

**Test report on the type approved  
1791DS Series DeviceNet  
regarding recalculation of PFD<sub>AV</sub> / PFH**

**Report-No.:** 968/EZ 190.04/09

**Date:** 2009-11-12

**Pages:** 3

**Test objects:** 1791DS Series DeviceNet  
1791DS-IB12, 1791DS-IB8XOB8, 1791DS-IB4XOW4

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**Manufacturer:** OMRON TAKEO Co., Ltd.  
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**Order-No./Date:** 5500002727 dated 2009-10-28  
email dated on 2009-09-30

**Test Institute:** TÜV Rheinland Industrie Service GmbH  
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**TÜV-Offer-No./Date:** 968/399/09 dated 2009-09-30

**TÜV-Order-No./Date:** 10298577 dated 2009-11-02

**Inspectors:** Dipl.-Ing. Gernot Klaes

**Test location:** see Test Institute

The test results are exclusively related to the test samples.

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## 1. Scope

In this report the review results of the recalculated safety parameter  $PFD_{AV}$  / PFH of the type approved 1791DS Series DeviceNet (1791DS-IB12, 1791DS-IB8XOB8, 1791DS-IB4XOW4) shall be documented.

## 2. Standards forming the basis for the requirements

- [S1] EN ISO 13849-1:2008 Safety of machinery - Safety related parts of control systems Part 1: General principles for design
- [S2] EN ISO 13849-2:2008 Safety of machinery - Safety related parts of control systems Part 2: Validation
- [S3] IEC 62061:2005 Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems
- [S4] IEC 61508 part 1-7: 12/98 - 05/00 Functional safety of electrical/electronic/programmable electronic safety-related systems
- [S5] EN 954-1:1996 Safety of machinery, Safety related parts of control systems Part 1: General principles of design  
  
(ISO 13849-1:1999 Safety of machinery - Safety related parts of control systems Part 1: General principles for design)
- [S6] IEC 61131-2:2007 Programmable Controllers
- [S7] EN 60204-1:2006 Safety of machinery - Electrical equipment of machines
- [S8] EN 61000-6-2:2005 Generic Standards; Immunity for industrial environments
- [S9] EN 61000-6-4:2007 Generic standards; Emission standard for industrial environments
- [S10] EN ISO 13850:2008 Safety of machinery - Emergency stop - Principles for design (EN 418:1992 Safety of machinery; Emergency stop equipment, functional aspects)
- [S11] NFPA 79:2007 Electrical Standard for Industrial Machinery
- [S12] ANSI/RIA R15.06-1999 American National Standard for Industrial Robots and Robot Systems - Safety Requirements
- [S13] ANSI B11.19-2003 American National Standard for Machine Tools - Performance Criteria for Safeguarding

## 3 Identification of the device under test

No test sample was required.

### 3.1 Previous test report

- [T1] 968/EZ 190.00/05, Test report on the type approval of 1791DS Series DeviceNet Safety I/O Modules 1791DS-IB12 and 1791DS-IB8XOB8, dated 2005-01-28
- [T2] 968/EZ 190.01/05, Test report on the type approval of 1791DS Series DeviceNet Safety I/O Modules 1791DS-IB12, 1791DS-IB8XOB8 and 1791DS-IB4XOW4 dated 2005-08-02
- [T3] 968/EZ 190.02/05, Acknowledgment and statement to product change, dated 2005-11-30
- [T4] 968/EZ 190.03/09, Statement for Issuing a Co-Certificate, dated 2009-03-04

#### 4 Safety related parameters PFD<sub>AV</sub> / PFH

The client has recalculated the safety related parameters based on a proof-test-Interval (PTI) of 20 years.

The PFD<sub>AV</sub> and PFH results are summarized in the following table:

Model	PFH 20 years PTI	PFD <sub>AV</sub> 20 years PTI
1791DS-IB12	$6,8 \times 10^{-11} \text{ h}^{-1}$	$6 \times 10^{-6}$
1791DS-IB8XOB8	$6,8 \times 10^{-11} \text{ h}^{-1}$	$6 \times 10^{-6}$
1791DS-IB4XOW4	$4,1 \times 10^{-9} \text{ h}^{-1}$	$7,7 \times 10^{-4}$

As the results of the review, the calculations carried out by the client are accepted by the Test Institute. They supplement the values defined in the previous test report.

#### 5 Summary

The results of the type approval stated in the Report-No.: 968/EZ 190.03/09 are still valid. The 1791DS Series DeviceNet complies with the requirements of the relevant standards (Cat. 4/ PL e acc. to EN ISO 13849-1, SIL CL 3 acc. to IEC 62061, IEC 61508) and can be used in applications up to Cat. 4/PL e acc. to EN ISO 13849-1 and SIL 3 acc. to IEC 62061, IEC 61508.

The instructions of the associated Installation and Operating Manual shall be considered.

Since only the safety related parameters PFD<sub>AV</sub> and PFH are recalculated, a reissuing of the certificate and its licence certificate is not necessary.

Cologne, 2009-11-12  
TIS/ASI/Kst. 968 kg-nie

Report released after review:  
Date: 2009-11-12

The inspector



Dipl.-Ing. Gernot Klaes



Dipl.-Ing. Stephan Häb

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According to the test results documented in this report and the shown conformity to the relevant and applied standards respectively to their protection goals it is confirmed, that the certificate with the no. 968/EZ 190.03/09 dated 2009-03-04 remains further valid.

Köln, 2009-11-12  
TIS/ASI/Kst. 968 hä-nie

Certification body



Dipl.-Ing. Stephan Häb