

2006-09-25



TÜV Rheinland Group

Automation, Software and Information Technology

**Test report on the type approval of
SmartGuard 600 Controller
1752-L24BBB**

**Report-No.: 968/EZ 238.00/06
Date: 2006-09-25**

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Pages: 6

Test object: SmartGuard 600 Controller
1752-L24BBB

Client: Rockwell Automation Inc.
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USA-Mayfield Heights, OH 44124-6118
United States of America

Manufacturer: OMRON TAKEO Co., Ltd.
11000 Koaza-Kobaru
Ohaza-Nakano, Asahi-cho
J-843-0002 Takeo-shi, Saga-ken
Japan

Order-No./Date: G770287 dated 2006-09-01

Test Institute: TÜV Rheinland Industrie Service GmbH
Automation, Software und Informationstechnologie (ASI)
Am Grauen Stein
D-51105 Köln

TÜV-Offer-No./Date: 968/65/06 dated 2006-03-15

TÜV-Order-No./Date: 9582692 dated 2006-09-01

Inspector: Dipl.-Ing. Andreas Hesse

Test location: see Test Institute

Test duration: August 2006 to September 2006

The test results exclusively relate to the test objects.

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1 **Scope**

Test object of the type approval is the SmartGuard 600 Controller 1752-L24BBB of Rockwell Automation Inc., which is based on the type approved Safety Network Controller (SNC) of OMRON Corporation.

Aim of this type approval is to find out that the SmartGuard 600 Controller confirms to the standards listed below.

2 **Standards**

- [S1] IEC 61508, parts 1 - 7:2000 Functional safety of electrical/electronic/programmable electronic safety-related systems
- [S2] EN 954-1:1996 Safety of machinery, Safety related parts of control systems, Part 1: General principles of design
- [S3] IEC 61131-2:2003 Programmable Controllers
- [S4] EN 60204-1:2006 Safety of machinery; Electrical equipment of machines
- [S5] EN 50178:1997 Electronic equipment for use in power installations
- [S6] EN 61000-6-2:2005 Generic Standards; Immunity for industrial environments
- [S7] EN 61000-6-4:2001 Generic standards; Emission standard for industrial environments
- [S8] ANSI B11.19:2003 American National Standard for Machine Tools - Performance Criteria for Safeguarding
- [S9] ANSI/RIA R15.06:1999 American National Standard for Industrial Robots and Robot Systems - Safety Requirements
- [S10] NFPA 79:2002 Electrical Standard for Industrial Machinery

3 **Test object**

The SmartGuard 600 Controller 1752-L24BBB of Rockwell Automation Inc. is a modified type of the Safety Network Controller (SNC) NE1A- of OMRON Corporation. For this type a valid type approval and certification has been performed [P1 to P2].

Therefore, only the changes related to the product have to be inspected and judged.

3.1 **Documents of the manufacturer**

Due to the fact that the Safety Network Controller (SNC) NE1A-SCPU01 of OMRON Corporation was type approved by the Test Institute, the complete documentation from the manufacturer is available.

3.2 **User documentation**

The user documentation, consisting of installation instruction sheet and user manual, were changed from the original documents. These changes include a reformatting, new preface, catalogue numbers, changed references to configuration software and a cross reference table.

Furthermore the following documents are available to the Test Institute:

- [D1] Installation instruction sheet, 1752DS-IN001A-EN-P, August 2006
- [D2] Safety Reference Manual, SmartGuard 600 Controllers - 1752-L24BBB Publication 1752-RM001A-EN-P - Preliminary 2006
- [D3] Cross reference for the type designation and declaration for Issuing a Co-License from OMRON Corporation, 2006-07-26
- [D4] Cross reference for the type designation and declaration for Issuing a Co-License from Rockwell Automation, 2006-08-23
- [D5] Type plate printout of the SmartGuard 600 Controller 1752-L24BBB
- [D6] DeviceNet Safety Composite, 1752-L24BBB, ODVA File Number 10385 Composite Test Revision S2, 31 July 2006

3.3 Test Institute documentation

- [P1] Certificate no.: 968/EZ 233.00/06 dated 2006-07-13, (OMRON type: NE1A-SCPU01-V1)
- [P2] Test report no.: 968/EZ 233.00/06 dated 2006-07-13, (OMRON type: NE1A-SCPU01-V1)

4 Implementation and results of the type approval

4.1 Product modifications

In the documents [D3], [D4] by OMRON corporation and Rockwell Automation is declared, that the devices delivered by OMRON Corporation are not technically modified in any manner. The same applies to the instruction manual and the technical data except the items which are mentioned in chapter 4.2. Some email correspondence by Rockwell confirms this.

4.2 Verification of the documentation

Related to the SmartGuard 600 Controller 1752-L24BBB the following modifications have been carried out:

- The user and installation instruction sheet documentation and the type plate have been modified according to the interests of Rockwell Automation Inc.
- The logic editor has been put into Rockwell Software as a plugin.

4.3 Testing electrical safety

Due to the fact that the circuit and the PCB are not modified, additional tests concerning the electrical safety were not necessary.

4.4 DeviceNet Safety Confirmation

A "Declaration of Conformity to the CIP Safety Specification", performed at the ODVA labs, was presented to the Test Institute by Rockwell [D6].

4.5 Other tests

A lot of tests have been carried out at the test-institute similar to those, that have been done during the certification of the Safety Network Controller (SNC) NE1A- of OMRON Corporation. Within these tests three main aspects have been considered and analyzed:

- implementation of the logic editor within the Rockwell RSNetwork software
- functionality of the SmartGuard 600 Controller compared with the SNC
- cooperation with other Device-Net-modules

The tests showed, that the configuration and parameterisation of different devices could be done accordingly with the RSNetwork software and the functionality of the SmartGuard 600 Controller was unchanged compared with the Omron SNC. The cooperation with other Device-Net modules (e.g. 1791 DS-IB12) was correctly executed.

5 Summary

The performed tests and reviews have shown that the SmartGuard 600 Controller 1752-L24BBB is suitable for applications up to Cat. 4 according to EN 954-1 and up to SIL 3 according to IEC 61508.

Conditions and prerequisites are described in the installation instruction sheet and in the user manual.

Cologne, 2006-09-25
TIS/ASI/Kst. 968 he-la

The inspector

A handwritten signature in blue ink that reads 'Andreas Hesse'.

Dipl.-Ing. Andreas Hesse