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TÜV SÜD Rail GmbH · Barthstraße 16 · D-80339 München · Germany

PROFIBUS Nutzerorganisation e.V.

Haid- und Neu Straße 7
D-76137 Karlsruhe

Your reference/letter of	Our reference/name	Phone extension/e-mail	Fax extension	Date	Page
ws	Walter Schlögl	+49 (89) 5791-3819 walter.schloegl@tuev-sued.de	-2933	February 4th, 2020	1 of 2
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Letter of Conformity

To whom it may concern:

The PROFIsafe – Profile specifies safety measures to be implemented in safety-related communication peers that allow the exchange of safety-related data on the basis of a non-safety-related communication protocol (black channel).

Main Results:

The “PROFIsafe – Profile version 2.6MU1” [1] and the Amendment “Change PROFIsafe Parameter in Run (PiR)” [4] have been evaluated by TÜV SÜD with respect to the requirements of IEC 61508-2: 2010 [5] and IEC 61784-3: 2016/AMD1:2017 [6]. No deviations or contradictions have been found during the assessment.

In addition to the requirements given in the PROFIsafe – Profile, the development of safety components has to fulfil the requirements of the applicable product- respectively application standards, (e.g. IEC 61508, parts 1-4) for the required safety level.

The PROFIsafe – Profile [1] and the related PiR Amendment [4] themselves do not place any requirements on the development of the Hardware and Software of a particular device. The PROFIsafe - Profile supplementary [2] lists the minimum requirements for environmental stress and electromagnetic stress that shall be met by the hardware of the communication partners. These requirements might need modification as required by the particular application standards to be met.

Headquarters: Munich
Trade Register Munich HRB 154539
USt-IdNr.: DE 814 205 994
Information pursuant to Section 2(1)
DL-InfoV (Germany) at
www.tuev-sued.com/imprint

Managing Director:
Dipl.-Ing. Klaus-Michael Bosch
Hypovereinsbank Munich
Acc. No. 667566061
Bank sort code 700 202 70
IBAN: DE 067 002027 00667 566061
SWIFT: HYVEDEMM

Phone: +49 (89) 5791-1473
Fax: +49 (89) 5791-2933
www.tuev-sued.de/rail
TÜV[®]

TÜV SÜD Rail GmbH
Barthstraße 16
D-80339 München
Germany

The calculation of residual errors is documented in [3]. PROFIsafe communication consumes less than 1% of the maximum PFH, respectively PFD_{avg} , for SIL3 in accordance to IEC 61508:2010 of the overall safety function, see [1], chapter 9.5.2. The probabilistic requirements in PROFIsafe version 2.6MU1 have not changed, so the calculations documented in [3] are still valid.

For use in wireless communication, additional requirements related to Security are defined in the PROFIsafe – Profile, see [1], chapter 9.8.

References:

- [1] PI Specification "PROFIsafe – Profile for Safety Technology on PROFIBUS and PROFINET", V2.6MU1, August 2018
- [2] PROFIsafe – Environmental Requirements related to PROFIsafe – Profile for Safety Technology on PROFIBUS DP and PROFINET IO (IEC 61784-3-3)
- [3] Residual Error Considerations Related to PROFIsafe V2.6.1
- [4] Amendment Change PROFIsafe Parameter in Run (PiR), V 1.0, December 2019
- [5] IEC 61508-2: 2010 ("Functional Safety of Electrical / Electronic / Programmable Electronic Systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems")
- [6] IEC 61784-3: 2016/AMD1:2017 ("Industrial communication networks – Profiles - Part 3: Functional safety fieldbuses – General rules and profile definitions")
- [7] EVALUATION REPORT PROFIsafe – Profile for Safety Technology on PROFIBUS DP and PROFINET IO, Revision 2.3, 2020-02-03, TÜV SÜD Rail GmbH

Munich, February 4th, 2020

Kind regards

Guido Neumann
Technical Certifier

Walter Schlögl
Project Manager