

Test Report

No. 05 / 5040-1-1a

E4S-Box V1.0

S/N: 8

The results refer only to the tested equipment. Without written permission of the test laboratory it is not allowed to publish parts of this test report.

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Electrical safety requirements

Customer: Stollmann Entwicklungs- + Vertriebs GmbH
Mendelssohnstraße 15
D-22761 Hamburg

Equipment under test: E4S-Box V1.0, SN: 8

Date of receipt: March 16, 2005

Date of test: March 16, 2005

Test site: EMV Services GmbH & Co. KG
Harburger Schloßstr. 6-12
D-21079 Hamburg

Test personnel: Dipl.-Ing. H. Meisel
Tel. 040/766293432 **Fax** 040/76629506 **Email** meisel@emv-services.de

Applied standards:

EN 60 950-1 (2001): Safety of information technology equipment

The test results only apply to the Equipment under test.

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Equipment under test and operating conditions

Nominal voltage: 12 V_{DC} (SELV)

Description: The ES4 Box consists of 4 identical ISDN BRI S0 interfaces (TNV1),
1 Ethernet 100BaseT interface, 1 RS232 control port for service and a 12V DC power supply.

The EUT was adapted to a mains adaptor as follows:
(not tested by EMV-Services)
Touch Electronic Co., Ltd.
Model: SA06L1113-V
input: 100 - 240 V_{AC}
output: 12 V_{DC}, 15 W
LPS (limited power source)
Tested by TÜV Rheinland,
Certificate No. TA 50013689 02

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Results

Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Principles of safety	0				No Test
General	1				
Scope	1.1				No Test
Definitions	1.2				No Test
General requirements	1.3				No Test
General conditions for tests	1.4				No Test
Components	1.5				Not tested
Power interface	1.6			X	Power supply not tested
Marking and instructions	1.7				
Power Marking	1.7.1				No type plate on EUT
Safety instructions	1.7.2			X	
Short duty cycles	1.7.3			X	
Marking for voltage / frequency settings	1.7.4			X	
Marking at power outlets	1.7.5			X	
Marking at fuseholders	1.7.6			X	
Terminals	1.7.7			X	DC-phone jack
Switches and controls	1.7.8			X	
Isolation of multiple power sources	1.7.9			X	
Test in accordance with EN 60 950-1		Result			

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Theme	Chapter	comply	not comply	not applicable	Remarks
Instructions for installation to IT power systems	1.7.10				Not tested
Indication at thermostats and regulating devices	1.7.11			X	
Language	1.7.12				Operating instructions not tested
Durability	1.7.13	X			
Removable parts	1.7.14			X	
Replaceable batteries	1.7.15			X	
Operator access with a tool	1.7.16			X	
Equipment for restricted access locations	1.7.17			X	

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Protection from hazards	2				
Protection from electric shock and energy hazards	2.1			X	
Protection against operator contact	2.1.1			X	
Protection in service access areas	2.1.2			X	
Protection in restricted access locations	2.1.3			X	
SELV circuits	2.2				Power supply not tested
General requirements	2.2.1	X			
Voltage under normal operating conditions	2.2.2	X			
Voltage after single fault conditions	2.2.3	X			Power supply: SELV method 3
Connection of SELV circuits to other circuits	2.2.4			X	
TNV circuits	2.3	X			
Limited current circuits	2.4			X	
Limited power sources	2.5	X			
Provisions for earthing and bonding	2.6				Power supply not tested
Overcurrent and earth fault protection in primary circuits	2.7				Power supply not tested
Basic requirements	2.7.1				
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Theme	Chapter	comply	not comply	not applicable	Remarks
Not used	2.7.2				
Short circuit backup protection	2.7.3				
Number and location of protective devices	2.7.4				
Protection by several devices	2.7.5				
Warning to service personal	2.7.6				
Safety interlocks	2.8			X	
Electrical insulation	2.9				
Insulation parameters	2.9.1	X			
Humidity treatment	2.9.2				Not tested
Categories of insulation	2.9.3	X			
Clearances, creepage distances and distances through insulation	2.10				
General	2.10.1	X			
Nominal voltage	2.10.2	X			
Clearances	2.10.3	X			
Creepage distances	2.10.4	X			
Solid insulation	2.10.5	X			
Distances on coated printed boards	2.10.6			X	
Enclosed and sealed parts	2.10.7			X	
Spacings filled by insulating compound	2.10.8			X	

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Component external terminations	2.10.9			X	
Insulation with varying dimensions	2.10.10				Not tested
Wiring, connections and supply	3				
General	3.1			X	
Current rating and overcurrent protection	3.1.1				
Wireways	3.1.2				
Fixing of internal wiring	3.1.3				
Insulating of the conductors	3.1.4				
Fixing of beads and similar ceramic insulators	3.1.5				
Required electrical contact pressure	3.1.6				
Non-metallic materials in electrical connections	3.1.7				
Self-tapping screws	3.1.8				
Fixed conductors	3.1.9				
Insulating tubes	3.1.10				
Connection to a.c. / d.c. primary power	3.2	X			
Type of connection	3.2.1	X			

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Design of product with more than one supply connection	3.2.2			X	
Provision of permanent connection	3.2.3			X	
Connectors	3.2.4			X	
Type and cross-sectional area of power supply cord	3.2.5			X	
Cord anchorage	3.2.6			X	
Protection of power supply cord	3.2.7			X	
Cord guard	3.2.8			X	
Supply wiring space	3.2.9			X	
Wiring terminals for connection of external conductors	3.3			X	
Terminals	3.3.1				
Special non-detachable cord	3.3.2				
Screws and nuts	3.3.3				
Nominal thread diameters	3.3.4				
Size of terminals	3.3.5				
Condition of connectors	3.3.6				
Terminal location	3.3.7				
Test with 8 mm stranded wire	3.3.8				
Disconnection from the a.c. mains supply	3.4			X	
General requirements	3.4.1				

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Type of disconnect device	3.4.2				
Disconnect device in permanently connected equipment	3.4.3				
Parts of disconnect device which remain energized	3.4.4				
Switches in flexible cords	3.4.5				
Disconnection of both poles simultaneously for single-phase equipment	3.4.6				
Disconnection of all phase conductors of supply in three-phase equipment	3.4.7				
Marking of switch acting as disconnect device	3.4.8				
Installation instructions if plug on power supply cord acts as disconnect device	3.4.9				
Interconnected equipment	3.4.10				
Multiple power sources	3.4.11				
Interconnection of equipment	3.5				
General requirement	3.5.1	X			
Type of interconnection circuits	3.5.2	X			SELV + TNV1
ELV circuits as interconnection circuits	3.5.3			X	

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Physical requirements	4				
Stability	4.1			X	
Mechanical strength	4.2				Not tested
Design and construction	4.3				
Edges and corners	4.3.1	X			
Knobs, grips, handles levers	4.3.2			X	
Adjusting device	4.3.3			X	
Protection of loosening parts	4.3.4	X			
Interchangeable plugs and sockets	4.3.5	X			
Torque test for direct plug-in equipment	4.3.6			X	
Protection of heating elements in Class I equipment	4.3.7			X	
Batteries	4.3.8			X	
Resistance to oil and grease	4.3.9			X	
Prevention of dangerous concentration of dust, powder, liquid and gas	4.3.10			X	
Protection against excessive pressure	4.3.11			X	
Flammable liquids	4.3.12			X	
Radiation	4.3.13			X	
Protection against hazardous moving parts	4.4			X	

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Thermal requirements	4.5				
Maximal temperatures	4.5.1	X			
Maximal allowed temperatures	4.5.2	X			
Openings in enclosures	4.6				Not tested
Resistance to fire	4.7				Not tested
Electrical requirements and simulated abnormal conditions	5				
Touchable current and earth leakage current	5.1				
General	5.1.1				Tests below
Equipment under test	5.1.2				No test
Test set-up	5.1.3				No test
Measuring equipment	5.1.4				No test
Test cycle	5.1.5				No test
Measurements	5.1.6	X			0,21 mA
Leakage current over 3.5 mA	5.1.7			X	
Leakage current to TK networks	5.1.8	X			$\Sigma < 0,25 \text{ mA}$
Electric strength	5.2			X	
General	5.2.1				
Test procedure	5.2.2				
Abnormal operating and fault conditions	5.3				
General	5.3.1				LPS power supply

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Theme	Chapter	comply	not comply	not applicable	Remarks
Motors	5.3.2			X	
Transformers	5.3.3			X	
Compliance of operational insulation	5.3.4	X			
Electromechanical components	5.3.5			X	
Test in any expected condition an foreseeable misuse	5.3.6	X			
Unattended use of equipment	5.3.7	X			
Compliance	5.3.8	X			
Connection to telecommunication networks	6				
Protection of telecommunication network service personal and users of other equipment connected to the network, from hazards in the equipment	6.1	X			ISDN↔PE: 1 kV _{AC}
Protection of equipment users from overvoltages on telecommunication networks	6.2	X			
Protection of the telecommunication wiring system from overheating	6.3			X	

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Test in accordance with EN 60 950-1		Result			
Theme	Chapter	comply	not comply	not applicable	Remarks
Connection to cable distribution network	7			X	
Protection cable distribution network service personal and users of other equipment connected to the network, from hazards in the equipment	7.1				
Protection of equipment users from overvoltages on cable distribution networks	7.2				
Insulation between primary power circuits and cable distribution networks	7.3				

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Remarks:

No remarks

Dr. E. Sauer
Lab manager

p.p. Dipl.-Ing. H. Meisel

EMV Services GmbH & Co. KG
Ein Unternehmen der TÜV Nord Gruppe
Harburger Schloßstraße 6-12
21079 Hamburg

End of the Test Report