X20IF1091-1

Data sheet
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Version history

B&R makes every effort to keep documents as current as possible. The most current versions are available for download on the B&R website (www.br-automation.com).

1 General information

1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual

1.2 Order data

Order number	Short description	Figure
	System modules for expandable bus controllers	
X20IF1091-1	X20 interface module, for expandable bus controller, 1 X2X Link master interface, electrically isolated, order 1x terminal block TB704 separately!	
	Required accessories	
	Terminal blocks	
0TB704.9	Accessory terminal block, 4-pin, screw clamp terminal block 2.5 mm²	
0TB704.91	Accessory terminal block, 4-pin, push-in terminal block 2.5 mm²	

Table 1: X20IF1091-1 - Order data

1.3 Module description

The interface module is operated in the X20BC1083 expandable bus controller. It is equipped with an X2X Link master interface.
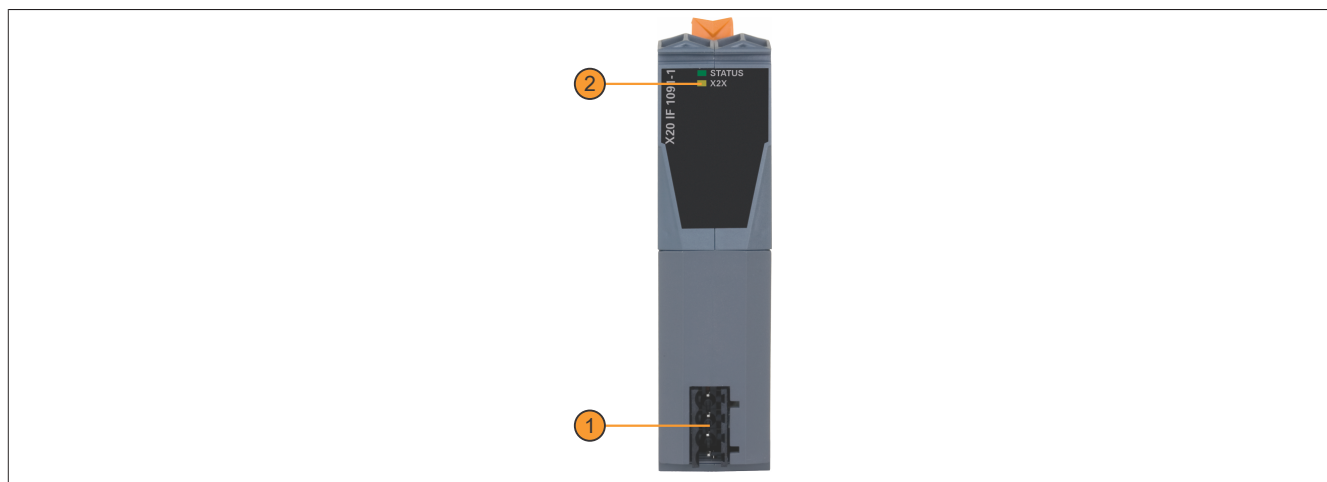
2 Technical description

2.1 Technical data

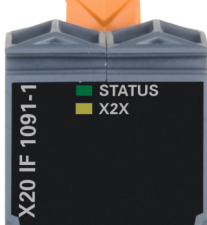| Order number	X20IF1091-1
Short description	
Communication module	1x X2X Link master
General information	
B&R ID code	0x2525
Status indicators	Module status, data transfer
Diagnostics	
Module status	Yes, using LED status indicator
Data transfer	Yes, using LED status indicator
Power consumption	1.29 W
Additional power dissipation caused by actuators (resistive) [W]	-
Certifications	
CE	Yes
UKCA	Yes
ATEX	Zone 2, II 3G Ex nA nC IIA T5 Gc IP20, Ta (see X20 user's manual) FTZÚ 09 ATEX 0083X
UL	cULus E115267 Industrial control equipment
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5
KC	Yes
Interfaces	
Interface IF1	
Fieldbus	X2X Link master
Variant	4-pin male multipoint connector
Number of stations	Max. 253
Internal bus power supply	No
Network topology	Line
Distance between 2 stations	Max. 100 m
Bus terminating resistor	Internal
Electrical properties	
Electrical isolation	PLC isolated from X2X Link (IF1)
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Installation elevation above sea level	
0 to 2000 m	No limitation
>2000 m	Reduction of ambient temperature by 0.5°C per 100 m
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	
Horizontal mounting orientation	-25 to 60°C
Vertical mounting orientation	-25 to 50°C
Derating	-
Storage	-40 to 85°C
Transport	-40 to 85°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order 1x terminal block TB704 separately.
Slot	In expandable bus controller X20BC1083-1

Table 2: X20IF1091-1 - Technical data
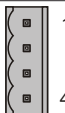
2.2 Operating and connection elements

| 1 | IF1 - X2X Link | 2 | LED status indicators |

2.2.1 LED status indicators

Figure	LED	Color	Status	Description
	STATUS	Green	On	Interface module active
		Red	On	Bus controller booting
	X2X	Yellow	On	The module sends data via the X2X Link interface

2.2.2 X2X Link interface (IF1)

Interface		Pinout		
		Terminal	Function	
		1	X2X	
		2	X2X⊥	
		3	X2X\	
		4	SHLD	Shield
4-pin male multipoint connector				

3 Function description

3.1 Use in the expandable X20BC1083 POWERLINK bus controller

If this module is connected to the expandable POWERLINK bus controller, the amount of cyclic data is limited by the POWERLINK frame. This is 1488 bytes each in the input and output directions.
When using multiple IF10xx-1 interfaces or other X2X modules with a POWERLINK bus controller, the 1488 bytes are divided between all connected modules.

3.1.1 Timing characteristics

The X2X Link cycle of the module is automatically synchronized with the local X2X Link cycle of the bus controller. The local X2X Link cycle time of the bus controller is used as the main cycle time, however, not the POWERLINK cycle time.

The following special features must therefore be taken into account when transferring data via the extended POWERLINK bus controller:

- To optimize the transfer time, a cycle time should be used on the bus controller that is synchronous to the POWERLINK cycle time.
- The internal data transfer results in an additional runtime shift of one cycle per direction.

> **Information:**
>
> **For additional information about runtime behavior, see section "Runtime shift" in X20BC1083.**

3.1.2 Data transfer on the Flatstream

Problems may occur on the extended POWERLINK bus controller with modules using Flatstream due to the runtime shift.

To optimize the transfer time, all cycle times should first be set to the same value (e.g. task class, POWERLINK, bus controller and module to 2 ms).

The Flatstream can only use a maximum of 7 packets in advance, however (see "Example of 'Forward' functionality on X2X Link" in the FlatStream documentation), before the first packet is repeated if it is not confirmed. Due to the runtime shift, however, many packets can no longer be confirmed in time within the set cycle time. This results in an unnecessary number of packet retries and significant slowdown of the Flatstream transfer.

As a workaround, the task in which the Flatstream is evaluated should be moved to another task class that is at least twice as long as the transfer task class.

4 Commissioning

4.1 Firmware

The module comes with preinstalled firmware. The firmware is part of the Automation Studio project. The module is automatically brought up to this level.

A hardware upgrade must be performed to upgrade the firmware included in Automation Studio (see Help "Project management - Workspace - Upgrades" in Automation Help).