# 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 | | | |
| UL | cULus E115267<br>Industrial control equipment | | | |
| ATEX | Zone 2, II 3G Ex nA nC IIA T5 Gc<br>IP20, Ta (see X20 user's manual)<br>FTZÚ 09 ATEX 0083X | | | |
| DNV GL | Temperature: **B** (0 - 55°C)<br>Humidity: **B** (up to 100%)<br>Vibration: **B** (4 g)<br>EMC: **B** (bridge and open deck) | | | |
| LR | ENV1 | | | |
| **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 /<br>28 to 14 AWG | 0.08 to 1.5 mm² / 28 to 16 AWG | | 0.08 to 2.5 mm² /<br>28 to 14 AWG |
| Fine-stranded wires | 0.25 to 2.5 mm² /<br>24 to 14 AWG | 0.25 to 1.5 mm² / 24 to 16 AWG | | 0.25 to 2.5 mm² /<br>24 to 14 AWG |
| With wire end sleeves | 0.25 to 1.5 mm² /<br>24 to 16 AWG | 0.25 to 0.75 mm² / 24 to 20 AWG | | 0.25 to 1.5 mm² /<br>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 integrated 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 SafeIO 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 safety precautions.**

# 4 Wiring

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

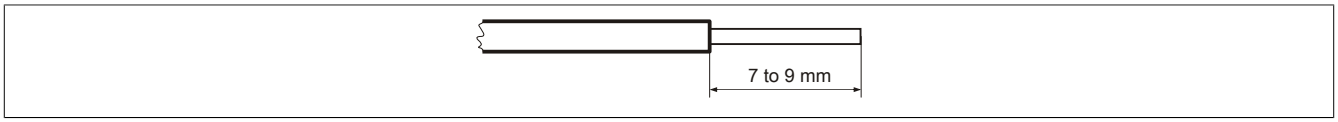


Figure 1: Wire stripping length for a secure connection

## Information:

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

# 5 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.

# 6 Access for test probes

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

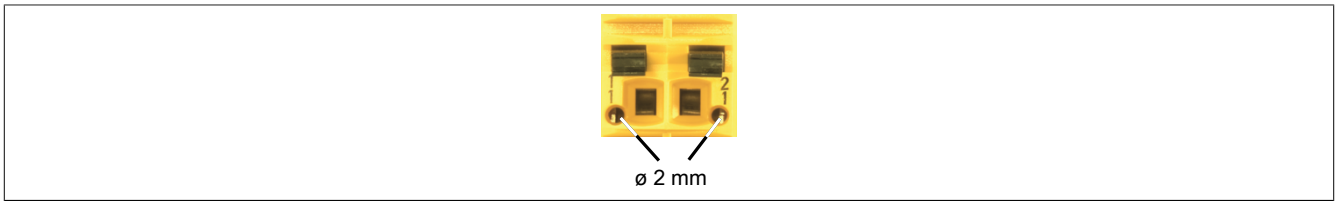


Figure 2: X20TB52 and X20TB72 - Access for test probes

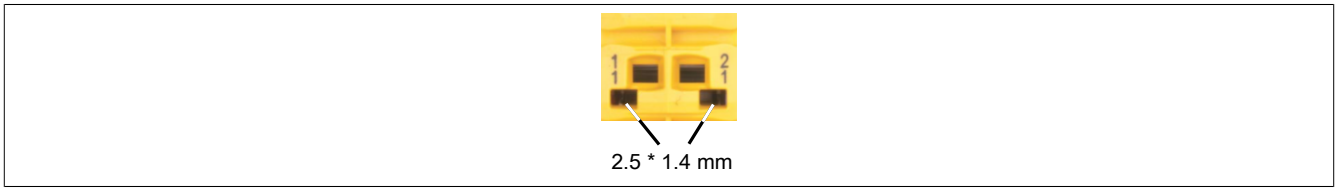


Figure 3: X20TB5E and X20TB5F - Access for test probes

# 7 Version history

| Version | Date | Comment |
|---|---|---|
| 1.142 | May 2019 | • Chapter 3 "Technical data": X20TB52: Updated voltage. |
| 1.141 | April 2019 | • Editorial changes. |
| 1.140 | February 2019 | • Chapter 2 "Order data": Added information.<br>• Chapter 3 "Technical data": Added warning notice.<br>• Added the following chapters:<br>– 1 "General information"<br>– 4 "Wiring"<br>– 5 "Cable holding force of contacts"<br>– 6 "Access for test probes"<br>– 8 "EC declaration of conformity"<br>• Updated standards.<br>• Editorial changes. |
| 1.100 | February 2016 | Chapter 3 "Technical data":<br>– Added environmental conditions.<br>– Updated technical data. |
| 1.80 | August 2014 | Updated chapter 3 "Technical data". |
| 1.51 | January 2013 | Chapter 3 "Technical data": Added information. |
| 1.50 | March 2012 | Terminal blocks X20TB72, X20TB5E and X20TB5F included |
| 1.00 | February 2012 | First edition as a product-specific manual |

Table 3: Version history

# 8 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 are to be interpreted as translations of the original documentation.

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The place of jurisdiction, in accordance with article 17 of the European Convention on Courts of Jurisdiction and Enforcement, is A-4910

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.