ms	2 ms	4 ms	100 µs	200 µs	400 µs	800 µs	1 ms	2 ms	4 ms	4 ms
Compact flash slot	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No
Integrated flash drive	2 GB	1 GB	1 GB	2 GB	1 GB	1 GB	512 MB	256 MB	-	-	-	-	-	-	-	-
Modular interface slot	1	1	1	2/1 [optional]	2/1 [optional]	2/1 [optional]	-	-	3/1	3/1	3/1	3/1	1	-	-	-
Onboard interfaces	Ethernet 10/100 Mbit/s, RS232, CAN, 2x USB 1.1/2.0 ETHERNET POWERLINK	Ethernet 10/100 Mbit/s, RS232, CAN, 2x USB 1.1/2.0 ETHERNET POWERLINK	Ethernet 10/100 Mbit/s/ RS232, 1x USB 1.1/2.0	Ethernet 10/100/1000 Mbit/s, RS232, CAN (optional), 2x USB 2.0 ETHERNET POWERLINK	Ethernet 10/100/1000 Mbit/s, RS232, 2x USB 1.1/2.0 ETHERNET POWERLINK	Ethernet 10/100 Mbit/s, RS232 ETHERNET POWERLINK	Ethernet 100 Mbit/s RS232 CAN	Ethernet 100 Mbit/s RS232 CAN	RS232 CAN							
Integrated I/O	18 DI, 8 DO, 4 digital channels configurable as inputs or outputs 2 AI	18 DI, 8 DO, 4 digital channels configurable as inputs or outputs 2 AI	18 DI, 8 DO, 4 digital channels configurable as inputs or outputs 2 AI	-	-	-	-	-	-	-	-	-	-	-	-	-
reACTION Technology	- / Yes	- / Yes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power supply	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC
Cooling	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless

Communication →

ETHERNET POWERLINK	X2X Link	X2X Link, CAN	AS-i	CAN	CAN I/O	CANopen	DeviceNet	EtherNet/IP	M-Bus	Modbus TCP/UDP	OPC UA	PROFIBUS DP	PROFINET RT	RS232	RS422 RS485	Redundancy	SmartWire	X20HB880	X20HB884	X20HB8815	X20ET819
X20BC0083	-	-	-	-	X20BC0073	X20BC0043	X20BC0053	X20BC0088	-	X20BC0087	X20BC008U [Srv]	X20BC0063	X20BC00E3	-	-	-	-	X20HB880	X20HB884	X20HB8815	X20ET819
X20BC1083	-	-	-	-	-	X20BC0043-10	X20BC0043-10	-	-	-	-	-	-	-	-	-	Hub base module Easily expandable 2/4/6x Fast Ethernet Hub	ETHERNET POWERLINK link selector with up to 2 slots for hub expansion modules	ETHERNET POWERLINK - TCP/IP gateway 3/5x POWERLINK hub	Ethernet analysis tool Recording and analysis of CRC and frame errors Triggers can also be activated using external digital signals Analysis of both half-duplex and full-duplex networks Able to record two networks simultaneously NetTime	
X20BC8083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
X20BC8084	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
X20IF1082	X20IF1091 [M]	X20IF2792 [M]	X20IF10A1-1 [M]	X20IF1072	X20BR7300 [S]	X20IF1041-1 [M]	X20IF1051-1 [M]	X20IF1001-1 [M]	X20CS1012 [M]	-	X20IF1061-1 [M]	X20IF10E1-1 [M]	X20IF1020	X20IF1030	X20IF10X0	X20CS1011 [S]	-	-	-	-	
X20IF1082-2	-	-	-	-	-	X20IF2772 [2x]	-	X20IF1043-1 [S]	X20IF1053-1 [S]	X20IF1003-1 [S]	-	-	X20IF1063-1 [S]	X20IF10E3-1 [S]	X20CS1020	X20CS1030	-	-	-	-	
X20IF1086-2	-	-	-	-	-	X20CS1070	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
X20IF2181-2	-	-	-	-	-	X20CS2770 [2x]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

[M] = Master, [S] = Slave, [Srv] = Server



Hub system

Hub base module  
Easily expandable  
2/4/6x Fast Ethernet Hub

ETHERNET POWERLINK  
link selector with up to 2 slots  
for hub expansion modules

ETHERNET POWERLINK - TCP/IP gateway  
3/5x POWERLINK hub

Ethernet analysis tool  
Recording and analysis of CRC and frame errors  
Triggers can also be activated using external digital signals  
Analysis of both half-duplex and full-duplex networks  
Able to record two networks simultaneously  
NetTime

Integrated automation  
Global presence  
Solid partnership



ETHERNET  
**POWERLINK**

open  
**SAFETY**