D2346-2

Mounting instruction for overvoltage protection board BSI004

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Review list

Vers.	Date	Prepared by	Sections modified	Reason
1	2006-10-12	Berer	all	New version
1.2	2006-11-29	Berer	all	Addition of SAV and notes from IPW
2	2011-01-18	Ch. Huber	Chapter 1.4, Chapter 5 (SAV 5, 6), Bibliography, Chapter 4	Add-on's

Bibliography

[]	Designation		Issue
[1]	**EN 60715**	Dimensions of low potential voltage switching devices – standardised mounting rails for the mechanical fastening of electrical devices in switching devices.	September 2001
[2]	**EN 60721-3-1**	Classification of environmental conditions / long-term storage	March 1997
[3]	**EN 60721-3-2**	Classification of environmental conditions / transportation	March 1997
[4]	**EN 60721-3-3**	Classification of environmental conditions / stationary installation, weatherproof	January 1995

Masthead

1. Important information

The document describes mounting of overvoltage protection board BSI004.

1.1 Safety instructions

The document contains important warnings and safety instructions to be complied with by the user. Only compliance with these conditions and safety instructions will ensure proper operation.

1.2 Intended use

The product is intended for a specific use described in detail in the document. If applied outside the intended use described or in case of non-compliance with compulsory requirements and safety measures no warranty and/or liability shall apply.

1.2.1 Safety-relevant conditions SAB

Safety-relevant conditions have to be observed by the operator and/or the downstreamed installation in all phases of life cycle after development. Thus a failsafe and error-free operation can be guaranteed. A listing of all safety-relevant conditions can be found in chapter 5 „Summary of safety-relevant conditions SAB“.

1.3 About this document

Target group:

This document is intended for technicians and mounting personnel.

1.3.1 Typographical conventions

Symbols and standard text formats used:

NOTE:

Symbol and text indicate errors or operating errors that may endanger human life or products and / or cause data loss.

INFORMATION:

This text indicates important user information or instructions. Failure to comply with these instructions will prevent or seriously impair the successful completion of the operations described in this document.

1.3.2 Definitions / Abbreviations

BSI	Overvoltage protection board

1.3.3 Your opinion matters

With your comments and suggestions you assist the intention to always improve the quality and practical relevance of the documentation.
Please send suggestions for improvement to:
documentation@frauscher.com
Thanks for your reply.

1.4 Product properties

Overvoltage protection board BSI004 prevents overvoltages in the sensor cables to reach the evaluation board.

Figure 1.1: Overvoltage protection board BSI004

Overvoltage protection board BSI004 may only used for evaluation boards, where power supply of sensor systems is provided by a common power source with an open circuit voltage of max. 33 V DC. This includes, for example, evaluation boards IMC, AMC and ASB. If necessary, confer with manufacturer in regard to applicabililty.

Overvoltage protection board BSI004 is maintenance-free.

Each wire (single or combined) of overvoltage protection board withstands a permanent voltage of 250 V AC to ground.

2. Measurements

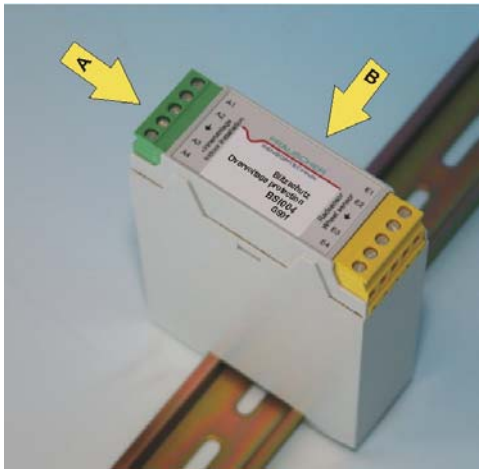

Figure 2.1: Views of overvoltage protection board BSI004

Figure 2.2: View of overvoltage protection board BSI004 from direction A

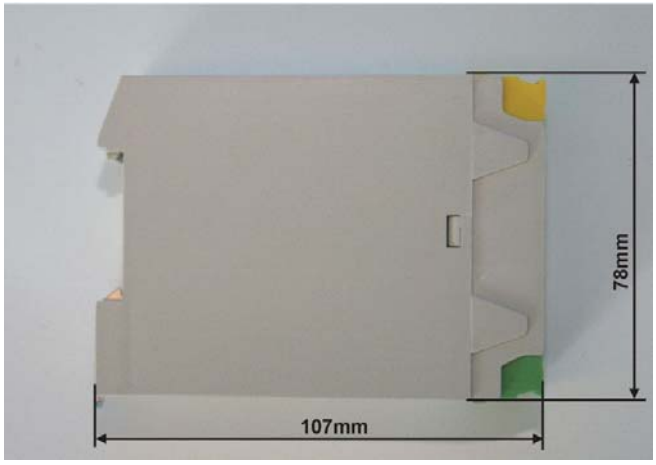

Figure 2.3: View of overvoltage protection board BSI004 from direction B

3. Mounting

Overvoltage protection board BSI004 is snapped into place on the TH35 top-hat rail [1]. The wiring of overvoltage protection board BSI004 has to be done as shown in Figure 3.2.

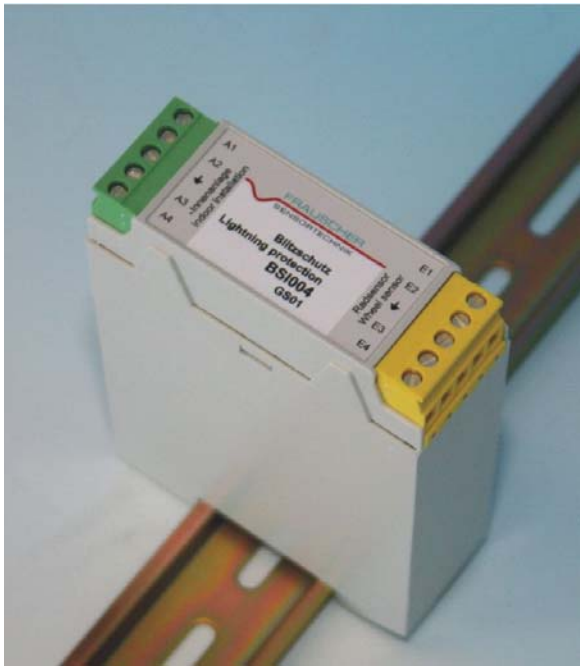

Figure 3.1: Mounting of overvoltage protection board BSI004

Upstreamed and downstreamed cables of overvoltage protection board BSI004 must be installed separately (EMC).

Overvoltage protection board BSI004 should be mounted directly after cable termination.

*) The earth terminal can be connected to the yellow or green terminal

Figure 3.2: Pin assignment of overvoltage protection board BSI004

Earthing: The earth wire (min. 6 mm^2) is to be connected to earth across the shortest possible distance (e.g. using an earthing bar).
Earth contact resistances are to be kept low.

GND does not match ⏚!

4. Admissible environmental conditions

Compliance with admissible operating conditions and environmental conditions is required.

Storage as per [2]

- Climatic environmental conditions.....1K4, without condensation and ice formation
- Biological environmental conditions.....1B1
- Chemically active substances.....1C1, no salt fog
- Mechanically active substances.....1S1
- Mechanically environmental conditions..1M3

Transportation as per [3]

- Climatic environmental conditions.....2K3, however, without rain
- Biological environmental conditions.....2B1
- Chemically active substances.....2C1, no salt fog
- Mechanically active substances.....2S1
- Mechanically environmental conditions..2M3

Operation as per [4]

Operation of equipment in building or in cabinets near to the rail (environmental temperature „Ground, Benign“ (GB) annual average of 35 °C) with no or dry, not conductive contamination.

The boards can be installed and operated at a maximum height of 2000 m above sea level. For using the board above a height of 2000 m above sea level, please consult the manufacturer.

- Climatic environmental conditions.....3K7, 3Z1 without condensation and ice formation
- Biological environmental conditions.....3B1
- Chemically active substances.....3C1, no salt fog
- Mechanically active substances.....3S1
- Mechanically environmental conditions..3M6

3K7: Temperature range between -40 °C to +70 °C, air humidity up to 100 %, condensation and ice formation.
Extensions / Restrictions of standard: without condensation and ice formation.

3Z1: Heat radiation is neglectable.

3B1: Flora: Locations, where the risk of mould or sponge growth is neglectable or where protective measures have been taken.

Fauna: Locations, where the impact of rodents or other animal pests, including termites, is neglectable or where protective measures have been taken.

3C1: Locations in rural or even more densely populated areas.

3S1: Locations, where dust is minimised by adequate measures. Not next to sandy sites.

3M6: Including locations subject to high impact and vibrations.

5. Summary of safety-relevant conditions SAB

The following regulations and conditions are mandatory.

1. The environmental conditions for operation, storage and transportation must not be exceeded (see chapter 4).

2. If there is a short circuit between wire Sys1 and Sys2 (wheel sensor) between overvoltage protection board BSI004 and evaluation board IMC there is no immediate failure detection. Wire fault or earth fault between overvoltage protection board BSI004 and evaluation board IMC must be prevented by adequate cabling. In case of using a different evaluation board than IMC this circumstance should be new assessed.

3. Please note that overvoltage protection board BSI004 circuit terminals may be under induced voltage.

4. If there's failure detection, the downstreamed installation must turn into and remain in the safe state. After the failure detection of the downstreamed installation, the faulty overvoltage protection board BSI004 has to be replaced, or the faulty overvoltage protection board BSI004 and the downstreamed installation have to be stopped. In order to avoid that a second failure occurs and combined with the first failure may lead to a dangerous state (for the system IMC-BSI004-RSR180 you have to replace the overvoltage protection board BSI004 or stop the installation within 24 hours).

5. The connection between overvoltage protection board and ground (grounding conductor) must withstand an earth leakage current of 8 kA for a short time. Therefore the connection must have an adequate cross section (min. 6 mm^2).

6. The handling of the overvoltage protection board BSI004 must comply with the guidelines of the mounting instructions. Only qualified technicians are entitled to perform mounting and commissioning operations of overvoltage protection board BSI004. There are no protective measures for protection against unauthorised access to IMC system. The operator must ensure that access to safety installations is restricted to authorised personnel or only if accompanied by authorised personnel.

7. A faulty overvoltage protection board BSI004 must be replaced. After that, the sensor currents and the track occupancy detection capability of the associated wheel sensor (according to the wheel sensor documentation) have to be checked. In case of an earth leakage (short-circuit to ground) or detection of an earth leakage during maintenance work, the earth leakage must be eliminated. Faulty overvoltage protection boards BSI004 must not be repaired arbitrarily.

8. For failure detection one failure-free traversing of counting head is required within every 2 years (for system RSR180-BSI004-IMC).

9. If an overvoltage protection board BSI004 of a safety installation is decommissioned, the user must take care with appropriate actions that the safety of the operation is maintained.