

2011-10-14

Automation, Software and Information Technology

**Report of the approval of different changes of
Safety Manager R145.1**

Report-No.: 968/EZ 195.17/11

Date: 2011-10-14

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Pages: 9

Test object: Safety Manager R145.1

Customer/Manufacturer: Honeywell Safety Management Systems
Rietveldenweg 32A
5222 AR's-Hertogenbosch
The Netherlands

Order-No./Date: Reference number: 4401199695 dated 2011-04-19

Test Institute: TÜV Rheinland Industrie Service GmbH
Automation, Software and Information Technology
Competence Center Safeguards and Safety Components
Am Grauen Stein
51105 Köln
Germany

TÜV Offer-No.: Maintenance Contract

TÜV-Order-No./Date: 10628536 dated 2011-04-27

Inspectors: Dipl.-Ing. Andreas Hesse

Test location: see Test Institute and manufacturer

Test duration: August 2011

The test results are exclusively related to the test samples.

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1. Scope

In the following report the results of the approval of the changes to the Safety-Manager are presented.

The report is based on the previous reports listed in chapter 3.4.

It is described, which tests were performed, who performed them and which results were obtained.

2. Standards forming the basis for the requirements

Functional safety

- [S1] IEC 61508, parts 1 - 7:2010
Functional safety of electrical/electronic/programmable electronic safety-related systems

Application specific

- [S2] EN 50156-1:2004
Electrical Equipment for Furnaces
- [S3] IEC 61511-1:2004
Safety Instrumented Systems for the process industry sector
- [S4] NFPA 72:2010
National Fire Alarm Code Handbook
- [S5] NFPA 85:2011
Boiler and Combustion Systems Hazards Code
- [S6] NFPA 86:2011
Standard for Ovens and Furnaces
- [S7] EN 54-2:1997 / A1: 2006
Fire Detection and Fire Alarm Systems Control and indicating equipment
- [S8] EN 54-4/A2:2006
Fire Detection and Fire Alarm Systems
- [S9] EN 298:2003
Automatic gas burner control systems for gas burners and gas burning appliances with or without fans
- [S10] IEC 62061:2005 / Corrigendum 1:2005 / Corrigendum 2:2008
Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems
- [S11] EN ISO 13849-1:2008 + AC:2009
Safety of machinery - Safety-related parts of control systems -
Part 1: General principles for design
- [S12] EN 954-1/1996 Safety of machinery, Safety related parts of control systems
Part 1: General principles of design

Electrical safety and resistance against environmental conditions

- [S13] IEC 61131-2:2007
Programmable Controllers

- [S14] IEC 61326-3-1:2008
 Electrical equipment for measurement, control and laboratory use - EMC requirements
 Part 3-1: Immunity requirements for safety-related systems and for equipment intended
 to perform safety-related functions (functional safety) - General industrial applications
- [S15] IEC 61010-1:2010
 Safety requirements for electrical equipment for measurement, control and laboratory use

Climate

- [S13] IEC 61131-2:2007 Programmable Controllers
- | | | |
|----------------|-------------------------------|----------------------|
| IEC 60068-2-1 | Test Ab and Ad: Cold | (part of EN 61131-2) |
| IEC 60068-2-2 | Test Bb and Bd: Dry heat | (part of EN 61131-2) |
| IEC 60068-2-14 | Test N: Change of temperature | (part of EN 61131-2) |
| IEC 60068-2-30 | Test Db: Damp heat, cyclic | (part of EN 61131-2) |
| IEC 60068-2-32 | Test Ed. Free fall | (part of EN 61131-2) |

Shock/Vibration

- [S13] IEC 61131-2:2007 Programmable Controllers
- | | | |
|----------------|--------------------|----------------------|
| IEC 60068-2-6 | Test Fc: Vibration | (part of EN 61131-2) |
| IEC 60068-2-27 | Test Ea: Shock | (part of EN 61131-2) |

EMC/EMI

- [S13] IEC 61131-2:2007 Programmable Controllers
- | | |
|-------------------------|----------------------|
| EN 55011 | (part of EN 61131-2) |
| IEC 61000-4-2, ESD | (part of EN 61131-2) |
| EN 61000-4-3, RFI | (part of EN 61131-2) |
| EN 61000-4-4, Burst | (part of EN 61131-2) |
| EN 61000-4-5, Surge | (part of EN 61131-2) |
| EN 61000-4-6, cond. RFI | (part of EN 61131-2) |
| EN 61000-4-8, Magnetic | (part of EN 61131-2) |

3. Identification of the test object

3.1 History and test objects

The initial certification and changes were documented in the test reports listed in chapter 3.4.

After that some changes have been carried out to improve the systems behaviour.

3.2 Product and test documents

The documentation has been provided to the Test Institute electronically.

For each change a PAR (Product Anomaly Report) has been carried out.

The documents are stored at the Test Institute.

3.3 Test samples

No test samples were required.

3.4 Previous test reports

- [T1] Report of the type approval of Safety Manager
Report-No.: 968/EZ 195.00/05, Date: 2005-03-04
- [T2] Report of the approval of different changes of Safety Manager
Report-No.: 968/EZ 195.01/05, Date: 2005-07-15
- [T3] Report of the approval of different changes of Safety Manager
Report-No.: 968/EZ 195.02/05, Date: 2005-10-04
- [T4] Report of the approval of SafeNet and different changes of Safety Manager
Report-No.: 968/EZ 195.03/06, Date: 2006-08-04
- [T5] Report of different changes of Safety Manager V110.5
Report-No.: 968/EZ 195.04/06, Date: 2006-11-27
- [T6] Report of different changes of Safety Manager V110.6
Report-No.: 968/EZ 195.05/07, Date: 2007-05-14
- [T7] Report of the approval of different changes of Safety Manager R120.3/R120.4
Report-No.: 968/EZ 195.06/07, Date: 2007-10-11
- [T8] Report of the approval of different changes of Safety Manager R131.1
Report-No.: 968/EZ 195.07/08, Date: 2008-04-14
- [T9] Report about the type approval of the Universal-Remote-I/O Module
Report-No.: 968/EZ 195.08/09, Date: 2009-02-06
- [T10] Report of the approval of different changes of Safety Manager R131.3 and 131.5
Report-No.:968/EZ 195.09/09 dated 2009-06-18
- [T11] Report of the approval of different changes of Safety Manager R131.7
Report-No.: 968/EZ 195.10/10 dated 2010-05-18
- [T12] Report of the approval of different changes of Safety Manager R132.1
Report-No.: 968/EZ 195.11/10 dated 2010-11-30
- [T13] Test report on the type approval of the Safety Device Safety Manager R 140.2
Report-No.:968/EZ 195.12/10 dated 2010-12-20
- [T14] Test report on the type approval of the Safety Device Safety Manager R140.3
Report No. 968/EZ 195.13/11 dated 2011-05-04
- [T15] Report of the approval of different changes of Safety Manager R133.1
Report-No.:968/EZ 195.14/11 dated 2011-05-11
- [T16] Report of the approval of different changes of Safety Manager R133.2
Report-No.:968/EZ 195.15/11 dated 2011-06-14
- [T17] Report of the approval of different changes of Safety Manager R133.3
Report-No.: 968/EZ 195.16/11 dated 2011-09-20

4. Tests and test results

4.1 General

The measuring and test equipment, which has been used by the TÜV Rheinland Group in the tests described in the following, is subject to regular inspection and calibration. Only devices with valid calibration have been used. The devices used in the various tests are recorded in the inspector's documentation.

All considerations concerning uncertainty of the measurements, so far applicable, are stated in the inspector's documentation, too.

In cases where tests have been executed in an external test lab or in the test lab of the manufacturer and where the results of these tests have been used within the here documented approval, this has occurred after a positive assessment of the external test lab and the achieved test results in detail according to the Quality Management procedure QMA 3.310.05.

4.2 Documentation of the changes

Each change has been documented in a PAR (Product Anomaly Report). The report contains information about:

- Reason of change
- Impact analysis
- Test result (if required)

All tests were carried out at the manufacturer's site.

In detail the following PAR's have been reviewed:

No.	PAR No.	Date	Rev.
1	PAR3389	15. Jul 11	1.0028
2	PAR3684	26. Apr 11	1.0032
3	PAR4173	16. Nov 10	1.0019
4	PAR4245	01. Okt 11	1.0021
5	PAR4388	26. Apr 11	1.0050
6	PAR4401	13. Sep 11	1.0066
7	PAR4571	29. Mrz 11	1.0032
8	PAR4591	28. Jun 11	1.0046
9	PAR4592	27. Jun 11	1.0016
10	PAR4647	29. Mrz 11	1.0020
11	PAR4676	23. Jun 11	1.0014
12	PAR4685	28. Jun 11	1.0020
13	PAR4686	23. Jun 11	1.0012
14	PAR4721	27. Jun 11	1.0015
15	PAR4732	20. Jul 11	1.0009
16	PAR4766	20. Jul 11	1.0016
17	PAR4792	24. Mai 11	1.0016
18	PAR4798	30. Jun 11	1.0031
19	PAR4802	25. Mai 11	1.0015
20	PAR4807	30. Jun 11	1.0021
21	PAR4825	06. Jul 11	1.0027
22	PAR4841	06. Jul 11	1.0025
23	PAR4847	07. Jul 11	1.0022
24	PAR4850	28. Jun 11	1.0015
25	PAR4851	12. Jul 11	1.0023
26	PAR4856	05. Jul 11	1.0013
27	PAR4857	26. Jul 11	1.0018
28	PAR4859	02. Aug 11	1.0022
29	PAR4860	02. Aug 11	1.0008
30	PAR4861	23. Aug 11	1.0016

Result:

The documents contain the necessary information to understand the reason for change.

The way of documentation fulfils the requirements of IEC 61508.

4.3 Assessment of the changes

There were some items, which may affect the functional safety.

All items were solved either by changing the software. All items were retested, as far as required.

The results are accepted by the Test Institute.

The examination was finished with a positive result.

4.4 Inspection and review of the reports on the environmental tests

The changes were related to firmware only. Therefore, additional environmental tests were not necessary.

Result:

The previous results remain valid.

4.5 Test of the electrical safety

The changes did not have an influence on the electrical safety.

Result:

The previous results remain valid.

4.6 Application standards

The results presented in report [T1] were not affected by the changes.

Thus the results are further valid.

5. Summary

During the evaluation of the changes for the Safety Manager R145.1 no infringement of the functional and safety-related requirements in the applied standards could be found.

The product further complies with the requirements of the relevant standards. Specifically the requirements for SIL3 according to IEC 61508, Cat. 4 / PL e acc. to EN ISO 13849-1, SIL CL 3 acc. to IEC 62061 are fulfilled. The product 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 additional requirements as listed in [T14] must be considered.

Cologne, 2011-10-14
TIS/ASI/Kst. 968 he-nie

Report released after review:
Date: 2011-10-14

The inspector



Dipl.-Ing. (FH) Andreas Hesse



Dipl.-Ing. Gernot Klaes

Statement of the certification body:

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 195.13/11 dated 2011-05-04 remains further valid.

The associated "Revisions List" is updated correspondingly.

Cologne, 2011-10-14
Certification body



Dipl.-Ing. Stephan Häb