

X20TB52, X20TB5E, X20TB5F, X20TB72

1 General information

The X20 SafeIO modules are wired with the terminal blocks.

Terminal block X20TB52 is available for wiring SafeIO modules with 12 connections.

Terminal blocks X20TB5E and X20TB5F are available for wiring SafeIO modules with 16 connections.

SafeIO modules with 240 VAC are wired to terminal block X20TB72. This is marked by its own color.

Terminal block X20TB5E is equipped with 2 integrated PT1000 sensors. It is therefore ideally suited for internal terminal temperature compensation. The terminal block can be used for all safe thermocouples with 16 connections.

- Tool-free wiring using push-in technology
- Simple wire release with lever or screwdriver
- Labeling option for each terminal connection
- Plain text labeling possible
- Access for standard test probes
- Customized coding possible

2 Order data

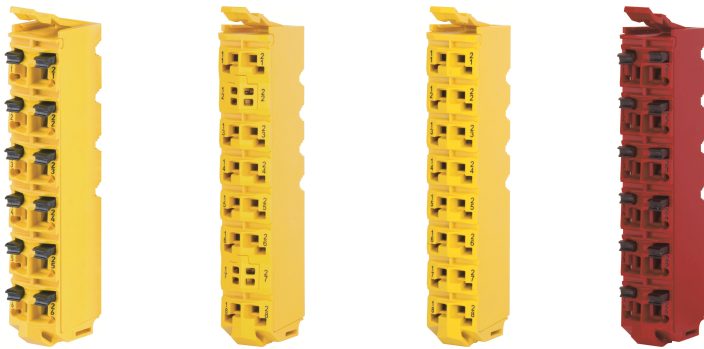
	
X20TB52	X20TB5E
X20TB5F	X20TB72
Model number	Short description
Terminal blocks	
X20TB52	X20 terminal block, 12-pin, safety-keyed
X20TB5E	X20 terminal block, 16-pin, safety-keyed, 2x PT1000 integrated for terminal temperature compensation
X20TB5F	X20 terminal block, 16-pin, safety-keyed
X20TB72	X20 terminal block, 12-pin, safety-keyed, 240 VAC, red

Table 1: X20TB52, X20TB5E, X20TB5F, X20TB72 - Order data

Information:

B&R screwdriver X20AC0SD1 should be used to avoid damaging terminals X20TB5E and X20TB5F.

3 Technical data

Model number	X20TB52	X20TB5E	X20TB5F	X20TB72
General information				
Certifications				
CE	Yes			
ATEX	Zone 2, II 3G Ex nA nC IIA T5 Gc IP20, Ta (see X20 user's manual) FTZÜ 09 ATEX 0083X			
UL	cULus E115267 Industrial control equipment			
DNV GL	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	12, safety-keyed	16, safety-keyed		12, safety-keyed
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				
Solid wires	0.08 to 2.5 mm² / 28 to 14 AWG	0.08 to 1.5 mm² / 28 to 16 AWG		0.08 to 2.5 mm² / 28 to 14 AWG
Fine-stranded wires	0.25 to 2.5 mm² / 24 to 14 AWG	0.25 to 1.5 mm² / 24 to 16 AWG		0.25 to 2.5 mm² / 24 to 14 AWG
With wire end sleeves	0.25 to 1.5 mm² / 24 to 16 AWG	0.25 to 0.75 mm² / 24 to 20 AWG		0.25 to 1.5 mm² / 24 to 16 AWG
With double wire end sleeves	Up to 2x 0.75 mm²	-		Up to 2x 0.75 mm²
Distance between contacts				
Left - Right	4.2 mm			
Above - Below	10.96 mm	8.25 mm		10.96 mm
Terminal temperature compensation	-	2x PT1000 integrat- ed in the terminal	-	
Electrical properties				
Nominal voltage	240 VAC	24 VDC		240 VAC
Max. voltage	300 VAC	50 VDC		300 VAC
Nominal current ¹⁾	10 A / contact	2 A / contact		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: X20TB52, X20TB5E, X20TB5F, X20TB72 - Technical data

- 1) The limit data for each SafelO module must be taken into consideration.
 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.

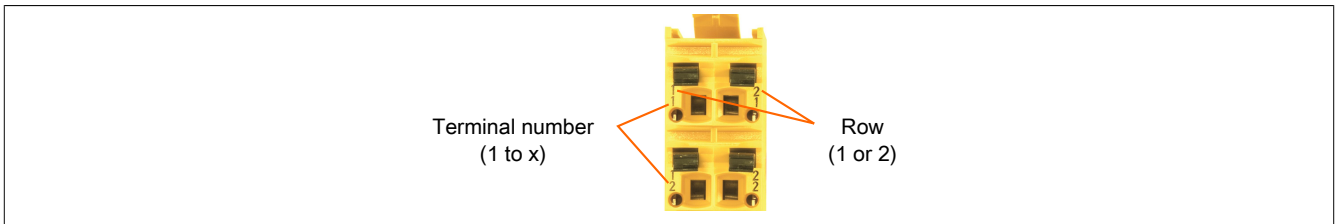
Information:

Special care must be exercised during installation when using non-SELV circuits (e.g. 230 V). Local regulations must be observed, particularly with respect to protective measures.

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 allocated in the planning stage without any risk of confusion.

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



5 Wiring

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

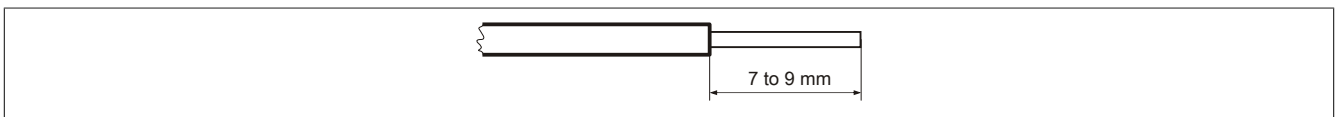


Figure 1: Wire stripping length for a secure connection

Information:

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

6 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 mm ²	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](#).

7 Access for test probes

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

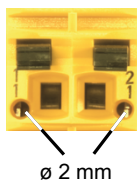


Figure 2: X20TB52 and X20TB72 - Access for test probes



Figure 3: X20TB5E and X20TB5F - Access for test probes

8 Version history

Version	Date	Comment
2.07	August 2020	Chapter 3 "Technical data": Updated certifications.
2.06	May 2020	Added chapter 4 "Unique terminal numbering".
2.04	November 2019	Chapter 3 "Technical data": Updated certifications.
2.02	May 2019	First edition for mapp Safety

Table 3: Version history

9 EC declaration of conformity

This document was originally written in the German language. The German edition therefore represents the original documentation in accordance with the 2006/42/EC Machinery Directive. Documents in other languages should be interpreted as translations of the original documentation.

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Ried im Innkreis, Austria, commercial register court: Ried im Innkreis, Austria

Commercial register number: FN 111651 v.

The place of fulfillment in accordance with article 5 of the European Convention on Courts of Jurisdiction and Enforcement is A-5142 Eggelsberg, Austria

VATIN: ATU62367156

The EC declarations of conformity for B&R products can be downloaded from the B&R website www.br-automation.com.