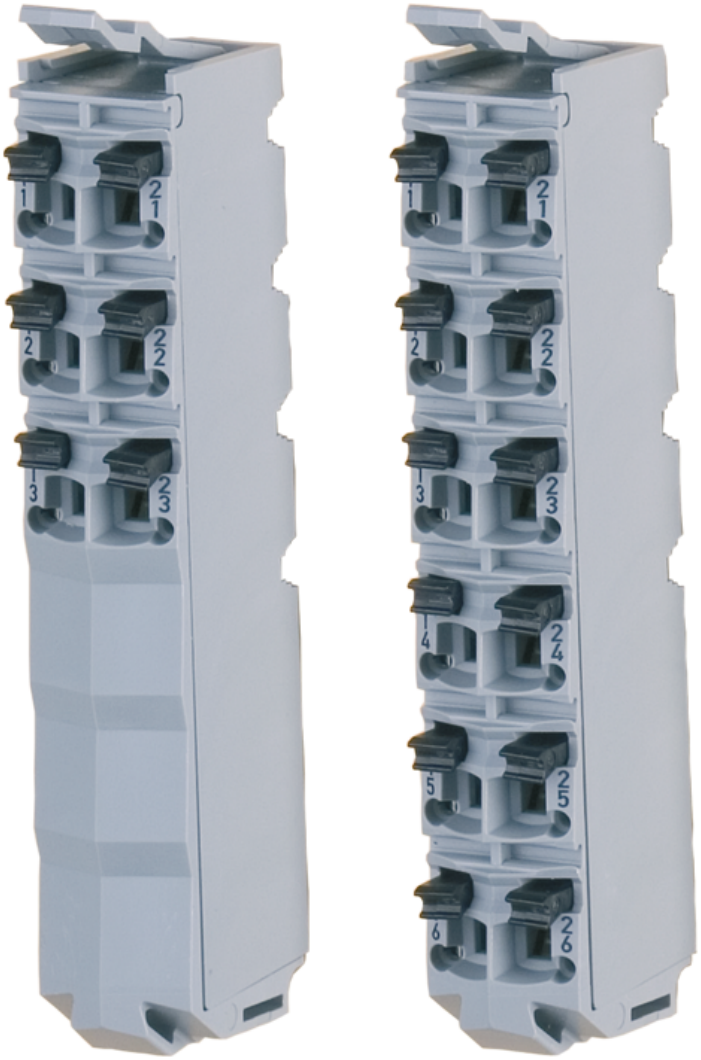
X20TB06/X20TB12

Data sheet
2.68 (February 2025)



Translation of the original documentation

Publishing information

B&R Industrial Automation GmbH

B&R Strasse 1

5142 Eggelsberg

Austria

Telephone: +43 7748 6586-0

Fax: +43 7748 6586-26

office@br-automation.com

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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

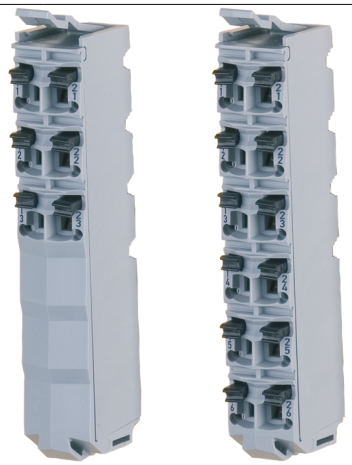
1.1 Other applicable documents

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



X20TB06 X20TB12

Order number	Short description
	Terminal blocks
X20TB06	X20 terminal block, 6-pin, 24 VDC keyed
X20TB12	X20 terminal block, 12-pin, 24 VDC keyed

Table 1: X20TB06, X20TB12 - Order data

1.3 Module description

The X20 24 VDC modules are wired using the X20TB06 and X20TB12 terminal blocks.

- Tool-free wiring with push-in technology
- Simple wire release using lever
- Ability to label each terminal
- Plain text labeling also possible
- Test access for standard probes
- Can be customer-coded

2 Technical description

2.1 Technical data

Order number	X20TB06	X20TB12
General information		
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	
DNV	Temperature: **B** (0 - 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
LR	ENV1	
KR	Yes	
ABS	Yes	
Terminal block		
Number of pins	6	12
Type of terminal block	Push-in terminal	
Push-in force per contact	Typ. 10 N	
Cable type	Only copper wires (no aluminum wires!)	
Wire stripping length	7 to 9 mm	
Connection cross section		
Single-wire	0.08 to 2.50 mm² / 28 to 14 AWG	
Fine-stranded wires	0.25 to 2.50 mm² / 24 to 14 AWG	
With wire end sleeves	0.25 to 1.50 mm² / 24 to 16 AWG	
With double wire end sleeves	Up to 2x 0.75 mm²	
Distance between contacts		
Left - Right	4.2 mm	
Above - Below	10.96 mm	
Electrical properties		
Nominal voltage	240 VAC / 48 VDC	
Max. voltage	300 VAC / 60 VDC	
Nominal current [1)]	10 A / contact	
Contact resistance	≤5 mΩ	
Ambient conditions [2)]		
Temperature		
Operation	Corresponds to the X20 module used	
Relative humidity		
Operation	Corresponds to the X20 module used	

Table 2: X20TB06, X20TB12 - Technical data

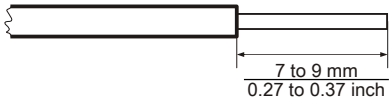
1) The respective limit data of the I/O modules must be taken into account!
2) Identical for operation, storage and transport.

Warning!

It is possible to come into contact with parts that carry voltage when the terminal block is disconnected. For this reason, working on a disconnected terminal block is not permitted at voltages starting at 50 V.

2.2 Wiring

In order to achieve a secure connection in the terminal blocks, wires must be stripped accordingly.

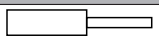
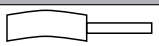
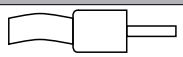
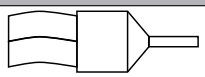


Information:

The wire stripping length is not permitted to be more or less than 7 to 9 mm.

Connection cross sections

The following table shows the possible wire cross sections and connection types for the various terminal blocks:

	X20TB06 X20TB12	X20TB1E X20TB1F	X20TB32
Single-wire			
mm²	0.08 to 2.50	0.08 to 1.50	0.08 to 2.50
AWG	28 to 14	28 to 16	28 to 14
Fine-stranded			
mm²	0.25 to 2.50	0.25 to 1.50	0.25 to 2.50
AWG	24 to 14	24 to 16	24 to 14
With wire end sleeves			
mm²	0.25 to 1.50	0.25 to 0.75	0.25 to 1.50
AWG	24 to 16	24 to 20	24 to 16
With double wire end sleeves			
mm²	Up to 2x 0.75	-	Up to 2x 0.75
AWG	Up to 2x 21	-	Up to 2x 21

Information:

To avoid damaging the push-in terminal blocks, B&R screwdriver X20AC0SD1 should be used.

2.3 Cable holding force of contacts

To ensure secure contact of a cable with the terminal block, it is not permitted to be subjected to too much tension. If the cable holding force is exceeded, the cable will disconnect from the terminal block and result in a malfunction.

	Fine-stranded wires			Solid wires				With wire end sleeves	
Cable in mm²	0.25	1.5	2.5	0.08	0.25	1.5	2.5	0.25	1.5
Standard specification (min. value in newtons)	12.5	40	50	4	12.5	40	50	12.5	40

Information:

Fine-stranded wires must be twisted in order to maintain the cable holding forces.

Use of wire end sleeves

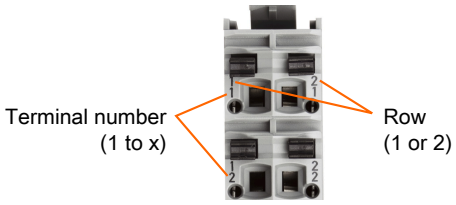
In order to achieve an optimal cable holding force, the following points must be observed:

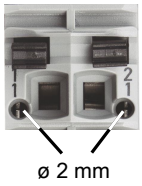
- Square crimping with the roughest possible surface should be carried out.
- The end of the wire end sleeve should not be cut in order to avoid a reduction of the cross section.
- No wires should protrude at the end of the sleeve.
- The wire end sleeve must be inserted completely to the end.
- The length of the wire end sleeve corresponds to the wire stripping length.

2.4 Unique terminal numbering

Each terminal connection is unique and can be identified by the numbers in the plastic. In this way, terminal assignments can be clearly assigned in the planning stage without any danger of mix-up.

- Upper number: Row number 1 or 2
- Lower number: Terminal numbers 1 to 3 (6-pin terminal block), 1 to 6 (12-pin terminal block), 1 to 8 (16-pin terminal block)



2.5 Access for test probes

Each contact is equipped with an additional opening for using a test probe.