Technical Report No. 64.100.18.01712.01

Dated 2018-08-13

Client:	Name: Guangxi Ramway Technology Co.,Ltd. Address: No.9, Xingyu Road, High-Tech Zone 54300 Wuzhou, Guangxi PEOPLE'S REPUBLIC OF CHINA Contact person: Mr. Kevin Chen
Manufacturing place:	Manufacturer's name: Same as client Address: Same as client Factory's name: Same as client. Address: Same as client
Test subject:	Product: Relays (Bistable relay) Type: DS903C, DS904C Trade mark: Ramway
Test specification:	EN 61810-1:2015, EN 62055-31:2005 Clause 7.9 and Annex C
Purpose of examination:	• ☐ inspection according to specified requirements to realize the conformity with the Produktsicherheitsgesetz –ProdSG, version Nov 08, 2011 • ☐ inspection according to specified requirements to realize the observance of the protection aims of the following EC directives: ☐ LVD directive 2014/35/EU ☐ EMC directive 2014/30/EU • Test according to the test specification
Test result:	The test results show that the presented product is in compliance with the specified requirements

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TÜV SÜD Certification and Testing (China) Co., Ltd.
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1 Description of the test subject

1.1 Function

☒ Manufacturer's specification for intended use:
(According to the user manual)
(Other manufacturer's sources of information)

☐ Manufacturer's specification for predictive misuse:
(According to the user manual)
(no restrictions provided)
(e.g. combination with other products)
(If not described sufficiently, hint in point 3.2)

1.2 Consideration of the foreseeable misuse

☐ Not applicable
☒ Covered through the applied standard
☐ Covered by the following comment
☐ Covered by attached risk analysis

1.3 Technical Data

Parameter concerns	**Specification**
Rated voltage(s) of the coil(s):	DC6V, DC9V, DC12V, DC24V
Rated power of the coil(s):	See Coil data table
Type of load:	Resistive load
Rated voltage(s) of the contacts:	250VAC
Rated current(s) of the contacts:	90A for DS903C; 120A for DS904C.
Electrical endurance/number of cycles:	10 000 cycles
Mechanical endurance/number of cycles:	1 00 000 cycles
Thermal class:	Class B
Ambient temperature range:	-40°C to +70°C
Categories of enviromental protection(RT):	RT I
Type of interruption:	☐Micro-interruption ☒micro-disconnection ☐ full-disconnection
Type of insulation between coil(s) and contacts:	☐Functional insulation ☐basic insulation ☒ reinforced insulation
Glow-wire test:	850°C
Pollution degree:	2
Rated impulse withstand voltage(s):	4kV
Operative range:	Class 1

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Release voltage/or Reset voltage:	See Coil data table
Coil(s) resistance:	See Coil data table
Number of poles:	1
Circuit diagram:	a
Kind of contacts:	Make contacts
Material of contact:	$AgSnO_2$
Electrical endurance/frequency of cycles:	1800/h
Duty factor:	25% (0.5s on, 1.5s off)
Kind of terminals:	Welding terminals
Overvoltage category:	III
Insulation material group:	IIIa
Tracking resistance/PTI:	175V
Mechanical endurance/frequency of cycles:	1800/h
Resistance to soldering heat:	N/A
Mounting position:	Any
Mounting distance:	50mm
Test procedure:	Group mounting
Parameter concerns (EN 62055-31)	**Specification**
Minimum switched current:	1.0A
Rated breaking current (Ic):	90A for DS903C; 120A for DS904C.
Rated breaking voltage (Uc):	250VAC
Utilisation category:	UC2 for DS903C; UC3 for DS904C.

Remark: For standard EN 62055-31 only clause 7.9 and annex C are considered.
Regarding to the heating test of EN 61810-1, test voltage of the coil was specified by the manufacture, The pulse width of the test voltage should be 50 ms or longer to ensure that the relay have changed to “operate” state. And then disconnect the supply of the coil. The duration of the supply of the coil should not be more than 1 minute in order not to damage the coil.

Coil data table

Type of relay	Rated voltage(s) of the coil (VDC)	Coil resistance ± 10% (Ω)		Operate/ release voltage (VDC)	Rated power of the coil (W)
		Single winding	Double winding		
DS903C	6	34	2×17	4.8	1.06

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	9	54	2×27	7.2	1.5
	12	96	2×48	8.4	1.5
	24	384	2x192	19.2	1.5
DS904C	6	13	2×12	4.8	2.77
	9	29	2×15	7.2	2.8
	12	51	2×26	8.4	2.8
	24	205	2x103	19.2	2.8

2 Order

2.1 Date of Purchase Order, Customer's Reference

2018-05-22

2.2 Receipt of Test Sample, Location

2018-05-22, TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch

2.3 Date of Testing

2018-05-22 to 2018-08-10

2.4 Location of Testing

Zhejiang Fang Yuan Electric Equipment Test Co., Ltd.
NO. 400 Guangqiong Road, JiaXing City, Zhejiang Province, China

2.5 Points of Non-compliance or Exceptions of the Test Procedure

None

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3 Test Results

3.1 Positive Test Results

- Electrical safety (Report No.: 64.100.18.01712.01 Dated:2018-08-13)

3.2 Points of non-compliance according to the test specification

None

4 Remark

4.1 Your production facility is currently on a

☒ Annual (12 month) inspection cycle,
☐ Bi-Annual (6 month) inspection cycle,

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☐ Quarterly (3 month) inspection cycle.

The Final inspection requirements for production are described in: EN 61810-1:2015. Routine tests are given in table 4 including Marking and documentation, Basic operating function and Dielectric strength

4.2 The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

4.3 When the product is placed on the market, it must be accompanied with safety instruments written in official language of the country. The instructions shall give information regarding safe operation, installation and maintenance.

5 Documentation

- CDF
- Photo documentation

6 Summary

The test specifications are met.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

Engineer: Anna Wang
Anna Wang
Project Handler

Technical Report checked:
Martin Ma
Designated Reviewer

--- End of Report ---

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